WHITE TANKS FRS #3

DESIGN REPORT VOLUME 4

WHITE TANKS FRS NO. 3 REMEDIATION PROJECT - PHASE 1

Prepared by:
URS
In cooperation with:
GEOLOGICAL CONSULTANTS INC.
EH Engineering Hydrosystems Inc

Submitted March 2005
Contract No. FCD 2003C055 PCN 470.04.30

Flood Control District of Maricopa County

NRCS Natural Resources Conservation Service

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

WHITE TANKS FRS #3

DESIGN REPORT VOLUME 4

WHITE TANKS FRS NO. 3 REMEDIATION PROJECT - PHASE 1

Prepared by:

URS

In cooperation with:

GEOLOGICAL CONSULTANTS INC.

EH Engineering & Hydrosystems Inc

"To the best of my professional knowledge, judgement, and belief, this document meets applicable NRCS standards."

NRCS Natural Resources Conservation Service

Submitted March 2005

Contract No. FCD 2003C055 PCN 470.04.30

APPENDIX E

CALCULATION PACKAGES – HYDROLOGY AND HYDRAULICS: ADWR CRITERIA

INDEX OF HYDROLOGY AND HYDRAULICS CALCULATION PACKAGES (ADWR CRITERIA)

(WHITE TANK FLOOD RETARDING STRUCTURE NO. 3 REMEDIATION DESIGN STUDY)

Index Number	Title
E-1	DETERMINATION OF ANTECEDENT RESERVOIR CONDITION (ARC) FOR RESERVOIR ROUTING BASED ON ADWR CRITERIA
E-2	RESERVOIR ROUTING OF 6-HR LOCAL AND 72-HR GENERAL PMF HYDROGRAPHS FOR INTERIM PRINCIPAL SPILLWAY CONDITION USING TR-20 MODEL (ADWR CRITERIA)
E-3	RESERVOIR ROUTING OF 6-HR LOCAL AND 72-HR GENERAL PMF HYDROGRAPHS FOR FUTURE CONDITION WITH A CLOSED PRINCIPAL SPILLWAY USING TR-20 MODEL (ADWR CRITERIA)
E-4	RESERVOIR ROUTING OF 6-HR LOCAL AND 72-HR GENERAL PMF HYDROGRAPHS FOR FUTURE CONDITION WITH AN OPEN PRINCIPAL SPILLWAY USING TR-20 MODEL (ADWR CRITERIA)

(1)

CALCULATION PACKAGE NO. E-1

URS

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County (FCDMC)

Project Name: White Tank FRS No. 3 Design

Project/Calculation Number: 23443748

Title: **DETERMINATION OF ANTECEDENT RESERVOIR CONDITION (ARC) FOR RESERVOIR ROUTING PURPOSES BASED ON ADWR CRITERIA**

Total Number of Pages (including cover sheet): _____

Total Number of Computer Runs: _____

Prepared by: Hammad Hussain Date: 07/27/04

Checked by: Todd Ringsmuth Date: 7-28-04

Description and Purpose:

See Page 2

Design Basis /Assumptions

See Page 2

Remarks/Conclusions/Results:

See Page 3.

Calculation Approved by: Todd Ringsmuth 7-28-04
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:
1	Updated Gated outlet Capacity	Todd Ringsmuth 8-17-04
2	Updated the routing results for an ARC of 1197 cfs with Zero Sedimentation	Project Manager/Date 3/4/05

DETERMINATION OF ANTECEDENT RESERVOIR CONDITION (ARC) FOR RESERVOIR ROUTING PURPOSES BASED ON ADWR CRITERIA

(WHITE TANK FLOOD RETARDING STRUCTURE (FRS) NO. 3)
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC)
23443748

PROBLEM STATEMENT

The aim of this calculation package is to determine the ANTECEDENT RESERVOIR CONDITION (ARC) to be able to route the PMF hydrographs based on ADWR's design criteria.

DESIGN BASIS/ASSUMPTIONS/REFERENCES

The ADWR design criteria are developed from "PMF Studies for Evaluation of Spillway Adequacy - General Guidelines (March, 2004)" (See Pages 47-50). The design criteria states that the ARC for PMF flood hydrographs will be determined based on routing results of 100-year 24-hour hydrograph. The ADWR criteria requires that the ARC for the reservoir routing purposes can be set at the invert of the lowest outlet if 85 percent of smaller of either 1) the reservoir volume at the spillway crest elevation or 2) the total runoff volume during the 100-year 24-hour storm can be drained within 10 days.

In order to evaluate the above criteria, first, the 100-year 24-hour hydrograph was routed with the ARC set at the invert of the lowest outlet or at elevation of 1197.0 ft (NAVD 88) with the gated outlet considered to be closed with zero infiltration. The only discharges that were allowed to be released were through the emergency spillway. The peak reservoir elevation was found to be equal to be 1209.8 ft (See Page 12).

Next step was to determine the storage of the reservoir after 10 days following the peak of a 100-year 24-hor storm:

1) ARC set a 1209.82 ft,
2) No new inflows coming into the reservoir and
3) Gated outlet of 48 inch was considered to be open.

The calculations related to development of the rating curve for an emergency spillway, estimation of the infiltration amounts and the capacity of the gated outlet are provided in separate calculation packages.

RESULTS

Based on the reservoir routing of 100-year 24-hr results, it was found that 92% of the reservoir volume could be drained by the end of 10th day by opening one 48-inch gated outlet (See Pages 36-37). Therefore, ADWR's criteria of draining at least 85% of the reservoir volume within 10 days following the peak of a 100-year 24-hour storm could easily be met.

Given that ADWR criteria could be met, 6-hr Local and 72-hr General PMF hydrographs for interim condition were decided to be routed with ARC set at invert level of the lowest outlet or at elevation of 1197.0 ft (NAVD 88).

Reservoir routing results (i.e. peak inflows, peak outflows, storage volume and the maximum reservoir stage) are summarized in Tables 1 & 2 (See Page 4).

TABLE 1
RESERVOIR ROUTING RESULTS
(BASED ON ADWR CRITERION ONLY)

Storm Event	Inflow to White Tank FRS No.3		Outflow from White Tank FRS No.3		
	Precipitation (inches)	Peak Inflow (cfs)	Antecedent Reservoir Condition (ARC)	Peak Outflow (cfs)	Maximum Reservoir Elevation (NAVD 88) (ft)
100-yr 24-hr *1	3.85	9,600	1197.0	None	1209.8

TABLE 2
DETERMINATION OF RESERVOIR STORAGE AT END OF 10TH DAY FOLLOWING THE PEAK OF A 100-YEAR 24-HOUR STROM
(BASED ON ADWR CRITERION ONLY)

Storm Event	Inflow to White Tank FRS No.3		Outflow from White Tank FRS No.3		
	Precipitation (inches)	Peak Inflow (cfs)	Antecedent Reservoir Condition (ARC) (ft)	Starting Reservoir Storage (ac-ft)	Reservoir Storage at End of 10th day (ac-ft)
100-yr 24-hr *2	3.85	0.0	1209.8	2544.0	501.0

Notes:

1) First, 100-year 24-hr hydrograph was routed (assuming a full sediment pool) to determine the peak reservoir elevation with all outlets assumed to be closed and zero infiltration. The peak reservoir elevation was found to be equal to 1209.8 ft.

2) The next step was to determine whether 85% of the resevoir voulme could be drained by end of 10th day by opening a 48-inch gated outlet or not following the peak of the 100-year 24-hr storm. No new inflows were assumed to be coming in. Results inidcated that 92% of the storage was drained by the end of 10th day (See Page 37). Therefore, ADWR's criteria of draining at least 85% of the reservoir voulme within 10 days could easily be met.

100-yr 24-hr Routing Results
(Zero Infiltration)
(Gate outlet)

```
******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*******************

JOB TR-20 WT100YR                        PASS=001   SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS, NU ROUTING
TITLE     100-yr, 24-hr, Type II Dist, 100-yr Sediment Storage, 800'Spillway
 4 DIMHYD              .0556                                          WT3
 8          0.0        .03         .10         .19         .31
 8          .47        .66         .82         .93         .99
 8          1.0        .99         .93         .82         .66
 8          .47        .31         .03         .00         .00
 9 ENDTBL
 5 RAINFL 2            .1000                                          TYPE II
 8          .0000      .0010       .0020       .0030       .0041
 8          .0051      .0062       .0072       .0083       .0094
 8          .0105      .0116       .0127       .0138       .0150
 8          .0161      .0173       .0184       .0196       .0208
 8          .0220      .0232       .0244       .0257       .0269
 8          .0281      .0294       .0306       .0319       .0332
 8          .0345      .0358       .0371       .0384       .0398
 8          .0411      .0425       .0439       .0452       .0466
 8          .0480      .0494       .0508       .0523       .0538
 8          .0553      .0568       .0583       .0598       .0614
 8          .0630      .0646       .0662       .0679       .0696
 8          .0712      .0730       .0747       .0764       .0782
 8          .0800      .0818       .0836       .0855       .0874
 8          .0892      .0912       .0931       .0950       .0970
 8          .0990      .1010       .1030       .1051       .1072
 8          .1093      .1114       .1135       .1156       .1178
 8          .1200      .1222       .1246       .1270       .1296
 8          .1322      .1350       .1379       .1408       .1438
 8          .1470      .1502       .1534       .1566       .1598
 8          .1630      .1663       .1697       .1733       .1771
 8          .1810      .1851       .1895       .1941       .1989
 8          .2040      .2094       .2152       .2214       .2280
 8          .2350      .2427       .2513       .2609       .2715
 8          .2830      .3068       .3544       .4308       .5679
 8          .6630      .6820       .6986       .7130       .7252
 8          .7350      .7434       .7514       .7588       .7656
 8          .7720      .7780       .7836       .7890       .7942
 8          .7990      .8036       .8080       .8122       .8162
 8          .8200      .8237       .8273       .8308       .8342
 8          .8376      .8409       .8442       .8474       .8505
 8          .8535      .8565       .8594       .8622       .8649
 8          .8676      .8702       .8728       .8753       .8777
 8          .8800      .8823       .8845       .8868       .8890
 8          .8912      .8934       .8955       .8976       .8997
 8          .9018      .9038       .9058       .9078       .9097
 8          .9117      .9136       .9155       .9173       .9192
 8          .9210      .9228       .9245       .9263       .9280
 8          .9297      .9313       .9330       .9346       .9362
 8          .9377      .9393       .9408       .9423       .9438
 8          .9452      .9466       .9480       .9493       .9507
 8          .9520      .9533       .9546       .9559       .9572
 8          .9584      .9597       .9610       .9622       .9635
 8          .9647      .9660       .9672       .9685       .9697
 8          .9709      .9722       .9734       .9746       .9758
 8          .9770      .9782       .9794       .9806       .9818
 8          .9829      .9841       .9853       .9864       .9876
```

Note: 1) First, 100-yr 24-hr hydrograph was routed with ARC set at invert of lowest outlet i.e 1197.0'

2) The gated outlet was closed

3) There was zero infiltration.

4) Peak Reservoir Elevation was determined to be equal to 1209.82'.

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8          .9887       .9899       .9910       .9922       .9933
 8          .9944       .9956       .9967       .9978       .9989
 8          1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 2 XSECTN   005         1.0         8.77                              BOSSCS#5
 8                      0.          0.0         0.0
 8                      0.35        5.          5.56
 8                      1.03        50.         30.95
 8                      1.39        100.        52.16
 8                      1.94        200.        88.72
 8                      2.63        400.        148.61
 8                      3.51        800.        260.63
 8                      4.62        1600.       459.66
 8                      6.04        3200.       929.36
 8                      7.38        6400.       1811.51
 8                      8.77        12800.      3374.20
 8                      10.17       25600.      6398.87
 8                      11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN   010         1.0         10.41                             BOSSCS#4
 8                      0.          0.0         0.0
 8                      0.86        5.          4.39
 8                      2.01        50.         24.22
 8                      2.58        100.        40.12
 8                      3.46        200.        80.99
 8                      4.14        400.        129.44
 8                      5.16        800.        214.74
 8                      6.39        1600.       441.84
 8                      7.80        3200.       980.75
 8                      9.16        6400.       1891.44
 8                      10.41       12800.      3516.14
 8                      11.75       25600.      6548.98
 8                      13.26       51200.      11081.19
 9 ENDTBL
 2 XSECTN   020         1.0         7.3                               REACHC
 8                      0.          0.0         0.0
 8                      1.01        100.        57.78
 8                      1.49        200.        86.81
 8                      1.88        300.        110.25
 8                      2.49        500.        149.47
 8                      3.68        1000.       226.31
 8                      5.40        2000.       346.26
 8                      7.85        4000.       533.39
 8                      9.64        6000.       688.07
 8                      11.16       8000.       838.10
 8                      12.46       10000.      985.31
 8                      13.61       12000.      1122.03
 8                      14.56       14000.      1236.94
 8                      15.43       16000.      1345.18
 8                      16.31       18000.      1456.68
 9 ENDTBL
 2 XSECTN   025         1.0         7.3                               REACHB
 8                      0.          0.0         0.0
 8                      0.63        100.        80.89
 8                      0.93        200.        120.32
 8                      1.17        300.        151.77
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                      1.56        500.        203.28
 8                      2.30        1000.       302.00
 8                      3.38        2000.       449.24
 8                      4.97        4000.       673.73
 8                      6.23        6000.       855.96
 8                      7.31        8000.       1016.35
 8                      8.24        10000.      1158.51
 8                      9.09        12000.      1293.31
 8                      9.90        14000.      1425.57
 8                      10.64       16000.      1549.17
 8                      11.36       18000.      1673.11
 9 ENDTBL
 2 XSECTN    030        1.0         9.45                            BOSSCS#6
 8                      0.          0.0         0.0
 8                      0.77        5.          4.67
 8                      1.54        50.         32.06
 8                      1.78        100.        56.64
 8                      2.10        200.        100.59
 8                      2.50        400.        179.97
 8                      3.01        800.        320.25
 8                      3.63        1600.       589.66
 8                      4.35        3200.       1110.72
 8                      5.21        6400.       2084.48
 8                      6.03        12800.      4119.83
 8                      6.99        25600.      6856.75
 8                      8.28        51200.      11085.87
 9 ENDTBL
 2 XSECTN    045        1.0         4.87                            REACHA
 8                      0.          0.0         0.0
 8                      0.60        100.        85.69
 8                      0.90        200.        127.94
 8                      1.13        300.        161.93
 8                      1.52        500.        217.27
 8                      2.25        1000.       324.03
 8                      3.31        2000.       483.02
 8                      4.87        4000.       722.17
 8                      6.09        6000.       914.99
 8                      7.15        8000.       1084.61
 8                      8.05        10000.      1234.17
 8                      8.87        12000.      1373.80
 8                      9.64        14000.      1507.84
 8                      10.34       16000.      1633.45
 8                      11.00       18000.      1753.12
 9 ENDTBL
 2 XSECTN    060        1.0         4.7                             2CP6CP7
 8                      0.          0.0         0.0
 8                      2.36        100.        45.12
 8                      2.88        200.        83.75
 8                      3.18        300.        114.33
 8                      3.64        500.        172.72
 8                      4.42        1000.       289.04
 8                      5.40        2000.       470.72
 8                      6.87        4000.       782.74
 8                      7.91        6000.       1020.12
 8                      8.79        8000.       1231.25
 8                      9.60        10000.      1435.05
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 8                        10.26       12000.      1618.34
 8                        10.94       14000.      1812.58
 8                        11.47       16000.      1983.46
 8                        11.96       18000.      2150.12
 9 ENDTBL
 2 XSECTN    067          1.0         8.77                    BOSSCS#5
 8                        0.          0.0         0.0
 8                        0.35        5.          5.56
 8                        1.03        50.         30.95
 8                        1.39        100.        52.16
 8                        1.94        200.        88.72
 8                        2.63        400.        148.61
 8                        3.51        800.        260.63
 8                        4.62        1600.       459.66
 8                        6.04        3200.       929.36
 8                        7.38        6400.       1811.51
 8                        8.77        12800.      3374.20
 8                        10.17       25600.      6398.87
 8                        11.89       51200.      10982.51
 9 ENDTBL
 3 STRUCT       01                                            95/11/6
 8                        1178.0      0.00        0.
 8                        1188.0      1.00        44.8
 8                        1197.0      1.05        300.
 8                        1199.2      1.10        500.
 8                        1202.0      1.15        845.55
 8                        1204.0      1.20        1176.28
 8                        1206.0      1.25        1575.25
 8                        1208.0      1.30        2044.97
 8                        1210.0      1.35        2593.40
 8                        1212.0      1.40        3218.00
 8                        1213.0      2593.0      3556.67
 8                        1214.0      8133.0      3916.02
 8                        1215.0      15443.0     4294.13
 8                        1216.0      24165.0     4692.68
 8                        1217.0      34099.0     5113.19
 8                        1218.0      45112.0     5556.01
 8                        1219.0      57107.0     6021.50
 8                        1220.0      70010.0     6509.75
 9 ENDTBL
 6 RUNOFF 1 001       1 2.46          87.2        0.85        1 1
 6 REACH  3 005   1   7 9100.                                 1           BOSS#6
 6 REACH  3 010   7   2 9100.                                 1           BOSS#4
 6 RUNOFF 1 002       3 2.38          79.9        0.73        1 1
 6 ADDHYD 4 012   2 3 1                                       1 1
 6 DIVERT 6 012   1 4 7 4100.         1.00        200.        1 1         OLIVE
 6 REACH  3 020   4   7 3332.                                 1           REACH C
 6 REACH  3 025   7   5 1950.                                 1           REACH B
 6 RUNOFF 1 003       6 3.94          87.2        0.88        1 1
 6 REACH  3 030   6   7 8865.                                 1           BOSS#6
 6 REACH  3 005   7   1 8865.                                 1           BOSS#5
 6 REACH  3 025   1   7 1950.                                 1           REACH B
 6 RUNOFF 1 004       1 2.06          77.3        0.79        1 1
 6 ADDHYD 4 034   7 1 2                                       1 1
 6 ADDHYD 4 035   5 2 3                                       1 1
 6 DIVERT 6 035   3 4 7 11000.        1.00        199.        1 1         NORTHERN
```

(We cannot put zeros here, because TR-20 model collapses. If we put value less than 1.00 (i.e. 0.5) to start at 1188.0, the produces weird result.)

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 6 REACH   3 045    4    5 4200.                              1            REACH A
 6 RUNOFF  1 006         2 1.47         87.7         0.47     1 1
 6 REACH   3 060    2    3 7540.                              1            CP6CP7
 6 REACH   3 067    3    4 5140.                              1            BOSS#5
 6 ADDHYD  4 064    5 4  3                                    1 1
 6 RUNOFF  1 005         6 4.78         78.8         0.78     1 1
 6 RUNOFF  1 007         7 3.48         81.7         1.01     1 1
 6 ADDHYD  4 075    6 7  1                                    1 1
 6 ADDHYD  4 076    1 3  2                                    1 1       1
 6 RESVOR  2     01 2    1 1197.0                             1 1       1
   ENDATA
 7 LIST                    1.0                      1.
 7 INCREM  6               0.70
 7 COMPUT  7 001       01  0.           3.85         1.0      2 1  01   01
   ENDCMP  1
 7 COMPUT  7 001       01  0.           3.85         1.0      2 2  02   01
   ENDCMP  1
   ENDJOB  2

**********END OF 80-80 LIST**********
```

TR20 ---------- SCS -
WT100YR WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS, NU ROU VERSION
12/15/** 100-yr, 24-hr, Type II Dist, 100-yr Sediment Storage, 800'Spil2.04TEST
13:49:15 PASS 1 JOB NO. 1 PAGE 1

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.24 WATERSHED INCHES; 17794 CFS-HRS; 1470.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.55	2851.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 2, STORM = 1
MAIN TIME INCREMENT = .700 hr, DRAINAGE AREA = 4.78 SQ.MI.

HRS								
8.40 CFS	0	1	19	57	145	1131	2843	604
14.00 CFS	412	316	275	233	204	188	173	158
19.60 CFS	143	127	120	118	114	111	109	45
25.20 CFS	.00							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.62 WATERSHED INCHES; 5009 CFS-HRS; 413.9 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.700) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.78) FOR SUBWATERSHED XSECTION 5.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT 37.9%. ***

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.59	2998.2	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 2, STORM = 1
MAIN TIME INCREMENT = .700 hr, DRAINAGE AREA = 3.48 SQ.MI.

HRS								
7.70 CFS	0	1	13	32	62	131	634	2998
13.30 CFS	531	339	253	218	185	159	146	135
18.90 CFS	123	111	98	92	90	87	85	83
24.50 CFS	52.32	.00						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.07 WATERSHED INCHES; 4660 CFS-HRS; 385.1 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.700) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (1.01) FOR SUBWATERSHED XSECTION 7.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT 7.4%. ***

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.57	5846.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 2, STORM = 1
MAIN TIME INCREMENT = .700 hr, DRAINAGE AREA = 8.26 SQ.MI.

HRS								
7.70 CFS	0	1	14	52	119	275	1765	5841
13.30 CFS	1135	751	569	493	418	363	335	308
18.90 CFS	281	253	225	212	207	202	195	192

24.50 CFS 97.28 .00

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.88 WATERSHED INCHES; 10012 CFS-HRS; 827.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.61	9652.1	(NULL)
14.01	4911.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 2, STORM = 1
MAIN TIME INCREMENT = .700 hr, DRAINAGE AREA = 20.57 SQ.MI.

HRS								
6.30 CFS	0	2	8	24	62	148	294	602
11.90 CFS	3168	9652	3391	4911	3512	2376	1666	1274
17.50 CFS	1063	923	821	738	660	609	576	547
23.10 CFS	526	511	348	173	127	61	25	10
28.70 CFS	3.75	1.39	.50	.18				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.16 WATERSHED INCHES; 28641 CFS-HRS; 2366.9 ACRE-FEET.

--- XSECTION 76, ALTERNATE 2, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

*** MESSAGE - STRUCTURE 1, USER ENTERED STARTING ELEVATION (1197.0 FEET) CAN ADD .273 INCHES OF RUNOFF TO THE OUTFLOW HYDROGRAPH VOLUME.***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 1, TRUNCATED AT 400 POINTS WITH 2514.54 AC-FT (.19 WATERSHED INCHES) FLOOD STORAGE REMAINING IN RESERVOIR AT ELEV. 1209.71. ***

OPERATION RESVOR STRUCTURE 1

*** MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS, AT STRUCTURE 1 ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
29.40	1.3	1209.82

→ Peak Reservoir Elevation

*** WARNING - STRUCTURE 1, HYDROGRAPH VOLUME TRUNCATED AT 1 CFS
RESVOR (100. % OF MAX. HYDROGRAPH COORDINATE)
MAIN TIME INCREMENT TOO SMALL. ***

HYDROGRAPH POINTS FOR ALTERNATE = 2, STORM = 1
MAIN TIME INCREMENT = .700 hr, DRAINAGE AREA = 20.57 SQ.MI.

HRS								
4.90 CFS	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
10.50 CFS	1.06	1.06	1.09	1.15	1.20	1.23	1.26	1.28
16.10 CFS	1.29	1.30	1.31	1.31	1.32	1.32	1.33	1.33
21.70 CFS	1.33	1.33	1.34	1.34	1.34	1.34	1.34	1.35
27.30 CFS	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
32.90 CFS	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35

38.50 CFS	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
44.10 CFS	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
49.70 CFS	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
55.30 CFS	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
60.90 CFS	1.35	1.35	1.35	1.35	1.35	1.35	1.35	1.35
66.50 CFS	1.35	1.35	1.35	1.34	1.34	1.34	1.34	1.34
72.10 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
77.70 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
83.30 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
88.90 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
94.50 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
100.10 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
105.70 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
111.30 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
116.90 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
122.50 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
128.10 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
133.70 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
139.30 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
144.90 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
150.50 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
156.10 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
161.70 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
167.30 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
172.90 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
178.50 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
184.10 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
189.70 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
195.30 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
200.90 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
206.50 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
212.10 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
217.70 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
223.30 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
228.90 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
234.50 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
240.10 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
245.70 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
251.30 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
256.90 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
262.50 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
268.10 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
273.70 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34
279.30 CFS	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.34

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.03 WATERSHED INCHES; 373 CFS-HRS; 30.8 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 2, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

RAINFALL OF 3.85 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 2, ARC 1
MAIN TIME INCREMENT .700 HOURS

ALTERNATE 1 STORM 1

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
XSECTION	1	RUNOFF	2.46	1.29	---	12.59	1323	537.8
XSECTION	5	REACH	2.46	1.42	3.85	13.36	1046	425.2
XSECTION	10	REACH	2.46	1.37	5.31	14.12	896	364.2
XSECTION	2	RUNOFF	2.38	.72	---	12.63	577	242.4
XSECTION	12	ADDHYD	4.84	1.05	---	14.10	1009	208.5
XSECTION	12	DIVERT	4.84	1.05	---	14.10	1009	208.5
XSECTION	200	DIVERT	.00	1.05	---	.00	0	********
XSECTION	20	REACH	4.84	1.05	3.69	14.10	1009	208.5
XSECTION	25	REACH	4.84	1.05	2.31	14.10	1009	208.5
XSECTION	3	RUNOFF	3.94	1.30	---	12.60	2209	560.7
XSECTION	30	REACH	3.94	1.50	3.57	13.40	1519	385.5
XSECTION	5	REACH	3.94	1.44	4.13	14.19	1246	316.2
XSECTION	25	REACH	3.94	1.44	2.57	14.19	1246	316.2
XSECTION	4	RUNOFF	2.06	.59	---	12.64	432	209.7
XSECTION	34	ADDHYD	6.00	1.17	---	14.18	1326	221.0
XSECTION	35	ADDHYD	10.84	1.14	---	14.14	2331	215.0
XSECTION	35	DIVERT	10.84	1.14	---	14.14	2331	215.0
XSECTION	199	DIVERT	.00	1.14	---	.00	0	********
XSECTION	45	REACH	10.84	1.14	3.57	14.14	2331	215.0
XSECTION	6	RUNOFF	1.47	1.37	---	12.02	554	376.9
XSECTION	60	REACH	1.47	1.25	3.49	12.81	435	295.9
XSECTION	67	REACH	1.47	1.29	2.66	13.54	414	281.6
XSECTION	64	ADDHYD	12.31	1.16	---	14.11	2635	214.1
XSECTION	5	RUNOFF	4.78	.68	---	12.64	1186	248.1
XSECTION	7	RUNOFF	3.48	.88	---	12.63	1304	374.7
XSECTION	75	ADDHYD	8.26	.76	---	12.63	2490	301.5
XSECTION	76	ADDHYD	20.57	1.03	---	12.70	3591	174.6
STRUCTURE	1	RESVOR	20.57	.03	1205.27	29.40R	1R	.0

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINTABLE NUMBER 2, ARC 2							
ALTERNATE 2 STORM 1							
XSECTION 1	RUNOFF	2.46	2.25	---	12.55	2172	882.9
XSECTION 5	REACH	2.46	2.43	4.75	13.32	1751	711.8
XSECTION 10	REACH	2.46	2.43	6.15	14.10	1446	587.8
XSECTION 2	RUNOFF	2.38	1.65	---	12.52	1258	528.6
XSECTION 12	ADDHYD	4.84	2.08	---	14.07	1646	340.1
XSECTION 12	DIVERT	4.84	2.08	---	14.07	1646	340.1
XSECTION 200	DIVERT	.00	2.08	---	.00	0	********
XSECTION 20	REACH	4.84	2.08	4.79	14.07	1646	340.1
XSECTION 25	REACH	4.84	2.08	3.00	14.07	1646	340.1
XSECTION 3	RUNOFF	3.94	2.28	---	12.56	3667	930.7
XSECTION 30	REACH	3.94	2.57	4.11	13.35	2666	676.6
XSECTION 5	REACH	3.94	2.47	5.12	14.15	2164	549.2
XSECTION 25	REACH	3.94	2.47	3.51	14.15	2164	549.2
XSECTION 4	RUNOFF	2.06	1.65	---	12.56	1189	577.2
XSECTION 34	ADDHYD	6.00	2.19	---	14.14	2323	387.2
XSECTION 35	ADDHYD	10.84	2.14	---	14.11	3965	365.8
XSECTION 35	DIVERT	10.84	2.14	---	14.11	3965	365.8
XSECTION 199	DIVERT	.00	2.14	---	.00	0	********
XSECTION 45	REACH	10.84	2.14	4.84	14.11	3965	365.8
XSECTION 6	RUNOFF	1.47	2.09	---	11.95	1189	808.8
XSECTION 60	REACH	1.47	2.28	4.49	12.68	1067	725.9
XSECTION 67	REACH	1.47	2.28	3.88	12.68	1067	725.9
XSECTION 64	ADDHYD	12.31	2.24	---	14.08	4178	339.4
XSECTION 5	RUNOFF	4.78	1.62	---	12.55	2852	596.7
XSECTION 7	RUNOFF	3.48	2.07	---	12.59	2998	861.5

```
******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

JOB TR-20 WT100YR                        PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS, NU ROUTING
TITLE     100-yr, 24-hr, Type II Dist, 100-yr Sediment Storage, 800'Spillway
 4 DIMHYD               .0556                                          WT3
 8           0.0        .03         .10         .19         .31
 8           .47        .66         .82         .93         .99
 8           1.0        .99         .93         .82         .66
 8           .47        .31         .03         .00         .00
 9 ENDTBL
 5 RAINFL 2             .1000                                          TYPE II
 8           .0000      .0010       .0020       .0030       .0041
 8           .0051      .0062       .0072       .0083       .0094
 8           .0105      .0116       .0127       .0138       .0150
 8           .0161      .0173       .0184       .0196       .0208
 8           .0220      .0232       .0244       .0257       .0269
 8           .0281      .0294       .0306       .0319       .0332
 8           .0345      .0358       .0371       .0384       .0398
 8           .0411      .0425       .0439       .0452       .0466
 8           .0480      .0494       .0508       .0523       .0538
 8           .0553      .0568       .0583       .0598       .0614
 8           .0630      .0646       .0662       .0679       .0696
 8           .0712      .0730       .0747       .0764       .0782
 8           .0800      .0818       .0836       .0855       .0874
 8           .0892      .0912       .0931       .0950       .0970
 8           .0990      .1010       .1030       .1051       .1072
 8           .1093      .1114       .1135       .1156       .1178
 8           .1200      .1222       .1246       .1270       .1296
 8           .1322      .1350       .1379       .1408       .1438
 8           .1470      .1502       .1534       .1566       .1598
 8           .1630      .1663       .1697       .1733       .1771
 8           .1810      .1851       .1895       .1941       .1989
 8           .2040      .2094       .2152       .2214       .2280
 8           .2350      .2427       .2513       .2609       .2715
 8           .2830      .3068       .3544       .4308       .5679
 8           .6630      .6820       .6986       .7130       .7252
 8           .7350      .7434       .7514       .7588       .7656
 8           .7720      .7780       .7836       .7890       .7942
 8           .7990      .8036       .8080       .8122       .8162
 8           .8200      .8237       .8273       .8308       .8342
 8           .8376      .8409       .8442       .8474       .8505
 8           .8535      .8565       .8594       .8622       .8649
 8           .8676      .8702       .8728       .8753       .8777
 8           .8800      .8823       .8845       .8868       .8890
 8           .8912      .8934       .8955       .8976       .8997
 8           .9018      .9038       .9058       .9078       .9097
 8           .9117      .9136       .9155       .9173       .9192
 8           .9210      .9228       .9245       .9263       .9280
 8           .9297      .9313       .9330       .9346       .9362
 8           .9377      .9393       .9408       .9423       .9438
 8           .9452      .9466       .9480       .9493       .9507
 8           .9520      .9533       .9546       .9559       .9572
 8           .9584      .9597       .9610       .9622       .9635
 8           .9647      .9660       .9672       .9685       .9697
 8           .9709      .9722       .9734       .9746       .9758
 8           .9770      .9782       .9794       .9806       .9818
 8           .9829      .9841       .9853       .9864       .9876
```

1) open 48" gated outlet.
2) no New inflow are Coming
3) Set WSE at 1259.32'
4) Determine the volume drained in at end of 30 day

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8          .9887       .9899       .9910       .9922       .9933
 8          .9944       .9956       .9967       .9978       .9989
 8          1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 2 XSECTN   005         1.0         8.77                              BOSSCS#5
 8                      0.          0.0         0.0
 8                      0.35        5.          5.56
 8                      1.03        50.         30.95
 8                      1.39        100.        52.16
 8                      1.94        200.        88.72
 8                      2.63        400.        148.61
 8                      3.51        800.        260.63
 8                      4.62        1600.       459.66
 8                      6.04        3200.       929.36
 8                      7.38        6400.       1811.51
 8                      8.77        12800.      3374.20
 8                      10.17       25600.      6398.87
 8                      11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN   010         1.0         10.41                             BOSSCS#4
 8                      0.          0.0         0.0
 8                      0.86        5.          4.39
 8                      2.01        50.         24.22
 8                      2.58        100.        40.12
 8                      3.46        200.        80.99
 8                      4.14        400.        129.44
 8                      5.16        800.        214.74
 8                      6.39        1600.       441.84
 8                      7.80        3200.       980.75
 8                      9.16        6400.       1891.44
 8                      10.41       12800.      3516.14
 8                      11.75       25600.      6548.98
 8                      13.26       51200.      11081.19
 9 ENDTBL
 2 XSECTN   020         1.0         7.3                               REACHC
 8                      0.          0.0         0.0
 8                      1.01        100.        57.78
 8                      1.49        200.        86.81
 8                      1.88        300.        110.25
 8                      2.49        500.        149.47
 8                      3.68        1000.       226.31
 8                      5.40        2000.       346.26
 8                      7.85        4000.       533.39
 8                      9.64        6000.       688.07
 8                      11.16       8000.       838.10
 8                      12.46       10000.      985.31
 8                      13.61       12000.      1122.03
 8                      14.56       14000.      1236.94
 8                      15.43       16000.      1345.18
 8                      16.31       18000.      1456.68
 9 ENDTBL
 2 XSECTN   025         1.0         7.3                               REACHB
 8                      0.          0.0         0.0
 8                      0.63        100.        80.89
 8                      0.93        200.        120.32
 8                      1.17        300.        151.77
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                    1.56        500.        203.28
 8                    2.30        1000.       302.00
 8                    3.38        2000.       449.24
 8                    4.97        4000.       673.73
 8                    6.23        6000.       855.96
 8                    7.31        8000.       1016.35
 8                    8.24        10000.      1158.51
 8                    9.09        12000.      1293.31
 8                    9.90        14000.      1425.57
 8                    10.64       16000.      1549.17
 8                    11.36       18000.      1673.11
 9 ENDTBL
 2 XSECTN    030      1.0         9.45                    BOSSCS#6
 8                    0.          0.0         0.0
 8                    0.77        5.          4.67
 8                    1.54        50.         32.06
 8                    1.78        100.        56.64
 8                    2.10        200.        100.59
 8                    2.50        400.        179.97
 8                    3.01        800.        320.25
 8                    3.63        1600.       589.66
 8                    4.35        3200.       1110.72
 8                    5.21        6400.       2084.48
 8                    6.03        12800.      4119.83
 8                    6.99        25600.      6856.75
 8                    8.28        51200.      11085.87
 9 ENDTBL
 2 XSECTN    045      1.0         4.87                    REACHA
 8                    0.          0.0         0.0
 8                    0.60        100.        85.69
 8                    0.90        200.        127.94
 8                    1.13        300.        161.93
 8                    1.52        500.        217.27
 8                    2.25        1000.       324.03
 8                    3.31        2000.       483.02
 8                    4.87        4000.       722.17
 8                    6.09        6000.       914.99
 8                    7.15        8000.       1084.61
 8                    8.05        10000.      1234.17
 8                    8.87        12000.      1373.80
 8                    9.64        14000.      1507.84
 8                    10.34       16000.      1633.45
 8                    11.00       18000.      1753.12
 9 ENDTBL
 2 XSECTN    060      1.0         4.7                     2CP6CP7
 8                    0.          0.0         0.0
 8                    2.36        100.        45.12
 8                    2.88        200.        83.75
 8                    3.18        300.        114.33
 8                    3.64        500.        172.72
 8                    4.42        1000.       289.04
 8                    5.40        2000.       470.72
 8                    6.87        4000.       782.74
 8                    7.91        6000.       1020.12
 8                    8.79        8000.       1231.25
 8                    9.60        10000.      1435.05
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
8                       10.26       12000.      1618.34
8                       10.94       14000.      1812.58
8                       11.47       16000.      1983.46
8                       11.96       18000.      2150.12
9 ENDTBL
2 XSECTN   067           1.0         8.77                            BOSSCS#5
8                         0.          0.0         0.0
8                        0.35         5.          5.56
8                        1.03        50.         30.95
8                        1.39       100.         52.16
8                        1.94       200.         88.72
8                        2.63       400.        148.61
8                        3.51       800.        260.63
8                        4.62      1600.        459.66
8                        6.04      3200.        929.36
8                        7.38      6400.       1811.51
8                        8.77     12800.       3374.20
8                       10.17     25600.       6398.87
8                       11.89     51200.      10982.51
9 ENDTBL
3 STRUCT      01                                                      95/11/6
8                     1178.0        0.0          0.
8                     1188.0       0.01         44.8
8                     1196.8       0.02          300.
8                     1199.2       0.03          500.
8                     1202.0      171.0         845.55
8                     1204.0      191.20       1176.28
8                     1206.0      209.5        1575.25
8                     1208.0      226.3        2044.97
8                     1210.0      241.9        2593.40
8                     1212.0      256.60       3218.00
8                     1213.0     2856.00       3556.67
8                     1214.0     8404.00       3916.02
8                     1215.0     15720.0       4294.13
8                     1216.0     24449.0       4692.68
8                     1217.0     34389.0       5113.19
8                     1218.0     45408.0       5556.01
8                     1219.0     57410.0       6021.50
8                     1220.0     70318.0       6509.75
9 ENDTBL
6 RUNOFF  1 001         1 2.46      87.2         0.85       1 1
6 REACH   3 005    1    7 9100.                             1          BOSS#6
6 REACH   3 010    7    2 9100.                             1          BOSS#4
6 RUNOFF  1 002         3 2.38      79.9         0.73       1 1
6 ADDHYD  4 012    2 3  1                                   1 1
6 DIVERT  6 012    1 4  7 4100.    1.00          200.       1 1        OLIVE
6 REACH   3 020    4    7 3332.                             1          REACH C
6 REACH   3 025    7    5 1950.                             1          REACH B
6 RUNOFF  1 003         6 3.94      87.2         0.88       1 1
6 REACH   3 030    6    7 8865.                             1          BOSS#6
6 REACH   3 005    7    1 8865.                             1          BOSS#5
6 REACH   3 025    1    7 1950.                             1          REACH B
6 RUNOFF  1 004         1 2.06      77.3         0.79       1 1
6 ADDHYD  4 034    7 1  2                                   1 1
6 ADDHYD  4 035    5 2  3                                   1 1
6 DIVERT  6 035    3 4  7 11000.    1.00          199.       1 1        NORTHERN
```

Zero infiltration with gated outlet open

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 6 REACH   3 045    4    5 4200.                              1            REACH A
 6 RUNOFF  1 006         2 1.47          87.7         0.47    1 1
 6 REACH   3 060    2    3 7540.                              1            CP6CP7
 6 REACH   3 067    3    4 5140.                              1            BOSS#5
 6 ADDHYD  4 064    5 4  3                                    1 1
 6 RUNOFF  1 005         6 4.78          78.8         0.78    1 1
 6 RUNOFF  1 007         7 3.48          81.7         1.01    1 1
 6 ADDHYD  4 075    6 7  1                                    1 1
 6 ADDHYD  4 076    1 3  2                                    1 1       1
 6 RESVOR  2     01 2    1 1209.82                            1 1       1
   ENDATA
 7 LIST                    1.0                        1.
 7 INCREM  6               0.70
 7 COMPUT  7 001       01  0.          0.01         1.0       2 1  01   01
   ENDCMP  1
 7 COMPUT  7 001       01  0.          0.01         1.0       2 2  02   01
   ENDCMP  1
   ENDJOB  2
```

**********END OF 80-80 LIST**********

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

EXECUTIVE CONTROL LIST 1. 0. 1.

LISTING OF CURRENT DATA

COMPUTED TIME INCREMENT
DIMHYD .0556

.0000	.0300	.1000	.1900	.3100
.4700	.6600	.8200	.9300	.9900
1.0000	.9900	.9300	.8200	.6600
.4700	.3100	.0300	.0000	.0000

ENDTBL

COMPUTED PEAK RATE FACTOR = 664.607

	TABLE NO.	TIME INCREMENT			
RAINFL	1	.1000			
	.0000	.0017	.0035	.0052	.0070
	.0087	.0105	.0122	.0139	.0157
	.0174	.0192	.0210	.0227	.0245
	.0262	.0280	.0297	.0315	.0332
	.0350	.0368	.0386	.0404	.0423
	.0442	.0461	.0480	.0500	.0520
	.0540	.0561	.0582	.0603	.0625
	.0647	.0669	.0691	.0714	.0737
	.0760	.0784	.0807	.0831	.0855
	.0878	.0902	.0926	.0951	.0975
	.1000	.1024	.1049	.1073	.1098
	.1123	.1148	.1174	.1199	.1225
	.1250	.1276	.1303	.1332	.1361
	.1391	.1423	.1456	.1489	.1524
	.1560	.1597	.1633	.1671	.1708
	.1746	.1784	.1823	.1861	.1901
	.1940	.1982	.2027	.2077	.2132
	.2190	.2252	.2318	.2388	.2462
	.2540	.2623	.2714	.2812	.2917
	.3030	.3194	.3454	.3878	.4632
	.5150	.5322	.5476	.5612	.5730
	.5830	.5919	.6003	.6083	.6159
	.6230	.6298	.6365	.6430	.6493
	.6555	.6615	.6674	.6731	.6786
	.6840	.6892	.6944	.6995	.7044
	.7092	.7140	.7186	.7232	.7276
	.7320	.7362	.7404	.7444	.7484
	.7523	.7560	.7596	.7632	.7667
	.7700	.7733	.7766	.7798	.7830
	.7862	.7894	.7926	.7958	.7989
	.8020	.8051	.8082	.8112	.8142
	.8173	.8202	.8232	.8262	.8291
	.8320	.8349	.8378	.8406	.8434
	.8462	.8490	.8518	.8546	.8573
	.8600	.8627	.8654	.8680	.8706
	.8733	.8758	.8784	.8810	.8835
	.8860	.8885	.8910	.8934	.8958
	.8982	.9006	.9030	.9054	.9077
	.9100	.9123	.9146	.9168	.9190
	.9212	.9234	.9256	.9278	.9299
	.9320	.9341	.9362	.9382	.9402
	.9423	.9442	.9462	.9482	.9501
	.9520	.9539	.9558	.9576	.9594
	.9613	.9630	.9648	.9666	.9683
	.9700	.9717	.9734	.9750	.9766
	.9783	.9798	.9814	.9830	.9845
	.9860	.9875	.9890	.9904	.9918
	.9933	.9946	.9960	.9974	.9987
	1.0000	1.0000	1.0000	1.0000	1.0000

ENDTBL

STANDARD CONTROL INSTRUCTIONS

RUNOFF	1			1	2.4600	87.2000	.85001	1	0	0	0	1
REACH	5	1		7	9100.0000	.0000	.00001	0	0	0	0	1
REACH	10	7		2	9100.0000	.0000	.00001	0	0	0	0	1
RUNOFF	2			3	2.3800	79.9000	.73001	1	0	0	0	1
ADDHYD	12	2	3	1			1	1	0	0	0	1
DIVERT	12	1	4	7	4100.0000	1.0000	200.00001	1	0	0	0	1
REACH	20	4		7	3332.0000	.0000	.00001	0	0	0	0	1
REACH	25	7		5	1950.0000	.0000	.00001	0	0	0	0	1
RUNOFF	3			6	3.9400	87.2000	.88001	1	0	0	0	1
REACH	30	6		7	8865.0000	.0000	.00001	0	0	0	0	1
REACH	5	7		1	8865.0000	.0000	.00001	0	0	0	0	1
REACH	25	1		7	1950.0000	.0000	.00001	0	0	0	0	1
RUNOFF	4			1	2.0600	77.3000	.79001	1	0	0	0	1
ADDHYD	34	7	1	2			1	1	0	0	0	1
ADDHYD	35	5	2	3			1	1	0	0	0	1
DIVERT	35	3	4	7	11000.0000	1.0000	199.00001	1	0	0	0	1
REACH	45	4		5	4200.0000	.0000	.00001	0	0	0	0	1
RUNOFF	6			2	1.4700	87.7000	.47001	1	0	0	0	1
REACH	60	2		3	7540.0000	.0000	.00001	0	0	0	0	1
REACH	67	3		4	5140.0000	.0000	.00001	0	0	0	0	1
ADDHYD	64	5	4	3			1	1	0	0	0	1
RUNOFF	5			6	4.7800	78.8000	.78001	1	0	0	0	1
RUNOFF	7			7	3.4800	81.7000	1.01001	1	0	0	0	1
ADDHYD	75	6	7	1			1	1	0	0	0	1
ADDHYD	76	1	3	2			1	1	0	0	1	1
RESVOR		1	2	1	1209.8200		1	1	0	0	1	1
ENDATA												

END OF LISTING

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .700 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO STRUCTURE 1
STARTING TIME = .00 RAIN DEPTH = .01 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 1 MAIN TIME INCREMENT = .700 HOURS
ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 5

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 10

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 2

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION DIVERT XSECTION 12
OUTPUT #1 HYDROGRAPH

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 20

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 25

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 30

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 5

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 25

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 45

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 60

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 67

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 64

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

*** MESSAGE - STRUCTURE 1, USER ENTERED STARTING ELEVATION (1209.8 FEET) CAN ADD 2.319 INCHES OF RUNOFF TO THE OUTFLOW HYDROGRAPH VOLUME.***

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
23.80	240.5	1209.82

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
DRAINAGE AREA = 20.57 SQ.MI.

HRS	MAIN TIME INCREMENT = .700 hr,							
23.80 CFS	240	240	240	239	239	239	238	238
29.40 CFS	237	237	237	236	236	235	235	235
35.00 CFS	234	234	233	233	233	232	232	232
40.60 CFS	231	231	230	230	230	229	229	229
46.20 CFS	228	228	227	227	227	226	226	225
51.80 CFS	225	224	224	223	223	223	222	222
57.40 CFS	221	221	220	220	219	219	218	218

63.00 CFS	218	217	217	216	216	215	215	214
68.60 CFS	214	214	213	213	212	212	211	211
74.20 CFS	210	210	210	209	209	208	207	207
79.80 CFS	206	206	205	205	204	204	203	203
85.40 CFS	202	201	201	200	200	199	199	198
91.00 CFS	198	197	197	196	196	195	195	194
96.60 CFS	194	193	193	192	192	191	190	190
102.20 CFS	189	188	188	187	186	186	185	184
107.80 CFS	184	183	182	182	181	180	180	179
113.40 CFS	179	178	177	177	176	175	175	174
119.00 CFS	174	173	172	172	171	168	163	158
124.60 CFS	154	149	145	141	137	133	130	126
130.20 CFS	122	119	116	112	109	106	103	100
135.80 CFS	97.30	94.55	91.89	89.29	86.77	84.33	81.95	79.63
141.40 CFS	77.39	75.20	73.08	71.02	69.01	67.07	65.17	63.33
147.00 CFS	61.55	59.81	58.12	56.48	54.89	53.34	51.83	50.37
152.60 CFS	48.95	47.57	46.23	44.92	43.65	42.42	41.22	40.06
158.20 CFS	38.93	37.83	36.76	35.73	34.72	33.74	32.79	31.86
163.80 CFS	30.96	30.09	29.24	28.41	27.61	26.83	26.08	25.34
169.40 CFS	24.63	23.93	23.26	22.60	21.96	21.34	20.74	20.15
175.00 CFS	19.59	19.03	18.50	17.97	17.47	16.97	16.49	16.03
180.60 CFS	15.58	15.14	14.71	14.29	13.89	13.50	13.12	12.75
186.20 CFS	12.39	12.04	11.70	11.37	11.05	10.74	10.43	10.14
191.80 CFS	9.85	9.57	9.30	9.04	8.79	8.54	8.30	8.06
197.40 CFS	7.84	7.62	7.40	7.19	6.99	6.79	6.60	6.41
203.00 CFS	6.23	6.06	5.89	5.72	5.56	5.40	5.25	5.10
208.60 CFS	4.96	4.82	4.68	4.55	4.42	4.30	4.17	4.06
214.20 CFS	3.94	3.83	3.72	3.62	3.52	3.42	3.32	3.23
219.80 CFS	3.14	3.05	2.96	2.88	2.80	2.72	2.64	2.57
225.40 CFS	2.49	2.42	2.35	2.29	2.22	2.16	2.10	2.04
231.00 CFS	1.98	1.93	1.87	1.82	1.77	1.72	1.67	1.62
236.60 CFS	1.58	1.53	1.49	1.45	1.41	1.37	1.33	1.29
242.20 CFS	1.25	1.22	1.18	1.15	1.12	1.09	1.06	1.03
247.80 CFS	1.00	.97	.94	.92	.89	.86	.84	.82
253.40 CFS	.79	.77	.75	.73	.71	.69	.67	.65
259.00 CFS	.63	.61	.60	.58	.56	.55	.53	.52
264.60 CFS	.50	.49	.47	.46	.45	.44	.42	.41
270.20 CFS	.40	.39	.38	.37	.36	.35	.34	.33
275.80 CFS	.32	.31	.30	.29	.28	.28	.27	.26
281.40 CFS	.25	.25	.24	.23	.23	.22	.21	.21
287.00 CFS	.20	.20	.19	.18	.18	.17	.17	.16
292.60 CFS	.16	.16	.15	.15	.14	.14	.13	.13
298.20 CFS	.13	.12	.12	.12	.11	.11	.11	.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.86 WATERSHED INCHES; 24731 CFS-HRS; 2043.8 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

```
EXECUTIVE CONTROL  ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


EXECUTIVE CONTROL  COMPUT    FROM XSECTION   1  TO STRUCTURE  1
    STARTING TIME =   .00       RAIN DEPTH =   .01       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .700 HOURS
    ALTERNATE NO. = 2           STORM NO. = 1            RAIN TABLE NO. = 2


OPERATION RUNOFF    XSECTION   1

 *** MESSAGE - HYDROGRAPH CONTAINS NO FLOW                                  ***

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 1.86 WATERSHED INCHES;       1 CFS-HRS;    2043.8 ACRE-FEET.


OPERATION REACH     XSECTION   5

 *** MESSAGE - HYDROGRAPH CONTAINS NO FLOW                                  ***

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  .00 WATERSHED INCHES;       0 CFS-HRS;        .0 ACRE-FEET.


OPERATION REACH     XSECTION  10

 *** MESSAGE - HYDROGRAPH CONTAINS NO FLOW                                  ***

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  .00 WATERSHED INCHES;       0 CFS-HRS;        .0 ACRE-FEET.


OPERATION RUNOFF    XSECTION   2

 *** MESSAGE - HYDROGRAPH CONTAINS NO FLOW                                  ***

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  .00 WATERSHED INCHES;       1 CFS-HRS;        .0 ACRE-FEET.


OPERATION ADDHYD    XSECTION  12

 *** MESSAGE - HYDROGRAPH CONTAINS NO FLOW                                  ***
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION DIVERT XSECTION 12
OUTPUT #1 HYDROGRAPH

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 20

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 25

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 30

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 5

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 25

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 45

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 60

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION REACH XSECTION 67

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 0 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 64

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

*** MESSAGE - HYDROGRAPH CONTAINS NO FLOW ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.00 WATERSHED INCHES; 1 CFS-HRS; .0 ACRE-FEET.

*** MESSAGE - STRUCTURE 1, USER ENTERED STARTING ELEVATION (1209.8 FEET) CAN ADD 2.319 INCHES OF RUNOFF TO THE OUTFLOW HYDROGRAPH VOLUME.***

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
23.80	240.5	1209.82

HYDROGRAPH POINTS FOR ALTERNATE = 2, STORM = 1
MAIN TIME INCREMENT = .700 hr, DRAINAGE AREA = 20.57 SQ.MI.

HRS								
23.80	CFS	240	240	240	239	239	239	238	238
29.40	CFS	237	237	237	236	236	235	235	235
35.00	CFS	234	234	233	233	233	232	232	232
40.60	CFS	231	231	230	230	230	229	229	229

Storage Corresponding to Peak Discharge:

$Q_1 = 226.3$ cfs, $S1 = 2045$ ac-ft

$Q_2 = 240.5$ cfs $S2 = ?$

$Q_3 = 241.9$ cfs $S3 = 2594$ ac-ft

$S2 = 2045 + \frac{(240.5 - 226.3)}{(241.9 - 226.3)} * (2594 - 2045)$

$= 2045 + \frac{(14.2)}{(15.6)} * (549) = 2544.7$ ac-ft

46.20	CFS	228	228	227	227	227	226	226	225
51.80	CFS	225	224	224	223	223	223	222	222
57.40	CFS	221	221	220	220	219	219	218	218
63.00	CFS	218	217	217	216	216	215	215	214
68.60	CFS	214	214	213	213	212	212	211	211
74.20	CFS	210	210	210	209	209	208	207	207
79.80	CFS	206	206	205	205	204	204	203	203
85.40	CFS	202	201	201	200	200	199	199	198
91.00	CFS	198	197	197	196	196	195	195	194
96.60	CFS	194	193	193	192	192	191	190	190
102.20	CFS	189	188	188	187	186	186	185	184
107.80	CFS	184	183	182	182	181	180	180	179
113.40	CFS	179	178	177	177	176	175	175	174
119.00	CFS	174	173	172	172	171	168	163	158
124.60	CFS	154	149	145	141	137	133	130	126
130.20	CFS	122	119	116	112	109	106	103	100
135.80	CFS	97.30	94.55	91.89	89.29	86.77	84.33	81.95	79.63
141.40	CFS	77.39	75.20	73.08	71.02	69.01	67.07	65.17	63.33
147.00	CFS	61.55	59.81	58.12	56.48	54.89	53.34	51.83	50.37
152.60	CFS	48.95	47.57	46.23	44.92	43.65	42.42	41.22	40.06
158.20	CFS	38.93	37.83	36.76	35.73	34.72	33.74	32.79	31.86
163.80	CFS	30.96	30.09	29.24	28.41	27.61	26.83	26.08	25.34
169.40	CFS	24.63	23.93	23.26	22.60	21.96	21.34	20.74	20.15
175.00	CFS	19.59	19.03	18.50	17.97	17.47	16.97	16.49	16.03
180.60	CFS	15.58	15.14	14.71	14.29	13.89	13.50	13.12	12.75
186.20	CFS	12.39	12.04	11.70	11.37	11.05	10.74	10.43	10.14
191.80	CFS	9.85	9.57	9.30	9.04	8.79	8.54	8.30	8.06
197.40	CFS	7.84	7.62	7.40	7.19	6.99	6.79	6.60	6.41
203.00	CFS	6.23	6.06	5.89	5.72	5.56	5.40	5.25	5.10
208.60	CFS	4.96	4.82	4.68	4.55	4.42	4.30	4.17	4.06
214.20	CFS	3.94	3.83	3.72	3.62	3.52	3.42	3.32	3.23
219.80	CFS	3.14	3.05	2.96	2.88	2.80	2.72	2.64	2.57
225.40	CFS	2.49	2.42	2.35	2.29	2.22	2.16	2.10	2.04
231.00	CFS	1.98	1.93	1.87	1.82	1.77	1.72	1.67	1.62
236.60	CFS	1.58	1.53	1.49	1.45	1.41	1.37	1.33	1.29
242.20	CFS	1.25	1.22	1.18	1.15	1.12	1.09	1.06	1.03
247.80	CFS	1.00	.97	.94	.92	.89	.86	.84	.82
253.40	CFS	.79	.77	.75	.73	.71	.69	.67	.65
259.00	CFS	.63	.61	.60	.58	.56	.55	.53	.52
264.60	CFS	.50	.49	.47	.46	.45	.44	.42	.41
270.20	CFS	.40	.39	.38	.37	.36	.35	.34	.33
275.80	CFS	.32	.31	.30	.29	.28	.28	.27	.26
281.40	CFS	.25	.25	.24	.23	.23	.22	.21	.21
287.00	CFS	.20	.20	.19	.18	.18	.17	.17	.16
292.60	CFS	.16	.16	.15	.15	.14	.14	.13	.13
298.20	CFS	.13	.12	.12	.12	.11	.11	.11	.10

Discharge at end of 10th day (→ .52)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.86 WATERSHED INCHES; 24731 CFS-HRS; 2043.8 ACRE-FEET.

Reservoir storage at end of 10th day

Q1 = 0.03 cfs   S1 = 500 ac ft
Q2 = 0.52 cfs   S2 = ?
Q3 = 171 cfs   S3 = 845.5 ac ft

$$S2 = 500 + \frac{(0.52 - 0.03)}{(171 - 0.03)} * (845.5 - 500)$$

S2 = 501 Ac ft

Volume Removed = 2544 - 501 = 2043 ac ft

Please note that there was 311 ac ft of water at start of routing
(1197 ... Therefore % Removed = (2043)/(2544-311) * 100 = 92%.

--- STRUCTURE 1, ALTERNATE 2, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF .01 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 1							
MAIN TIME INCREMENT .700 HOURS							
ALTERNATE 1 STORM 1							
XSECTION 1	RUNOFF	2.46	.00	---	.00	0	.0
XSECTION 5	REACH	2.46	.00	---	.00	0	.0
XSECTION 10	REACH	2.46	.00	---	.00	0	.0
XSECTION 2	RUNOFF	2.38	.00	---	.00	0	.0
XSECTION 12	ADDHYD	4.84	.00	---	.00	0	.0
XSECTION 12	DIVERT	4.84	.00	---	.00	0	.0
XSECTION 200	DIVERT	.00	.00	---	.00	0	********
XSECTION 20	REACH	4.84	.00	---	.00	0	.0
XSECTION 25	REACH	4.84	.00	---	.00	0	.0
XSECTION 3	RUNOFF	3.94	.00	---	.00	0	.0
XSECTION 30	REACH	3.94	.00	---	.00	0	.0
XSECTION 5	REACH	3.94	.00	---	.00	0	.0
XSECTION 25	REACH	3.94	.00	---	.00	0	.0
XSECTION 4	RUNOFF	2.06	.00	---	.00	0	.0
XSECTION 34	ADDHYD	6.00	.00	---	.00	0	.0
XSECTION 35	ADDHYD	10.84	.00	---	.00	0	.0
XSECTION 35	DIVERT	10.84	.00	---	.00	0	.0
XSECTION 199	DIVERT	.00	.00	---	.00	0	********
XSECTION 45	REACH	10.84	.00	---	.00	0	.0
XSECTION 6	RUNOFF	1.47	.00	---	.00	0	.0
XSECTION 60	REACH	1.47	.00	---	.00	0	.0
XSECTION 67	REACH	1.47	.00	---	.00	0	.0
XSECTION 64	ADDHYD	12.31	.00	---	.00	0	.0
XSECTION 5	RUNOFF	4.78	.00	---	.00	0	.0
XSECTION 7	RUNOFF	3.48	.00	---	.00	0	.0
XSECTION 75	ADDHYD	8.26	.00	---	.00	0	.0
XSECTION 76	ADDHYD	20.57	.00	---	.00	0	.0
STRUCTURE 1	RESVOR	20.57	1.86	1209.82	23.80	240	11.7

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINTABLE NUMBER 2, ARC 2							
ALTERNATE 2 STORM 1							
XSECTION 1	RUNOFF	2.46	1.86	---	.00	0	.0
XSECTION 5	REACH	2.46	.00	---	.00	0	.0
XSECTION 10	REACH	2.46	.00	---	.00	0	.0
XSECTION 2	RUNOFF	2.38	.00	---	.00	0	.0
XSECTION 12	ADDHYD	4.84	.00	---	.00	0	.0
XSECTION 12	DIVERT	4.84	.00	---	.00	0	.0
XSECTION 200	DIVERT	.00	.00	---	.00	0	********
XSECTION 20	REACH	4.84	.00	---	.00	0	.0
XSECTION 25	REACH	4.84	.00	---	.00	0	.0
XSECTION 3	RUNOFF	3.94	.00	---	.00	0	.0
XSECTION 30	REACH	3.94	.00	---	.00	0	.0
XSECTION 5	REACH	3.94	.00	---	.00	0	.0
XSECTION 25	REACH	3.94	.00	---	.00	0	.0
XSECTION 4	RUNOFF	2.06	.00	---	.00	0	.0
XSECTION 34	ADDHYD	6.00	.00	---	.00	0	.0
XSECTION 35	ADDHYD	10.84	.00	---	.00	0	.0
XSECTION 35	DIVERT	10.84	.00	---	.00	0	.0
XSECTION 199	DIVERT	.00	.00	---	.00	0	********
XSECTION 45	REACH	10.84	.00	---	.00	0	.0
XSECTION 6	RUNOFF	1.47	.00	---	.00	0	.0
XSECTION 60	REACH	1.47	.00	---	.00	0	.0
XSECTION 67	REACH	1.47	.00	---	.00	0	.0
XSECTION 64	ADDHYD	12.31	.00	---	.00	0	.0
XSECTION 5	RUNOFF	4.78	.00	---	.00	0	.0
XSECTION 7	RUNOFF	3.48	.00	---	.00	0	.0

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 2 STORM 1							
XSECTION 75	ADDHYD	8.26	.00	---	.00	0	.0
XSECTION 76	ADDHYD	20.57	.00	---	.00	0	.0
STRUCTURE 1	RESVOR	20.57	1.86	1209.82	23.80	240	11.7

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE k* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

			HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.			PEAK	ATT-
XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	RATIO Q/I (Q*)	KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 1											
5	9100		0	.0	0	.0	.000	.00	.000	.000	.00
10	9100		0	.0	0	.0	.000	.00	.000	.000	.00
20	3332		0	.0	0	.0	.000	.00	.000	.000	.00
25	1950		0	.0	0	.0	.000	.00	.000	.000	.00
30	8865		0	.0	0	.0	.000	.00	.000	.000	.00
5	8865		0	.0	0	.0	.000	.00	.000	.000	.00
25	1950		0	.0	0	.0	.000	.00	.000	.000	.00
45	4200		0	.0	0	.0	.000	.00	.000	.000	.00
60	7540		0	.0	0	.0	.000	.00	.000	.000	.00
67	5140		0	.0	0	.0	.000	.00	.000	.000	.00
ALTERNATE 2 STORM 1											
5	9100		0	.0	0	.0	.000	.00	.000	.000	.00
10	9100		0	.0	0	.0	.000	.00	.000	.000	.00
20	3332		0	.0	0	.0	.000	.00	.000	.000	.00
25	1950		0	.0	0	.0	.000	.00	.000	.000	.00
30	8865		0	.0	0	.0	.000	.00	.000	.000	.00
5	8865		0	.0	0	.0	.000	.00	.000	.000	.00
25	1950		0	.0	0	.0	.000	.00	.000	.000	.00
45	4200		0	.0	0	.0	.000	.00	.000	.000	.00
60	7540		0	.0	0	.0	.000	.00	.000	.000	.00
67	5140		0	.0	0	.0	.000	.00	.000	.000	.00

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
STRUCTURE	1	20.57	
ALTERNATE	1		240
ALTERNATE	2		240
XSECTION	1	2.46	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION	2	2.38	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION	3	3.94	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION	4	2.06	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION	5	4.78	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION	6	1.47	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION	7	3.48	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION	10	2.46	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION	12	4.84	
ALTERNATE	1		0
ALTERNATE	2		0

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
XSECTION 20		4.84	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 25		3.94	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 30		3.94	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 34		6.00	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 35		10.84	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 45		10.84	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 60		1.47	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 64		12.31	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 67		1.47	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 75		8.26	
ALTERNATE	1		0
ALTERNATE	2		0

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
XSECTION 76		20.57	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 199		.00	
ALTERNATE	1		0
ALTERNATE	2		0
XSECTION 200		.00	
ALTERNATE	1		0
ALTERNATE	2		0

```
TR20 ------------------------------------------------------------------- SCS -
WT100YR   WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS, NU ROU VERSION
12/15/**  100-yr, 24-hr, Type II Dist, 100-yr Sediment Storage, 800'Spil2.04TEST


END OF  1 JOBS IN THIS RUN



                    SCS  TR-20,  VERSION 2.04TEST
                           WT100YR   FILES

     INPUT  = 100INN.DAT                              , GIVEN DATA FILE
     OUTPUT = 100OUTT.OUT                             , DATED 12/15/**,14:12:11

              FILES GENERATED - DATED 12/15/**,14:12:11

    FILE 100OUTT.TRD CONTAINS READHD INFORMATION


           TOTAL NUMBER OF WARNINGS =   0,  MESSAGES =  56

                       JOB ENDED AT 14:12:11
                   *** TR-20 RUN COMPLETED ***
```

(47)

ARIZONA DEPARTMENT OF WATER RESOURCES
OFFICE OF WATER ENGINEERING
Dam Safety and Flood Mitigation

PMF Studies for Evaluation of Spillway Adequacy
General Guidelines

Revised March 2004

Inflow design floods (IDFs) for jurisdictional dams in Arizona are almost always some percentage, up to and including 100 percent, of the probable maximum flood (PMF). Percentages of the PMF are calculated by reducing the ordinates of the PMF flood hydrograph(s). Therefore, IDF studies almost always begin with an assessment of the PMF.

All PMF studies submitted for evaluation of the spillway adequacy of existing or proposed jurisdictional dams should satisfy the following general requirements.

Watershed Hydrology

- 6-hour local and 72-hour general storm probable maximum precipitation (PMP) depths should be calculated using procedures described in Hydrometeorological Report No. 49 (HMR 49).

- Time-distribution for the 6-hour local PMP should be calculated using procedures described in HMR 49. The hypothetical storm used in the HEC-1 Program (i.e. the 'PH' Record) is not acceptable.

- HMR 49 does not include guidance for the time-distribution for the 72-hour general storm PMP. The worksheets used to develop the general storm provide the distribution by day and by 6-hour period for the largest day. The Department has previously approved use of the following distribution:

  1st Day: Second Largest Day uniformly distributed

  2nd day: Largest Day sequenced as follows:

  A. Third largest 6-hr period uniformly distributed
  B. Second largest 6-hr period uniformly distributed
  C. Largest 6-hr period uniformly distributed
  D. Fourth largest 6-hr period uniformly distributed

  3rd day: Smallest Day uniformly distributed

- Site-specific PMP depths and distributions may be accepted if independently reviewed by a qualified third-party meteorologist at the dam owner's expense.

- The potential for rainfall coupled with snowmelt should be considered where applicable.

- Rainfall-runoff analyses should be performed following an appropriate industry-recognized methodology. Examples of acceptable methodologies include:

    - USBR Flood Hydrology Manual
    - ADOT Highway Drainage Design Manual
    - USACE Flood Runoff Analysis – EM 1110-2-1417
    - Drainage Design Manual for Maricopa County, Arizona, Hydrology
    - NRCS National Engineering Handbook – Part 630 Hydrology

  The selected methodology should be clearly identified including a statement of justification explaining why it is the most appropriate method for the watershed being considered. If the selected methodology is not one of those included in the list above, then upon request a copy of the reference should be provided along with the study.

- The rainfall-runoff model should be "verified" using one or more of the following:

    - Known reservoir or streamflow data during one or more severe storms on the watershed or nearby similar watershed(s);
    - 100-year discharge by flood frequency analysis on the watershed or nearby similar watershed(s);
    - 100-year discharge by indirect method(s).

  The ADOT and Maricopa County drainage design manuals provide procedures for verification by indirect methods. Watershed characteristics that may explain differences between the model results and those predicted by indirect methods should be discussed and examined.

- The verified rainfall-runoff model should be modified to account for increased rates of runoff during the PMF (i.e. decreased losses and shortened lag time or time of concentration).

- Other dams within the contributing watershed should generally not be assumed to fail during floods equal to or smaller than their own IDF, even if they have inadequate spillway capacities.

- Other dams within the contributing watershed should be assessed for the level of flood attenuation they provide during the PMF. If expected to be significant they should be included in the analysis.

- Watershed conditions used for estimation of the PMF should include foreseeable future (e.g. 10 years) changes in land-use.

- Deliverables accompanying the study should at a minimum include:

    - Total and excess rainfall hyetographs and discharge hydrographs for major sub-basins;
    - Inflow hydrographs for all reservoirs;
    - One or more channel cross-sections showing maximum water surfaces for major routing reaches

- Documentation accompanying the study should at a minimum include:

    - Local and general PMP computation sheets;
    - Topographic mapping of watershed including types/sources, scales, and dates;
    - Drainage area boundaries including the study area boundary, major sub-basin boundaries, and concentration points;
    - Channel cross-sections for routing reaches including sources.
    - Soils maps;
    - Land-use maps;
    - Copy of references used for selecting specific basin parameters (i.e. infiltration rates, curve numbers, runoff roughness coefficients, etc.) if not included in the selected standard methodology;
    - Watershed work maps including sub-basin boundaries and concentration points, time-of concentration or lag flow paths, and hydrograph routing paths;
    - Verification procedures and results;
    - Copies of representative hand-calculations;
    - Hard and electronic copies of all input and output computer files;
    - Discussion of error or warning messages included in computer output;
    - Comparison of results with those from previous studies including a discussion of differences.

Reservoir Routing

- All spillway and outlet elevation-discharge relationships should be calculated using appropriate industry-recognized design guidelines such as:

    - Hydraulics of Broad-Crested Spillways (SCS TR-39, 1968)
    - Hydraulic Design of the Box-Inlet Drop Spillway (SCS AH-301, 1966)
    - Hydraulic Design of Spillways (USACE EM 1110-2-1603, 1990)
    - Hydraulic Design of Reservoir Outlet Works (USACE EM 1110-2-1602, 1980)
    - Discharge Coefficients for Irregular Overfall Spillways (USBR EM No. 9, 1952)
    - Design of Small Dams, 3rd Ed. (USBR, 1987)
    - Handbook of Hydraulics, 7th Ed. (Brater et al., 1996)
    - Etc.

- Discharges through all spillways and outlets should be calculated and summed at one-foot intervals.

- Often, a weir equation is used to calculate the rating curve for an emergency spillway. In general, the weir coefficient varies with weir geometry (i.e. crest width, slope of upstream face, height of crest above the approach channel, etc.). It also varies with overflow depth and thus is usually not constant for the range of discharges. Also, in order for the weir equation to be applicable for the full range of discharges, the channel flow downstream of the weir must be supercritical. If a weir equation is used, the choice of discharge coefficient must be documented with reference(s) or calculations and supercritical flow downstream of the weir must be shown for the range of discharges.

- Energy losses in long, shallow spillway approach channels should be evaluated. The spillway discharge relationship should be related to the reservoir water surface elevation, which may be higher than that immediately upstream of the weir.

- Channel spillways without a clearly defined control section should be analyzed using a step backwater analysis.

- Flood routings for permanent storage reservoirs will normally be required to begin with reservoir storage at the spillway crest elevation. Flood routings for single-purpose flood control dams may be allowed to begin with the reservoir elevation at the invert of the lowest outlet work if 85 percent of the smaller of either (1) the reservoir volume at the spillway crest elevation or (2) the total runoff volume during the 100-year 24-hour storm can be drained within 10 days.

- Level-pool routing procedures are generally acceptable for most flood routings. For very long, narrow reservoirs dynamic-wave routing procedures should be used.

- The inflow design flood should be that resulting from either the six-hour local storm PMP or seventy-two-hour general storm PMP, whichever results in a higher routed maximum reservoir water surface elevation.

Deliverables accompanying the study should at a minimum include:

  - Elevation-storage relationship for all reservoirs routed via level-pool procedures;
  - Elevation-discharge relationships for all spillways and outlets and combined relationship for all dams;
  - Stage and discharge hydrographs for all reservoirs routed via level-pool procedures;
  - Maximum water surface elevation profile for all reservoirs routed via dynamic-wave procedures.
  - For dams predicted to be overtopped during the IDF:
    i) Maximum depth and duration of overtopping during the IDF;
    ii) Maximum percentage of the PMF during which the dam is not predicted to overtop.

- Documentation accompanying the study should at a minimum include:

  - Topographic mapping of the dam and reservoir including types/sources, scales, and dates;
  - Centerline profile of spillway starting upstream of the approach channel and terminating downstream of the stilling basin, if present;
  - One or more spillway cross-sections, as applicable;
  - Reservoir cross-sections used in dynamic-wave routing;
  - Centerline profile of outlet works showing conduit dimensions and entrance/exit conditions;
  - Copies of any design tables, charts, or nomographs used for predicting the hydraulic performance of spillway or outlet works;
  - Copies of representative hand calculations;
  - Hard and electronic copies of all input and output computer files;
  - Discussion of error or warning messages included in computer output;
  - Comparison of results with those from previous studies including a discussion of differences.

(1)

CALCULATION PACKAGE NO. E-2

URS **EXHIBIT 4.7-2**

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County (FCDMC)

Project Name: White Tank FRS No. 3 Design

Project/Calculation Number: 23443748

Title: **RESERVOIR ROUTING OF 6-HR LOCAL AND 72-HR GENERAL PMF HYDROGRAPHS FOR INTERIM PRINCIPAL SPILLWAY CONDITION (ADWR CRITERIA)**

Total Number of Pages (including cover sheet):

Total Number of Computer Runs:

Prepared by: Hammad Hussain Date: 07/22/04

Checked by: Todd Ringsmuth Date: 7/22/04

Description and Purpose:

See Page 2

Design Basis /Assumptions

See Page 2

Remarks/Conclusions/Results:

See Page 3.

Contain 15.8 for 72 hr (need reference)
Slight change to Table 1
Same 4 warnings as other cases — not a problem — conservative results

Calculation Approved by: 7/27/04
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:
1	Revised Table 1.	7-28-04
2	Updated Modeling Results for Interim Condition for ZERO INFILTRATION	3/1/05

Project Manager/Date

RESERVOIR ROUTING OF 6-HR LOCAL AND 72-HR GENERAL PMF HYDROGRAPHS FOR INTERIM PRINCIPAL SPILLWAY CONDITION (ADWR CRITERIA – ZERO INFILTRATION)

(WHITE TANK FLOOD RETARDING STRUCTURE (FRS) NO. 3)
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC)
23443748

PROBLEM STATEMENT

This particular calculation package addresses the reservoir routing results for the **Interim Condition** based on ADWR criteria with **ZERO INFILTRATION.**

DESIGN BASIS/ASSUMPTIONS/REFERENCES

INTERIM CONDITION

The Interim Condition represents the time period following construction of the facilities included in the Remediation Project and the installation of the downstream conveyance channel. Since this time period is anticipated to be short (less than 10 years), it is assumed that no additional sediment has accumulated in the reservoir. The principal spillway is closed and does not convey flow out of the reservoir. Please note that for ADWR criteria, the reservoir routing has been performed for **ZERO INFILTRATION.** Under this condition the only outflow from the reservoir occurs through the emergency spillway set at elevation 1212.0 ft. Please also note that rating curve developed for the Interim condition with zero infiltration rate includes minor outflows from 0 to 2 cfs for elevations 1178 ft to 1212 ft. The inclusion of these outflows is required because the TR-20 Model becomes unstable if zero flows are indicated for elevations 1178 ft to 1212 ft. However, given the range of outflows is extremely low (<2 cfs), it will not impact the reservoir routing results.

Given that the Interim Condition was assumed a short period following construction of the dam and prior to construction of a dedicated downstream conveyance, the routing for the Interim Condition was performed based on the current topographic condition in the reservoir (i.e., no additional sediment). Therefore, the Antecedent Reservoir Condition (ARC) for initial reservoir routing is the invert elevation of the proposed gated outlet or at elevation 1197.0 ft (NAVD 88).

The reservoir routing for the Interim Condition was carried out for 6-hr Local and 72-hr General Probable Maximum Flood (PMF) hydrographs based on ADWR criteria. The ADWR criteria for the interim condition is explained as follows.

ADWR Routing Criteria: For the Interim Condition, the ARC for the routing of the 6-hr Local and 72-hr General PMF hydrographs will be based on the water surface elevation equal to the invert of the lowest outlet or at elevation 1197.0 ft (NAVD 88). This ARC was selected after verifying that the outlet works provided at WT FRS No.3 could draw down 85 percent of the peak storage volume at the end of 10th day following the peak of 100-year 24-hour storm.

ROUTING RESULTS

ADWR Routing: The ARC for the routing of the 6-hour Local and 72-hr General PMF hydrographs was set at the invert elevation of the proposed gated outlet, or elevation 1,197 ft (NAVD 88). The reservoir routing results i.e. ARC, peak inflows, peak outflows, and the maximum reservoir elevation for the 6-hour Local and 72-hr General PMF hydrographs for Interim Condition (ZERO INFILTRATION) based on ADWR criteria are provided in Table 1 (Please See Page 4).

The input file and the detailed output results of TR-20 modeling for reservoir routing of 6-hour Local and 72-hr General PMF hydrographs for ADWR criteria are attached at the end of this calculation package.

TABLE 1
RESERVOIR ROUTING RESULTS
(BASED ON ADWR CRITERION ONLY)

(INTERIM CONDITON-ZERO INFILTRATION)

Storm Event	Inflow to White Tank FRS No.3		Outflow from White Tank FRS No.3		
	Precipitation (inches)	Peak Inflow (cfs)	Antecedent Reservoir Condition (ARC)	Peak Outflow (cfs)	Maximum Reservoir Elevation (NAVD 88) (ft)
6-hr Local	12.70	68,291	1197.0	22,710	1215.8
72-hr General	15.80	32,764	1197.0	22,758	1215.8

6-hr Local
(Input & output File)
(ADWR - Criteria - Zero Infiltration)

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20 WT3PMP6   ECON                    PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     6HR LOCAL, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
                                                                    6HRLOCAL
 5 RAINFL 1              0.1
 8           .0000       .003        .006        .009        .013
 8           .016        .020        .025        .030        .035
 8           .039        .046        .052        .058        .065
 8           .071        .080        .090        .099        .109
 8           .118        .283        .449        .567        .622
 8           .669        .701        .732        .756        .780
 8           .795        .809        .824        .838        .852
 8           .866        .876        .885        .894        .904
 8           .913        .920        .926        .932        .939
 8           .945        .950        .954        .959        .964
 8           .969        .972        .976        .980        .984
 8           .988        .991        .993        .995        .998
 8           1.          1.          1.          1.          1.
 9 ENDTBL
                                                                    6HR GEN
 5 RAINFL 2              .1
 8           .000        .005        .013        .020        .028
 8           .038        .045        .053        .060        .070
 8           .080        .085        .095        .108        .120
 8           .138        .150        .165        .190        .210
 8           .238        .280        .350        .440        .550
 8           .590        .620        .645        .668        .685
 8           .700        .720        .735        .753        .765
 8           .775        .790        .800        .810        .820
 8           .835        .843        .850        .863        .870
 8           .880        .890        .898        .908        .915
 8           .925        .930        .940        .945        .955
 8           .963        .970        .978        .985        .990
 8           1.00        1.00        1.00        1.00        1.00
 9 ENDTBL
                                                                    12HRGEN
 5 RAINFL 3              0.1
 8           .000        .003        .007        .010        .013
 8           .016        .019        .022        .025        .028
 8           .031        .034        .037        .040        .043
 8           .045        .050        .054        .058        .062
 8           .066        .071        .075        .080        .085
 8           .089        .095        .101        .107        .112
 8           .118        .125        .132        .139        .146
 8           .153        .162        .171        .180        .189
 8           .198        .211        .224        .237        .250
 8           .264        .300        .345        .391        .436
 8           .491        .536        .564        .586        .607
 8           .629        .643        .657        .672        .686
 8           .700        .711        .721        .732        .742
 8           .753        .761        .769        .778        .786
 8           .795        .802        .809        .817        .824
 8           .832        .837        .843        .848        .854
 8           .859        .865        .870        .875        .881
 8           .886        .891        .895        .900        .905
 8           .909        .913        .917        .921        .925
 8           .929        .933        .936        .940        .944
 8           .948        .951        .954        .957        .960
 8           .963        .966        .969        .971        .974
```

```
 8          .977        .980        .982        .984        .986
 8          .989        .991        .993        .995        .998
 8         1.000      01.000       1.000       1.000       1.00
 9 ENDTBL
 5 RAINFL 4              0.1                                        18HRGEN
 8          .000        .001        .002        .003        .004
 8          .005        .005        .006        .007        .008
 8          .009        .012        .014        .017        .020
 8          .023        .025        .028        .031        .033
 8          .036        .040        .044        .049        .053
 8          .057        .061        .065        .070        .074
 8          .078        .084        .090        .096        .102
 8          .108        .114        .120        .126        .132
 8          .138        .146        .154        .162        .170
 8          .179        .187        .195        .203        .211
 8          .220        .238        .256        .275        .293
 8          .311        .330        .348        .367        .385
 8          .403        .430        .457        .484        .511
 8          .538        .557        .577        .597        .616
 8          .636        .653        .670        .687        .704
 8          .721        .734        .746        .759        .771
 8          .784        .792        .801        .810        .818
 8          .827        .832        .838        .843        .848
 8          .853        .856        .859        .862        .864
 8          .867        .870        .872        .875        .878
 8          .880        .882        .885        .887        .889
 8          .891        .893        .895        .897        .899
 8          .901        .903        .905        .907        .909
 8          .911        .912        .914        .916        .917
 8          .919        .920        .922        .924        .925
 8          .927        .929        .930        .932        .934
 8          .935        .937        .938        .940        .941
 8          .943        .945        .946        .948        .949
 8          .951        .952        .953        .955        .956
 8          .957        .959        .960        .961        .963
 8          .964        .965        .967        .968        .970
 8          .971        .972        .974        .975        .976
 8          .978        .979        .980        .982        .983
 8          .984        .985        .986        .988        .989
 8          .990        .991        .992        .993        .994
 8          .995        .996        .997        .998        .999
 8         1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 5 RAINFL 5              0.1                                        24HRGEN
 8        0.000       0.000       0.001       0.001       0.002
 8        0.002       0.002       0.003       0.003       0.003
 8        0.004       0.005       0.007       0.009       0.010
 8        0.012       0.013       0.015       0.016       0.018
 8        0.019       0.022       0.024       0.027       0.030
 8        0.032       0.035       0.037       0.040       0.042
 8        0.045       0.048       0.051       0.055       0.058
 8        0.061       0.064       0.068       0.071       0.074
 8        0.078       0.082       0.087       0.091       0.096
 8        0.100       0.104       0.109       0.113       0.118
 8        0.122       0.127       0.132       0.137       0.142
 8        0.147       0.151       0.156       0.161       0.166
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8          0.171       0.177       0.184       0.191       0.198
 8          0.205       0.214       0.224       0.233       0.242
 8          0.252       0.265       0.278       0.291       0.303
 8          0.316       0.334       0.351       0.368       0.386
 8          0.403       0.425       0.447       0.468       0.490
 8          0.512       0.527       0.543       0.558       0.574
 8          0.589       0.603       0.617       0.631       0.645
 8          0.659       0.671       0.684       0.696       0.709
 8          0.721       0.731       0.741       0.751       0.761
 8          0.771       0.779       0.786       0.793       0.800
 8          0.808       0.814       0.820       0.825       0.831
 8          0.837       0.840       0.843       0.847       0.850
 8          0.853       0.855       0.857       0.859       0.861
 8          0.864       0.866       0.868       0.870       0.872
 8          0.874       0.876       0.878       0.880       0.881
 8          0.883       0.885       0.886       0.888       0.890
 8          0.891       0.893       0.895       0.896       0.898
 8          0.899       0.901       0.902       0.904       0.905
 8          0.907       0.908       0.909       0.910       0.912
 8          0.913       0.914       0.915       0.916       0.917
 8          0.919       0.920       0.921       0.922       0.923
 8          0.924       0.926       0.927       0.928       0.929
 8          0.930       0.932       0.933       0.935       0.936
 8          0.938       0.940       0.941       0.943       0.944
 8          0.946       0.947       0.947       0.948       0.949
 8          0.950       0.950       0.951       0.952       0.953
 8          0.953       0.955       0.956       0.957       0.958
 8          0.959       0.960       0.961       0.962       0.963
 8          0.964       0.965       0.966       0.967       0.968
 8          0.969       0.970       0.971       0.972       0.973
 8          0.974       0.975       0.976       0.977       0.978
 8          0.979       0.980       0.981       0.982       0.983
 8          0.984       0.985       0.986       0.987       0.988
 8          0.988       0.989       0.990       0.991       0.991
 8          0.992       0.993       0.994       0.995       0.995
 8          0.996       0.997       0.998       0.998       0.999
 8          1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 5 RAINFL 6              .25                                         48HRGEN
 8          0.0000      0.0015      0.0029      0.0044      0.0058
 8          0.0073      0.0088      0.0102      0.0117      0.0131
 8          0.0146      0.0160      0.0175      0.0190      0.0204
 8          0.0219      0.0233      0.0248      0.0263      0.0277
 8          0.0292      0.0306      0.0321      0.0335      0.0350
 8          0.0365      0.0379      0.0394      0.0408      0.0423
 8          0.0438      0.0452      0.0467      0.0481      0.0496
 8          0.0510      0.0525      0.0542      0.0558      0.0575
 8          0.0592      0.0608      0.0625      0.0642      0.0658
 8          0.0692      0.0725      0.0758      0.0792      0.0825
 8          0.0858      0.0892      0.0925      0.0975      0.1025
 8          0.1075      0.1125      0.1175      0.1225      0.1275
 8          0.1325      0.1442      0.1560      0.1677      0.1794
 8          0.1985      0.2176      0.2366      0.2557      0.3239
 8          0.3921      0.4603      0.5285      0.5520      0.5754
 8          0.5989      0.6224      0.6356      0.6488      0.6620
 8          0.6752      0.6862      0.6972      0.7082      0.7192
```

```
 8          0.7267      0.7342      0.7417      0.7492      0.7558
 8          0.7625      0.7692      0.7758      0.7825      0.7892
 8          0.7958      0.8025      0.8083      0.8142      0.8200
 8          0.8258      0.8308      0.8358      0.8408      0.8458
 8          0.8508      0.8558      0.8608      0.8658      0.8683
 8          0.8708      0.8733      0.8758      0.8783      0.8808
 8          0.8833      0.8858      0.8875      0.8892      0.8908
 8          0.8925      0.8942      0.8958      0.8975      0.8992
 8          0.9008      0.9025      0.9042      0.9058      0.9075
 8          0.9092      0.9108      0.9125      0.9140      0.9154
 8          0.9169      0.9183      0.9198      0.9213      0.9227
 8          0.9242      0.9256      0.9271      0.9285      0.9300
 8          0.9315      0.9329      0.9344      0.9358      0.9373
 8          0.9388      0.9402      0.9417      0.9431      0.9446
 8          0.9460      0.9475      0.9490      0.9504      0.9519
 8          0.9533      0.9548      0.9563      0.9577      0.9592
 8          0.9606      0.9621      0.9635      0.9650      0.9665
 8          0.9679      0.9694      0.9708      0.9723      0.9737
 8          0.9752      0.9767      0.9781      0.9796      0.9810
 8          0.9825      0.9840      0.9854      0.9869      0.9883
 8          0.9898      0.9912      0.9927      0.9942      0.9956
 8          0.9971      0.9985      1.0000      1.0000      1.0
 9 ENDTBL
 5 RAINFL 7              .25                                         72HRGEN
 8          0.0000      0.0005      0.0009      0.0014      0.0019
 8          0.0025      0.0032      0.0038      0.0044      0.0051
 8          0.0057      0.0063      0.0070      0.0076      0.0082
 8          0.0089      0.0095      0.0103      0.0111      0.0119
 8          0.0127      0.0134      0.0142      0.0150      0.0158
 8          0.0171      0.0184      0.0196      0.0209      0.0222
 8          0.0234      0.0247      0.0259      0.0272      0.0285
 8          0.0297      0.0310      0.0323      0.0335      0.0348
 8          0.0361      0.0375      0.0389      0.0403      0.0418
 8          0.0432      0.0446      0.0460      0.0475      0.0489
 8          0.0503      0.0517      0.0532      0.0546      0.0560
 8          0.0574      0.0589      0.0604      0.0620      0.0636
 8          0.0652      0.0668      0.0684      0.0699      0.0715
 8          0.0731      0.0747      0.0763      0.0778      0.0797
 8          0.0816      0.0835      0.0854      0.0877      0.0899
 8          0.0921      0.0943      0.0968      0.0994      0.1019
 8          0.1044      0.1073      0.1101      0.1130      0.1158
 8          0.1193      0.1228      0.1263      0.1297      0.1335
 8          0.1373      0.1411      0.1449      0.1491      0.1532
 8          0.1573      0.1614      0.1725      0.1837      0.1948
 8          0.2059      0.2241      0.2422      0.2603      0.2784
 8          0.3431      0.4078      0.4726      0.5373      0.5596
 8          0.5819      0.6042      0.6265      0.6390      0.6515
 8          0.6641      0.6766      0.6870      0.6975      0.7079
 8          0.7184      0.7255      0.7326      0.7397      0.7468
 8          0.7535      0.7601      0.7668      0.7734      0.7794
 8          0.7854      0.7915      0.7975      0.8030      0.8085
 8          0.8141      0.8196      0.8247      0.8297      0.8348
 8          0.8399      0.8443      0.8487      0.8532      0.8576
 8          0.8598      0.8620      0.8642      0.8665      0.8685
 8          0.8706      0.8726      0.8747      0.8766      0.8785
 8          0.8804      0.8823      0.8840      0.8858      0.8875
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 8          0.8892      0.8908      0.8924      0.8940      0.8956
 8          0.8972      0.8987      0.9003      0.9019      0.9035
 8          0.9051      0.9066      0.9082      0.9098      0.9114
 8          0.9130      0.9146      0.9160      0.9174      0.9188
 8          0.9203      0.9217      0.9231      0.9245      0.9259
 8          0.9274      0.9288      0.9302      0.9316      0.9329
 8          0.9342      0.9354      0.9367      0.9380      0.9392
 8          0.9405      0.9418      0.9430      0.9443      0.9456
 8          0.9468      0.9481      0.9494      0.9506      0.9519
 8          0.9530      0.9541      0.9552      0.9563      0.9574
 8          0.9585      0.9597      0.9608      0.9619      0.9630
 8          0.9641      0.9652      0.9661      0.9671      0.9680
 8          0.9690      0.9699      0.9709      0.9718      0.9728
 8          0.9736      0.9744      0.9752      0.9759      0.9767
 8          0.9775      0.9783      0.9791      0.9797      0.9804
 8          0.9810      0.9816      0.9823      0.9829      0.9835
 8          0.9842      0.9847      0.9851      0.9856      0.9861
 8          0.9866      0.9870      0.9875      0.9880      0.9884
 8          0.9889      0.9894      0.9899      0.9902      0.9905
 8          0.9908      0.9911      0.9915      0.9918      0.9921
 8          0.9924      0.9927      0.9930      0.9934      0.9937
 8          0.9940      0.9943      0.9946      0.9949      0.9953
 8          0.9956      0.9959      0.9962      0.9965      0.9968
 8          0.9972      0.9975      0.9978      0.9981      0.9984
 8          0.9987      0.9989      0.9991      0.9992      0.9994
 8          0.9995      0.9997      0.9998      1.0000      1.0000
 9 ENDTBL
 5 RAINFL 8     1        2.4                                          10-DAY
 8          .0000       .0024       .0048       .0073       .0097
 8          .0121       .0148       .0174       .0201       .0228
 8          .0254       .0284       .0314       .0344       .0374
 8          .0404       .0437       .0471       .0505       .0539
 8          .0572       .0612       .0651       .0690       .0729
 8          .0768       .0815       .0862       .0909       .0955
 8          .1002       .1061       .1120       .1179       .1238
 8          .1297       .1377       .1458       .1538       .1618
 8          .1699       .1832       .1966       .2099       .2232
 8          .2366       .2548       .2778       .3093       .3614
 8          1.092       1.174       1.213       1.240       1.260
 8          1.276       1.286       1.296       1.306       1.316
 8          1.326       1.333       1.340       1.347       1.354
 8          1.360       1.365       1.371       1.376       1.381
 8          1.386       1.391       1.395       1.399       1.403
 8          1.408       1.411       1.415       1.418       1.422
 8          1.426       1.429       1.432       1.435       1.438
 8          1.442       1.444       1.447       1.450       1.453
 8          1.456       1.458       1.461       1.463       1.466
 8          1.468       1.471       1.473       1.475       1.477
 8          1.48        1.48        1.48        1.48        1.48
 9 ENDTBL
 4 DIMHYD                .0556                                        WT3
 8          0.0         .03         .10         .19         .31
 8          .47         .66         .82         .93         .99
 8          1.0         .99         .93         .82         .66
 8          .47         .31         .03         .00         .00
 9 ENDTBL
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 2 XSECTN    005         1.0         8.77                                BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN    010         1.0         8.94                                BOSSCS#4
 8                       0.          0.0         0.0
 8                       0.91        5.          4.95
 8                       2.03        50.         24.80
 8                       2.63        100.        41.32
 8                       3.34        200.        74.14
 8                       4.15        400.        130.28
 8                       5.23        800.        223.37
 8                       6.41        1600.       447.51
 8                       7.65        3200.       898.64
 8                       8.94        6400.       1690.88
 8                       10.29       12800.      3331.95
 8                       11.64       25600.      6185.81
 8                       13.14       51200.      10661.04
 9 ENDTBL
 2 XSECTN    020         1.0         7.3                                 REACHC
 8                       0.          0.0         0.0
 8                       1.01        100.        57.78
 8                       1.49        200.        86.81
 8                       1.88        300.        110.25
 8                       2.49        500.        149.47
 8                       3.68        1000.       226.31
 8                       5.40        2000.       346.26
 8                       7.85        4000.       533.39
 8                       9.64        6000.       688.07
 8                       11.16       8000.       838.10
 8                       12.46       10000.      985.31
 8                       13.61       12000.      1122.03
 8                       14.56       14000.      1236.94
 8                       15.43       16000.      1345.18
 8                       16.31       18000.      1456.68
 9 ENDTBL
 2 XSECTN    025         1.0         7.3                                 REACHB
 8                       0.          0.0         0.0
 8                       0.63        100.        80.89
 8                       0.93        200.        120.32
 8                       1.17        300.        151.77
 8                       1.56        500.        203.28
 8                       2.30        1000.       302.00
 8                       3.38        2000.       449.24
 8                       4.97        4000.       673.73
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 8                    6.23        6000.       855.96
 8                    7.31        8000.       1016.35
 8                    8.24        10000.      1158.51
 8                    9.09        12000.      1293.31
 8                    9.90        14000.      1425.57
 8                    10.64       16000.      1549.17
 8                    11.36       18000.      1673.11
 9 ENDTBL
 2 XSECTN   030       1.0         9.45                            BOSSCS#6
 8                    0.          0.0         0.0
 8                    0.77        5.          4.67
 8                    1.54        50.         32.06
 8                    1.78        100.        56.64
 8                    2.10        200.        100.59
 8                    2.50        400.        179.97
 8                    3.01        800.        320.25
 8                    3.63        1600.       589.66
 8                    4.35        3200.       1110.72
 8                    5.21        6400.       2084.48
 8                    6.03        12800.      4119.83
 8                    6.99        25600.      6856.75
 8                    8.28        51200.      11085.87
 9 ENDTBL
 2 XSECTN   045       1.0         4.87                            REACHA
 8                    0.          0.0         0.0
 8                    0.60        100.        85.69
 8                    0.90        200.        127.94
 8                    1.13        300.        161.93
 8                    1.52        500.        217.27
 8                    2.25        1000.       324.03
 8                    3.31        2000.       483.02
 8                    4.87        4000.       722.17
 8                    6.09        6000.       914.99
 8                    7.15        8000.       1084.61
 8                    8.05        10000.      1234.17
 8                    8.87        12000.      1373.80
 8                    9.64        14000.      1507.84
 8                    10.34       16000.      1633.45
 8                    11.00       18000.      1753.12
 9 ENDTBL
 2 XSECTN   060       1.0         4.7                             2CP6CP7
 8                    0.          0.0         0.0
 8                    2.36        100.        45.12
 8                    2.88        200.        83.75
 8                    3.18        300.        114.33
 8                    3.64        500.        172.72
 8                    4.42        1000.       289.04
 8                    5.40        2000.       470.72
 8                    6.87        4000.       782.74
 8                    7.91        6000.       1020.12
 8                    8.79        8000.       1231.25
 8                    9.60        10000.      1435.05
 8                    10.26       12000.      1618.34
 8                    10.94       14000.      1812.58
 8                    11.47       16000.      1983.46
 8                    11.96       18000.      2150.12
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 9 ENDTBL
 2 XSECTN   067          1.0         8.77                              BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 3 STRUCT      01                                                        95/11/6
 8                       1178.0      0.00        0.
 8                       1188.0      1.1         44.8
 8                       1197.0      1.2         300.
 8                       1199.2      1.3         500.
 8                       1202.0      1.4         845.55
 8                       1204.0      1.5         1176.28
 8                       1206.0      1.6         1575.25
 8                       1208.0      1.7         2044.97
 8                       1210.0      1.8         2593.40
 8                       1212.0      1.9         3218.00
 8                       1213.0      2593.0      3556.67
 8                       1214.0      8133.0      3916.02
 8                       1215.0      15443.0     4294.13
 8                       1216.0      24165.0     4692.68
 8                       1217.0      34099.0     5113.19
 8                       1218.0      45112.0     5556.01
 8                       1219.0      57107.0     6021.50
 8                       1220.0      70010.0     6509.75
 9 ENDTBL
 6 RUNOFF 1 001        1 2.46        87.2        0.85        1 1
 6 REACH  3 005   1    7 9100.                               1           BOSS#6
 6 REACH  3 010   7    2 9100.                               1           BOSS#4
 6 RUNOFF 1 002        3 2.38        79.9        0.73        1 1
 6 ADDHYD 4 012   2 3 1                                      1 1
 6 DIVERT 6 012   1 4 7 4100.       1.00        200.        1 1         OLIVE
 6 REACH  3 020   4    7 3332.                               1           REACH C
 6 REACH  3 025   7    5 1950.                               1           REACH B
 6 RUNOFF 1 003        6 3.94        87.2        0.88        1 1
 6 REACH  3 030   6    7 8865.                               1           BOSS#6
 6 REACH  3 005   7    1 8865.                               1           BOSS#5
 6 REACH  3 025   1    7 1950.                               1           REACH B
 6 RUNOFF 1 004        1 2.06        77.3        0.79        1 1
 6 ADDHYD 4 034   7 1 2                                      1 1
 6 ADDHYD 4 035   5 2 3                                      1 1
 6 DIVERT 6 035   3 4 7 11000.      1.00        199.        1 1         NORTHERN
 6 REACH  3 045   4    5 4200.                               1           REACH A
 6 RUNOFF 1 006        2 1.47        87.7        0.47        1 1
 6 REACH  3 060   2    3 7540.                               1           CP6CP7
 6 REACH  3 067   3    4 5140.                               1           BOSS#5
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 6 ADDHYD 4 064    5 4 3                                      1 1
 6 RUNOFF 1 005       6 4.78         78.8         0.78       1 1
 6 RUNOFF 1 007       7 3.48         81.7         1.01       1 1
 6 ADDHYD 4 075    6 7 1                                      1 1
 6 ADDHYD 4 076    1 3 2                                      1 1      1
 6 RESVOR 2     01 2   1 1197.0                               1 1      1
 ENDATA
 7 LIST               1.0                      1.
 7 INCREM 6           0.05
 7 COMPUT 7 001    01 0.          12.7         1.0        1 2  01  01
   ENDCMP 1
   ENDJOB 2

**********END OF 80-80 LIST**********
```

RUNOFF OPTION USED WITH RAINTABLE NO. 8, RUNOFF CURVE NO. = 100.

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

EXECUTIVE CONTROL LIST 1. 0. 1.

LISTING OF CURRENT DATA

COMPUTED TIME INCREMENT
DIMHYD .0556

.0000	.0300	.1000	.1900	.3100
.4700	.6600	.8200	.9300	.9900
1.0000	.9900	.9300	.8200	.6600
.4700	.3100	.0300	.0000	.0000

ENDTBL

COMPUTED PEAK RATE FACTOR = 664.607

TABLE NO. TIME INCREMENT
RAINFL 1 .1000

.0000	.0030	.0060	.0090	.0130
.0160	.0200	.0250	.0300	.0350
.0390	.0460	.0520	.0580	.0650
.0710	.0800	.0900	.0990	.1090
.1180	.2830	.4490	.5670	.6220
.6690	.7010	.7320	.7560	.7800
.7950	.8090	.8240	.8380	.8520
.8660	.8760	.8850	.8940	.9040
.9130	.9200	.9260	.9320	.9390
.9450	.9500	.9540	.9590	.9640
.9690	.9720	.9760	.9800	.9840
.9880	.9910	.9930	.9950	.9980
1.0000	1.0000	1.0000	1.0000	1.0000

ENDTBL

STANDARD CONTROL INSTRUCTIONS

```
RUNOFF      1       1      2.4600     87.2000      .85001 1 0 0 0 1
REACH       5   1   7   9100.0000       .0000      .00001 0 0 0 0 1
REACH      10   7   2   9100.0000       .0000      .00001 0 0 0 0 1
RUNOFF      2       3      2.3800     79.9000      .73001 1 0 0 0 1
ADDHYD     12   2 3 1                                   1 1 0 0 0 1
DIVERT     12   1 4 7   4100.0000      1.0000   200.00001 1 0 0 0 1
REACH      20   4   7   3332.0000       .0000      .00001 0 0 0 0 1
REACH      25   7   5   1950.0000       .0000      .00001 0 0 0 0 1
RUNOFF      3       6      3.9400     87.2000      .88001 1 0 0 0 1
REACH      30   6   7   8865.0000       .0000      .00001 0 0 0 0 1
REACH       5   7   1   8865.0000       .0000      .00001 0 0 0 0 1
REACH      25   1   7   1950.0000       .0000      .00001 0 0 0 0 1
RUNOFF      4       1      2.0600     77.3000      .79001 1 0 0 0 1
ADDHYD     34   7 1 2                                   1 1 0 0 0 1
ADDHYD     35   5 2 3                                   1 1 0 0 0 1
DIVERT     35   3 4 7  11000.0000      1.0000   199.00001 1 0 0 0 1
REACH      45   4   5   4200.0000       .0000      .00001 0 0 0 0 1
RUNOFF      6       2      1.4700     87.7000      .47001 1 0 0 0 1
REACH      60   2   3   7540.0000       .0000      .00001 0 0 0 0 1
REACH      67   3   4   5140.0000       .0000      .00001 0 0 0 0 1
ADDHYD     64   5 4 3                                   1 1 0 0 0 1
RUNOFF      5       6      4.7800     78.8000      .78001 1 0 0 0 1
RUNOFF      7       7      3.4800     81.7000     1.01001 1 0 0 0 1
ADDHYD     75   6 7 1                                   1 1 0 0 0 1
ADDHYD     76   1 3 2                                   1 1 0 0 1 1
RESVOR        1 2   1   1197.0000                       1 1 0 0 1 1
ENDATA
```

END OF LISTING

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .050 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO STRUCTURE 1
STARTING TIME = .00 RAIN DEPTH = 12.70 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .050 HOURS
ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 1

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET) (RUNOFF)
2.71	17873.0	

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.46 SQ.MI.

HRS								
.75 CFS	.38	1.15	2.73	5.54	9.95	16.43	25.70	38.37
1.15 CFS	55	75	99	128	160	196	235	276
1.55 CFS	318	362	409	458	510	566	625	688
1.95 CFS	753	830	978	1279	1794	2595	3743	5287
2.35 CFS	7187	9294	11447	13473	15219	16590	17491	17866
2.75 CFS	17674	16919	15643	13899	11960	10148	8586	7352
3.15 CFS	6416	5736	5217	4765	4374	4049	3771	3525
3.55 CFS	3312	3138	2995	2873	2772	2690	2613	2530
3.95 CFS	2439	2343	2247	2154	2065	1978	1896	1819
4.35 CFS	1749	1687	1631	1574	1516	1458	1400	1342
4.75 CFS	1287	1239	1196	1160	1128	1098	1069	1038
5.15 CFS	1007	976	947	922	901	882	867	852
5.55 CFS	837	819	800	781	762	742	721	700
5.95 CFS	676	646	612	576	539	500	458	413
6.35 CFS	367	322	278	234	191	147	106	68
6.75 CFS	37.92	17.14	5.12	.74	.04			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.09 WATERSHED INCHES; 17613 CFS-HRS; 1455.5 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.32	10200.1	8.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.09 WATERSHED INCHES; 17613 CFS-HRS; 1455.5 ACRE-FEET.

OPERATION REACH XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.96	7060.0	9.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.09 WATERSHED INCHES; 17613 CFS-HRS; 1455.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.64	16995.9	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.38 SQ.MI.

HRS								
1.05 CFS	.16	.69	1.94	4.40	8.67	15.34	25.03	38.19
1.45 CFS	55	75	99	128	161	198	240	286
1.85 CFS	336	390	445	523	689	1033	1648	2632
2.25 CFS	4059	5924	8106	10407	12610	14524	15972	16813
2.65 CFS	16970	16435	15174	13412	11508	9715	8223	7053
3.05 CFS	6203	5583	5079	4636	4253	3923	3631	3372
3.45 CFS	3155	2982	2842	2733	2654	2597	2536	2461
3.85 CFS	2371	2271	2170	2073	1981	1896	1820	1752
4.25 CFS	1694	1642	1588	1530	1468	1405	1343	1286
4.65 CFS	1236	1194	1158	1126	1094	1061	1028	995
5.05 CFS	962	932	906	886	869	852	836	819
5.45 CFS	801	781	762	746	733	721	708	691
5.85 CFS	668	636	601	565	530	495	459	422
6.25 CFS	383	341	298	252	204	155	108	65
6.65 CFS	33.37	12.75	2.82	.21				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.12 WATERSHED INCHES; 15550 CFS-HRS; 1285.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.64	17248.4	(NULL)
3.81	9386.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 4.84 SQ.MI.

HRS								
1.05 CFS	.16	.69	1.94	4.40	8.68	15.37	25.12	38.38
1.45 CFS	55	76	101	130	164	203	246	295
1.85 CFS	349	407	468	552	726	1078	1702	2698
2.25 CFS	4138	6017	8214	10533	12754	14690	16164	17035
2.65 CFS	17234	16756	15574	13921	12165	10563	9314	8436
3.05 CFS	7930	7699	7624	7638	7731	7880	8056	8240
3.45 CFS	8433	8628	8811	8978	9131	9262	9350	9385
3.85 CFS	9371	9316	9230	9123	8998	8860	8713	8560
4.25 CFS	8404	8243	8072	7889	7696	7497	7295	7095
4.65 CFS	6900	6711	6528	6348	6169	5990	5812	5635

5.05 CFS	5461	5291	5129	4974	4825	4679	4537	4397
5.45 CFS	4259	4123	3991	3865	3745	3630	3517	3404
5.85 CFS	3287	3165	3043	2923	2807	2695	2585	2475
6.25 CFS	2367	2259	2152	2045	1937	1831	1727	1631
6.65 CFS	1547	1475	1416	1364	1316	1269	1223	1177
7.05 CFS	1132	1087	1043	999	956	913	871	830
7.45 CFS	790	751	714	678	642	609	576	545
7.85 CFS	516	487	460	434	409	386	363	342
8.25 CFS	322	303	285	268	252	236	222	208
8.65 CFS	195	183	172	161	151	141	132	124
9.05 CFS	116	109	102	95	89	83	78	73
9.45 CFS	67.78	63.31	59.13	55.22	51.55	48.12	44.91	41.90
9.85 CFS	39.10	36.47	34.01	31.72	29.57	27.57	25.70	23.95
10.25 CFS	22.32	20.79	19.37	18.04	16.81	15.65	14.57	13.57
10.65 CFS	12.63	11.76	10.94	10.18	9.47	8.81	8.20	7.63
11.05 CFS	7.10	6.60	6.14	5.71	5.30	4.93	4.58	4.26
11.45 CFS	3.96	3.68	3.42	3.18	2.95	2.74	2.55	2.37
11.85 CFS	2.20	2.04	1.89	1.76	1.63	1.51	1.40	1.30
12.25 CFS	1.21	1.12	1.04	.97	.90	.83	.77	.71
12.65 CFS	.66	.61	.57	.53	.49			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.62 WATERSHED INCHES; 33163 CFS-HRS; 2740.6 ACRE-FEET.

OPERATION DIVERT XSECTION 12
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.25	4100.0 *	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 4.84 SQ.MI.

HRS								
1.05 CFS	.16	.69	1.94	4.40	8.68	15.37	25.12	38.38
1.45 CFS	55	76	101	130	164	203	246	295
1.85 CFS	349	407	468	552	726	1078	1702	2698
2.25 CFS	4100	4100	4100	4100	4100	4100	4100	4100
2.65 CFS	4100	4100	4100	4100	4100	4100	4100	4100
3.05 CFS	4100	4100	4100	4100	4100	4100	4100	4100
3.45 CFS	4100	4100	4100	4100	4100	4100	4100	4100
3.85 CFS	4100	4100	4100	4100	4100	4100	4100	4100
4.25 CFS	4100	4100	4100	4100	4100	4100	4100	4100
4.65 CFS	4100	4100	4100	4100	4100	4100	4100	4100
5.05 CFS	4100	4100	4100	4100	4100	4100	4100	4100
5.45 CFS	4100	4100	3991	3865	3745	3630	3517	3404
5.85 CFS	3287	3165	3043	2923	2807	2695	2585	2475
6.25 CFS	2367	2259	2152	2045	1937	1831	1727	1631
6.65 CFS	1547	1475	1416	1364	1316	1269	1223	1177
7.05 CFS	1132	1087	1043	999	956	913	871	830

7.45 CFS	790	751	714	678	642	609	576	545
7.85 CFS	516	487	460	434	409	386	363	342
8.25 CFS	322	303	285	268	252	236	222	208
8.65 CFS	195	183	172	161	151	141	132	124
9.05 CFS	116	109	102	95	89	83	78	73
9.45 CFS	67.78	63.31	59.13	55.22	51.55	48.12	44.91	41.90
9.85 CFS	39.10	36.47	34.01	31.72	29.57	27.57	25.70	23.95
10.25 CFS	22.32	20.79	19.37	18.04	16.81	15.65	14.57	13.57
10.65 CFS	12.63	11.76	10.94	10.18	9.47	8.81	8.20	7.63
11.05 CFS	7.10	6.60	6.14	5.71	5.30	4.93	4.58	4.26
11.45 CFS	3.96	3.68	3.42	3.18	2.95	2.74	2.55	2.37
11.85 CFS	2.20	2.04	1.89	1.76	1.63	1.51	1.40	1.30
12.25 CFS	1.21	1.12	1.04	.97	.90	.83	.77	.71
12.65 CFS	.66	.61	.57	.53	.49			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 18666 CFS-HRS; 1542.6 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.64	13148.4	(DIVERT)
3.81	5286.1	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA =			.00 SQ.MI.
2.20 CFS	0	38	1917	4114	6433	8654	10590	12064
2.60 CFS	12935	13134	12656	11474	9821	8065	6463	5214
3.00 CFS	4336	3830	3599	3524	3538	3631	3780	3956
3.40 CFS	4140	4333	4528	4711	4878	5031	5162	5250
3.80 CFS	5285	5271	5216	5130	5023	4898	4760	4613
4.20 CFS	4460	4304	4143	3972	3789	3596	3397	3195
4.60 CFS	2995	2800	2611	2428	2248	2069	1890	1712
5.00 CFS	1535	1361	1191	1029	874	725	579	437
5.40 CFS	297	159	23	0				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14497 CFS-HRS; 1198.0 ACRE-FEET.

OPERATION REACH XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.35	4100.0 *	7.94

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 18674 CFS-HRS; 1543.2 ACRE-FEET.

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.40	4100.0 *	5.03
	* FIRST POINT OF FLAT PEAK	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 18671 CFS-HRS; 1543.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.73	28008.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
HRS MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 3.94 SQ.MI.

.70 CFS	.11	.53	1.63	3.91	7.97	14.38	23.74	37.26
1.10 CFS	56	80	110	147	190	239	295	355
1.50 CFS	419	485	555	629	707	789	876	970
1.90 CFS	1070	1172	1291	1520	1978	2754	3947	5645
2.30 CFS	7914	10709	13856	17125	20269	23051	25326	26959
2.70 CFS	27856	27941	27181	25638	23334	20446	17522	14870
3.10 CFS	12659	10940	9640	8690	7921	7256	6690	6220
3.50 CFS	5813	5453	5146	4895	4684	4501	4348	4218
3.90 CFS	4089	3952	3806	3656	3508	3364	3224	3089
4.30 CFS	2960	2840	2733	2639	2550	2461	2371	2280
4.70 CFS	2188	2099	2016	1942	1879	1824	1775	1729
5.10 CFS	1682	1634	1585	1537	1492	1455	1423	1396
5.50 CFS	1372	1350	1324	1294	1262	1230	1197	1163
5.90 CFS	1128	1091	1048	998	943	885	823	756
6.30 CFS	686	612	539	468	398	331	264	199
6.70 CFS	138	85	45	18	5	0		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION REACH XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.40	16237.6	6.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
4.00	11557.4	8.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
4.06	11552.0	8.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.68	13580.0	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.06 SQ.MI.

HRS								
1.20 CFS	.32	.94	2.20	4.53	8.43	14.25	22.34	33.25
1.60 CFS	48	65	87	114	145	180	219	260
2.00 CFS	305	403	622	1013	1651	2596	3893	5471
2.40 CFS	7211	8963	10567	11924	12911	13469	13552	13136
2.80 CFS	12289	10903	9457	8031	6802	5872	5130	4648
3.20 CFS	4233	3871	3547	3287	3055	2849	2670	2532
3.60 CFS	2417	2323	2247	2197	2140	2073	1998	1916
4.00 CFS	1834	1756	1682	1611	1545	1485	1430	1385
4.40 CFS	1339	1292	1243	1192	1143	1095	1051	1014
4.80 CFS	980	952	925	899	874	848	822	796
5.20 CFS	773	754	738	723	709	697	684	668
5.60 CFS	652	638	624	611	596	581	561	535
6.00 CFS	506	477	447	416	384	349	313	276
6.40 CFS	239	203	165	126	89	55	29	12
6.80 CFS	2.44	.16						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.75 WATERSHED INCHES; 12960 CFS-HRS; 1071.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.69	13913.0	(NULL)
3.98	13359.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 6.00 SQ.MI.

HRS								
1.20 CFS	.32	.94	2.20	4.54	8.47	14.37	22.62	33.79

1.60 CFS	49	67	90	118	151	190	233	279
2.00 CFS	331	437	665	1068	1719	2680	3994	5593
2.40 CFS	7355	9131	10763	12150	13171	13769	13900	13547
2.80 CFS	12787	11520	10239	9034	8094	7531	7235	7282
3.20 CFS	7472	7784	8186	8690	9239	9807	10376	10937
3.60 CFS	11459	11929	12340	12699	12977	13175	13298	13353
4.00 CFS	13354	13307	13219	13096	12942	12763	12562	12350
4.40 CFS	12118	11870	11608	11334	11053	10768	10482	10199
4.80 CFS	9918	9642	9367	9094	8823	8555	8290	8028
5.20 CFS	7773	7527	7288	7056	6829	6609	6394	6181
5.60 CFS	5974	5774	5582	5394	5212	5034	4857	4679
6.00 CFS	4504	4334	4169	4009	3851	3697	3545	3398
6.40 CFS	3255	3116	2979	2846	2718	2596	2485	2385
6.80 CFS	2295	2215	2138	2062	1988	1916	1844	1773
7.20 CFS	1702	1633	1564	1495	1428	1362	1297	1234
7.60 CFS	1172	1112	1054	998	945	893	844	796
8.00 CFS	751	708	667	628	591	555	522	490
8.40 CFS	460	432	405	380	356	334	312	292
8.80 CFS	274	256	239	224	209	195	182	170
9.20 CFS	159	148	139	129	120	112	105	98
9.60 CFS	90.94	84.72	78.91	73.48	68.41	63.69	59.27	55.16
10.00 CFS	51.32	47.74	44.40	41.29	38.39	35.69	33.17	30.83
10.40 CFS	28.65	26.62	24.73	22.97	21.34	19.81	18.40	17.08
10.80 CFS	15.86	14.72	13.66	12.68	11.76	10.91	10.12	9.39
11.20 CFS	8.71	8.08	7.49	6.95	6.44	5.97	5.53	5.13
11.60 CFS	4.75	4.40	4.08	3.78	3.50	3.24	3.00	2.78
12.00 CFS	2.58	2.38	2.21	2.04	1.89	1.75	1.62	1.50
12.40 CFS	1.39	1.28	1.19	1.10	1.02	.94	.87	.80
12.80 CFS	.74	.69	.63	.58	.54	.50		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.63 WATERSHED INCHES; 41173 CFS-HRS; 3402.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.69	17992.4	(NULL)
3.98	17459.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 10.84 SQ.MI.

HRS								
1.15 CFS	.13	.58	1.78	4.30	8.98	16.87	28.87	45.91
1.55 CFS	69	99	137	183	238	302	377	461
1.95 CFS	554	656	817	1111	1616	2456	3763	5660
2.35 CFS	8149	10567	12747	14606	16117	17202	17834	17983
2.75 CFS	17639	16883	15618	14338	13133	12193	11631	11335
3.15 CFS	11382	11572	11884	12286	12790	13339	13907	14476
3.55 CFS	15037	15559	16029	16440	16799	17077	17275	17398
3.95 CFS	17453	17454	17407	17319	17196	17042	16863	16662
4.35 CFS	16450	16218	15970	15708	15434	15153	14868	14582

4.75 CFS	14299	14018	13742	13467	13194	12923	12655	12390
5.15 CFS	12128	11873	11627	11388	11156	10929	10709	10494
5.55 CFS	10281	10074	9839	9576	9296	9008	8722	8434
5.95 CFS	8142	7851	7562	7278	6998	6725	6456	6193
6.35 CFS	5935	5683	5435	5191	4950	4714	4487	4272
6.75 CFS	4077	3900	3743	3600	3466	3338	3215	3094
7.15 CFS	2976	2860	2745	2631	2519	2408	2299	2192
7.55 CFS	2087	1985	1886	1790	1697	1608	1522	1439
7.95 CFS	1360	1285	1212	1143	1078	1015	956	899
8.35 CFS	846	795	747	701	658	618	579	543
8.75 CFS	509	477	447	418	392	366	343	321
9.15 CFS	300	280	262	245	228	213	199	186
9.55 CFS	173	162	151	141	131	122	114	106
9.95 CFS	98.98	92.21	85.89	79.99	74.48	69.34	64.54	60.07
10.35 CFS	55.90	52.01	48.39	45.01	41.87	38.94	36.21	33.66
10.75 CFS	31.29	29.09	27.04	25.13	23.35	21.69	20.15	18.72
11.15 CFS	17.39	16.15	15.00	13.92	12.93	12.00	11.14	10.34
11.55 CFS	9.59	8.90	8.26	7.66	7.11	6.60	6.12	5.68
11.95 CFS	5.26	4.88	4.52	4.19	3.89	3.60	3.34	3.09
12.35 CFS	2.87	2.66	2.46	2.28	2.11	1.96	1.81	1.68
12.75 CFS	1.55	1.44	1.33	1.23	1.14	1.05	.97	.90
13.15 CFS	.83	.77	.71	.65	.61	.56	.51	.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.55 WATERSHED INCHES; 59845 CFS-HRS; 4945.6 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.45	11000.0 *	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 10.84 SQ.MI.

HRS								
1.15 CFS	.13	.58	1.78	4.30	8.98	16.87	28.87	45.91
1.55 CFS	69	99	137	183	238	302	377	461
1.95 CFS	554	656	817	1111	1616	2456	3763	5660
2.35 CFS	8149	10567	11000	11000	11000	11000	11000	11000
2.75 CFS	11000	11000	11000	11000	11000	11000	11000	11000
3.15 CFS	11000	11000	11000	11000	11000	11000	11000	11000
3.55 CFS	11000	11000	11000	11000	11000	11000	11000	11000
3.95 CFS	11000	11000	11000	11000	11000	11000	11000	11000
4.35 CFS	11000	11000	11000	11000	11000	11000	11000	11000
4.75 CFS	11000	11000	11000	11000	11000	11000	11000	11000
5.15 CFS	11000	11000	11000	11000	11000	10929	10709	10494
5.55 CFS	10281	10074	9839	9576	9296	9008	8722	8434
5.95 CFS	8142	7851	7562	7278	6998	6725	6456	6193
6.35 CFS	5935	5683	5435	5191	4950	4714	4487	4272

6.75 CFS	4077	3900	3743	3600	3466	3338	3215	3094
7.15 CFS	2976	2860	2745	2631	2519	2408	2299	2192
7.55 CFS	2087	1985	1886	1790	1697	1608	1522	1439
7.95 CFS	1360	1285	1212	1143	1078	1015	956	899
8.35 CFS	846	795	747	701	658	618	579	543
8.75 CFS	509	477	447	418	392	366	343	321
9.15 CFS	300	280	262	245	228	213	199	186
9.55 CFS	173	162	151	141	131	122	114	106
9.95 CFS	98.98	92.21	85.89	79.99	74.48	69.34	64.54	60.07
10.35 CFS	55.90	52.01	48.39	45.01	41.87	38.94	36.21	33.66
10.75 CFS	31.29	29.09	27.04	25.13	23.35	21.69	20.15	18.72
11.15 CFS	17.39	16.15	15.00	13.92	12.93	12.00	11.14	10.34
11.55 CFS	9.59	8.90	8.26	7.66	7.11	6.60	6.12	5.68
11.95 CFS	5.26	4.88	4.52	4.19	3.89	3.60	3.34	3.09
12.35 CFS	2.87	2.66	2.46	2.28	2.11	1.96	1.81	1.68
12.75 CFS	1.55	1.44	1.33	1.23	1.14	1.05	.97	.90
13.15 CFS	.83	.77	.71	.65	.61	.56	.51	.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.98 WATERSHED INCHES; 48844 CFS-HRS; 4036.5 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.69	6992.4	(DIVERT)
3.98	6459.3	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = .00 SQ.MI.

HRS								
2.40 CFS	0	1747	3606	5117	6202	6834	6983	6639
2.80 CFS	5883	4618	3338	2133	1193	631	335	382
3.20 CFS	572	884	1286	1790	2339	2907	3476	4037
3.60 CFS	4559	5029	5440	5799	6077	6275	6398	6453
4.00 CFS	6454	6407	6319	6196	6042	5863	5662	5450
4.40 CFS	5218	4970	4708	4434	4153	3868	3582	3299
4.80 CFS	3018	2742	2467	2194	1923	1655	1390	1128
5.20 CFS	873	627	388	156	0			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11001 CFS-HRS; 909.1 ACRE-FEET.

OPERATION REACH XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.60	11000.0 *	8.46

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.98 WATERSHED INCHES; 48837 CFS-HRS; 4035.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.44	14477.1	(RUNOFF)
5.09	565.7	(RUNOFF)
5.57	467.7	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 1.47 SQ.MI.

HRS								
.70 CFS	.49	1.79	4.72	10.27	19.17	31.25	46.11	63.69
1.10 CFS	84	107	133	161	189	217	246	272
1.50 CFS	296	320	348	382	424	473	525	578
1.90 CFS	629	673	751	1016	1675	2951	4958	7479
2.30 CFS	10139	12487	14048	14453	13548	11805	9813	7930
2.70 CFS	6413	5301	4595	4109	3719	3397	3144	2908
3.10 CFS	2660	2416	2203	2019	1869	1766	1716	1699
3.50 CFS	1689	1673	1643	1594	1528	1446	1355	1265
3.90 CFS	1188	1135	1109	1100	1091	1070	1033	980
4.30 CFS	915	851	800	767	752	748	744	734
4.70 CFS	711	676	634	596	571	559	559	563
5.10 CFS	565	559	539	512	488	468	456	454
5.50 CFS	460	467	466	456	437	410	376	342
5.90 CFS	311	289	278	271	262	243	211	166
6.30 CFS	116	68	32	10	1	0		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.12 WATERSHED INCHES; 10551 CFS-HRS; 871.9 ACRE-FEET.

OPERATION REACH XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.65	11037.3	9.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.12 WATERSHED INCHES; 10551 CFS-HRS; 871.9 ACRE-FEET.

OPERATION REACH XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.98	7397.2	7.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.12 WATERSHED INCHES; 10551 CFS-HRS; 871.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.98	18393.8	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 12.31 SQ.MI.			
1.00 CFS	.28	.72	1.60	3.11	5.54	9.19	14.51	22.08
1.40 CFS	33	47	67	92	124	163	210	265
1.80 CFS	330	405	491	588	696	816	970	1207
2.20 CFS	1588	2212	3205	4714	6841	9347	11203	12592
2.60 CFS	13786	14881	15877	16738	17427	17925	18235	18378
3.00 CFS	18383	18283	18103	17867	17594	17296	16984	16665
3.40 CFS	16344	16027	15718	15420	15137	14873	14630	14407
3.80 CFS	14203	14018	13849	13692	13546	13409	13280	13159
4.20 CFS	13045	12940	12844	12756	12674	12599	12527	12459
4.60 CFS	12392	12329	12268	12212	12160	12112	12068	12026
5.00 CFS	11986	11947	11910	11874	11840	11809	11781	11755
5.40 CFS	11731	11675	11531	11344	11135	10918	10685	10430
5.80 CFS	10158	9872	9581	9285	8984	8680	8375	8071
6.20 CFS	7771	7475	7184	6898	6617	6340	6066	5795
6.60 CFS	5526	5260	5000	4750	4516	4299	4102	3922
7.00 CFS	3757	3603	3459	3320	3188	3059	2933	2810
7.40 CFS	2690	2571	2456	2342	2231	2123	2019	1917
7.80 CFS	1819	1724	1633	1545	1461	1380	1303	1230
8.20 CFS	1159	1093	1029	969	912	857	806	757
8.60 CFS	711	667	626	587	551	516	484	453
9.00 CFS	424	397	371	347	325	304	284	265
9.40 CFS	248	232	216	202	188	176	164	153
9.80 CFS	143	133	124	116	108	100	94	87
10.20 CFS	81.15	75.56	70.35	65.49	60.95	56.72	52.78	49.10
10.60 CFS	45.68	42.49	39.51	36.74	34.17	31.76	29.52	27.44
11.00 CFS	25.50	23.70	22.02	20.46	19.00	17.65	16.40	15.23
11.40 CFS	14.14	13.13	12.19	11.31	10.50	9.74	9.04	8.39
11.80 CFS	7.78	7.22	6.70	6.21	5.76	5.34	4.95	4.59
12.20 CFS	4.26	3.95	3.66	3.39	3.14	2.91	2.70	2.50
12.60 CFS	2.32	2.14	1.99	1.84	1.70	1.58	1.46	1.35
13.00 CFS	1.25	1.15	1.07	.99	.91	.84	.78	.72
13.40 CFS	.67	.61	.57	.52	.48			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.48 WATERSHED INCHES; 59391 CFS-HRS; 4908.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.67	32338.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,							DRAINAGE AREA = 4.78 SQ.MI.
1.10 CFS	.35	1.23	3.30	7.30	14.19	25.19	41.59	63.91
1.50 CFS	93	129	173	226	289	361	444	535
1.90 CFS	634	737	869	1142	1708	2714	4325	6694
2.30 CFS	9866	13685	17849	21989	25760	28874	31081	32214
2.70 CFS	32167	30967	28567	25291	21793	18489	15718	13544
3.10 CFS	11939	10771	9814	8968	8240	7625	7085	6605
3.50 CFS	6203	5882	5620	5407	5246	5124	4988	4829
3.90 CFS	4648	4454	4262	4079	3905	3741	3591	3453
4.30 CFS	3329	3225	3117	3005	2887	2768	2653	2541
4.70 CFS	2441	2356	2280	2217	2154	2093	2032	1970
5.10 CFS	1909	1848	1797	1756	1718	1685	1653	1624
5.50 CFS	1591	1553	1517	1484	1454	1423	1390	1353
5.90 CFS	1303	1240	1173	1104	1034	961	886	805
6.30 CFS	722	637	550	463	372	282	195	118
6.70 CFS	60.08	22.99	4.65	.29				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.96 WATERSHED INCHES; 30716 CFS-HRS; 2538.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.83	21194.2	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,							DRAINAGE AREA = 3.48 SQ.MI.
1.00 CFS	.19	.70	1.87	4.06	7.63	13.12	21.11	32.24
1.40 CFS	47	66	88	115	147	185	228	276
1.80 CFS	330	390	456	526	613	762	1034	1484
2.20 CFS	2161	3116	4397	6018	7955	10115	12368	14560
2.60 CFS	16553	18252	19605	20564	21097	21158	20717	19797
3.00 CFS	18426	16619	14575	12598	10822	9364	8214	7356
3.40 CFS	6708	6164	5698	5314	4987	4694	4434	4215
3.80 CFS	4027	3858	3706	3582	3469	3358	3243	3124
4.20 CFS	3003	2884	2765	2649	2537	2431	2335	2251
4.60 CFS	2177	2104	2032	1957	1882	1806	1734	1669
5.00 CFS	1613	1566	1525	1486	1449	1410	1370	1328
5.40 CFS	1288	1254	1227	1204	1184	1165	1144	1117
5.80 CFS	1087	1055	1022	988	954	920	884	843
6.20 CFS	795	743	686	625	562	497	435	375
6.60 CFS	320	267	216	168	123	81	47	23
7.00 CFS	7.37	1.46	.17					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.35 WATERSHED INCHES; 23254 CFS-HRS; 1921.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.72	51863.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 8.26 SQ.MI.

HRS								
1.00 CFS	.19	.78	2.22	5.28	10.93	20.42	35.29	57.43
1.40 CFS	89	130	181	244	320	411	517	638
1.80 CFS	774	925	1090	1263	1482	1904	2742	4198
2.20 CFS	6486	9810	14263	19702	25804	32104	38127	43435
2.60 CFS	47634	50466	51771	51531	49664	46449	42510	38287
3.00 CFS	34144	30163	26514	23368	20636	18333	16454	14981
3.40 CFS	13793	12769	11901	11196	10607	10101	9680	9339
3.80 CFS	9015	8687	8354	8036	7732	7437	7148	6866
4.20 CFS	6594	6337	6094	5874	5654	5436	5222	5019
4.60 CFS	4829	4645	4473	4313	4162	4023	3887	3762
5.00 CFS	3645	3536	3434	3335	3245	3165	3087	3012
5.40 CFS	2941	2878	2817	2757	2701	2649	2597	2540
5.80 CFS	2477	2408	2325	2229	2127	2024	1918	1804
6.20 CFS	1681	1548	1408	1262	1112	960	807	657
6.60 CFS	515	385	276	191	127	81	47	23
7.00 CFS	7.37	1.46	.17					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.12 WATERSHED INCHES; 53970 CFS-HRS; 4460.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.74	68291.0	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 20.57 SQ.MI.

HRS								
1.00 CFS	.46	1.50	3.81	8.39	16.46	29.61	49.80	79.52
1.40 CFS	121	177	248	336	444	574	726	903
1.80 CFS	1104	1330	1580	1851	2178	2720	3712	5404
2.20 CFS	8074	12021	17468	24416	32645	41451	49331	56027
2.60 CFS	61419	65347	67649	68269	67091	64374	60745	56664
3.00 CFS	52527	48446	44617	41236	38230	35629	33438	31646
3.40 CFS	30137	28797	27619	26615	25744	24974	24309	23745
3.80 CFS	23218	22705	22202	21728	21278	20847	20429	20024
4.20 CFS	19639	19277	18938	18630	18328	18035	17749	17477
4.60 CFS	17221	16974	16741	16525	16322	16136	15955	15788
5.00 CFS	15631	15484	15344	15209	15085	14974	14868	14768
5.40 CFS	14672	14553	14349	14101	13835	13567	13282	12970
5.80 CFS	12634	12280	11906	11513	11111	10704	10293	9875
6.20 CFS	9452	9023	8592	8160	7729	7300	6873	6452
6.60 CFS	6040	5645	5277	4941	4643	4380	4148	3945
7.00 CFS	3764	3605	3459	3320	3188	3059	2933	2810
7.40 CFS	2690	2571	2456	2342	2231	2123	2019	1917
7.80 CFS	1819	1724	1633	1545	1461	1380	1303	1230
8.20 CFS	1159	1093	1029	969	912	857	806	757

8.60 CFS	711	667	626	587	551	516	484	453
9.00 CFS	424	397	371	347	325	304	284	265
9.40 CFS	248	232	216	202	188	176	164	153
9.80 CFS	143	133	124	116	108	100	94	87
10.20 CFS	81.15	75.56	70.35	65.49	60.95	56.72	52.78	49.10
10.60 CFS	45.68	42.49	39.51	36.74	34.17	31.76	29.52	27.44
11.00 CFS	25.50	23.70	22.02	20.46	19.00	17.65	16.40	15.23
11.40 CFS	14.14	13.13	12.19	11.31	10.50	9.74	9.04	8.39
11.80 CFS	7.78	7.22	6.70	6.21	5.76	5.34	4.95	4.59
12.20 CFS	4.26	3.95	3.66	3.39	3.14	2.91	2.70	2.50
12.60 CFS	2.32	2.14	1.99	1.84	1.70	1.58	1.46	1.35
13.00 CFS	1.25	1.15	1.07	.99	.91	.84	.78	.72
13.40 CFS	.67	.61	.57	.52	.48			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.54 WATERSHED INCHES; 113361 CFS-HRS; 9368.2 ACRE-FEET.

--- XSECTION 76, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

*** MESSAGE - STRUCTURE 1, USER ENTERED STARTING ELEVATION (1197.0 FEET) CAN ADD .273 INCHES OF RUNOFF TO THE OUTFLOW HYDROGRAPH VOLUME.***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 1, TRUNCATED AT 400 POINTS WITH 3217.90 AC-FT (.24 WATERSHED INCHES) FLOOD STORAGE REMAINING IN RESERVOIR AT ELEV. 1212.00. ***

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.85	22710.1	1215.83

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 20.57 SQ.MI.

HRS								
.70 CFS	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1.10 CFS	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
1.50 CFS	1.20	1.20	1.20	1.20	1.21	1.21	1.21	1.21
1.90 CFS	1.21	1.22	1.22	1.23	1.23	1.24	1.26	1.28
2.30 CFS	1.30	1.33	1.36	1.41	1.47	1.53	1.59	1.64
2.70 CFS	2	2	2	2	2	1310	3338	6249
3.10 CFS	8884	11499	13668	15456	17107	18442	19519	20380
3.50 CFS	21057	21581	21979	22272	22477	22611	22686	22710
3.90 CFS	22688	22625	22528	22401	22249	22074	21880	21670
4.30 CFS	21449	21218	20981	20739	20492	20243	19993	19743
4.70 CFS	19493	19245	19001	18761	18526	18297	18073	17855
5.10 CFS	17644	17439	17241	17050	16865	16688	16518	16353
5.50 CFS	16189	16019	15841	15656	15463	15281	15091	14888
5.90 CFS	14674	14446	14205	13952	13687	13410	13122	12824
6.30 CFS	12515	12197	11870	11536	11194	10846	10493	10135
6.70 CFS	9776	9418	9062	8713	8371	8057	7798	7544
7.10 CFS	7296	7055	6820	6592	6370	6154	5944	5739

7.50 CFS	5540	5346	5157	4973	4794	4620	4450	4284
7.90 CFS	4124	3967	3815	3667	3523	3384	3249	3118
8.30 CFS	2991	2868	2749	2634	2557	2502	2447	2392
8.70 CFS	2338	2284	2231	2178	2126	2074	2023	1973
9.10 CFS	1924	1875	1827	1780	1734	1688	1644	1600
9.50 CFS	1557	1515	1474	1434	1395	1356	1319	1282
9.90 CFS	1246	1211	1177	1143	1111	1079	1048	1018
10.30 CFS	988	960	932	905	878	852	827	803
10.70 CFS	779	756	734	712	691	670	650	631
11.10 CFS	612	593	576	558	541	525	509	494
11.50 CFS	479	464	450	436	423	410	398	386
11.90 CFS	374	362	351	340	330	320	310	301
12.30 CFS	291	282	274	265	257	249	242	234
12.70 CFS	227	220	213	206	200	194	188	182
13.10 CFS	176	171	166	161	156	151	146	142
13.50 CFS	137	133	129	125	121	117	114	110
13.90 CFS	107	103	100	97	94	91	88	86
14.30 CFS	82.84	80.27	77.78	75.36	73.02	70.75	68.55	66.42
14.70 CFS	64.35	62.35	60.41	58.53	56.71	54.95	53.24	51.58
15.10 CFS	49.98	48.42	46.92	45.46	44.04	42.67	41.35	40.06
15.50 CFS	38.81	37.61	36.43	35.30	34.20	33.14	32.11	31.11
15.90 CFS	30.14	29.20	28.29	27.41	26.56	25.73	24.93	24.15
16.30 CFS	23.40	22.67	21.97	21.29	20.62	19.98	19.36	18.76
16.70 CFS	18.17	17.61	17.06	16.53	16.01	15.51	15.03	14.56
17.10 CFS	14.11	13.67	13.24	12.83	12.43	12.05	11.67	11.31
17.50 CFS	10.95	10.61	10.28	9.96	9.65	9.35	9.06	8.78
17.90 CFS	8.51	8.24	7.99	7.74	7.50	7.26	7.04	6.82
18.30 CFS	6.61	6.40	6.20	6.01	5.82	5.64	5.47	5.30
18.70 CFS	5.13	4.97	4.82	4.67	4.52	4.38	4.24	4.11
19.10 CFS	3.98	3.86	3.74	3.62	3.51	3.40	3.29	3.19
19.50 CFS	3.09	3.00	2.90	2.81	2.73	2.64	2.56	2.48
19.90 CFS	2.40	2.33	2.26	2.19	2.12	2.05	1.99	1.93
20.30 CFS	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.88 WATERSHED INCHES; 78059 CFS-HRS; 6450.8 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

RAINFALL OF 12.70 inches AND 6.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 1, ARC 2
MAIN TIME INCREMENT .050 HOURS

ALTERNATE 1 STORM 1

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
XSECTION	1	RUNOFF	2.46	11.09	---	2.71	17873	7265.4
XSECTION	5	REACH	2.46	11.09	8.21	3.32	10200	4146.3
XSECTION	10	REACH	2.46	11.09	9.08	3.96	7060	2869.9
XSECTION	2	RUNOFF	2.38	10.12	---	2.64	16996	7141.2
XSECTION	12	ADDHYD	4.84	10.62	---	2.64	17248	3563.6
XSECTION	12	DIVERT	4.84	5.98	---	2.25F	4100F	847.1
XSECTION	200	DIVERT	.00	5.98	---	2.64	13148	********
XSECTION	20	REACH	4.84	5.98	7.94	3.35F	4100F	847.1
XSECTION	25	REACH	4.84	5.98	5.03	3.40F	4100F	847.1
XSECTION	3	RUNOFF	3.94	11.10	---	2.73	28009	7108.9
XSECTION	30	REACH	3.94	11.10	6.29	3.40	16238	4121.3
XSECTION	5	REACH	3.94	11.10	8.50	4.00	11557	2933.2
XSECTION	25	REACH	3.94	11.10	8.90	4.06	11552	2932.0
XSECTION	4	RUNOFF	2.06	9.75	---	2.68	13580	6592.2
XSECTION	34	ADDHYD	6.00	10.63	---	2.69	13913	2318.8
XSECTION	35	ADDHYD	10.84	8.55	---	2.69	17992	1659.8
XSECTION	35	DIVERT	10.84	6.98	---	2.45F	11000F	1014.8
XSECTION	199	DIVERT	.00	6.98	---	2.69	6992	********
XSECTION	45	REACH	10.84	6.98	8.46	3.60F	11000F	1014.8
XSECTION	6	RUNOFF	1.47	11.12	---	2.44	14477	9848.3
XSECTION	60	REACH	1.47	11.12	9.94	2.65	11037	7508.2
XSECTION	67	REACH	1.47	11.12	7.60	2.98	7397	5032.0
XSECTION	64	ADDHYD	12.31	7.48	---	2.98	18394	1494.2
XSECTION	5	RUNOFF	4.78	9.96	---	2.67	32339	6765.5
XSECTION	7	RUNOFF	3.48	10.35	---	2.83	21194	6090.2
XSECTION	75	ADDHYD	8.26	10.12	---	2.72	51863	6278.8
XSECTION	76	ADDHYD	20.57	8.54	---	2.74	68291	3319.9
STRUCTURE	1	RESVOR	20.57	5.88	1215.83	3.85	22710	1104.0

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE k* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

			HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.				
XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 1											
5	9100		17866	2.7	10182	3.3	1.77	1.09	.634	.570	.08
10	9100		10182	3.3	7060	4.0	2.37	1.06	.361	.693	.08
20	3332		4100	2.3	4100	3.3	.14	1.63	.003	1.000	.50
25	1950		4100	3.3	4100	3.4	.052	1.73	.001	1.000	.65
30	8865		27941	2.8	16238	3.4	.95	1.15	.638	.581	.08
5	8865		16238	3.4	11557	4.0	1.76	1.09	.334	.712	.08
25	1950		11557	4.0	11551	4.1	.062	1.70	.002	.999	.84?
45	4200		11000	2.5	11000	3.6	.049	1.72	.003	1.000	.47
60	7540		14453	2.5	11037	2.7	.28	1.44	.236	.764	.24
67	5140		11037	2.7	7386	3.0	1.78	1.09	.367	.669	.13

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
STRUCTURE	1	20.57	
ALTERNATE	1		22710
XSECTION	1	2.46	
ALTERNATE	1		17873
XSECTION	2	2.38	
ALTERNATE	1		16996
XSECTION	3	3.94	
ALTERNATE	1		28009
XSECTION	4	2.06	
ALTERNATE	1		13580
XSECTION	5	4.78	
ALTERNATE	1		32339
XSECTION	6	1.47	
ALTERNATE	1		14477
XSECTION	7	3.48	
ALTERNATE	1		21194
XSECTION	10	2.46	
ALTERNATE	1		7060
XSECTION	12	4.84	
ALTERNATE	1		4100
XSECTION	20	4.84	
ALTERNATE	1		4100
XSECTION	25	3.94	
ALTERNATE	1		11552
XSECTION	30	3.94	
ALTERNATE	1		16238
XSECTION	34	6.00	

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
XSECTION 34		6.00	
ALTERNATE	1		13913
XSECTION 35		10.84	
ALTERNATE	1		11000
XSECTION 45		10.84	
ALTERNATE	1		11000
XSECTION 60		1.47	
ALTERNATE	1		11037
XSECTION 64		12.31	
ALTERNATE	1		18394
XSECTION 67		1.47	
ALTERNATE	1		7397
XSECTION 75		8.26	
ALTERNATE	1		51863
XSECTION 76		20.57	
ALTERNATE	1		68291
XSECTION 199		.00	
ALTERNATE	1		6992
XSECTION 200		.00	
ALTERNATE	1		13148

ECON2 DATA FILE

```
ECON2
TITLE        WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE         6HR LOCAL, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
FLOW-FREQ    -1         22710.                                    ALT  1   1
FLOW-FREQ     1         17873.                                    ALT  1   2
FLOW-FREQ     2         16996.                                    ALT  1   3
FLOW-FREQ     3         28009.                                    ALT  1   4
FLOW-FREQ     4         13580.                                    ALT  1   5
FLOW-FREQ     5         32339.                                    ALT  1   6
FLOW-FREQ     6         14477.                                    ALT  1   7
FLOW-FREQ     7         21194.                                    ALT  1   8
FLOW-FREQ    10          7060.                                    ALT  1   9
FLOW-FREQ    12          4100.                                    ALT  1  10
FLOW-FREQ    20          4100.                                    ALT  1  11
FLOW-FREQ    25         11552.                                    ALT  1  12
FLOW-FREQ    30         16238.                                    ALT  1  13
FLOW-FREQ    34         13913.                                    ALT  1  14
FLOW-FREQ    35         11000.                                    ALT  1  15
FLOW-FREQ    45         11000.                                    ALT  1  16
FLOW-FREQ    60         11037.                                    ALT  1  17
FLOW-FREQ    64         18394.                                    ALT  1  18
FLOW-FREQ    67          7397.                                    ALT  1  19
FLOW-FREQ    75         51863.                                    ALT  1  20
FLOW-FREQ    76         68291.                                    ALT  1  21
FLOW-FREQ   199          6992.                                    ALT  1  22
FLOW-FREQ   200         13148.                                    ALT  1  23
```

```
TR20 ------------------------------------------------------------------------ SCS -
WT3PMP6      WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
01/04/**      6HR LOCAL, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT      2.04TEST


END OF  1 JOBS IN THIS RUN




                    SCS  TR-20,  VERSION 2.04TEST
                          WT3PMP6   FILES

     INPUT  = 6LADWR.DAT                              , GIVEN DATA FILE
     OUTPUT = 6LOUT.OUT                               , DATED 01/04/**,13:28:26

              FILES GENERATED - DATED 01/04/**,13:28:26

    FILE 6LOUT.TEC CONTAINS ECON2 INFORMATION

    FILE 6LOUT.TRD CONTAINS READHD INFORMATION


           TOTAL NUMBER OF WARNINGS =    0,  MESSAGES =    2

                       JOB ENDED AT 13:28:26
                    *** TR-20 RUN COMPLETED ***
```

72-hr General

ADWR CRITERIA - ZERO INFILTRATION

```
******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

JOB TR-20 WT3PMP72  ECON                PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     72-HR PMP (MTI=.2), RESERVOIR INIT EMPTY W/100-YR SED
 5 RAINFL 1              0.1                                          6HRLOCAL
 8          .0000        .003        .006        .009        .013
 8          .016         .020        .025        .030        .035
 8          .039         .046        .052        .058        .065
 8          .071         .080        .090        .099        .109
 8          .118         .283        .449        .567        .622
 8          .669         .701        .732        .756        .780
 8          .795         .809        .824        .838        .852
 8          .866         .876        .885        .894        .904
 8          .913         .920        .926        .932        .939
 8          .945         .950        .954        .959        .964
 8          .969         .972        .976        .980        .984
 8          .988         .991        .993        .995        .998
 8          1.           1.          1.          1.          1.
 9 ENDTBL
 5 RAINFL 2              .1                                           6HR GEN
 8          .000         .005        .013        .020        .028
 8          .038         .045        .053        .060        .070
 8          .080         .085        .095        .108        .120
 8          .138         .150        .165        .190        .210
 8          .238         .280        .350        .440        .550
 8          .590         .620        .645        .668        .685
 8          .700         .720        .735        .753        .765
 8          .775         .790        .800        .810        .820
 8          .835         .843        .850        .863        .870
 8          .880         .890        .898        .908        .915
 8          .925         .930        .940        .945        .955
 8          .963         .970        .978        .985        .990
 8          1.00         1.00        1.00        1.00        1.00
 9 ENDTBL
 5 RAINFL 3              0.1                                          12HRGEN
 8          .000         .003        .007        .010        .013
 8          .016         .019        .022        .025        .028
 8          .031         .034        .037        .040        .043
 8          .045         .050        .054        .058        .062
 8          .066         .071        .075        .080        .085
 8          .089         .095        .101        .107        .112
 8          .118         .125        .132        .139        .146
 8          .153         .162        .171        .180        .189
 8          .198         .211        .224        .237        .250
 8          .264         .300        .345        .391        .436
 8          .491         .536        .564        .586        .607
 8          .629         .643        .657        .672        .686
 8          .700         .711        .721        .732        .742
 8          .753         .761        .769        .778        .786
 8          .795         .802        .809        .817        .824
 8          .832         .837        .843        .848        .854
 8          .859         .865        .870        .875        .881
 8          .886         .891        .895        .900        .905
 8          .909         .913        .917        .921        .925
 8          .929         .933        .936        .940        .944
 8          .948         .951        .954        .957        .960
 8          .963         .966        .969        .971        .974
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 8          .977        .980        .982        .984        .986
 8          .989        .991        .993        .995        .998
 8         1.000       01.000       1.000       1.000       1.00
 9 ENDTBL
 5 RAINFL 4              0.1                                        18HRGEN
 8          .000        .001        .002        .003        .004
 8          .005        .005        .006        .007        .008
 8          .009        .012        .014        .017        .020
 8          .023        .025        .028        .031        .033
 8          .036        .040        .044        .049        .053
 8          .057        .061        .065        .070        .074
 8          .078        .084        .090        .096        .102
 8          .108        .114        .120        .126        .132
 8          .138        .146        .154        .162        .170
 8          .179        .187        .195        .203        .211
 8          .220        .238        .256        .275        .293
 8          .311        .330        .348        .367        .385
 8          .403        .430        .457        .484        .511
 8          .538        .557        .577        .597        .616
 8          .636        .653        .670        .687        .704
 8          .721        .734        .746        .759        .771
 8          .784        .792        .801        .810        .818
 8          .827        .832        .838        .843        .848
 8          .853        .856        .859        .862        .864
 8          .867        .870        .872        .875        .878
 8          .880        .882        .885        .887        .889
 8          .891        .893        .895        .897        .899
 8          .901        .903        .905        .907        .909
 8          .911        .912        .914        .916        .917
 8          .919        .920        .922        .924        .925
 8          .927        .929        .930        .932        .934
 8          .935        .937        .938        .940        .941
 8          .943        .945        .946        .948        .949
 8          .951        .952        .953        .955        .956
 8          .957        .959        .960        .961        .963
 8          .964        .965        .967        .968        .970
 8          .971        .972        .974        .975        .976
 8          .978        .979        .980        .982        .983
 8          .984        .985        .986        .988        .989
 8          .990        .991        .992        .993        .994
 8          .995        .996        .997        .998        .999
 8         1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 5 RAINFL 5              0.1                                        24HRGEN
 8        0.000       0.000       0.001       0.001       0.002
 8        0.002       0.002       0.003       0.003       0.003
 8        0.004       0.005       0.007       0.009       0.010
 8        0.012       0.013       0.015       0.016       0.018
 8        0.019       0.022       0.024       0.027       0.030
 8        0.032       0.035       0.037       0.040       0.042
 8        0.045       0.048       0.051       0.055       0.058
 8        0.061       0.064       0.068       0.071       0.074
 8        0.078       0.082       0.087       0.091       0.096
 8        0.100       0.104       0.109       0.113       0.118
 8        0.122       0.127       0.132       0.137       0.142
 8        0.147       0.151       0.156       0.161       0.166
```

```
8          0.171       0.177       0.184       0.191       0.198
8          0.205       0.214       0.224       0.233       0.242
8          0.252       0.265       0.278       0.291       0.303
8          0.316       0.334       0.351       0.368       0.386
8          0.403       0.425       0.447       0.468       0.490
8          0.512       0.527       0.543       0.558       0.574
8          0.589       0.603       0.617       0.631       0.645
8          0.659       0.671       0.684       0.696       0.709
8          0.721       0.731       0.741       0.751       0.761
8          0.771       0.779       0.786       0.793       0.800
8          0.808       0.814       0.820       0.825       0.831
8          0.837       0.840       0.843       0.847       0.850
8          0.853       0.855       0.857       0.859       0.861
8          0.864       0.866       0.868       0.870       0.872
8          0.874       0.876       0.878       0.880       0.881
8          0.883       0.885       0.886       0.888       0.890
8          0.891       0.893       0.895       0.896       0.898
8          0.899       0.901       0.902       0.904       0.905
8          0.907       0.908       0.909       0.910       0.912
8          0.913       0.914       0.915       0.916       0.917
8          0.919       0.920       0.921       0.922       0.923
8          0.924       0.926       0.927       0.928       0.929
8          0.930       0.932       0.933       0.935       0.936
8          0.938       0.940       0.941       0.943       0.944
8          0.946       0.947       0.947       0.948       0.949
8          0.950       0.950       0.951       0.952       0.953
8          0.953       0.955       0.956       0.957       0.958
8          0.959       0.960       0.961       0.962       0.963
8          0.964       0.965       0.966       0.967       0.968
8          0.969       0.970       0.971       0.972       0.973
8          0.974       0.975       0.976       0.977       0.978
8          0.979       0.980       0.981       0.982       0.983
8          0.984       0.985       0.986       0.987       0.988
8          0.988       0.989       0.990       0.991       0.991
8          0.992       0.993       0.994       0.995       0.995
8          0.996       0.997       0.998       0.998       0.999
8          1.000       1.000       1.000       1.000       1.000
9  ENDTBL
5 RAINFL 6                .25                                          48HRGEN
8          0.0000      0.0015      0.0029      0.0044      0.0058
8          0.0073      0.0088      0.0102      0.0117      0.0131
8          0.0146      0.0160      0.0175      0.0190      0.0204
8          0.0219      0.0233      0.0248      0.0263      0.0277
8          0.0292      0.0306      0.0321      0.0335      0.0350
8          0.0365      0.0379      0.0394      0.0408      0.0423
8          0.0438      0.0452      0.0467      0.0481      0.0496
8          0.0510      0.0525      0.0542      0.0558      0.0575
8          0.0592      0.0608      0.0625      0.0642      0.0658
8          0.0692      0.0725      0.0758      0.0792      0.0825
8          0.0858      0.0892      0.0925      0.0975      0.1025
8          0.1075      0.1125      0.1175      0.1225      0.1275
8          0.1325      0.1442      0.1560      0.1677      0.1794
8          0.1985      0.2176      0.2366      0.2557      0.3239
8          0.3921      0.4603      0.5285      0.5520      0.5754
8          0.5989      0.6224      0.6356      0.6488      0.6620
8          0.6752      0.6862      0.6972      0.7082      0.7192
```

```
 8          0.7267      0.7342      0.7417      0.7492      0.7558
 8          0.7625      0.7692      0.7758      0.7825      0.7892
 8          0.7958      0.8025      0.8083      0.8142      0.8200
 8          0.8258      0.8308      0.8358      0.8408      0.8458
 8          0.8508      0.8558      0.8608      0.8658      0.8683
 8          0.8708      0.8733      0.8758      0.8783      0.8808
 8          0.8833      0.8858      0.8875      0.8892      0.8908
 8          0.8925      0.8942      0.8958      0.8975      0.8992
 8          0.9008      0.9025      0.9042      0.9058      0.9075
 8          0.9092      0.9108      0.9125      0.9140      0.9154
 8          0.9169      0.9183      0.9198      0.9213      0.9227
 8          0.9242      0.9256      0.9271      0.9285      0.9300
 8          0.9315      0.9329      0.9344      0.9358      0.9373
 8          0.9388      0.9402      0.9417      0.9431      0.9446
 8          0.9460      0.9475      0.9490      0.9504      0.9519
 8          0.9533      0.9548      0.9563      0.9577      0.9592
 8          0.9606      0.9621      0.9635      0.9650      0.9665
 8          0.9679      0.9694      0.9708      0.9723      0.9737
 8          0.9752      0.9767      0.9781      0.9796      0.9810
 8          0.9825      0.9840      0.9854      0.9869      0.9883
 8          0.9898      0.9912      0.9927      0.9942      0.9956
 8          0.9971      0.9985      1.0000      1.0000      1.0
 9 ENDTBL
 5 RAINFL 7                .25                                          72HRGEN
 8          0.0000      0.0005      0.0009      0.0014      0.0019
 8          0.0025      0.0032      0.0038      0.0044      0.0051
 8          0.0057      0.0063      0.0070      0.0076      0.0082
 8          0.0089      0.0095      0.0103      0.0111      0.0119
 8          0.0127      0.0134      0.0142      0.0150      0.0158
 8          0.0171      0.0184      0.0196      0.0209      0.0222
 8          0.0234      0.0247      0.0259      0.0272      0.0285
 8          0.0297      0.0310      0.0323      0.0335      0.0348
 8          0.0361      0.0375      0.0389      0.0403      0.0418
 8          0.0432      0.0446      0.0460      0.0475      0.0489
 8          0.0503      0.0517      0.0532      0.0546      0.0560
 8          0.0574      0.0589      0.0604      0.0620      0.0636
 8          0.0652      0.0668      0.0684      0.0699      0.0715
 8          0.0731      0.0747      0.0763      0.0778      0.0797
 8          0.0816      0.0835      0.0854      0.0877      0.0899
 8          0.0921      0.0943      0.0968      0.0994      0.1019
 8          0.1044      0.1073      0.1101      0.1130      0.1158
 8          0.1193      0.1228      0.1263      0.1297      0.1335
 8          0.1373      0.1411      0.1449      0.1491      0.1532
 8          0.1573      0.1614      0.1725      0.1837      0.1948
 8          0.2059      0.2241      0.2422      0.2603      0.2784
 8          0.3431      0.4078      0.4726      0.5373      0.5596
 8          0.5819      0.6042      0.6265      0.6390      0.6515
 8          0.6641      0.6766      0.6870      0.6975      0.7079
 8          0.7184      0.7255      0.7326      0.7397      0.7468
 8          0.7535      0.7601      0.7668      0.7734      0.7794
 8          0.7854      0.7915      0.7975      0.8030      0.8085
 8          0.8141      0.8196      0.8247      0.8297      0.8348
 8          0.8399      0.8443      0.8487      0.8532      0.8576
 8          0.8598      0.8620      0.8642      0.8665      0.8685
 8          0.8706      0.8726      0.8747      0.8766      0.8785
 8          0.8804      0.8823      0.8840      0.8858      0.8875
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 8          0.8892      0.8908      0.8924      0.8940      0.8956
 8          0.8972      0.8987      0.9003      0.9019      0.9035
 8          0.9051      0.9066      0.9082      0.9098      0.9114
 8          0.9130      0.9146      0.9160      0.9174      0.9188
 8          0.9203      0.9217      0.9231      0.9245      0.9259
 8          0.9274      0.9288      0.9302      0.9316      0.9329
 8          0.9342      0.9354      0.9367      0.9380      0.9392
 8          0.9405      0.9418      0.9430      0.9443      0.9456
 8          0.9468      0.9481      0.9494      0.9506      0.9519
 8          0.9530      0.9541      0.9552      0.9563      0.9574
 8          0.9585      0.9597      0.9608      0.9619      0.9630
 8          0.9641      0.9652      0.9661      0.9671      0.9680
 8          0.9690      0.9699      0.9709      0.9718      0.9728
 8          0.9736      0.9744      0.9752      0.9759      0.9767
 8          0.9775      0.9783      0.9791      0.9797      0.9804
 8          0.9810      0.9816      0.9823      0.9829      0.9835
 8          0.9842      0.9847      0.9851      0.9856      0.9861
 8          0.9866      0.9870      0.9875      0.9880      0.9884
 8          0.9889      0.9894      0.9899      0.9902      0.9905
 8          0.9908      0.9911      0.9915      0.9918      0.9921
 8          0.9924      0.9927      0.9930      0.9934      0.9937
 8          0.9940      0.9943      0.9946      0.9949      0.9953
 8          0.9956      0.9959      0.9962      0.9965      0.9968
 8          0.9972      0.9975      0.9978      0.9981      0.9984
 8          0.9987      0.9989      0.9991      0.9992      0.9994
 8          0.9995      0.9997      0.9998      1.0000      1.0000
 9 ENDTBL
 5 RAINFL 8     1        2.4                                          10-DAY
 8          .0000       .0024       .0048       .0073       .0097
 8          .0121       .0148       .0174       .0201       .0228
 8          .0254       .0284       .0314       .0344       .0374
 8          .0404       .0437       .0471       .0505       .0539
 8          .0572       .0612       .0651       .0690       .0729
 8          .0768       .0815       .0862       .0909       .0955
 8          .1002       .1061       .1120       .1179       .1238
 8          .1297       .1377       .1458       .1538       .1618
 8          .1699       .1832       .1966       .2099       .2232
 8          .2366       .2548       .2778       .3093       .3614
 8          1.092       1.174       1.213       1.240       1.260
 8          1.276       1.286       1.296       1.306       1.316
 8          1.326       1.333       1.340       1.347       1.354
 8          1.360       1.365       1.371       1.376       1.381
 8          1.386       1.391       1.395       1.399       1.403
 8          1.408       1.411       1.415       1.418       1.422
 8          1.426       1.429       1.432       1.435       1.438
 8          1.442       1.444       1.447       1.450       1.453
 8          1.456       1.458       1.461       1.463       1.466
 8          1.468       1.471       1.473       1.475       1.477
 8          1.48        1.48        1.48        1.48        1.48
 9 ENDTBL
 4 DIMHYD               .0556                                          WT3
 8          0.0         .03         .10         .19         .31
 8          .47         .66         .82         .93         .99
 8          1.0         .99         .93         .82         .66
 8          .47         .31         .03         .00         .00
 9 ENDTBL
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 2 XSECTN    005         1.0         8.77                                BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN    010         1.0         8.94                                BOSSCS#4
 8                       0.          0.0         0.0
 8                       0.91        5.          4.95
 8                       2.03        50.         24.80
 8                       2.63        100.        41.32
 8                       3.34        200.        74.14
 8                       4.15        400.        130.28
 8                       5.23        800.        223.37
 8                       6.41        1600.       447.51
 8                       7.65        3200.       898.64
 8                       8.94        6400.       1690.88
 8                       10.29       12800.      3331.95
 8                       11.64       25600.      6185.81
 8                       13.14       51200.      10661.04
 9 ENDTBL
 2 XSECTN    020         1.0         7.3                                 REACHC
 8                       0.          0.0         0.0
 8                       1.01        100.        57.78
 8                       1.49        200.        86.81
 8                       1.88        300.        110.25
 8                       2.49        500.        149.47
 8                       3.68        1000.       226.31
 8                       5.40        2000.       346.26
 8                       7.85        4000.       533.39
 8                       9.64        6000.       688.07
 8                       11.16       8000.       838.10
 8                       12.46       10000.      985.31
 8                       13.61       12000.      1122.03
 8                       14.56       14000.      1236.94
 8                       15.43       16000.      1345.18
 8                       16.31       18000.      1456.68
 9 ENDTBL
 2 XSECTN    025         1.0         7.3                                 REACHB
 8                       0.          0.0         0.0
 8                       0.63        100.        80.89
 8                       0.93        200.        120.32
 8                       1.17        300.        151.77
 8                       1.56        500.        203.28
 8                       2.30        1000.       302.00
 8                       3.38        2000.       449.24
 8                       4.97        4000.       673.73
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                      6.23        6000.       855.96
 8                      7.31        8000.       1016.35
 8                      8.24        10000.      1158.51
 8                      9.09        12000.      1293.31
 8                      9.90        14000.      1425.57
 8                      10.64       16000.      1549.17
 8                      11.36       18000.      1673.11
 9 ENDTBL
 2 XSECTN    030        1.0         9.45                            BOSSCS#6
 8                      0.          0.0         0.0
 8                      0.77        5.          4.67
 8                      1.54        50.         32.06
 8                      1.78        100.        56.64
 8                      2.10        200.        100.59
 8                      2.50        400.        179.97
 8                      3.01        800.        320.25
 8                      3.63        1600.       589.66
 8                      4.35        3200.       1110.72
 8                      5.21        6400.       2084.48
 8                      6.03        12800.      4119.83
 8                      6.99        25600.      6856.75
 8                      8.28        51200.      11085.87
 9 ENDTBL
 2 XSECTN    045        1.0         4.87                            REACHA
 8                      0.          0.0         0.0
 8                      0.60        100.        85.69
 8                      0.90        200.        127.94
 8                      1.13        300.        161.93
 8                      1.52        500.        217.27
 8                      2.25        1000.       324.03
 8                      3.31        2000.       483.02
 8                      4.87        4000.       722.17
 8                      6.09        6000.       914.99
 8                      7.15        8000.       1084.61
 8                      8.05        10000.      1234.17
 8                      8.87        12000.      1373.80
 8                      9.64        14000.      1507.84
 8                      10.34       16000.      1633.45
 8                      11.00       18000.      1753.12
 9 ENDTBL
 2 XSECTN    060        1.0         4.7                             2CP6CP7
 8                      0.          0.0         0.0
 8                      2.36        100.        45.12
 8                      2.88        200.        83.75
 8                      3.18        300.        114.33
 8                      3.64        500.        172.72
 8                      4.42        1000.       289.04
 8                      5.40        2000.       470.72
 8                      6.87        4000.       782.74
 8                      7.91        6000.       1020.12
 8                      8.79        8000.       1231.25
 8                      9.60        10000.      1435.05
 8                      10.26       12000.      1618.34
 8                      10.94       14000.      1812.58
 8                      11.47       16000.      1983.46
 8                      11.96       18000.      2150.12
```

```
 9 ENDTBL
 2 XSECTN   067          1.0         8.77                                  BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 3 STRUCT       01                                                          95/11/6
 8                       1178.0      0.00        0.
 8                       1188.0      1.1         44.8
 8                       1197.0      1.2         300.
 8                       1199.2      1.3         500.
 8                       1202.0      1.4         845.55
 8                       1204.0      1.5         1176.28
 8                       1206.0      1.6         1575.25
 8                       1208.0      1.7         2044.97
 8                       1210.0      1.8         2593.40
 8                       1212.0      1.9         3218.00
 8                       1213.0      2593.0      3556.67
 8                       1214.0      8133.0      3916.02
 8                       1215.0      15443.0     4294.13
 8                       1216.0      24165.0     4692.68
 8                       1217.0      34099.0     5113.19
 8                       1218.0      45112.0     5556.01
 8                       1219.0      57107.0     6021.50
 8                       1220.0      70010.0     6509.75
 9 ENDTBL
 6 RUNOFF 1 001        1 2.46        87.2        0.85        1 1
 6 REACH  3 005   1    7 9100.                               1           BOSS#6
 6 REACH  3 010   7    2 9100.                               1           BOSS#4
 6 RUNOFF 1 002        3 2.38        79.9        0.73        1 1
 6 ADDHYD 4 012   2 3 1                                      1 1
 6 DIVERT 6 012   1 4  7 4100.       1.00        200.        1 1         OLIVE
 6 REACH  3 020   4    7 3332.                               1           REACH C
 6 REACH  3 025   7    5 1950.                               1           REACH B
 6 RUNOFF 1 003        6 3.94        87.2        0.88        1 1
 6 REACH  3 030   6    7 8865.                               1           BOSS#6
 6 REACH  3 005   7    1 8865.                               1           BOSS#5
 6 REACH  3 025   1    7 1950.                               1           REACH B
 6 RUNOFF 1 004        1 2.06        77.3        0.79        1 1
 6 ADDHYD 4 034   7 1 2                                      1 1
 6 ADDHYD 4 035   5 2 3                                      1 1
 6 DIVERT 6 035   3 4  7 11000.      1.00        199.        1 1         NORTHERN
 6 REACH  3 045   4    5 4200.                               1           REACH A
 6 RUNOFF 1 006        2 1.47        87.7        0.47        1 1
 6 REACH  3 060   2    3 7540.                               1           CP6CP7
 6 REACH  3 067   3    4 5140.                               1           BOSS#5
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 6 ADDHYD 4 064    5 4 3                                        1 1
 6 RUNOFF 1 005        6 4.78         78.8         0.78         1 1
 6 RUNOFF 1 007        7 3.48         81.7         1.01         1 1
 6 ADDHYD 4 075    6 7 1                                        1 1
 6 ADDHYD 4 076    1 3 2                                        1 1      1
 6 RESVOR 2     01 2   1 1197.0                                 1 1      1
   ENDATA
 7 LIST                  1.0                      1.
 7 INCREM 6              0.20
 7 COMPUT 7 001       01 0.          15.8         1.0          7 2  01  07
   ENDCMP 1
   ENDJOB 2

**********END OF 80-80 LIST**********
```

RUNOFF OPTION USED WITH RAINTABLE NO. 8, RUNOFF CURVE NO. = 100.

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

```
EXECUTIVE CONTROL  LIST           1.          0.          1.

          LISTING OF CURRENT DATA


                     COMPUTED TIME INCREMENT
DIMHYD                        .0556

                   .0000       .0300       .1000       .1900       .3100
                   .4700       .6600       .8200       .9300       .9900
                  1.0000       .9900       .9300       .8200       .6600
                   .4700       .3100       .0300       .0000       .0000
ENDTBL

   COMPUTED PEAK RATE FACTOR =  664.607
```

TABLE NO. TIME INCREMENT
RAINFL 1 .1000

.0000	.0030	.0060	.0090	.0130
.0160	.0200	.0250	.0300	.0350
.0390	.0460	.0520	.0580	.0650
.0710	.0800	.0900	.0990	.1090
.1180	.2830	.4490	.5670	.6220
.6690	.7010	.7320	.7560	.7800
.7950	.8090	.8240	.8380	.8520
.8660	.8760	.8850	.8940	.9040
.9130	.9200	.9260	.9320	.9390
.9450	.9500	.9540	.9590	.9640
.9690	.9720	.9760	.9800	.9840
.9880	.9910	.9930	.9950	.9980
1.0000	1.0000	1.0000	1.0000	1.0000

ENDTBL

STANDARD CONTROL INSTRUCTIONS

```
RUNOFF      1       1      2.4600     87.2000      .85001 1 0 0 0 1
REACH       5   1   7   9100.0000       .0000      .00001 0 0 0 0 1
REACH      10   7   2   9100.0000       .0000      .00001 0 0 0 0 1
RUNOFF      2       3      2.3800     79.9000      .73001 1 0 0 0 1
ADDHYD     12   2 3 1                                 1 1 0 0 0 1
DIVERT     12   1 4 7   4100.0000      1.0000   200.00001 1 0 0 0 1
REACH      20   4   7   3332.0000       .0000      .00001 0 0 0 0 1
REACH      25   7   5   1950.0000       .0000      .00001 0 0 0 0 1
RUNOFF      3       6      3.9400     87.2000      .88001 1 0 0 0 1
REACH      30   6   7   8865.0000       .0000      .00001 0 0 0 0 1
REACH       5   7   1   8865.0000       .0000      .00001 0 0 0 0 1
REACH      25   1   7   1950.0000       .0000      .00001 0 0 0 0 1
RUNOFF      4       1      2.0600     77.3000      .79001 1 0 0 0 1
ADDHYD     34   7 1 2                                 1 1 0 0 0 1
ADDHYD     35   5 2 3                                 1 1 0 0 0 1
DIVERT     35   3 4 7  11000.0000      1.0000   199.00001 1 0 0 0 1
REACH      45   4   5   4200.0000       .0000      .00001 0 0 0 0 1
RUNOFF      6       2      1.4700     87.7000      .47001 1 0 0 0 1
REACH      60   2   3   7540.0000       .0000      .00001 0 0 0 0 1
REACH      67   3   4   5140.0000       .0000      .00001 0 0 0 0 1
ADDHYD     64   5 4 3                                 1 1 0 0 0 1
RUNOFF      5       6      4.7800     78.8000      .78001 1 0 0 0 1
RUNOFF      7       7      3.4800     81.7000     1.01001 1 0 0 0 1
ADDHYD     75   6 7 1                                 1 1 0 0 0 1
ADDHYD     76   1 3 2                                 1 1 0 0 1 1
RESVOR        1 2   1   1197.0000                     1 1 0 0 1 1
ENDATA
```

END OF LISTING

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .200 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO STRUCTURE 1
STARTING TIME = .00 RAIN DEPTH = 15.80 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .200 HOURS
ALTERNATE NO. = 1 STORM NO. = 7 RAIN TABLE NO. = 7

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.01	6290.9	(RUNOFF)
37.14	222.8	(RUNOFF)
42.48	160.6	(RUNOFF)
43.88	160.6	(RUNOFF)
45.39	144.8	(RUNOFF)
46.63	144.8	(RUNOFF)
48.53	128.1	(RUNOFF)
49.25	128.1	(RUNOFF)
50.01	128.2	(RUNOFF)
50.78	128.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 2.46 SQ.MI.			
6.80 CFS	.23	.99	2.60	4.92	7.41	9.80	12.16	14.48
8.40 CFS	16.85	19.25	21.48	23.29	25.31	27.59	29.55	31.06
10.00 CFS	32.94	35.51	38.49	41.46	44.22	46.72	49.35	51.53
11.60 CFS	52.88	53.84	55.72	58.23	60.26	61.25	61.85	63.48
13.20 CFS	65.94	67.81	68.54	68.83	70.26	73.02	76.35	79.85
14.80 CFS	83.14	86.13	88.09	89.48	90.66	91.14	91.12	92.08
16.40 CFS	94	97	98	98	100	105	113	121
18.00 CFS	124	127	135	144	151	152	154	162
19.60 CFS	172	180	184	186	193	204	212	215
21.20 CFS	220	234	253	270	275	277	284	296
22.80 CFS	306	311	315	325	337	345	350	394
24.40 CFS	545	760	926	983	1033	1205	1437	1616
26.00 CFS	1680	1996	3130	4708	5958	6290	6037	5038
27.60 CFS	3598	2474	2209	2138	1905	1567	1316	1248
29.20 CFS	1233	1182	1109	1057	1041	1019	937	822
30.80 CFS	735	709	707	696	681	669	665	660
32.40 CFS	643	621	606	604	601	587	568	556
34.00 CFS	554	552	540	522	510	507	504	489
35.60 CFS	465	448	444	429	373	294	237	222
37.20 CFS	223	219	212	207	206	205	202	197
38.80 CFS	192	190	189	185	179	176	174	172
40.40 CFS	167	164	161	161	161	160	158	156
42.00 CFS	157	159	160	160	159	157	156	158
43.60 CFS	160	161	161	159	154	147	142	142

45.20 CFS	144	145	144	141	141	141	143	145
46.80 CFS	144	142	140	137	134	130	127	126
48.40 CFS	128	128	126	127	128	128	126	127
50.00 CFS	128	127	126	127	128	127	125	122
51.60 CFS	117	112	110	110	110	111	112	114
53.20 CFS	115	113	111	110	110	109	104	99
54.80 CFS	95.92	95.49	95.53	95.31	95.58	95.24	95.48	94.73
56.40 CFS	91.62	86.71	81.65	79.19	77.09	76.07	77.39	79.64
58.00 CFS	80.28	78.85	74.36	69.21	65.85	64.21	62.73	63.19
59.60 CFS	64.51	63.90	62.57	63.01	60.90	54.36	47.42	46.33
61.20 CFS	48.46	49.63	48.07	46.12	46.28	47.66	47.31	45.89
62.80 CFS	46.76	48.96	48.66	43.81	36.83	31.65	30.19	30.89
64.40 CFS	32.94	34.37	33.62	31.35	30.17	30.15	30.41	31.81
66.00 CFS	33.98	34.30	32.52	30.50	30.15	30.18	30.92	32.95
67.60 CFS	34.48	33.68	31.30	30.16	30.15	30.33	31.78	33.88
69.20 CFS	34.35	32.60	30.51	30.15	30.11	29.43	26.91	23.19
70.80 CFS	19.16	16.26	15.21	14.96	15.26	14.90	15.12	14.45
72.40 CFS	11.29	6.32	1.19	.00				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 22681 CFS-HRS; 1874.3 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.54	4816.3	6.72
42.76	160.0	1.72
44.25	159.6	1.72
46.94	143.7	1.63
51.01	127.5	1.54
53.42	113.7	1.47
63.33	48.1	1.00
66.47	32.9	.77
68.00	32.7	.77
69.50	32.6	.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 22692 CFS-HRS; 1875.3 ACRE-FEET.

OPERATION REACH XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
28.12	3932.3	7.95
44.51	159.4	3.05
68.36	32.2	1.59
69.88	32.1	1.58

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 22690 CFS-HRS; 1875.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.97	5804.6	(RUNOFF)
27.91	2083.0	(RUNOFF)
32.95	574.5	(RUNOFF)
33.97	527.8	(RUNOFF)
34.96	482.6	(RUNOFF)
35.91	425.5	(RUNOFF)
37.12	212.6	(RUNOFF)
41.10	153.0	(RUNOFF)
42.43	153.0	(RUNOFF)
43.72	153.1	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 2.38 SQ.MI.			
9.40 CFS	.14	.63	1.68	3.16	4.81	6.60	8.47	10.27
11.00 CFS	12.14	14.12	15.84	17.19	18.61	20.39	22.36	23.92
12.60 CFS	24.94	26.12	27.84	29.82	31.23	32.00	32.96	34.62
14.20 CFS	36.86	39.25	41.70	44.25	46.40	47.92	49.37	50.69
15.80 CFS	51.39	51.89	53.40	55.71	57.36	58.57	59.27	60.59
17.40 CFS	65.67	72.65	76.93	78.70	82.05	89.12	96.33	99.53
19.00 CFS	101	104	111	119	125	127	129	138
20.60 CFS	147	152	155	161	174	192	201	204
22.20 CFS	207	216	228	235	239	244	255	267
23.80 CFS	272	274	324	491	691	792	812	882
25.40 CFS	1076	1303	1422	1470	1892	3231	4839	5662
27.00 CFS	5799	5531	4259	2748	2071	2073	1988	1688
28.60 CFS	1339	1182	1177	1158	1092	1019	987	985
30.20 CFS	955	852	729	672	672	669	656	639
31.80 CFS	630	630	624	603	580	573	574	569
33.40 CFS	551	532	526	528	524	508	489	481
35.00 CFS	482	479	457	432	422	423	401	330
36.60 CFS	249	212	211	212	207	199	196	196
38.20 CFS	195	191	185	181	181	180	174	169
39.80 CFS	167	166	162	158	155	153	153	153
41.40 CFS	152	150	148	150	152	153	153	151
43.00 CFS	149	149	152	153	153	153	151	145
44.60 CFS	137	134	136	138	138	136	134	134
46.20 CFS	135	138	139	137	134	133	130	126
47.80 CFS	122	120	121	123	122	120	121	123
49.40 CFS	121	120	122	123	120	120	123	122
51.00 CFS	120	119	115	109	106	105	105	105
52.60 CFS	106	108	110	109	107	105	105	105
54.20 CFS	103	98	93	91	91	91	91	91
55.80 CFS	91.23	91.13	90.16	86.63	80.12	76.62	75.20	72.57

57.40 CFS	72.39	75.00	76.69	76.65	74.70	68.97	64.00	62.46
59.00 CFS	60.92	59.14	61.17	62.23	60.18	59.29	60.96	57.31
60.60 CFS	48.43	43.26	44.74	47.42	47.41	45.10	43.32	44.67
62.20 CFS	46.36	44.37	43.36	45.53	47.73	46.08	39.71	32.21
63.80 CFS	28.79	28.81	29.70	32.36	33.49	31.36	29.05	28.80
65.40 CFS	28.79	29.11	31.05	33.35	32.66	29.83	28.80	28.80
67.00 CFS	28.82	29.71	32.40	33.52	31.37	29.04	28.80	28.80
68.60 CFS	29.10	31.02	33.34	32.68	29.88	28.80	28.80	28.77
70.20 CFS	27.82	24.66	20.68	17.06	14.62	14.36	14.56	14.23
71.80 CFS	14.45	14.35	13.29	9.79	3.54	.17		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.26 WATERSHED INCHES; 20363 CFS-HRS; 1682.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.15	7758.9	(NULL)
28.05	5991.2	(NULL)
42.16	319.5	(NULL)
43.60	313.0	(NULL)
45.17	294.5	(NULL)
46.50	285.0	(NULL)
48.33	261.8	(NULL)
49.13	256.0	(NULL)
49.92	252.4	(NULL)
50.66	250.9	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr;				DRAINAGE AREA = 4.84 SQ.MI.			
7.60 CFS	.31	.76	1.47	2.44	3.66	5.08	6.68	8.43
9.20 CFS	10.32	12.37	14.83	17.89	21.39	25.05	28.81	32.69
10.80 CFS	36.59	40.66	44.94	49.03	52.79	56.64	60.79	64.98
12.40 CFS	68.67	71.80	75.05	78.77	82.60	85.76	88.29	91.01
14.00 CFS	94	98	102	106	110	114	118	122
15.60 CFS	125	128	131	135	139	142	145	147
17.20 CFS	150	156	165	171	175	181	192	202
18.80 CFS	210	215	223	235	249	260	266	275
20.40 CFS	289	304	314	323	335	355	379	395
22.00 CFS	406	418	436	457	473	486	500	520
23.60 CFS	540	553	564	622	797	1008	1131	1193
25.20 CFS	1323	1589	1892	2095	2242	2778	4235	5976
26.80 CFS	7013	7503	7727	7011	6032	5765	5982	5910
28.40 CFS	5496	4966	4590	4337	4052	3727	3415	3168
30.00 CFS	2974	2775	2526	2277	2110	2006	1905	1801
31.60 CFS	1705	1627	1568	1510	1446	1387	1348	1322
33.20 CFS	1292	1252	1214	1191	1177	1158	1128	1097
34.80 CFS	1077	1067	1052	1020	984	965	955	921
36.40 CFS	838	745	693	671	644	609	573	543
38.00 CFS	519	497	475	454	437	426	414	400

39.60 CFS	388	380	373	364	355	347	341	337
41.20 CFS	334	330	324	320	319	319	318	316
42.80 CFS	313	310	310	313	313	313	312	310
44.40 CFS	304	297	293	294	294	293	288	285
46.00 CFS	284	283	285	285	282	279	278	274
47.60 CFS	270	265	262	261	262	258	255	255
49.20 CFS	256	252	250	252	252	249	249	251
50.80 CFS	250	248	246	243	236	232	231	230
52.40 CFS	228	226	227	227	226	222	220	220
54.00 CFS	220	217	211	205	203	201	200	198
55.60 CFS	196	194	193	191	186	179	174	172
57.20 CFS	167	165	165	165	163	159	153	147
58.80 CFS	144	141	137	137	137	133	130	130
60.40 CFS	126	116	110	110	110	108	104	100
62.00 CFS	99.93	100.12	96.80	94.73	96.04	97.46	95.17	88.45
63.60 CFS	80.75	76.90	75.87	75.11	75.80	74.97	71.19	67.60
65.20 CFS	66.31	65.31	64.63	65.66	67.17	65.92	62.83	61.76
66.80 CFS	61.70	61.52	62.12	64.50	65.36	63.16	60.98	60.96
68.40 CFS	61.01	61.18	62.91	65.00	64.23	61.54	60.71	60.90
70.00 CFS	60.84	59.75	56.38	52.13	48.04	44.79	43.32	41.96
71.60 CFS	39.92	38.46	36.84	34.42	29.76	22.49	18.03	16.46
73.20 CFS	14.61	12.59	10.60	8.78	7.18	5.80	4.65	3.70
74.80 CFS	2.93	2.30	1.80	1.41	1.09	.85	.65	.50
76.40 CFS	.38							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.78 WATERSHED INCHES; 43053 CFS-HRS; 3557.9 ACRE-FEET.

OPERATION DIVERT XSECTION 12
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.40	4100.0 *	(DIVERT)
42.16	319.5	(DIVERT)
43.60	313.0	(DIVERT)
45.17	294.5	(DIVERT)
46.50	285.0	(DIVERT)
48.33	261.8	(DIVERT)
49.13	256.0	(DIVERT)
49.92	252.4	(DIVERT)
50.66	250.9	(DIVERT)
52.97	227.5	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =		4.84	SQ.MI.
7.60 CFS	.31	.76	1.47	2.44	3.66	5.08	6.68	8.43
9.20 CFS	10.32	12.37	14.83	17.89	21.39	25.05	28.81	32.69
10.80 CFS	36.59	40.66	44.94	49.03	52.79	56.64	60.79	64.98

12.40 CFS	68.67	71.80	75.05	78.77	82.60	85.76	88.29	91.01
14.00 CFS	94	98	102	106	110	114	118	122
15.60 CFS	125	128	131	135	139	142	145	147
17.20 CFS	150	156	165	171	175	181	192	202
18.80 CFS	210	215	223	235	249	260	266	275
20.40 CFS	289	304	314	323	335	355	379	395
22.00 CFS	406	418	436	457	473	486	500	520
23.60 CFS	540	553	564	622	797	1008	1131	1193
25.20 CFS	1323	1589	1892	2095	2242	2778	4100	4100
26.80 CFS	4100	4100	4100	4100	4100	4100	4100	4100
28.40 CFS	4100	4100	4100	4100	4052	3727	3415	3168
30.00 CFS	2974	2775	2526	2277	2110	2006	1905	1801
31.60 CFS	1705	1627	1568	1510	1446	1387	1348	1322
33.20 CFS	1292	1252	1214	1191	1177	1158	1128	1097
34.80 CFS	1077	1067	1052	1020	984	965	955	921
36.40 CFS	838	745	693	671	644	609	573	543
38.00 CFS	519	497	475	454	437	426	414	400
39.60 CFS	388	380	373	364	355	347	341	337
41.20 CFS	334	330	324	320	319	319	318	316
42.80 CFS	313	310	310	313	313	313	312	310
44.40 CFS	304	297	293	294	294	293	288	285
46.00 CFS	284	283	285	285	282	279	278	274
47.60 CFS	270	265	262	261	262	258	255	255
49.20 CFS	256	252	250	252	252	249	249	251
50.80 CFS	250	248	246	243	236	232	231	230
52.40 CFS	228	226	227	227	226	222	220	220
54.00 CFS	220	217	211	205	203	201	200	198
55.60 CFS	196	194	193	191	186	179	174	172
57.20 CFS	167	165	165	165	163	159	153	147
58.80 CFS	144	141	137	137	137	133	130	130
60.40 CFS	126	116	110	110	110	108	104	100
62.00 CFS	99.93	100.12	96.80	94.73	96.04	97.46	95.17	88.45
63.60 CFS	80.75	76.90	75.87	75.11	75.80	74.97	71.19	67.60
65.20 CFS	66.31	65.31	64.63	65.66	67.17	65.92	62.83	61.76
66.80 CFS	61.70	61.52	62.12	64.50	65.36	63.16	60.98	60.96
68.40 CFS	61.01	61.18	62.91	65.00	64.23	61.54	60.71	60.90
70.00 CFS	60.84	59.75	56.38	52.13	48.04	44.79	43.32	41.96
71.60 CFS	39.92	38.46	36.84	34.42	29.76	22.49	18.03	16.46
73.20 CFS	14.61	12.59	10.60	8.78	7.18	5.80	4.65	3.70
74.80 CFS	2.93	2.30	1.80	1.41	1.09	.85	.65	.50
76.40 CFS	.38							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.16 WATERSHED INCHES; 37998 CFS-HRS; 3140.2 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.15	3658.9	(DIVERT)
28.05	1891.2	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,			DRAINAGE AREA =			.00 SQ.MI.
26.20 CFS	0	135	1876	2913	3403	3627	2911	1932
27.80 CFS	1665	1882	1810	1396	866	490	237	0

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5055 CFS-HRS; 417.7 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 20. ***

OPERATION REACH XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.40	4100.0 *	7.94
42.16	319.5	1.94
43.60	313.0	1.92
45.17	294.5	1.86
46.50	285.0	1.82
48.33	261.8	1.73
49.13	256.0	1.71
49.92	252.4	1.69
50.66	250.9	1.69
52.97	227.5	1.60

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.16 WATERSHED INCHES; 37998 CFS-HRS; 3140.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 25. ***

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.40	4100.0 *	5.03
42.16	319.5	1.21
43.60	313.0	1.20
45.17	294.5	1.16
46.50	285.0	1.13
48.33	261.8	1.08
49.13	256.0	1.06
49.92	252.4	1.06
50.66	250.9	1.05
52.97	227.5	1.00

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.16 WATERSHED INCHES; 37998 CFS-HRS; 3140.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.03	10040.5	(RUNOFF)
37.12	356.5	(RUNOFF)
41.10	257.2	(RUNOFF)
42.50	257.2	(RUNOFF)
43.87	257.2	(RUNOFF)
45.40	231.7	(RUNOFF)
46.65	231.7	(RUNOFF)
48.55	205.0	(RUNOFF)
50.03	205.0	(RUNOFF)
50.79	205.1	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 3.94 SQ.MI.			
6.80 CFS	.34	1.45	3.89	7.54	11.53	15.39	19.17	22.84
8.40 CFS	26.59	30.43	34.07	37.14	40.32	43.87	47.03	49.53
10.00 CFS	52.51	56.50	61.23	65.95	70.39	74.49	78.70	82.25
11.60 CFS	85	86	89	93	96	98	99	101
13.20 CFS	105	108	110	110	112	117	122	127
14.80 CFS	133	138	141	143	145	146	146	147
16.40 CFS	151	154	157	158	159	167	180	192
18.00 CFS	198	203	215	230	241	244	247	258
19.60 CFS	274	287	294	297	308	325	339	345
21.20 CFS	353	373	403	429	440	443	454	472
22.80 CFS	489	497	504	519	538	551	558	621
24.40 CFS	852	1184	1469	1571	1659	1902	2263	2558
26.00 CFS	2703	3170	4869	7282	9355	10029	9667	8221
27.60 CFS	5995	4199	3538	3445	3081	2567	2137	2004
29.20 CFS	1977	1901	1788	1701	1668	1637	1511	1335
30.80 CFS	1187	1138	1132	1117	1093	1073	1065	1058

32.40 CFS	1033	998	973	967	963	942	912	892
34.00 CFS	887	884	867	840	818	812	807	785
35.60 CFS	748	719	710	688	605	485	388	355
37.20 CFS	356	351	341	332	329	328	323	316
38.80 CFS	308	305	303	296	288	282	279	275
40.40 CFS	269	263	259	257	257	256	254	251
42.00 CFS	251	254	257	257	255	251	251	253
43.60 CFS	256	257	257	255	248	237	228	227
45.20 CFS	230	232	230	226	225	226	229	232
46.80 CFS	231	227	224	220	215	208	203	203
48.40 CFS	204	205	203	203	205	205	203	203
50.00 CFS	205	204	202	204	205	203	200	195
51.60 CFS	188	180	177	177	177	177	179	183
53.20 CFS	184	181	178	177	177	175	168	160
54.80 CFS	154	153	153	153	153	153	153	152
56.40 CFS	147	140	132	127	124	122	124	127
58.00 CFS	129	127	120	112	106	103	101	101
59.60 CFS	103	102	101	101	98	88	77	74
61.20 CFS	77.10	79.45	77.17	74.29	74.14	76.15	75.93	73.85
62.80 CFS	74.62	77.92	78.02	70.90	60.16	51.49	48.30	49.34
64.40 CFS	52.39	54.88	54.13	50.67	48.42	48.28	48.64	50.74
66.00 CFS	54.08	54.91	52.48	49.07	48.29	48.36	49.44	52.43
67.60 CFS	54.81	53.98	50.67	48.40	48.29	48.68	50.71	53.91
69.20 CFS	54.79	52.53	49.19	48.29	48.24	47.24	43.47	37.73
70.80 CFS	31.21	26.55	24.54	23.82	24.43	24.09	23.99	23.32
72.40 CFS	18.27	11.03	2.94	.12				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 36347 CFS-HRS; 3003.7 ACRE-FEET.

OPERATION REACH XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.78	7435.3	5.34
42.91	256.8	2.21
44.45	255.5	2.21
47.13	230.4	2.16
50.38	204.6	2.11
51.21	204.2	2.11
53.62	182.4	2.04
63.53	77.1	1.67
66.69	52.7	1.55
68.22	52.2	1.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.30 WATERSHED INCHES; 36355 CFS-HRS; 3004.3 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
28.39	6138.2	7.27
44.55	255.5	2.13
68.57	51.6	1.04
70.11	51.4	1.04

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.30 WATERSHED INCHES; 36353 CFS-HRS; 3004.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 25. ***

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
28.39	6138.2	6.30
44.55	255.5	1.06
68.57	51.6	.32
70.11	51.4	.32

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.30 WATERSHED INCHES; 36353 CFS-HRS; 3004.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.01	4861.6	(RUNOFF)
32.92	492.2	(RUNOFF)
33.95	452.3	(RUNOFF)
37.13	182.2	(RUNOFF)
42.46	131.5	(RUNOFF)
43.75	131.5	(RUNOFF)
45.36	118.9	(RUNOFF)
46.60	118.9	(RUNOFF)
49.22	105.4	(RUNOFF)
49.98	105.4	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 2.06 SQ.MI.

HRS								
10.60 CFS	.44	1.24	2.48	3.94	5.36	6.65	7.89	9.27
12.20 CFS	10.74	12.07	13.16	14.21	15.50	16.98	18.25	19.14
13.80 CFS	19.98	21.24	22.86	24.65	26.54	28.44	30.17	31.57
15.40 CFS	32.82	33.98	34.79	35.41	36.53	38.22	39.73	40.82
17.00 CFS	41.60	42.73	45.98	50.80	54.70	56.41	58.79	63.74
18.60 CFS	69.28	72.69	73.87	76.25	81.12	87.59	92.71	94.71

20.20 CFS	97	103	110	115	117	122	132	145
21.80 CFS	154	158	160	167	176	183	187	191
23.40 CFS	200	209	215	217	251	368	521	625
25.00 CFS	653	705	846	1029	1155	1197	1491	2480
26.60 CFS	3780	4657	4861	4677	3805	2608	1849	1768
28.20 CFS	1709	1489	1203	1026	1006	993	945	883
29.80 CFS	847	843	822	746	646	583	575	573
31.40 CFS	564	550	541	540	536	520	501	492
33.00 CFS	492	489	475	459	451	452	450	438
34.60 CFS	423	414	414	411	396	375	363	363
36.20 CFS	348	295	227	186	181	182	178	172
37.80 CFS	168	168	167	165	160	156	156	154
39.40 CFS	150	146	144	143	140	136	133	132
41.00 CFS	131	131	131	129	128	128	131	131
42.60 CFS	131	130	128	128	130	131	131	131
44.20 CFS	130	125	119	116	116	118	119	117
45.80 CFS	115	115	116	118	119	118	116	114
47.40 CFS	112	109	106	104	104	105	105	103
49.00 CFS	104	105	104	103	104	105	104	103
50.60 CFS	105	105	104	102	100	95	91	91
52.20 CFS	90.63	90.64	90.88	92.26	94.14	94.12	92.10	90.69
53.80 CFS	90.67	90.60	89.19	84.94	80.60	78.49	78.43	78.29
55.40 CFS	78.35	78.44	78.27	78.37	77.50	74.80	70.18	66.39
57.00 CFS	64.88	62.84	62.23	63.93	65.76	65.92	64.49	60.24
58.60 CFS	55.90	53.70	52.67	51.12	52.17	53.31	52.22	51.16
60.20 CFS	51.85	49.69	43.38	38.08	38.11	40.32	40.86	39.10
61.80 CFS	37.54	38.17	39.57	38.58	37.50	38.68	40.75	39.92
63.40 CFS	35.14	28.96	25.22	24.80	25.52	27.45	28.54	27.35
65.00 CFS	25.23	24.76	24.76	24.95	26.35	28.23	28.22	26.27
66.60 CFS	24.86	24.76	24.78	25.42	27.43	28.56	27.40	25.33
68.20 CFS	24.77	24.77	25.00	26.37	28.27	28.27	26.22	24.84
69.80 CFS	24.77	24.73	24.01	21.69	18.44	15.17	12.99	12.36
71.40 CFS	12.40	12.44	12.29	12.40	11.54	8.86	4.23	.50
73.00 CFS	.00							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.87 WATERSHED INCHES; 17108 CFS-HRS; 1413.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.24	7273.8	(NULL)
28.25	7762.8	(NULL)
43.54	389.7	(NULL)
45.15	371.8	(NULL)
50.68	311.1	(NULL)
61.10	145.4	(NULL)
62.94	122.6	(NULL)
65.94	84.5	(NULL)
67.56	80.3	(NULL)
69.07	79.5	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 6.00 SQ.MI.			
7.80 CFS	.43	1.07	2.10	3.54	5.35	7.50	9.93	12.62
9.40 CFS	15.50	18.51	21.60	24.76	27.97	31.23	34.74	38.74
11.00 CFS	43.30	48.23	53.28	58.30	63.39	68.64	73.89	78.81
12.60 CFS	83	88	92	97	101	105	109	113
14.20 CFS	117	122	126	130	135	139	144	148
15.80 CFS	153	157	162	167	171	175	178	182
17.40 CFS	188	195	201	206	211	221	232	241
19.00 CFS	248	257	270	284	297	307	317	332
20.60 CFS	349	362	374	388	408	430	450	464
22.20 CFS	479	499	523	545	562	581	604	627
23.80 CFS	646	662	709	839	1006	1125	1186	1298
25.40 CFS	1529	1820	2063	2234	2680	3842	5325	6410
27.00 CFS	6933	7265	7120	6765	6830	7417	7751	7627
28.60 CFS	7224	6815	6489	6116	5675	5217	4808	4463
30.20 CFS	4134	3782	3440	3168	2974	2800	2627	2463
31.80 CFS	2320	2201	2095	1991	1896	1823	1769	1717
33.40 CFS	1660	1606	1565	1536	1506	1468	1430	1400
35.00 CFS	1380	1358	1324	1285	1257	1240	1208	1136
36.60 CFS	1049	988	960	929	884	832	783	741
38.20 CFS	701	664	629	600	577	557	536	517
39.80 CFS	502	490	477	465	454	444	437	430
41.40 CFS	424	416	409	406	404	401	397	393
43.00 CFS	390	388	389	390	388	388	386	381
44.60 CFS	375	371	371	372	370	365	361	358
46.20 CFS	357	356	355	352	349	347	344	340
47.80 CFS	336	333	331	331	328	324	321	321
49.40 CFS	318	315	314	314	312	310	311	311
51.00 CFS	309	307	304	299	295	294	293	290
52.60 CFS	288	286	286	283	279	276	275	275
54.20 CFS	272	267	262	259	258	256	253	250
55.80 CFS	247	245	242	237	230	225	222	218
57.40 CFS	215	213	212	208	204	197	191	187
59.00 CFS	184	180	179	177	172	168	166	162
60.60 CFS	154	147	145	145	143	137	133	130
62.20 CFS	129	126	123	122	123	120	114	108
63.80 CFS	103	102	101	101	99	95	90	87

65.40 CFS	85.71	84.27	84.05	84.42	83.09	80.13	78.18	77.89
67.00 CFS	77.76	78.06	79.59	80.22	78.63	76.40	75.99	76.26
68.60 CFS	76.59	77.80	79.41	79.08	76.85	75.58	75.84	76.07
70.20 CFS	75.37	72.85	69.30	65.63	62.78	60.98	59.24	56.97
71.80 CFS	54.23	51.74	48.46	43.59	37.07	31.66	29.39	27.21
73.40 CFS	24.42	21.29	18.17	15.25	12.65	10.38	8.44	6.82
75.00 CFS	5.48	4.38	3.48	2.76	2.18	1.72	1.35	1.05
76.60 CFS	.82	.64	.50					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.81 WATERSHED INCHES; 53461 CFS-HRS; 4418.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.24	11373.8	(NULL)
28.25	11862.8	(NULL)
43.56	702.7	(NULL)
45.16	666.3	(NULL)
46.41	641.0	(NULL)
49.91	566.9	(NULL)
50.66	562.0	(NULL)
52.91	513.5	(NULL)
61.13	255.8	(NULL)
62.96	220.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,			DRAINAGE AREA = 10.84 SQ.MI.				
7.60 CFS	.44	1.19	2.53	4.54	7.19	10.43	14.18	18.37
9.20 CFS	22.93	27.87	33.34	39.49	46.16	53.02	60.04	67.44
10.80 CFS	75	84	93	102	111	120	129	139
12.40 CFS	147	155	163	171	180	187	193	200
14.00 CFS	207	215	224	232	241	249	257	265
15.60 CFS	274	281	288	296	306	313	320	325
17.20 CFS	332	344	360	372	380	393	413	434
18.80 CFS	450	463	481	505	533	557	573	592
20.40 CFS	621	652	677	697	723	763	809	845
22.00 CFS	870	897	936	980	1018	1048	1081	1124
23.60 CFS	1167	1199	1226	1331	1636	2013	2256	2378
25.20 CFS	2621	3118	3712	4157	4477	5458	7942	9425
26.80 CFS	10510	11033	11365	11220	10865	10930	11517	11851
28.40 CFS	11727	11324	10915	10589	10169	9402	8633	7976
30.00 CFS	7438	6909	6308	5718	5278	4980	4704	4429
31.60 CFS	4168	3947	3769	3605	3436	3284	3171	3091
33.20 CFS	3009	2912	2820	2756	2713	2664	2596	2527
34.80 CFS	2477	2447	2410	2344	2269	2221	2195	2129
36.40 CFS	1974	1794	1681	1631	1573	1493	1405	1326
38.00 CFS	1260	1199	1140	1083	1037	1003	971	936
39.60 CFS	905	882	863	841	820	801	786	774
41.20 CFS	764	753	740	729	724	723	719	714

42.80 CFS	707	700	699	702	703	701	700	696
44.40 CFS	685	672	664	665	666	663	654	646
46.00 CFS	642	640	641	640	634	628	624	618
47.60 CFS	610	601	595	592	592	586	579	577
49.20 CFS	576	570	565	566	566	561	559	562
50.80 CFS	561	557	554	547	536	528	525	522
52.40 CFS	518	514	513	513	509	501	497	496
54.00 CFS	494	490	478	467	462	459	455	451
55.60 CFS	446	442	438	432	423	409	399	394
57.20 CFS	385	380	379	377	371	363	350	337
58.80 CFS	331	325	318	316	313	305	298	297
60.40 CFS	288	269	256	255	255	251	241	233
62.00 CFS	230	229	223	217	218	220	216	203
63.60 CFS	188	180	178	177	177	174	166	158
65.20 CFS	154	151	149	150	152	149	143	140
66.80 CFS	140	139	140	144	146	142	137	137
68.40 CFS	137	138	141	144	143	138	136	137
70.00 CFS	137	135	129	121	114	108	104	101
71.60 CFS	96.90	92.69	88.57	82.87	73.36	59.56	49.69	45.85
73.20 CFS	41.82	37.01	31.89	26.95	22.43	18.45	15.03	12.14
74.80 CFS	9.75	7.78	6.18	4.89	3.85	3.03	2.37	1.85
76.40 CFS	1.44	1.12	.87	.67	.52	.40		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.07 WATERSHED INCHES; 91445 CFS-HRS; 7557.0 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.00	11000.0 *	(DIVERT)
28.00	11000.0 *	(DIVERT)
43.56	702.7	(DIVERT)
45.16	666.3	(DIVERT)
46.41	641.0	(DIVERT)
49.91	566.9	(DIVERT)
50.66	562.0	(DIVERT)
52.91	513.5	(DIVERT)
61.13	255.8	(DIVERT)
62.96	220.1	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 10.84 SQ.MI.			
7.60 CFS	.44	1.19	2.53	4.54	7.19	10.43	14.18	18.37
9.20 CFS	22.93	27.87	33.34	39.49	46.16	53.02	60.04	67.44
10.80 CFS	75	84	93	102	111	120	129	139
12.40 CFS	147	155	163	171	180	187	193	200
14.00 CFS	207	215	224	232	241	249	257	265

15.60 CFS	274	281	288	296	306	313	320	325
17.20 CFS	332	344	360	372	380	393	413	434
18.80 CFS	450	463	481	505	533	557	573	592
20.40 CFS	621	652	677	697	723	763	809	845
22.00 CFS	870	897	936	980	1018	1048	1081	1124
23.60 CFS	1167	1199	1226	1331	1636	2013	2256	2378
25.20 CFS	2621	3118	3712	4157	4477	5458	7942	9425
26.80 CFS	10510	11000	11000	11000	10865	10930	11000	11000
28.40 CFS	11000	11000	10915	10589	10169	9402	8633	7976
30.00 CFS	7438	6909	6308	5718	5278	4980	4704	4429
31.60 CFS	4168	3947	3769	3605	3436	3284	3171	3091
33.20 CFS	3009	2912	2820	2756	2713	2664	2596	2527
34.80 CFS	2477	2447	2410	2344	2269	2221	2195	2129
36.40 CFS	1974	1794	1681	1631	1573	1493	1405	1326
38.00 CFS	1260	1199	1140	1083	1037	1003	971	936
39.60 CFS	905	882	863	841	820	801	786	774
41.20 CFS	764	753	740	729	724	723	719	714
42.80 CFS	707	700	699	702	703	701	700	696
44.40 CFS	685	672	664	665	666	663	654	646
46.00 CFS	642	640	641	640	634	628	624	618
47.60 CFS	610	601	595	592	592	586	579	577
49.20 CFS	576	570	565	566	566	561	559	562
50.80 CFS	561	557	554	547	536	528	525	522
52.40 CFS	518	514	513	513	509	501	497	496
54.00 CFS	494	490	478	467	462	459	455	451
55.60 CFS	446	442	438	432	423	409	399	394
57.20 CFS	385	380	379	377	371	363	350	337
58.80 CFS	331	325	318	316	313	305	298	297
60.40 CFS	288	269	256	255	255	251	241	233
62.00 CFS	230	229	223	217	218	220	216	203
63.60 CFS	188	180	178	177	177	174	166	158
65.20 CFS	154	151	149	150	152	149	143	140
66.80 CFS	140	139	140	144	146	142	137	137
68.40 CFS	137	138	141	144	143	138	136	137
70.00 CFS	137	135	129	121	114	108	104	101
71.60 CFS	96.90	92.69	88.57	82.87	73.36	59.56	49.69	45.85
73.20 CFS	41.82	37.01	31.89	26.95	22.43	18.45	15.03	12.14
74.80 CFS	9.75	7.78	6.18	4.89	3.85	3.03	2.37	1.85
76.40 CFS	1.44	1.12	.87	.67	.52	.40		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.99 WATERSHED INCHES; 90850 CFS-HRS; 7507.8 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.24	373.8	(DIVERT)
28.25	862.8	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =			.00 SQ.MI.
26.80 CFS	0	33	365	220	0	0	517	851
28.40 CFS	727	324	0					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
595 CFS-HRS; 49.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 45. ***

OPERATION REACH XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.00	11000.0 *	8.46
28.00	11000.0 *	8.46
43.56	702.7	1.82
45.16	666.3	1.76
46.41	641.0	1.73
49.91	566.9	1.62
50.66	562.0	1.61
52.91	513.5	1.54
61.13	255.8	1.03
62.96	220.1	.95

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.99 WATERSHED INCHES; 90850 CFS-HRS; 7507.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
21.84	167.4	(RUNOFF)
26.91	3876.1	(RUNOFF)
27.90	1343.4	(RUNOFF)
28.90	752.9	(RUNOFF)
30.90	425.2	(RUNOFF)
31.90	399.8	(RUNOFF)
32.90	363.9	(RUNOFF)
33.90	334.0	(RUNOFF)
34.94	306.1	(RUNOFF)
35.88	267.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =			1.47 SQ.MI.
6.60 CFS	.30	1.29	2.91	4.65	6.19	7.39	9.02	10.41
8.20 CFS	11.55	13.39	14.79	15.46	16.67	18.57	19.60	19.88
9.80 CFS	21.35	23.15	24.75	27.00	28.43	29.62	31.63	33.39
11.40 CFS	33.22	33.89	34.93	36.91	38.61	38.11	38.59	39.51

13.00 CFS	41.48	43.13	42.35	42.67	43.49	45.46	47.91	49.32
14.60 CFS	52.03	53.78	54.61	55.40	56.16	56.67	55.66	56.24
16.20 CFS	58.78	59.66	60.31	60.86	60.06	62.65	72.28	75.36
17.80 CFS	76.15	77.01	82.04	91.96	92.94	92.70	93.65	97.87
19.40 CFS	107	112	112	111	117	128	129	131
21.00 CFS	133	140	160	166	167	167	171	183
22.60 CFS	187	188	190	196	208	210	209	212
24.20 CFS	307	524	588	593	597	703	936	1001
25.80 CFS	1008	1023	1718	3306	3746	3784	3805	3173
27.40 CFS	1696	1323	1325	1325	1177	831	745	748
29.00 CFS	749	714	640	625	624	623	575	454
30.60 CFS	424	424	424	418	403	397	398	398
32.20 CFS	386	364	359	362	363	352	334	330
33.80 CFS	333	333	324	308	302	303	305	295
35.40 CFS	270	264	267	267	230	152	132	132
37.00 CFS	134	133	123	124	123	122	122	116
38.60 CFS	114	114	114	111	105	106	105	102
40.20 CFS	100	97	96	96	96	96	95	92
41.80 CFS	93.41	95.91	96.01	96.01	95.65	92.75	92.58	95.64
43.40 CFS	96.02	96.03	96.03	95.97	92.86	85.84	84.03	84.16
45.00 CFS	86.47	88.07	84.94	84.04	84.04	84.07	85.63	88.28
46.60 CFS	85.71	84.05	84.02	82.47	78.95	77.69	74.74	74.58
48.20 CFS	77.68	77.20	74.07	75.48	77.98	76.49	73.81	76.40
49.80 CFS	77.96	75.63	73.98	77.17	77.71	74.75	74.53	74.61
51.40 CFS	67.84	66.06	66.06	66.06	66.06	66.07	66.42	69.39
53.00 CFS	69.62	66.38	66.07	66.07	66.07	66.06	63.00	56.65
54.60 CFS	58.04	56.76	56.53	58.22	55.78	58.03	56.77	56.53
56.20 CFS	56.68	49.83	48.06	47.94	45.62	43.90	47.17	48.06
57.80 CFS	48.06	48.02	44.98	38.67	39.99	38.64	36.14	37.60
59.40 CFS	40.33	37.73	36.19	38.46	38.60	30.97	26.10	27.45
61.00 CFS	29.96	30.04	29.21	26.10	27.45	29.92	28.47	25.74
62.60 CFS	28.37	30.04	29.98	26.87	19.78	18.02	18.03	18.06
64.20 CFS	19.62	22.31	19.70	18.02	18.03	18.03	18.02	18.39
65.80 CFS	21.31	21.47	18.41	18.03	18.03	18.03	18.06	19.62
67.40 CFS	22.27	19.68	18.03	18.03	18.03	18.03	18.38	21.33
69.00 CFS	21.48	18.40	18.03	18.03	18.03	18.01	16.44	12.92
70.60 CFS	11.66	8.70	8.53	10.07	7.77	10.00	8.69	8.50
72.20 CFS	8.50	1.80	.00					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.39 WATERSHED INCHES; 13656 CFS-HRS; 1128.5 ACRE-FEET.

OPERATION REACH XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.40	3596.1	6.57
42.89	95.7	2.26
44.31	96.1	2.27
45.60	87.1	2.05
46.86	86.7	2.05
48.73	77.1	1.82
49.48	76.8	1.81
50.23	76.9	1.81
50.98	76.9	1.82
53.39	68.7	1.62

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.36 WATERSHED INCHES; 13620 CFS-HRS; 1125.6 ACRE-FEET.

OPERATION REACH XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.76	3220.8	6.05
43.15	95.5	1.36
44.56	95.6	1.36
47.18	85.9	1.29
49.73	76.5	1.22
50.49	76.3	1.22
51.23	76.4	1.22
53.67	67.9	1.16
58.55	47.6	.99
60.71	38.3	.85

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.37 WATERSHED INCHES; 13631 CFS-HRS; 1126.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.80	14144.0	(NULL)
43.51	797.1	(NULL)
46.36	726.5	(NULL)
49.85	642.6	(NULL)
50.64	638.2	(NULL)
62.95	248.2	(NULL)
65.97	170.2	(NULL)
67.55	164.1	(NULL)
69.05	163.0	(NULL)
69.84	156.4	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 12.31 SQ.MI.			
7.40 CFS	.46	1.40	3.10	5.61	8.86	12.86	17.48	22.57
9.00 CFS	28.20	34.22	40.45	47.15	54.66	62.64	70.59	78.72
10.60 CFS	87	97	107	118	128	139	149	160
12.20 CFS	171	180	189	198	207	217	225	232
13.80 CFS	240	248	257	266	275	285	295	304
15.40 CFS	314	324	333	342	351	361	369	376
17.00 CFS	383	390	403	419	432	443	459	482
18.60 CFS	506	525	542	564	592	622	648	669
20.20 CFS	692	725	759	787	811	842	885	935
21.80 CFS	975	1007	1042	1088	1138	1180	1215	1254
23.40 CFS	1301	1348	1385	1417	1528	1838	2218	2483
25.00 CFS	2674	2998	3563	4209	4713	5128	6210	8777
26.60 CFS	10324	11598	12607	13205	13709	13950	14144	13935
28.20 CFS	13517	13146	12866	12555	11994	11368	10446	9570
29.80 CFS	8836	8228	7645	7004	6387	5920	5575	5250
31.40 CFS	4934	4645	4403	4208	4030	3852	3693	3574
33.00 CFS	3483	3391	3288	3191	3121	3070	3013	2940
34.60 CFS	2866	2812	2775	2731	2659	2580	2528	2493
36.20 CFS	2417	2254	2070	1946	1869	1781	1676	1571
37.80 CFS	1480	1404	1336	1272	1211	1163	1126	1091
39.40 CFS	1054	1022	997	975	951	929	908	891
41.00 CFS	877	865	852	838	826	821	819	814
42.60 CFS	809	802	795	794	797	797	795	795
44.20 CFS	791	780	767	759	758	757	751	741
45.80 CFS	733	728	726	726	725	719	714	710
47.40 CFS	704	695	686	678	674	672	664	656
49.00 CFS	654	653	646	641	643	642	637	635
50.60 CFS	638	637	632	630	623	611	603	599
52.20 CFS	594	588	583	581	580	576	568	565
53.80 CFS	563	562	556	545	534	528	523	517
55.40 CFS	511	505	500	495	490	480	466	456
57.00 CFS	449	439	431	429	425	419	411	397
58.60 CFS	385	378	370	361	358	354	344	338
60.20 CFS	336	326	308	294	291	289	283	272
61.80 CFS	263	260	258	251	246	247	248	243
63.40 CFS	231	217	209	205	201	199	195	186
65.00 CFS	178	174	171	168	169	170	167	162
66.60 CFS	160	159	159	159	163	164	160	157
68.20 CFS	157	157	157	159	163	162	157	156
69.80 CFS	156	156	154	148	140	132	124	120
71.40 CFS	115	109	104	99	93	83	69	59
73.00 CFS	53.25	47.22	40.69	34.30	28.48	23.39	19.04	15.39
74.60 CFS	12.36	9.88	7.86	6.22	4.91	3.87	3.03	2.37
76.20 CFS	1.85	1.44	1.12	.87	.67	.52	.40	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.15 WATERSHED INCHES; 104481 CFS-HRS; 8634.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.00	11470.2	(RUNOFF)
32.95	1148.8	(RUNOFF)
33.95	1055.1	(RUNOFF)
35.90	851.1	(RUNOFF)
37.13	424.7	(RUNOFF)
41.10	306.3	(RUNOFF)
42.46	306.5	(RUNOFF)
43.79	306.5	(RUNOFF)
45.35	277.2	(RUNOFF)
46.60	277.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 4.78 SQ.MI.			
9.80 CFS	.17	.88	2.64	5.48	8.88	12.34	15.87	19.61
11.40 CFS	23.07	25.98	28.79	32.15	35.85	39.03	41.43	43.75
13.00 CFS	46.94	50.62	53.59	55.52	57.42	60.45	64.54	69.10
14.60 CFS	73.78	78.50	82.82	86.04	88.94	91.63	93.34	94.60
16.20 CFS	97	101	105	108	109	112	120	133
17.80 CFS	142	146	152	164	178	186	189	194
19.40 CFS	207	223	235	239	244	259	277	288
21.00 CFS	294	305	329	361	384	391	397	413
22.60 CFS	435	452	459	470	490	512	525	534
24.20 CFS	623	905	1277	1520	1577	1689	2044	2490
25.80 CFS	2775	2885	3634	5974	9027	11023	11470	11007
27.40 CFS	8865	5998	4286	4139	3998	3467	2789	2389
29.00 CFS	2351	2319	2204	2061	1978	1970	1922	1736
30.60 CFS	1497	1356	1343	1337	1315	1284	1263	1261
32.20 CFS	1250	1213	1168	1146	1149	1141	1108	1070
33.80 CFS	1053	1055	1048	1021	986	965	965	959
35.40 CFS	922	872	846	847	811	683	524	431
37.00 CFS	423	424	415	401	393	392	390	384
38.60 CFS	372	364	363	360	350	340	335	332
40.20 CFS	326	318	311	307	306	306	305	301
41.80 CFS	298	299	304	306	306	303	298	298
43.40 CFS	303	306	306	306	303	292	278	269
45.00 CFS	271	276	277	273	269	268	270	275
46.60 CFS	277	274	269	267	261	254	246	241
48.20 CFS	241	245	244	240	242	246	243	241
49.80 CFS	243	246	242	241	244	245	241	238
51.40 CFS	232	220	212	211	211	211	212	215
53.00 CFS	219	219	214	211	211	211	208	198
54.60 CFS	187	183	183	182	183	183	182	183
56.20 CFS	181	174	163	154	151	146	145	149
57.80 CFS	153	154	150	140	130	125	123	119
59.40 CFS	122	124	122	119	121	116	101	88
61.00 CFS	88.84	94.09	95.16	90.93	87.21	88.97	92.51	89.79

62.60 CFS	87.29	90.19	94.81	92.54	81.45	67.19	58.59	57.70
64.20 CFS	59.20	64.01	66.64	63.72	58.85	57.68	57.68	58.25
65.80 CFS	61.55	65.97	65.73	60.86	57.69	57.69	57.73	59.33
67.40 CFS	64.01	66.55	63.67	58.85	57.70	57.69	58.22	61.50
69.00 CFS	66.00	65.84	60.87	57.79	57.70	57.62	55.95	50.37
70.60 CFS	42.70	35.08	30.08	28.71	28.96	29.05	28.72	29.10
72.20 CFS	27.20	20.64	9.19	.81	.00			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.10 WATERSHED INCHES; 40399 CFS-HRS; 3338.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.12	8392.6	(RUNOFF)
42.60	224.5	(RUNOFF)
43.91	224.8	(RUNOFF)
45.48	201.9	(RUNOFF)
46.73	201.9	(RUNOFF)
48.62	178.6	(RUNOFF)
49.41	178.6	(RUNOFF)
50.13	178.5	(RUNOFF)
50.87	178.7	(RUNOFF)
53.23	159.9	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 3.48 SQ.MI.

HRS								
8.80 CFS	.24	.95	2.29	4.33	6.65	9.00	11.37	13.93
10.40 CFS	16.73	19.73	22.74	25.72	28.67	31.47	33.95	36.07
12.00 CFS	38.28	41.00	43.70	45.92	47.72	49.59	52.14	54.64
13.60 CFS	56.59	58.06	59.73	62.40	65.81	69.63	73.54	77.11
15.20 CFS	80.23	82.71	84.69	86.26	87.33	88.70	90.88	93.63
16.80 CFS	96	98	99	104	111	120	126	131
18.40 CFS	138	147	156	161	165	171	181	192
20.00 CFS	200	205	212	222	233	242	249	262
21.60 CFS	281	301	316	322	330	342	356	367
23.20 CFS	374	385	399	412	421	463	591	813
24.80 CFS	1044	1197	1285	1448	1698	1953	2149	2524
26.40 CFS	3559	5276	7060	8232	8309	7435	5884	4292
28.00 CFS	3293	2991	2765	2398	2026	1783	1719	1673
29.60 CFS	1591	1509	1459	1428	1348	1221	1092	1007
31.20 CFS	986	976	959	941	930	922	906	882
32.80 CFS	858	845	839	827	806	786	775	771
34.40 CFS	761	742	722	711	705	691	666	640
36.00 CFS	624	606	554	464	373	321	310	308
37.60 CFS	301	294	288	287	284	278	272	268
39.20 CFS	265	261	255	249	245	242	237	232
40.80 CFS	228	225	225	224	223	220	220	221
42.40 CFS	223	224	223	221	220	220	223	225
44.00 CFS	225	223	218	211	203	199	200	202

45.60 CFS	202	200	197	198	200	202	202	200
47.20 CFS	197	194	190	184	180	178	178	179
48.80 CFS	178	178	178	179	178	178	178	178
50.40 CFS	178	178	179	178	176	172	167	161
52.00 CFS	156	155	155	155	156	159	160	159
53.60 CFS	157	155	155	153	149	143	137	134
55.20 CFS	134	134	134	134	134	133	130	124
56.80 CFS	118	113	109	108	108	110	112	111
58.40 CFS	107	101	95	91	89	89	89	90
60.00 CFS	89.06	88.07	85.84	80.03	71.88	66.46	66.43	68.48
61.60 CFS	68.33	66.16	65.30	65.78	66.19	65.53	65.34	66.92
63.20 CFS	68.11	64.03	56.32	48.50	43.31	42.97	44.89	46.96
64.80 CFS	47.39	45.74	43.20	42.27	42.48	43.85	46.20	47.42
66.40 CFS	46.73	44.40	42.46	42.33	43.03	44.98	47.00	47.28
68.00 CFS	45.63	43.22	42.31	42.54	43.90	46.13	47.33	46.71
69.60 CFS	44.40	42.49	42.21	41.55	39.07	35.00	29.68	24.77
71.20 CFS	22.38	21.11	21.09	21.33	20.80	20.64	17.41	11.87
72.80 CFS	5.89	1.17	.00					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.52 WATERSHED INCHES; 30362 CFS-HRS; 2509.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.06	19796.8	(NULL)
42.53	530.7	(NULL)
43.89	531.3	(NULL)
45.39	478.8	(NULL)
46.63	478.9	(NULL)
48.48	423.6	(NULL)
49.23	423.9	(NULL)
49.99	424.1	(NULL)
50.76	424.0	(NULL)
53.13	379.5	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 8.26 SQ.MI.			
8.80 CFS	.24	.95	2.29	4.33	6.66	9.17	12.25	16.57
10.40 CFS	22.21	28.61	35.07	41.59	48.28	54.54	59.93	64.86
12.00 CFS	70	77	83	87	91	97	103	108
13.60 CFS	112	115	120	127	135	143	152	160
15.20 CFS	166	172	176	180	182	186	192	199
16.80 CFS	204	207	211	224	244	262	273	283
18.40 CFS	302	325	342	350	359	378	404	427
20.00 CFS	439	449	471	499	522	536	553	591
21.60 CFS	642	685	706	719	743	777	808	826
23.20 CFS	844	876	911	937	955	1087	1496	2090
24.80 CFS	2564	2774	2975	3492	4188	4728	5034	6158
26.40 CFS	9533	14303	18083	19702	19317	16300	11881	8578

28.00 CFS	7432	6988	6231	5187	4415	4134	4038	3877
29.60 CFS	3652	3487	3429	3350	3084	2718	2448	2350
31.20 CFS	2323	2291	2243	2205	2190	2172	2119	2049
32.80 CFS	2004	1994	1981	1936	1876	1839	1830	1819
34.40 CFS	1782	1728	1687	1675	1664	1613	1538	1486
36.00 CFS	1471	1416	1238	989	804	744	734	723
37.60 CFS	703	686	680	677	668	651	636	631
39.20 CFS	625	611	594	584	577	567	555	542
40.80 CFS	534	531	531	529	524	518	519	525
42.40 CFS	530	530	526	519	518	524	529	531
44.00 CFS	531	526	510	489	473	470	476	479
45.60 CFS	475	468	466	467	474	479	476	470
47.20 CFS	464	455	443	430	421	419	423	423
48.80 CFS	419	420	424	422	419	421	424	421
50.40 CFS	419	422	424	420	415	404	387	373
52.00 CFS	367	366	366	367	371	378	379	374
53.60 CFS	368	366	366	361	347	330	320	317
55.20 CFS	316	316	316	316	316	314	304	287
56.80 CFS	273	264	256	253	257	263	266	261
58.40 CFS	247	230	220	213	208	210	213	211
60.00 CFS	208	209	201	181	160	155	161	164
61.60 CFS	159	153	154	158	156	153	156	162
63.20 CFS	161	145	124	107	101	102	109	114
64.80 CFS	111	105	101	100	101	105	112	113
66.40 CFS	108	102	100	100	102	109	114	111
68.00 CFS	104	101	100	101	105	112	113	108
69.60 CFS	102	100	100	97	89	78	65	55
71.20 CFS	51.09	50.07	50.14	50.05	49.90	47.84	38.06	21.05
72.80 CFS	6.70	1.17	.00					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.27 WATERSHED INCHES; 70760 CFS-HRS; 5847.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.12	32763.8	(NULL)
42.29	1343.9	(NULL)
43.78	1326.6	(NULL)
45.23	1232.4	(NULL)
46.56	1204.1	(NULL)
48.34	1095.7	(NULL)
49.15	1077.2	(NULL)
49.95	1066.8	(NULL)
50.71	1061.7	(NULL)
53.03	958.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 20.57 SQ.MI.			
7.40 CFS	.46	1.40	3.10	5.61	8.86	12.86	17.52	22.81

9.00 CFS	29	37	45	54	64	75	87	101
10.60 CFS	116	132	148	166	183	199	214	230
12.20 CFS	247	263	276	289	304	319	333	344
13.80 CFS	355	368	384	401	418	437	455	471
15.40 CFS	486	501	513	524	537	553	567	580
17.00 CFS	589	601	627	663	694	716	742	784
18.60 CFS	831	867	892	924	970	1027	1075	1108
20.20 CFS	1141	1196	1258	1308	1347	1395	1476	1577
21.80 CFS	1660	1713	1761	1831	1915	1987	2041	2098
23.40 CFS	2177	2260	2322	2372	2615	3334	4308	5047
25.00 CFS	5448	5972	7055	8397	9441	10163	12368	18311
26.60 CFS	24627	29682	32309	32521	30010	25831	22722	21367
28.20 CFS	20505	19377	18053	16970	16128	15406	14323	13222
29.80 CFS	12323	11657	10995	10088	9105	8368	7925	7573
31.40 CFS	7226	6888	6608	6398	6202	5971	5742	5578
33.00 CFS	5477	5372	5223	5067	4960	4901	4832	4721
34.60 CFS	4594	4499	4451	4395	4271	4118	4014	3963
36.20 CFS	3833	3492	3059	2751	2613	2515	2399	2274
37.80 CFS	2167	2084	2013	1939	1862	1800	1757	1716
39.40 CFS	1665	1616	1581	1552	1519	1484	1450	1425
41.00 CFS	1408	1395	1382	1362	1344	1340	1344	1343
42.60 CFS	1339	1328	1314	1312	1320	1326	1327	1326
44.20 CFS	1318	1291	1256	1232	1227	1232	1230	1216
45.80 CFS	1201	1194	1193	1201	1204	1195	1183	1174
47.40 CFS	1158	1138	1116	1098	1093	1095	1087	1075
49.00 CFS	1074	1077	1068	1060	1064	1066	1057	1054
50.60 CFS	1060	1061	1052	1044	1027	998	976	966
52.20 CFS	960	954	950	952	958	955	942	933
53.80 CFS	930	927	918	891	864	848	839	833
55.40 CFS	827	821	817	812	804	785	754	729
57.00 CFS	713	694	684	686	688	684	672	644
58.60 CFS	616	598	584	569	568	567	556	546
60.20 CFS	545	527	488	455	447	450	446	431
61.80 CFS	416	415	417	407	399	402	410	404
63.40 CFS	377	341	316	306	303	308	308	297
65.00 CFS	283	275	271	269	274	282	281	270
66.60 CFS	262	259	259	261	272	278	271	261
68.20 CFS	258	257	258	265	275	275	265	258
69.80 CFS	257	256	252	237	218	196	179	171
71.40 CFS	165	159	154	149	141	121	90	65
73.00 CFS	54.41	47.22	40.69	34.30	28.48	23.39	19.04	15.39
74.60 CFS	12.36	9.88	7.86	6.22	4.91	3.87	3.03	2.37
76.20 CFS	1.85	1.44	1.12	.87	.67	.52	.40	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.20 WATERSHED INCHES; 175222 CFS-HRS; 14480.4 ACRE-FEET.

--- XSECTION 76, ALTERNATE 1, STORM 7, HYDROGRAPH ADDED TO READHD FILE ---

*** MESSAGE - STRUCTURE 1, USER ENTERED STARTING ELEVATION (1197.0 FEET) CAN ADD .273 INCHES OF RUNOFF TO THE OUTFLOW HYDROGRAPH VOLUME.***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 1, TRUNCATED AT 400 POINTS WITH 3217.08 AC-FT (.24 WATERSHED INCHES) FLOOD STORAGE REMAINING IN RESERVOIR AT ELEV. 1212.00. ***

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.85	22757.2	1215.84
69.18	273.0	1212.10

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 20.57 SQ.MI.

HRS								
6.40 CFS	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
8.00 CFS	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
9.60 CFS	1.20	1.20	1.20	1.20	1.20	1.20	1.21	1.21
11.20 CFS	1.21	1.21	1.21	1.21	1.21	1.22	1.22	1.22
12.80 CFS	1.22	1.23	1.23	1.23	1.23	1.24	1.24	1.24
14.40 CFS	1.25	1.25	1.25	1.26	1.26	1.26	1.27	1.27
16.00 CFS	1.28	1.28	1.29	1.29	1.30	1.30	1.30	1.31
17.60 CFS	1.31	1.31	1.32	1.32	1.32	1.33	1.33	1.33
19.20 CFS	1.34	1.34	1.35	1.35	1.36	1.36	1.37	1.38
20.80 CFS	1.38	1.39	1.39	1.40	1.41	1.42	1.43	1.43
22.40 CFS	1.44	1.45	1.46	1.47	1.48	1.49	1.50	1.51
24.00 CFS	1.52	1.53	1.55	1.56	1.58	1.60	1.62	1.65
25.60 CFS	2	2	2	2	2	2	1795	7676
27.20 CFS	14393	19444	22040	22725	22517	22033	21392	20572
28.80 CFS	19634	18689	17794	16897	15940	15017	14183	13396
30.40 CFS	12609	11779	10941	10171	9504	8924	8409	7984
32.00 CFS	7650	7345	7060	6788	6533	6306	6107	5924
33.60 CFS	5748	5582	5434	5306	5186	5067	4949	4842
35.20 CFS	4747	4654	4550	4441	4338	4239	4109	3920
36.80 CFS	3691	3463	3260	3078	2911	2755	2612	2536
38.40 CFS	2470	2402	2334	2268	2205	2144	2084	2026
40.00 CFS	1971	1920	1870	1822	1776	1733	1694	1658
41.60 CFS	1624	1591	1562	1536	1513	1492	1473	1455
43.20 CFS	1438	1424	1412	1402	1393	1384	1375	1363
44.80 CFS	1349	1334	1322	1311	1301	1290	1279	1269
46.40 CFS	1260	1253	1247	1240	1233	1225	1216	1205
48.00 CFS	1194	1182	1171	1162	1152	1143	1135	1127
49.60 CFS	1120	1113	1107	1102	1096	1092	1088	1084
51.20 CFS	1080	1075	1067	1058	1047	1037	1028	1019
52.80 CFS	1011	1004	998	992	986	979	973	967
54.40 CFS	960	950	939	928	917	906	897	887
56.00 CFS	879	870	861	850	837	824	809	795
57.60 CFS	782	771	761	751	740	727	712	698
59.20 CFS	684	670	658	646	635	624	614	601

60.80 CFS	586	570	555	542	530	517	505	495
62.40 CFS	485	475	466	459	453	445	435	422
64.00 CFS	409	397	386	377	368	359	349	340
65.60 CFS	332	324	319	315	310	305	299	295
67.20 CFS	290	288	286	285	282	280	277	275
68.80 CFS	273	273	273	273	271	270	268	266
70.40 CFS	264	259	253	245	237	229	221	213
72.00 CFS	206	199	190	180	168	155	143	131
73.60 CFS	120	109	99	90	81	73	66	59
75.20 CFS	53.03	47.38	42.27	37.65	33.50	29.76	26.42	23.43
76.80 CFS	20.76	18.38	16.27	14.39	12.72	11.24	9.92	8.76
78.40 CFS	7.74	6.83	6.02	5.31	4.68	4.13	3.64	3.21
80.00 CFS	2.83	2.49	2.20	1.93	1.90	1.90	1.90	1.90
81.60 CFS	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
83.20 CFS	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
84.80 CFS	1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.54 WATERSHED INCHES; 139977 CFS-HRS; 11567.7 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 1, STORM 7, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

RAINFALL OF 15.80 inches AND 72.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 7, ARC 2
MAIN TIME INCREMENT .200 HOURS

ALTERNATE 1 STORM 7

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
XSECTION	1	RUNOFF	2.46	14.29	---	27.01	6291	2557.3
XSECTION	5	REACH	2.46	14.29	6.72	27.54	4816	1957.7
XSECTION	10	REACH	2.46	14.29	7.95	28.12	3932	1598.4
XSECTION	2	RUNOFF	2.38	13.26	---	26.97	5805	2439.1
XSECTION	12	ADDHYD	4.84	13.78	---	27.15	7759	1603.1
XSECTION	12	DIVERT	4.84	12.16	---	26.40F	4100F	847.1
XSECTION	200	DIVERT	.00	12.16	---	27.15	3659	********
XSECTION	20	REACH	4.84	12.16	7.94	26.40F	4100F	847.1
XSECTION	25	REACH	4.84	12.16	5.03	26.40F	4100F	847.1
XSECTION	3	RUNOFF	3.94	14.29	---	27.03	10041	2548.5
XSECTION	30	REACH	3.94	14.30	5.34	27.78	7435	1887.1
XSECTION	5	REACH	3.94	14.30	7.27	28.39	6138	1557.9
XSECTION	25	REACH	3.94	14.30	6.30	28.39	6138	1557.9
XSECTION	4	RUNOFF	2.06	12.87	---	27.01	4862	2360.2
XSECTION	34	ADDHYD	6.00	13.81	---	28.25	7763	1293.8
XSECTION	35	ADDHYD	10.84	13.07	---	28.25	11863	1094.4
XSECTION	35	DIVERT	10.84	12.99	---	27.00F	11000F	1014.8
XSECTION	199	DIVERT	.00	12.99	---	28.25	863	********
XSECTION	45	REACH	10.84	12.99	8.46	27.00F	11000F	1014.8
XSECTION	6	RUNOFF	1.47	14.39	---	26.91	3876	2636.7
XSECTION	60	REACH	1.47	14.36	6.57	27.40	3596	2446.3
XSECTION	67	REACH	1.47	14.37	6.05	27.76	3221	2191.2
XSECTION	64	ADDHYD	12.31	13.15	---	27.80	14144	1149.0
XSECTION	5	RUNOFF	4.78	13.10	---	27.00	11470	2399.6
XSECTION	7	RUNOFF	3.48	13.52	---	27.12	8393	2411.8
XSECTION	75	ADDHYD	8.26	13.27	---	27.06	19797	2396.7
XSECTION	76	ADDHYD	20.57	13.20	---	27.12	32764	1592.8
STRUCTURE	1	RESVOR	20.57	10.54	1215.84	27.85	22757	1106.3

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE k* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

BASEFLOW IS .0 CFS

ALTERNATE 1 STORM 7

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION: INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	ROUTING PARAMETERS: Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
5	9100		6290	27.0	4800	27.6	1.95	1.08	.175	.763	.26
10	9100		4800	27.6	3922	28.2	2.17	1.07	.126	.817	.27
20	3332		4100	26.4	4100	26.4	.14	1.63	.001	1.000	1.00?
25	1950		4100	26.4	4100	26.4	.052	1.73	.000	1.000	1.00?
30	8865		10029	27.0	7433	27.8	1.57	1.08	.193	.741	.24
5	8865		7433	27.8	6138	28.4	1.91	1.08	.119	.826	.27
25	1950		6138	28.4	6138	28.4	.056	1.72	.001	1.000	1.00?
45	4200		11000	27.0	11000	27.0	.049	1.72	.001	1.000	1.00?
60	7540		3805	27.0	3596	27.4	.48	1.36	.054	.945	.49
67	5140		3596	27.4	3214	27.8	1.59	1.11	.085	.894	.42

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 7
STRUCTURE	1	20.57	
ALTERNATE	1		22757
XSECTION	1	2.46	
ALTERNATE	1		6291
XSECTION	2	2.38	
ALTERNATE	1		5805
XSECTION	3	3.94	
ALTERNATE	1		10041
XSECTION	4	2.06	
ALTERNATE	1		4862
XSECTION	5	4.78	
ALTERNATE	1		11470
XSECTION	6	1.47	
ALTERNATE	1		3876
XSECTION	7	3.48	
ALTERNATE	1		8393
XSECTION	10	2.46	
ALTERNATE	1		3932
XSECTION	12	4.84	
ALTERNATE	1		4100
XSECTION	20	4.84	
ALTERNATE	1		4100
XSECTION	25	3.94	
ALTERNATE	1		6138
XSECTION	30	3.94	
ALTERNATE	1		7435
XSECTION	34	6.00	

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 7
XSECTION 34		6.00	
ALTERNATE	1		7763
XSECTION 35		10.84	
ALTERNATE	1		11000
XSECTION 45		10.84	
ALTERNATE	1		11000
XSECTION 60		1.47	
ALTERNATE	1		3596
XSECTION 64		12.31	
ALTERNATE	1		14144
XSECTION 67		1.47	
ALTERNATE	1		3221
XSECTION 75		8.26	
ALTERNATE	1		19797
XSECTION 76		20.57	
ALTERNATE	1		32764
XSECTION 199		.00	
ALTERNATE	1		863
XSECTION 200		.00	
ALTERNATE	1		3659

ECON2 DATA FILE

```
ECON2
TITLE       WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE       72-HR PMP (MTI=.2), RESERVOIR INIT EMPTY W/100-YR SED
FLOW-FREQ    -1        22757.                                    ALT  1   1
FLOW-FREQ     1         6291.                                    ALT  1   2
FLOW-FREQ     2         5805.                                    ALT  1   3
FLOW-FREQ     3        10041.                                    ALT  1   4
FLOW-FREQ     4         4862.                                    ALT  1   5
FLOW-FREQ     5        11470.                                    ALT  1   6
FLOW-FREQ     6         3876.                                    ALT  1   7
FLOW-FREQ     7         8393.                                    ALT  1   8
FLOW-FREQ    10         3932.                                    ALT  1   9
FLOW-FREQ    12         4100.                                    ALT  1  10
FLOW-FREQ    20         4100.                                    ALT  1  11
FLOW-FREQ    25         6138.                                    ALT  1  12
FLOW-FREQ    30         7435.                                    ALT  1  13
FLOW-FREQ    34         7763.                                    ALT  1  14
FLOW-FREQ    35        11000.                                    ALT  1  15
FLOW-FREQ    45        11000.                                    ALT  1  16
FLOW-FREQ    60         3596.                                    ALT  1  17
FLOW-FREQ    64        14144.                                    ALT  1  18
FLOW-FREQ    67         3221.                                    ALT  1  19
FLOW-FREQ    75        19797.                                    ALT  1  20
FLOW-FREQ    76        32764.                                    ALT  1  21
FLOW-FREQ   199          863.                                    ALT  1  22
FLOW-FREQ   200         3659.                                    ALT  1  23
```

```
TR20 ------------------------------------------------------------------------ SCS -
WT3PMP72     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
01/04/**     72-HR PMP (MTI=.2), RESERVOIR INIT EMPTY W/100-YR SED     2.04TEST


END OF  1 JOBS IN THIS RUN
```

```
                    SCS  TR-20,  VERSION 2.04TEST
                         WT3PMP72  FILES

     INPUT  = WT3PMP72.DAT                          , GIVEN DATA FILE
     OUTPUT = WT3PMP72.OUT                          , DATED 01/04/**,14:18:33

              FILES GENERATED - DATED 01/04/**,14:18:33

    FILE WT3PMP72.TEC CONTAINS ECON2 INFORMATION

    FILE WT3PMP72.TRD CONTAINS READHD INFORMATION


           TOTAL NUMBER OF WARNINGS =   4,  MESSAGES =   2

                       JOB ENDED AT 14:18:33
                   *** TR-20 RUN COMPLETED ***
```

(1)

CALCULATION PACKAGE NO. E-3

URS

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County (FCDMC)

Project Name: White Tank FRS No. 3 Design

Project/Calculation Number: 23443748

Title:

RESERVOIR ROUTING OF 6-HR LOCAL AND 72-HR GENERAL PMF HYDROGRAPHS FOR FUTURE CONDITION WITH A CLOSED PRINCIPAL SPILLWAY (ADWR CRITERIA)

Total Number of Pages (including cover sheet):

Total Number of Computer Runs:

Prepared by: Hammad Hussain Date: 07/22/04

Checked by: Todd Ringsmuth Date: 7/22/04

Description and Purpose:

See Page 2

Design Basis /Assumptions

See Page 2

the 72 hr results has 4 warnings - all for no attenuation in routing. This is OK as result is conservative.

Remarks/Conclusions/Results:

See Page 3.

Please confirm that RUNOFF/REACH/ADDHYD cards are the same as earlier checked cases

Please confirm 72-hr PMP is 15.8 in/hrs (need reference to earlier calc)

slight change to results - see Table 1

Calculation Approved by: 7/29/04

Project Manager/Date

Revision No.:	Description of Revision:	Approved by:
1	Revised Table 1	Todd Ringsmuth 7/28/04
2	updated ADWR Models for Zero Infiltration.	3/1/05

RESERVOIR ROUTING OF 6-HR LOCAL AND 72-HR GENERAL PMF HYDROGRAPHS FOR FUTURE CONDITION WITH A CLOSED PRINCIPAL SPILLWAY (ADWR CRITERIA – ZERO INFILTRATION)

(WHITE TANK FLOOD RETARDING STRUCTURE (FRS) NO. 3)
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC)
23443748

PROBLEM STATEMENT

This particular calculation package addresses the reservoir routing results for the ***Future Condition*** with a ***Closed Principal Spillway (zero infiltration)*** based on ADWR criteria.

DESIGN BASIS/ASSUMPTIONS/REFERENCES

FUTRE CONDITION (Principal Spillway Closed)

The Future Condition (Principal Spillway Closed) represents the condition where construction of the downstream conveyance channel does not occur and the principal spillway remains closed. It is assumed that the 100-year sediment volume (500 ac-ft) has accumulated in the reservoir. Please note that reservoir routing for the ADWR models is performed with zero infiltration. Under this condition, the outflow from the reservoir occurs through the emergency spillway only set at Elevation 1212.0 ft. Please also note that rating curve developed for the ***Future Condition*** with a ***Closed Principal Spillway (zero infiltration)*** includes minor outflows from 0 to 1.6 cfs for elevations 1178 ft to 1212 ft. The inclusion of these outflows is required because the TR-20 Model becomes unstable if zero flows are indicated for elevations 1178 ft to 1212 ft. However, given the range of outflows is extremely low (<2 cfs), it will not impact the reservoir routing results.

The reservoir routing for the Future Condition with a Closed Principal Spillway was carried out for 6-hr Local and 72-hr General Probable Maximum Flood (PMF) hydrographs based on ADWR criteria. The ADWR criteria for the Future Condition with a closed principal spillway is explained as follows.

ADWR Routing Criteria: Given the assumption that the during the Future Condition (Principal Spillway Closed), the 100-year sediment volume (500 ac-ft) has accumulated in the reservoir, the ARC for the routing of the 6-hr Local and 72-hr General PMF hydrographs based on ADWR criteria will be set at the 100-year sediment pool level or at elevation 1199.2 ft (NAVD 88).

RESULTS

ADWR Routing: The ARC for the routing of the 6-hour Local and 72-hr General PMF hydrographs was set at the 100-year sediment pool level or at elevation 1199.2 ft (NAVD 88). The reservoir routing results i.e. ARC, peak inflows, peak outflows, and the maximum reservoir elevation for the 6-hour Local and 72-hr General PMF hydrographs for Future Condition (Principal Spillway Closed) with zero infiltration based on ADWR criteria are provided in Table 1 (Please See page 4).

The input file and the detailed output results of TR-20 modeling for reservoir routing of 6-hour Local and 72-hr General PMF hydrographs for ADWR criteria are attached at the end of this calculation package.

TABLE 1
RESERVOIR ROUTING RESULTS
(BASED ON ADWR CRITERION ONLY)

(FUTURE CONDITON – PRINCIPAL SPILLWAY CLOSED)
(ZERO INFILTRATION)

Storm Event	Inflow to White Tank FRS No.3		Outflow from White Tank FRS No.3		
	Precipitation (inches)	Peak Inflow (cfs)	Antecedent Reservoir Condition (ARC)	Peak Outflow (cfs)	Maximum Reservoir Elevation (NAVD 88) (ft)
6-hr Local	12.70	68,291	1199.2	23,712	1216.0
72-hr General	15.80	32,764	1199.2	23,504	1215.9

```
******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

JOB TR-20 WT3PMP6   ECON                PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     6HR LOCAL, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
 5 RAINFL 1             0.1                                          6HRLOCAL
 8          .0000       .003        .006        .009        .013
 8          .016        .020        .025        .030        .035
 8          .039        .046        .052        .058        .065
 8          .071        .080        .090        .099        .109
 8          .118        .283        .449        .567        .622
 8          .669        .701        .732        .756        .780
 8          .795        .809        .824        .838        .852
 8          .866        .876        .885        .894        .904
 8          .913        .920        .926        .932        .939
 8          .945        .950        .954        .959        .964
 8          .969        .972        .976        .980        .984
 8          .988        .991        .993        .995        .998
 8          1.          1.          1.          1.          1.
 9 ENDTBL
 5 RAINFL 2             .1                                           6HR GEN
 8          .000        .005        .013        .020        .028
 8          .038        .045        .053        .060        .070
 8          .080        .085        .095        .108        .120
 8          .138        .150        .165        .190        .210
 8          .238        .280        .350        .440        .550
 8          .590        .620        .645        .668        .685
 8          .700        .720        .735        .753        .765
 8          .775        .790        .800        .810        .820
 8          .835        .843        .850        .863        .870
 8          .880        .890        .898        .908        .915
 8          .925        .930        .940        .945        .955
 8          .963        .970        .978        .985        .990
 8          1.00        1.00        1.00        1.00        1.00
 9 ENDTBL
 5 RAINFL 3             0.1                                          12HRGEN
 8          .000        .003        .007        .010        .013
 8          .016        .019        .022        .025        .028
 8          .031        .034        .037        .040        .043
 8          .045        .050        .054        .058        .062
 8          .066        .071        .075        .080        .085
 8          .089        .095        .101        .107        .112
 8          .118        .125        .132        .139        .146
 8          .153        .162        .171        .180        .189
 8          .198        .211        .224        .237        .250
 8          .264        .300        .345        .391        .436
 8          .491        .536        .564        .586        .607
 8          .629        .643        .657        .672        .686
 8          .700        .711        .721        .732        .742
 8          .753        .761        .769        .778        .786
 8          .795        .802        .809        .817        .824
 8          .832        .837        .843        .848        .854
 8          .859        .865        .870        .875        .881
 8          .886        .891        .895        .900        .905
 8          .909        .913        .917        .921        .925
 8          .929        .933        .936        .940        .944
 8          .948        .951        .954        .957        .960
 8          .963        .966        .969        .971        .974
```

```
 8          .977        .980        .982        .984        .986
 8          .989        .991        .993        .995        .998
 8         1.000       01.000       1.000       1.000       1.00
 9 ENDTBL
 5 RAINFL 4              0.1                                          18HRGEN
 8          .000        .001        .002        .003        .004
 8          .005        .005        .006        .007        .008
 8          .009        .012        .014        .017        .020
 8          .023        .025        .028        .031        .033
 8          .036        .040        .044        .049        .053
 8          .057        .061        .065        .070        .074
 8          .078        .084        .090        .096        .102
 8          .108        .114        .120        .126        .132
 8          .138        .146        .154        .162        .170
 8          .179        .187        .195        .203        .211
 8          .220        .238        .256        .275        .293
 8          .311        .330        .348        .367        .385
 8          .403        .430        .457        .484        .511
 8          .538        .557        .577        .597        .616
 8          .636        .653        .670        .687        .704
 8          .721        .734        .746        .759        .771
 8          .784        .792        .801        .810        .818
 8          .827        .832        .838        .843        .848
 8          .853        .856        .859        .862        .864
 8          .867        .870        .872        .875        .878
 8          .880        .882        .885        .887        .889
 8          .891        .893        .895        .897        .899
 8          .901        .903        .905        .907        .909
 8          .911        .912        .914        .916        .917
 8          .919        .920        .922        .924        .925
 8          .927        .929        .930        .932        .934
 8          .935        .937        .938        .940        .941
 8          .943        .945        .946        .948        .949
 8          .951        .952        .953        .955        .956
 8          .957        .959        .960        .961        .963
 8          .964        .965        .967        .968        .970
 8          .971        .972        .974        .975        .976
 8          .978        .979        .980        .982        .983
 8          .984        .985        .986        .988        .989
 8          .990        .991        .992        .993        .994
 8          .995        .996        .997        .998        .999
 8         1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 5 RAINFL 5              0.1                                          24HRGEN
 8        0.000       0.000       0.001       0.001       0.002
 8        0.002       0.002       0.003       0.003       0.003
 8        0.004       0.005       0.007       0.009       0.010
 8        0.012       0.013       0.015       0.016       0.018
 8        0.019       0.022       0.024       0.027       0.030
 8        0.032       0.035       0.037       0.040       0.042
 8        0.045       0.048       0.051       0.055       0.058
 8        0.061       0.064       0.068       0.071       0.074
 8        0.078       0.082       0.087       0.091       0.096
 8        0.100       0.104       0.109       0.113       0.118
 8        0.122       0.127       0.132       0.137       0.142
 8        0.147       0.151       0.156       0.161       0.166
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
8          0.171       0.177       0.184       0.191       0.198
8          0.205       0.214       0.224       0.233       0.242
8          0.252       0.265       0.278       0.291       0.303
8          0.316       0.334       0.351       0.368       0.386
8          0.403       0.425       0.447       0.468       0.490
8          0.512       0.527       0.543       0.558       0.574
8          0.589       0.603       0.617       0.631       0.645
8          0.659       0.671       0.684       0.696       0.709
8          0.721       0.731       0.741       0.751       0.761
8          0.771       0.779       0.786       0.793       0.800
8          0.808       0.814       0.820       0.825       0.831
8          0.837       0.840       0.843       0.847       0.850
8          0.853       0.855       0.857       0.859       0.861
8          0.864       0.866       0.868       0.870       0.872
8          0.874       0.876       0.878       0.880       0.881
8          0.883       0.885       0.886       0.888       0.890
8          0.891       0.893       0.895       0.896       0.898
8          0.899       0.901       0.902       0.904       0.905
8          0.907       0.908       0.909       0.910       0.912
8          0.913       0.914       0.915       0.916       0.917
8          0.919       0.920       0.921       0.922       0.923
8          0.924       0.926       0.927       0.928       0.929
8          0.930       0.932       0.933       0.935       0.936
8          0.938       0.940       0.941       0.943       0.944
8          0.946       0.947       0.947       0.948       0.949
8          0.950       0.950       0.951       0.952       0.953
8          0.953       0.955       0.956       0.957       0.958
8          0.959       0.960       0.961       0.962       0.963
8          0.964       0.965       0.966       0.967       0.968
8          0.969       0.970       0.971       0.972       0.973
8          0.974       0.975       0.976       0.977       0.978
8          0.979       0.980       0.981       0.982       0.983
8          0.984       0.985       0.986       0.987       0.988
8          0.988       0.989       0.990       0.991       0.991
8          0.992       0.993       0.994       0.995       0.995
8          0.996       0.997       0.998       0.998       0.999
8          1.000       1.000       1.000       1.000       1.000
9 ENDTBL
5 RAINFL 6                .25                                          48HRGEN
8          0.0000      0.0015      0.0029      0.0044      0.0058
8          0.0073      0.0088      0.0102      0.0117      0.0131
8          0.0146      0.0160      0.0175      0.0190      0.0204
8          0.0219      0.0233      0.0248      0.0263      0.0277
8          0.0292      0.0306      0.0321      0.0335      0.0350
8          0.0365      0.0379      0.0394      0.0408      0.0423
8          0.0438      0.0452      0.0467      0.0481      0.0496
8          0.0510      0.0525      0.0542      0.0558      0.0575
8          0.0592      0.0608      0.0625      0.0642      0.0658
8          0.0692      0.0725      0.0758      0.0792      0.0825
8          0.0858      0.0892      0.0925      0.0975      0.1025
8          0.1075      0.1125      0.1175      0.1225      0.1275
8          0.1325      0.1442      0.1560      0.1677      0.1794
8          0.1985      0.2176      0.2366      0.2557      0.3239
8          0.3921      0.4603      0.5285      0.5520      0.5754
8          0.5989      0.6224      0.6356      0.6488      0.6620
8          0.6752      0.6862      0.6972      0.7082      0.7192
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
8          0.7267      0.7342      0.7417      0.7492      0.7558
8          0.7625      0.7692      0.7758      0.7825      0.7892
8          0.7958      0.8025      0.8083      0.8142      0.8200
8          0.8258      0.8308      0.8358      0.8408      0.8458
8          0.8508      0.8558      0.8608      0.8658      0.8683
8          0.8708      0.8733      0.8758      0.8783      0.8808
8          0.8833      0.8858      0.8875      0.8892      0.8908
8          0.8925      0.8942      0.8958      0.8975      0.8992
8          0.9008      0.9025      0.9042      0.9058      0.9075
8          0.9092      0.9108      0.9125      0.9140      0.9154
8          0.9169      0.9183      0.9198      0.9213      0.9227
8          0.9242      0.9256      0.9271      0.9285      0.9300
8          0.9315      0.9329      0.9344      0.9358      0.9373
8          0.9388      0.9402      0.9417      0.9431      0.9446
8          0.9460      0.9475      0.9490      0.9504      0.9519
8          0.9533      0.9548      0.9563      0.9577      0.9592
8          0.9606      0.9621      0.9635      0.9650      0.9665
8          0.9679      0.9694      0.9708      0.9723      0.9737
8          0.9752      0.9767      0.9781      0.9796      0.9810
8          0.9825      0.9840      0.9854      0.9869      0.9883
8          0.9898      0.9912      0.9927      0.9942      0.9956
8          0.9971      0.9985      1.0000      1.0000      1.0
9 ENDTBL
5 RAINFL 7                .25                                          72HRGEN
8          0.0000      0.0005      0.0009      0.0014      0.0019
8          0.0025      0.0032      0.0038      0.0044      0.0051
8          0.0057      0.0063      0.0070      0.0076      0.0082
8          0.0089      0.0095      0.0103      0.0111      0.0119
8          0.0127      0.0134      0.0142      0.0150      0.0158
8          0.0171      0.0184      0.0196      0.0209      0.0222
8          0.0234      0.0247      0.0259      0.0272      0.0285
8          0.0297      0.0310      0.0323      0.0335      0.0348
8          0.0361      0.0375      0.0389      0.0403      0.0418
8          0.0432      0.0446      0.0460      0.0475      0.0489
8          0.0503      0.0517      0.0532      0.0546      0.0560
8          0.0574      0.0589      0.0604      0.0620      0.0636
8          0.0652      0.0668      0.0684      0.0699      0.0715
8          0.0731      0.0747      0.0763      0.0778      0.0797
8          0.0816      0.0835      0.0854      0.0877      0.0899
8          0.0921      0.0943      0.0968      0.0994      0.1019
8          0.1044      0.1073      0.1101      0.1130      0.1158
8          0.1193      0.1228      0.1263      0.1297      0.1335
8          0.1373      0.1411      0.1449      0.1491      0.1532
8          0.1573      0.1614      0.1725      0.1837      0.1948
8          0.2059      0.2241      0.2422      0.2603      0.2784
8          0.3431      0.4078      0.4726      0.5373      0.5596
8          0.5819      0.6042      0.6265      0.6390      0.6515
8          0.6641      0.6766      0.6870      0.6975      0.7079
8          0.7184      0.7255      0.7326      0.7397      0.7468
8          0.7535      0.7601      0.7668      0.7734      0.7794
8          0.7854      0.7915      0.7975      0.8030      0.8085
8          0.8141      0.8196      0.8247      0.8297      0.8348
8          0.8399      0.8443      0.8487      0.8532      0.8576
8          0.8598      0.8620      0.8642      0.8665      0.8685
8          0.8706      0.8726      0.8747      0.8766      0.8785
8          0.8804      0.8823      0.8840      0.8858      0.8875
```

```
 8          0.8892      0.8908      0.8924      0.8940      0.8956
 8          0.8972      0.8987      0.9003      0.9019      0.9035
 8          0.9051      0.9066      0.9082      0.9098      0.9114
 8          0.9130      0.9146      0.9160      0.9174      0.9188
 8          0.9203      0.9217      0.9231      0.9245      0.9259
 8          0.9274      0.9288      0.9302      0.9316      0.9329
 8          0.9342      0.9354      0.9367      0.9380      0.9392
 8          0.9405      0.9418      0.9430      0.9443      0.9456
 8          0.9468      0.9481      0.9494      0.9506      0.9519
 8          0.9530      0.9541      0.9552      0.9563      0.9574
 8          0.9585      0.9597      0.9608      0.9619      0.9630
 8          0.9641      0.9652      0.9661      0.9671      0.9680
 8          0.9690      0.9699      0.9709      0.9718      0.9728
 8          0.9736      0.9744      0.9752      0.9759      0.9767
 8          0.9775      0.9783      0.9791      0.9797      0.9804
 8          0.9810      0.9816      0.9823      0.9829      0.9835
 8          0.9842      0.9847      0.9851      0.9856      0.9861
 8          0.9866      0.9870      0.9875      0.9880      0.9884
 8          0.9889      0.9894      0.9899      0.9902      0.9905
 8          0.9908      0.9911      0.9915      0.9918      0.9921
 8          0.9924      0.9927      0.9930      0.9934      0.9937
 8          0.9940      0.9943      0.9946      0.9949      0.9953
 8          0.9956      0.9959      0.9962      0.9965      0.9968
 8          0.9972      0.9975      0.9978      0.9981      0.9984
 8          0.9987      0.9989      0.9991      0.9992      0.9994
 8          0.9995      0.9997      0.9998      1.0000      1.0000
 9 ENDTBL
 5 RAINFL 8     1        2.4                                          10-DAY
 8          .0000       .0024       .0048       .0073       .0097
 8          .0121       .0148       .0174       .0201       .0228
 8          .0254       .0284       .0314       .0344       .0374
 8          .0404       .0437       .0471       .0505       .0539
 8          .0572       .0612       .0651       .0690       .0729
 8          .0768       .0815       .0862       .0909       .0955
 8          .1002       .1061       .1120       .1179       .1238
 8          .1297       .1377       .1458       .1538       .1618
 8          .1699       .1832       .1966       .2099       .2232
 8          .2366       .2548       .2778       .3093       .3614
 8          1.092       1.174       1.213       1.240       1.260
 8          1.276       1.286       1.296       1.306       1.316
 8          1.326       1.333       1.340       1.347       1.354
 8          1.360       1.365       1.371       1.376       1.381
 8          1.386       1.391       1.395       1.399       1.403
 8          1.408       1.411       1.415       1.418       1.422
 8          1.426       1.429       1.432       1.435       1.438
 8          1.442       1.444       1.447       1.450       1.453
 8          1.456       1.458       1.461       1.463       1.466
 8          1.468       1.471       1.473       1.475       1.477
 8          1.48        1.48        1.48        1.48        1.48
 9 ENDTBL
 4 DIMHYD                .0556                                        WT3
 8          0.0         .03         .10         .19         .31
 8          .47         .66         .82         .93         .99
 8          1.0         .99         .93         .82         .66
 8          .47         .31         .03         .00         .00
 9 ENDTBL
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 2 XSECTN    005         1.0         8.77                              BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN    010         1.0         8.94                              BOSSCS#4
 8                       0.          0.0         0.0
 8                       0.91        5.          4.95
 8                       2.03        50.         24.80
 8                       2.63        100.        41.32
 8                       3.34        200.        74.14
 8                       4.15        400.        130.28
 8                       5.23        800.        223.37
 8                       6.41        1600.       447.51
 8                       7.65        3200.       898.64
 8                       8.94        6400.       1690.88
 8                       10.29       12800.      3331.95
 8                       11.64       25600.      6185.81
 8                       13.14       51200.      10661.04
 9 ENDTBL
 2 XSECTN    020         1.0         7.3                               REACHC
 8                       0.          0.0         0.0
 8                       1.01        100.        57.78
 8                       1.49        200.        86.81
 8                       1.88        300.        110.25
 8                       2.49        500.        149.47
 8                       3.68        1000.       226.31
 8                       5.40        2000.       346.26
 8                       7.85        4000.       533.39
 8                       9.64        6000.       688.07
 8                       11.16       8000.       838.10
 8                       12.46       10000.      985.31
 8                       13.61       12000.      1122.03
 8                       14.56       14000.      1236.94
 8                       15.43       16000.      1345.18
 8                       16.31       18000.      1456.68
 9 ENDTBL
 2 XSECTN    025         1.0         7.3                               REACHB
 8                       0.          0.0         0.0
 8                       0.63        100.        80.89
 8                       0.93        200.        120.32
 8                       1.17        300.        151.77
 8                       1.56        500.        203.28
 8                       2.30        1000.       302.00
 8                       3.38        2000.       449.24
 8                       4.97        4000.       673.73
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                      6.23        6000.       855.96
 8                      7.31        8000.       1016.35
 8                      8.24        10000.      1158.51
 8                      9.09        12000.      1293.31
 8                      9.90        14000.      1425.57
 8                      10.64       16000.      1549.17
 8                      11.36       18000.      1673.11
 9 ENDTBL
 2 XSECTN    030        1.0         9.45                    BOSSCS#6
 8                      0.          0.0         0.0
 8                      0.77        5.          4.67
 8                      1.54        50.         32.06
 8                      1.78        100.        56.64
 8                      2.10        200.        100.59
 8                      2.50        400.        179.97
 8                      3.01        800.        320.25
 8                      3.63        1600.       589.66
 8                      4.35        3200.       1110.72
 8                      5.21        6400.       2084.48
 8                      6.03        12800.      4119.83
 8                      6.99        25600.      6856.75
 8                      8.28        51200.      11085.87
 9 ENDTBL
 2 XSECTN    045        1.0         4.87                    REACHA
 8                      0.          0.0         0.0
 8                      0.60        100.        85.69
 8                      0.90        200.        127.94
 8                      1.13        300.        161.93
 8                      1.52        500.        217.27
 8                      2.25        1000.       324.03
 8                      3.31        2000.       483.02
 8                      4.87        4000.       722.17
 8                      6.09        6000.       914.99
 8                      7.15        8000.       1084.61
 8                      8.05        10000.      1234.17
 8                      8.87        12000.      1373.80
 8                      9.64        14000.      1507.84
 8                      10.34       16000.      1633.45
 8                      11.00       18000.      1753.12
 9 ENDTBL
 2 XSECTN    060        1.0         4.7                     2CP6CP7
 8                      0.          0.0         0.0
 8                      2.36        100.        45.12
 8                      2.88        200.        83.75
 8                      3.18        300.        114.33
 8                      3.64        500.        172.72
 8                      4.42        1000.       289.04
 8                      5.40        2000.       470.72
 8                      6.87        4000.       782.74
 8                      7.91        6000.       1020.12
 8                      8.79        8000.       1231.25
 8                      9.60        10000.      1435.05
 8                      10.26       12000.      1618.34
 8                      10.94       14000.      1812.58
 8                      11.47       16000.      1983.46
 8                      11.96       18000.      2150.12
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 9 ENDTBL
 2 XSECTN   067          1.0         8.77                                  BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 3 STRUCT       01                                                          95/11/6
 8                       1178.0      0.00        0.
 8                       1188.0      0.02        44.8
 8                       1196.8      0.13        300.
 8                       1199.2      0.21        500.
 8                       1202.0      1.1         845.55
 8                       1204.0      1.2         1176.28
 8                       1206.0      1.3         1575.25
 8                       1208.0      1.4         2044.97
 8                       1210.0      1.5         2593.40
 8                       1212.0      1.6         3218.00
 8                       1213.0      2593.0      3556.67
 8                       1214.0      8133.0      3916.02
 8                       1215.0      15443.0     4294.13
 8                       1216.0      24165.0     4692.68
 8                       1217.0      34099.0     5113.19
 8                       1218.0      45112.0     5556.01
 8                       1219.0      57107.0     6021.50
 8                       1220.0      70010.0     6509.75
 9 ENDTBL
 6 RUNOFF 1 001        1 2.46        87.2        0.85        1 1
 6 REACH  3 005   1    7 9100.                               1              BOSS#6
 6 REACH  3 010   7    2 9100.                               1              BOSS#4
 6 RUNOFF 1 002        3 2.38        79.9        0.73        1 1
 6 ADDHYD 4 012   2 3 1                                      1 1
 6 DIVERT 6 012   1 4 7 4100.       1.00        200.        1 1            OLIVE
 6 REACH  3 020   4    7 3332.                               1              REACH C
 6 REACH  3 025   7    5 1950.                               1              REACH B
 6 RUNOFF 1 003        6 3.94        87.2        0.88        1 1
 6 REACH  3 030   6    7 8865.                               1              BOSS#6
 6 REACH  3 005   7    1 8865.                               1              BOSS#5
 6 REACH  3 025   1    7 1950.                               1              REACH B
 6 RUNOFF 1 004        1 2.06        77.3        0.79        1 1
 6 ADDHYD 4 034   7 1 2                                      1 1
 6 ADDHYD 4 035   5 2 3                                      1 1
 6 DIVERT 6 035   3 4 7 11000.      1.00        199.        1 1            NORTHERN
 6 REACH  3 045   4    5 4200.                               1              REACH A
 6 RUNOFF 1 006        2 1.47        87.7        0.47        1 1
 6 REACH  3 060   2    3 7540.                               1              CP6CP7
 6 REACH  3 067   3    4 5140.                               1              BOSS#5
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 6 ADDHYD 4 064   5 4 3                                    1 1
 6 RUNOFF 1 005       6 4.78        78.8        0.78       1 1
 6 RUNOFF 1 007       7 3.48        81.7        1.01       1 1
 6 ADDHYD 4 075   6 7 1                                    1 1
 6 ADDHYD 4 076   1 3 2                                    1 1     1
 6 RESVOR 2    01 2   1 1199.2                             1 1     1
 ENDATA
 7 LIST               1.0                    1.
 7 INCREM 6           0.05
 7 COMPUT 7 001     01 0.          12.7        1.0        1 2  01  01
   ENDCMP 1
   ENDJOB 2

**********END OF 80-80 LIST**********
```

RUNOFF OPTION USED WITH RAINTABLE NO. 8, RUNOFF CURVE NO. = 100.

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

EXECUTIVE CONTROL LIST 1. 0. 1.

LISTING OF CURRENT DATA

COMPUTED TIME INCREMENT
DIMHYD .0556

.0000	.0300	.1000	.1900	.3100
.4700	.6600	.8200	.9300	.9900
1.0000	.9900	.9300	.8200	.6600
.4700	.3100	.0300	.0000	.0000

ENDTBL

COMPUTED PEAK RATE FACTOR = 664.607

TABLE NO. TIME INCREMENT
RAINFL 1 .1000

.0000	.0030	.0060	.0090	.0130
.0160	.0200	.0250	.0300	.0350
.0390	.0460	.0520	.0580	.0650
.0710	.0800	.0900	.0990	.1090
.1180	.2830	.4490	.5670	.6220
.6690	.7010	.7320	.7560	.7800
.7950	.8090	.8240	.8380	.8520
.8660	.8760	.8850	.8940	.9040
.9130	.9200	.9260	.9320	.9390
.9450	.9500	.9540	.9590	.9640
.9690	.9720	.9760	.9800	.9840
.9880	.9910	.9930	.9950	.9980
1.0000	1.0000	1.0000	1.0000	1.0000

ENDTBL

STANDARD CONTROL INSTRUCTIONS

RUNOFF	1			1	2.4600	87.2000	.85001	1	0	0	0	1
REACH	5	1		7	9100.0000	.0000	.00001	0	0	0	0	1
REACH	10	7		2	9100.0000	.0000	.00001	0	0	0	0	1
RUNOFF	2			3	2.3800	79.9000	.73001	1	0	0	0	1
ADDHYD	12	2	3	1			1	1	0	0	0	1
DIVERT	12	1	4	7	4100.0000	1.0000	200.00001	1	0	0	0	1
REACH	20	4		7	3332.0000	.0000	.00001	0	0	0	0	1
REACH	25	7		5	1950.0000	.0000	.00001	0	0	0	0	1
RUNOFF	3			6	3.9400	87.2000	.88001	1	0	0	0	1
REACH	30	6		7	8865.0000	.0000	.00001	0	0	0	0	1
REACH	5	7		1	8865.0000	.0000	.00001	0	0	0	0	1
REACH	25	1		7	1950.0000	.0000	.00001	0	0	0	0	1
RUNOFF	4			1	2.0600	77.3000	.79001	1	0	0	0	1
ADDHYD	34	7	1	2			1	1	0	0	0	1
ADDHYD	35	5	2	3			1	1	0	0	0	1
DIVERT	35	3	4	7	11000.0000	1.0000	199.00001	1	0	0	0	1
REACH	45	4		5	4200.0000	.0000	.00001	0	0	0	0	1
RUNOFF	6			2	1.4700	87.7000	.47001	1	0	0	0	1
REACH	60	2		3	7540.0000	.0000	.00001	0	0	0	0	1
REACH	67	3		4	5140.0000	.0000	.00001	0	0	0	0	1
ADDHYD	64	5	4	3			1	1	0	0	0	1
RUNOFF	5			6	4.7800	78.8000	.78001	1	0	0	0	1
RUNOFF	7			7	3.4800	81.7000	1.01001	1	0	0	0	1
ADDHYD	75	6	7	1			1	1	0	0	0	1
ADDHYD	76	1	3	2			1	1	0	0	1	1
RESVOR		1	2	1	1199.2000		1	1	0	0	1	1
ENDATA												

END OF LISTING

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .050 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO STRUCTURE 1
STARTING TIME = .00 RAIN DEPTH = 12.70 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .050 HOURS
ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 1

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET) (RUNOFF)
2.71	17873.0	

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.46 SQ.MI.

HRS								
.75 CFS	.38	1.15	2.73	5.54	9.95	16.43	25.70	38.37
1.15 CFS	55	75	99	128	160	196	235	276
1.55 CFS	318	362	409	458	510	566	625	688
1.95 CFS	753	830	978	1279	1794	2595	3743	5287
2.35 CFS	7187	9294	11447	13473	15219	16590	17491	17866
2.75 CFS	17674	16919	15643	13899	11960	10148	8586	7352
3.15 CFS	6416	5736	5217	4765	4374	4049	3771	3525
3.55 CFS	3312	3138	2995	2873	2772	2690	2613	2530
3.95 CFS	2439	2343	2247	2154	2065	1978	1896	1819
4.35 CFS	1749	1687	1631	1574	1516	1458	1400	1342
4.75 CFS	1287	1239	1196	1160	1128	1098	1069	1038
5.15 CFS	1007	976	947	922	901	882	867	852
5.55 CFS	837	819	800	781	762	742	721	700
5.95 CFS	676	646	612	576	539	500	458	413
6.35 CFS	367	322	278	234	191	147	106	68
6.75 CFS	37.92	17.14	5.12	.74	.04			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.09 WATERSHED INCHES; 17613 CFS-HRS; 1455.5 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.32	10200.1	8.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.09 WATERSHED INCHES; 17613 CFS-HRS; 1455.5 ACRE-FEET.

OPERATION REACH XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.96	7060.0	9.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.09 WATERSHED INCHES; 17613 CFS-HRS; 1455.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.64	16995.9	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.38 SQ.MI.

HRS								
1.05 CFS	.16	.69	1.94	4.40	8.67	15.34	25.03	38.19
1.45 CFS	55	75	99	128	161	198	240	286
1.85 CFS	336	390	445	523	689	1033	1648	2632
2.25 CFS	4059	5924	8106	10407	12610	14524	15972	16813
2.65 CFS	16970	16435	15174	13412	11508	9715	8223	7053
3.05 CFS	6203	5583	5079	4636	4253	3923	3631	3372
3.45 CFS	3155	2982	2842	2733	2654	2597	2536	2461
3.85 CFS	2371	2271	2170	2073	1981	1896	1820	1752
4.25 CFS	1694	1642	1588	1530	1468	1405	1343	1286
4.65 CFS	1236	1194	1158	1126	1094	1061	1028	995
5.05 CFS	962	932	906	886	869	852	836	819
5.45 CFS	801	781	762	746	733	721	708	691
5.85 CFS	668	636	601	565	530	495	459	422
6.25 CFS	383	341	298	252	204	155	108	65
6.65 CFS	33.37	12.75	2.82	.21				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.12 WATERSHED INCHES; 15550 CFS-HRS; 1285.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.64	17248.4	(NULL)
3.81	9386.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 4.84 SQ.MI.

HRS								
1.05 CFS	.16	.69	1.94	4.40	8.68	15.37	25.12	38.38
1.45 CFS	55	76	101	130	164	203	246	295
1.85 CFS	349	407	468	552	726	1078	1702	2698
2.25 CFS	4138	6017	8214	10533	12754	14690	16164	17035
2.65 CFS	17234	16756	15574	13921	12165	10563	9314	8436
3.05 CFS	7930	7699	7624	7638	7731	7880	8056	8240
3.45 CFS	8433	8628	8811	8978	9131	9262	9350	9385
3.85 CFS	9371	9316	9230	9123	8998	8860	8713	8560
4.25 CFS	8404	8243	8072	7889	7696	7497	7295	7095
4.65 CFS	6900	6711	6528	6348	6169	5990	5812	5635

5.05 CFS	5461	5291	5129	4974	4825	4679	4537	4397
5.45 CFS	4259	4123	3991	3865	3745	3630	3517	3404
5.85 CFS	3287	3165	3043	2923	2807	2695	2585	2475
6.25 CFS	2367	2259	2152	2045	1937	1831	1727	1631
6.65 CFS	1547	1475	1416	1364	1316	1269	1223	1177
7.05 CFS	1132	1087	1043	999	956	913	871	830
7.45 CFS	790	751	714	678	642	609	576	545
7.85 CFS	516	487	460	434	409	386	363	342
8.25 CFS	322	303	285	268	252	236	222	208
8.65 CFS	195	183	172	161	151	141	132	124
9.05 CFS	116	109	102	95	89	83	78	73
9.45 CFS	67.78	63.31	59.13	55.22	51.55	48.12	44.91	41.90
9.85 CFS	39.10	36.47	34.01	31.72	29.57	27.57	25.70	23.95
10.25 CFS	22.32	20.79	19.37	18.04	16.81	15.65	14.57	13.57
10.65 CFS	12.63	11.76	10.94	10.18	9.47	8.81	8.20	7.63
11.05 CFS	7.10	6.60	6.14	5.71	5.30	4.93	4.58	4.26
11.45 CFS	3.96	3.68	3.42	3.18	2.95	2.74	2.55	2.37
11.85 CFS	2.20	2.04	1.89	1.76	1.63	1.51	1.40	1.30
12.25 CFS	1.21	1.12	1.04	.97	.90	.83	.77	.71
12.65 CFS	.66	.61	.57	.53	.49			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.62 WATERSHED INCHES; 33163 CFS-HRS; 2740.6 ACRE-FEET.

OPERATION DIVERT XSECTION 12
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.25	4100.0 *	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 4.84 SQ.MI.

HRS								
1.05 CFS	.16	.69	1.94	4.40	8.68	15.37	25.12	38.38
1.45 CFS	55	76	101	130	164	203	246	295
1.85 CFS	349	407	468	552	726	1078	1702	2698
2.25 CFS	4100	4100	4100	4100	4100	4100	4100	4100
2.65 CFS	4100	4100	4100	4100	4100	4100	4100	4100
3.05 CFS	4100	4100	4100	4100	4100	4100	4100	4100
3.45 CFS	4100	4100	4100	4100	4100	4100	4100	4100
3.85 CFS	4100	4100	4100	4100	4100	4100	4100	4100
4.25 CFS	4100	4100	4100	4100	4100	4100	4100	4100
4.65 CFS	4100	4100	4100	4100	4100	4100	4100	4100
5.05 CFS	4100	4100	4100	4100	4100	4100	4100	4100
5.45 CFS	4100	4100	3991	3865	3745	3630	3517	3404
5.85 CFS	3287	3165	3043	2923	2807	2695	2585	2475
6.25 CFS	2367	2259	2152	2045	1937	1831	1727	1631
6.65 CFS	1547	1475	1416	1364	1316	1269	1223	1177
7.05 CFS	1132	1087	1043	999	956	913	871	830

7.45 CFS	790	751	714	678	642	609	576	545
7.85 CFS	516	487	460	434	409	386	363	342
8.25 CFS	322	303	285	268	252	236	222	208
8.65 CFS	195	183	172	161	151	141	132	124
9.05 CFS	116	109	102	95	89	83	78	73
9.45 CFS	67.78	63.31	59.13	55.22	51.55	48.12	44.91	41.90
9.85 CFS	39.10	36.47	34.01	31.72	29.57	27.57	25.70	23.95
10.25 CFS	22.32	20.79	19.37	18.04	16.81	15.65	14.57	13.57
10.65 CFS	12.63	11.76	10.94	10.18	9.47	8.81	8.20	7.63
11.05 CFS	7.10	6.60	6.14	5.71	5.30	4.93	4.58	4.26
11.45 CFS	3.96	3.68	3.42	3.18	2.95	2.74	2.55	2.37
11.85 CFS	2.20	2.04	1.89	1.76	1.63	1.51	1.40	1.30
12.25 CFS	1.21	1.12	1.04	.97	.90	.83	.77	.71
12.65 CFS	.66	.61	.57	.53	.49			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 18666 CFS-HRS; 1542.6 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.64	13148.4	(DIVERT)
3.81	5286.1	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA =			.00 SQ.MI.
2.20 CFS	0	38	1917	4114	6433	8654	10590	12064
2.60 CFS	12935	13134	12656	11474	9821	8065	6463	5214
3.00 CFS	4336	3830	3599	3524	3538	3631	3780	3956
3.40 CFS	4140	4333	4528	4711	4878	5031	5162	5250
3.80 CFS	5285	5271	5216	5130	5023	4898	4760	4613
4.20 CFS	4460	4304	4143	3972	3789	3596	3397	3195
4.60 CFS	2995	2800	2611	2428	2248	2069	1890	1712
5.00 CFS	1535	1361	1191	1029	874	725	579	437
5.40 CFS	297	159	23	0				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14497 CFS-HRS; 1198.0 ACRE-FEET.

OPERATION REACH XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.35	4100.0 *	7.94

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 18674 CFS-HRS; 1543.2 ACRE-FEET.

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.40	4100.0 *	5.03

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 18671 CFS-HRS; 1543.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.73	28008.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 3.94 SQ.MI.

HRS								
.70 CFS	.11	.53	1.63	3.91	7.97	14.38	23.74	37.26
1.10 CFS	56	80	110	147	190	239	295	355
1.50 CFS	419	485	555	629	707	789	876	970
1.90 CFS	1070	1172	1291	1520	1978	2754	3947	5645
2.30 CFS	7914	10709	13856	17125	20269	23051	25326	26959
2.70 CFS	27856	27941	27181	25638	23334	20446	17522	14870
3.10 CFS	12659	10940	9640	8690	7921	7256	6690	6220
3.50 CFS	5813	5453	5146	4895	4684	4501	4348	4218
3.90 CFS	4089	3952	3806	3656	3508	3364	3224	3089
4.30 CFS	2960	2840	2733	2639	2550	2461	2371	2280
4.70 CFS	2188	2099	2016	1942	1879	1824	1775	1729
5.10 CFS	1682	1634	1585	1537	1492	1455	1423	1396
5.50 CFS	1372	1350	1324	1294	1262	1230	1197	1163
5.90 CFS	1128	1091	1048	998	943	885	823	756
6.30 CFS	686	612	539	468	398	331	264	199
6.70 CFS	138	85	45	18	5	0		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION REACH XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.40	16237.6	6.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
4.00	11557.4	8.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
4.06	11552.0	8.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.68	13580.0	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.06 SQ.MI.

HRS								
1.20 CFS	.32	.94	2.20	4.53	8.43	14.25	22.34	33.25
1.60 CFS	48	65	87	114	145	180	219	260
2.00 CFS	305	403	622	1013	1651	2596	3893	5471
2.40 CFS	7211	8963	10567	11924	12911	13469	13552	13136
2.80 CFS	12289	10903	9457	8031	6802	5872	5130	4648
3.20 CFS	4233	3871	3547	3287	3055	2849	2670	2532
3.60 CFS	2417	2323	2247	2197	2140	2073	1998	1916
4.00 CFS	1834	1756	1682	1611	1545	1485	1430	1385
4.40 CFS	1339	1292	1243	1192	1143	1095	1051	1014
4.80 CFS	980	952	925	899	874	848	822	796
5.20 CFS	773	754	738	723	709	697	684	668
5.60 CFS	652	638	624	611	596	581	561	535
6.00 CFS	506	477	447	416	384	349	313	276
6.40 CFS	239	203	165	126	89	55	29	12
6.80 CFS	2.44	.16						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.75 WATERSHED INCHES; 12960 CFS-HRS; 1071.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.69	13913.0	(NULL)
3.98	13359.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 6.00 SQ.MI.

HRS								
1.20 CFS	.32	.94	2.20	4.54	8.47	14.37	22.62	33.79

1.60 CFS	49	67	90	118	151	190	233	279
2.00 CFS	331	437	665	1068	1719	2680	3994	5593
2.40 CFS	7355	9131	10763	12150	13171	13769	13900	13547
2.80 CFS	12787	11520	10239	9034	8094	7531	7235	7282
3.20 CFS	7472	7784	8186	8690	9239	9807	10376	10937
3.60 CFS	11459	11929	12340	12699	12977	13175	13298	13353
4.00 CFS	13354	13307	13219	13096	12942	12763	12562	12350
4.40 CFS	12118	11870	11608	11334	11053	10768	10482	10199
4.80 CFS	9918	9642	9367	9094	8823	8555	8290	8028
5.20 CFS	7773	7527	7288	7056	6829	6609	6394	6181
5.60 CFS	5974	5774	5582	5394	5212	5034	4857	4679
6.00 CFS	4504	4334	4169	4009	3851	3697	3545	3398
6.40 CFS	3255	3116	2979	2846	2718	2596	2485	2385
6.80 CFS	2295	2215	2138	2062	1988	1916	1844	1773
7.20 CFS	1702	1633	1564	1495	1428	1362	1297	1234
7.60 CFS	1172	1112	1054	998	945	893	844	796
8.00 CFS	751	708	667	628	591	555	522	490
8.40 CFS	460	432	405	380	356	334	312	292
8.80 CFS	274	256	239	224	209	195	182	170
9.20 CFS	159	148	139	129	120	112	105	98
9.60 CFS	90.94	84.72	78.91	73.48	68.41	63.69	59.27	55.16
10.00 CFS	51.32	47.74	44.40	41.29	38.39	35.69	33.17	30.83
10.40 CFS	28.65	26.62	24.73	22.97	21.34	19.81	18.40	17.08
10.80 CFS	15.86	14.72	13.66	12.68	11.76	10.91	10.12	9.39
11.20 CFS	8.71	8.08	7.49	6.95	6.44	5.97	5.53	5.13
11.60 CFS	4.75	4.40	4.08	3.78	3.50	3.24	3.00	2.78
12.00 CFS	2.58	2.38	2.21	2.04	1.89	1.75	1.62	1.50
12.40 CFS	1.39	1.28	1.19	1.10	1.02	.94	.87	.80
12.80 CFS	.74	.69	.63	.58	.54	.50		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.63 WATERSHED INCHES; 41173 CFS-HRS; 3402.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.69	17992.4	(NULL)
3.98	17459.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 10.84 SQ.MI.			
1.15 CFS	.13	.58	1.78	4.30	8.98	16.87	28.87	45.91
1.55 CFS	69	99	137	183	238	302	377	461
1.95 CFS	554	656	817	1111	1616	2456	3763	5660
2.35 CFS	8149	10567	12747	14606	16117	17202	17834	17983
2.75 CFS	17639	16883	15618	14338	13133	12193	11631	11335
3.15 CFS	11382	11572	11884	12286	12790	13339	13907	14476
3.55 CFS	15037	15559	16029	16440	16799	17077	17275	17398
3.95 CFS	17453	17454	17407	17319	17196	17042	16863	16662
4.35 CFS	16450	16218	15970	15708	15434	15153	14868	14582

4.75 CFS	14299	14018	13742	13467	13194	12923	12655	12390
5.15 CFS	12128	11873	11627	11388	11156	10929	10709	10494
5.55 CFS	10281	10074	9839	9576	9296	9008	8722	8434
5.95 CFS	8142	7851	7562	7278	6998	6725	6456	6193
6.35 CFS	5935	5683	5435	5191	4950	4714	4487	4272
6.75 CFS	4077	3900	3743	3600	3466	3338	3215	3094
7.15 CFS	2976	2860	2745	2631	2519	2408	2299	2192
7.55 CFS	2087	1985	1886	1790	1697	1608	1522	1439
7.95 CFS	1360	1285	1212	1143	1078	1015	956	899
8.35 CFS	846	795	747	701	658	618	579	543
8.75 CFS	509	477	447	418	392	366	343	321
9.15 CFS	300	280	262	245	228	213	199	186
9.55 CFS	173	162	151	141	131	122	114	106
9.95 CFS	98.98	92.21	85.89	79.99	74.48	69.34	64.54	60.07
10.35 CFS	55.90	52.01	48.39	45.01	41.87	38.94	36.21	33.66
10.75 CFS	31.29	29.09	27.04	25.13	23.35	21.69	20.15	18.72
11.15 CFS	17.39	16.15	15.00	13.92	12.93	12.00	11.14	10.34
11.55 CFS	9.59	8.90	8.26	7.66	7.11	6.60	6.12	5.68
11.95 CFS	5.26	4.88	4.52	4.19	3.89	3.60	3.34	3.09
12.35 CFS	2.87	2.66	2.46	2.28	2.11	1.96	1.81	1.68
12.75 CFS	1.55	1.44	1.33	1.23	1.14	1.05	.97	.90
13.15 CFS	.83	.77	.71	.65	.61	.56	.51	.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.55 WATERSHED INCHES; 59845 CFS-HRS; 4945.6 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.45	11000.0 *	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 10.84 SQ.MI.

HRS								
1.15 CFS	.13	.58	1.78	4.30	8.98	16.87	28.87	45.91
1.55 CFS	69	99	137	183	238	302	377	461
1.95 CFS	554	656	817	1111	1616	2456	3763	5660
2.35 CFS	8149	10567	11000	11000	11000	11000	11000	11000
2.75 CFS	11000	11000	11000	11000	11000	11000	11000	11000
3.15 CFS	11000	11000	11000	11000	11000	11000	11000	11000
3.55 CFS	11000	11000	11000	11000	11000	11000	11000	11000
3.95 CFS	11000	11000	11000	11000	11000	11000	11000	11000
4.35 CFS	11000	11000	11000	11000	11000	11000	11000	11000
4.75 CFS	11000	11000	11000	11000	11000	11000	11000	11000
5.15 CFS	11000	11000	11000	11000	11000	10929	10709	10494
5.55 CFS	10281	10074	9839	9576	9296	9008	8722	8434
5.95 CFS	8142	7851	7562	7278	6998	6725	6456	6193
6.35 CFS	5935	5683	5435	5191	4950	4714	4487	4272

6.75 CFS	4077	3900	3743	3600	3466	3338	3215	3094
7.15 CFS	2976	2860	2745	2631	2519	2408	2299	2192
7.55 CFS	2087	1985	1886	1790	1697	1608	1522	1439
7.95 CFS	1360	1285	1212	1143	1078	1015	956	899
8.35 CFS	846	795	747	701	658	618	579	543
8.75 CFS	509	477	447	418	392	366	343	321
9.15 CFS	300	280	262	245	228	213	199	186
9.55 CFS	173	162	151	141	131	122	114	106
9.95 CFS	98.98	92.21	85.89	79.99	74.48	69.34	64.54	60.07
10.35 CFS	55.90	52.01	48.39	45.01	41.87	38.94	36.21	33.66
10.75 CFS	31.29	29.09	27.04	25.13	23.35	21.69	20.15	18.72
11.15 CFS	17.39	16.15	15.00	13.92	12.93	12.00	11.14	10.34
11.55 CFS	9.59	8.90	8.26	7.66	7.11	6.60	6.12	5.68
11.95 CFS	5.26	4.88	4.52	4.19	3.89	3.60	3.34	3.09
12.35 CFS	2.87	2.66	2.46	2.28	2.11	1.96	1.81	1.68
12.75 CFS	1.55	1.44	1.33	1.23	1.14	1.05	.97	.90
13.15 CFS	.83	.77	.71	.65	.61	.56	.51	.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.98 WATERSHED INCHES; 48844 CFS-HRS; 4036.5 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.69	6992.4	(DIVERT)
3.98	6459.3	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = .00 SQ.MI.

HRS								
2.40 CFS	0	1747	3606	5117	6202	6834	6983	6639
2.80 CFS	5883	4618	3338	2133	1193	631	335	382
3.20 CFS	572	884	1286	1790	2339	2907	3476	4037
3.60 CFS	4559	5029	5440	5799	6077	6275	6398	6453
4.00 CFS	6454	6407	6319	6196	6042	5863	5662	5450
4.40 CFS	5218	4970	4708	4434	4153	3868	3582	3299
4.80 CFS	3018	2742	2467	2194	1923	1655	1390	1128
5.20 CFS	873	627	388	156	0			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11001 CFS-HRS; 909.1 ACRE-FEET.

OPERATION REACH XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.60	11000.0 *	8.46

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.98 WATERSHED INCHES; 48837 CFS-HRS; 4035.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.44	14477.1	(RUNOFF)
5.09	565.7	(RUNOFF)
5.57	467.7	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 1.47 SQ.MI.

HRS								
.70 CFS	.49	1.79	4.72	10.27	19.17	31.25	46.11	63.69
1.10 CFS	84	107	133	161	189	217	246	272
1.50 CFS	296	320	348	382	424	473	525	578
1.90 CFS	629	673	751	1016	1675	2951	4958	7479
2.30 CFS	10139	12487	14048	14453	13548	11805	9813	7930
2.70 CFS	6413	5301	4595	4109	3719	3397	3144	2908
3.10 CFS	2660	2416	2203	2019	1869	1766	1716	1699
3.50 CFS	1689	1673	1643	1594	1528	1446	1355	1265
3.90 CFS	1188	1135	1109	1100	1091	1070	1033	980
4.30 CFS	915	851	800	767	752	748	744	734
4.70 CFS	711	676	634	596	571	559	559	563
5.10 CFS	565	559	539	512	488	468	456	454
5.50 CFS	460	467	466	456	437	410	376	342
5.90 CFS	311	289	278	271	262	243	211	166
6.30 CFS	116	68	32	10	1	0		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.12 WATERSHED INCHES; 10551 CFS-HRS; 871.9 ACRE-FEET.

OPERATION REACH XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.65	11037.3	9.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.12 WATERSHED INCHES; 10551 CFS-HRS; 871.9 ACRE-FEET.

OPERATION REACH XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.98	7397.2	7.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.12 WATERSHED INCHES; 10551 CFS-HRS; 871.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.98	18393.8	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 12.31 SQ.MI.			
1.00 CFS	.28	.72	1.60	3.11	5.54	9.19	14.51	22.08
1.40 CFS	33	47	67	92	124	163	210	265
1.80 CFS	330	405	491	588	696	816	970	1207
2.20 CFS	1588	2212	3205	4714	6841	9347	11203	12592
2.60 CFS	13786	14881	15877	16738	17427	17925	18235	18378
3.00 CFS	18383	18283	18103	17867	17594	17296	16984	16665
3.40 CFS	16344	16027	15718	15420	15137	14873	14630	14407
3.80 CFS	14203	14018	13849	13692	13546	13409	13280	13159
4.20 CFS	13045	12940	12844	12756	12674	12599	12527	12459
4.60 CFS	12392	12329	12268	12212	12160	12112	12068	12026
5.00 CFS	11986	11947	11910	11874	11840	11809	11781	11755
5.40 CFS	11731	11675	11531	11344	11135	10918	10685	10430
5.80 CFS	10158	9872	9581	9285	8984	8680	8375	8071
6.20 CFS	7771	7475	7184	6898	6617	6340	6066	5795
6.60 CFS	5526	5260	5000	4750	4516	4299	4102	3922
7.00 CFS	3757	3603	3459	3320	3188	3059	2933	2810
7.40 CFS	2690	2571	2456	2342	2231	2123	2019	1917
7.80 CFS	1819	1724	1633	1545	1461	1380	1303	1230
8.20 CFS	1159	1093	1029	969	912	857	806	757
8.60 CFS	711	667	626	587	551	516	484	453
9.00 CFS	424	397	371	347	325	304	284	265
9.40 CFS	248	232	216	202	188	176	164	153
9.80 CFS	143	133	124	116	108	100	94	87
10.20 CFS	81.15	75.56	70.35	65.49	60.95	56.72	52.78	49.10
10.60 CFS	45.68	42.49	39.51	36.74	34.17	31.76	29.52	27.44
11.00 CFS	25.50	23.70	22.02	20.46	19.00	17.65	16.40	15.23
11.40 CFS	14.14	13.13	12.19	11.31	10.50	9.74	9.04	8.39
11.80 CFS	7.78	7.22	6.70	6.21	5.76	5.34	4.95	4.59
12.20 CFS	4.26	3.95	3.66	3.39	3.14	2.91	2.70	2.50
12.60 CFS	2.32	2.14	1.99	1.84	1.70	1.58	1.46	1.35
13.00 CFS	1.25	1.15	1.07	.99	.91	.84	.78	.72
13.40 CFS	.67	.61	.57	.52	.48			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.48 WATERSHED INCHES; 59391 CFS-HRS; 4908.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.67	32338.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 4.78 SQ.MI.			
1.10 CFS	.35	1.23	3.30	7.30	14.19	25.19	41.59	63.91
1.50 CFS	93	129	173	226	289	361	444	535
1.90 CFS	634	737	869	1142	1708	2714	4325	6694
2.30 CFS	9866	13685	17849	21989	25760	28874	31081	32214
2.70 CFS	32167	30967	28567	25291	21793	18489	15718	13544
3.10 CFS	11939	10771	9814	8968	8240	7625	7085	6605
3.50 CFS	6203	5882	5620	5407	5246	5124	4988	4829
3.90 CFS	4648	4454	4262	4079	3905	3741	3591	3453
4.30 CFS	3329	3225	3117	3005	2887	2768	2653	2541
4.70 CFS	2441	2356	2280	2217	2154	2093	2032	1970
5.10 CFS	1909	1848	1797	1756	1718	1685	1653	1624
5.50 CFS	1591	1553	1517	1484	1454	1423	1390	1353
5.90 CFS	1303	1240	1173	1104	1034	961	886	805
6.30 CFS	722	637	550	463	372	282	195	118
6.70 CFS	60.08	22.99	4.65	.29				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.96 WATERSHED INCHES; 30716 CFS-HRS; 2538.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.83	21194.2	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 3.48 SQ.MI.			
1.00 CFS	.19	.70	1.87	4.06	7.63	13.12	21.11	32.24
1.40 CFS	47	66	88	115	147	185	228	276
1.80 CFS	330	390	456	526	613	762	1034	1484
2.20 CFS	2161	3116	4397	6018	7955	10115	12368	14560
2.60 CFS	16553	18252	19605	20564	21097	21158	20717	19797
3.00 CFS	18426	16619	14575	12598	10822	9364	8214	7356
3.40 CFS	6708	6164	5698	5314	4987	4694	4434	4215
3.80 CFS	4027	3858	3706	3582	3469	3358	3243	3124
4.20 CFS	3003	2884	2765	2649	2537	2431	2335	2251
4.60 CFS	2177	2104	2032	1957	1882	1806	1734	1669
5.00 CFS	1613	1566	1525	1486	1449	1410	1370	1328
5.40 CFS	1288	1254	1227	1204	1184	1165	1144	1117
5.80 CFS	1087	1055	1022	988	954	920	884	843
6.20 CFS	795	743	686	625	562	497	435	375
6.60 CFS	320	267	216	168	123	81	47	23
7.00 CFS	7.37	1.46	.17					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.35 WATERSHED INCHES; 23254 CFS-HRS; 1921.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.72	51863.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,					DRAINAGE AREA = 8.26 SQ.MI.		
1.00 CFS	.19	.78	2.22	5.28	10.93	20.42	35.29	57.43
1.40 CFS	89	130	181	244	320	411	517	638
1.80 CFS	774	925	1090	1263	1482	1904	2742	4198
2.20 CFS	6486	9810	14263	19702	25804	32104	38127	43435
2.60 CFS	47634	50466	51771	51531	49664	46449	42510	38287
3.00 CFS	34144	30163	26514	23368	20636	18333	16454	14981
3.40 CFS	13793	12769	11901	11196	10607	10101	9680	9339
3.80 CFS	9015	8687	8354	8036	7732	7437	7148	6866
4.20 CFS	6594	6337	6094	5874	5654	5436	5222	5019
4.60 CFS	4829	4645	4473	4313	4162	4023	3887	3762
5.00 CFS	3645	3536	3434	3335	3245	3165	3087	3012
5.40 CFS	2941	2878	2817	2757	2701	2649	2597	2540
5.80 CFS	2477	2408	2325	2229	2127	2024	1918	1804
6.20 CFS	1681	1548	1408	1262	1112	960	807	657
6.60 CFS	515	385	276	191	127	81	47	23
7.00 CFS	7.37	1.46	.17					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.12 WATERSHED INCHES; 53970 CFS-HRS; 4460.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.74	68291.0	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,					DRAINAGE AREA = 20.57 SQ.MI.		
1.00 CFS	.46	1.50	3.81	8.39	16.46	29.61	49.80	79.52
1.40 CFS	121	177	248	336	444	574	726	903
1.80 CFS	1104	1330	1580	1851	2178	2720	3712	5404
2.20 CFS	8074	12021	17468	24416	32645	41451	49331	56027
2.60 CFS	61419	65347	67649	68269	67091	64374	60745	56664
3.00 CFS	52527	48446	44617	41236	38230	35629	33438	31646
3.40 CFS	30137	28797	27619	26615	25744	24974	24309	23745
3.80 CFS	23218	22705	22202	21728	21278	20847	20429	20024
4.20 CFS	19639	19277	18938	18630	18328	18035	17749	17477
4.60 CFS	17221	16974	16741	16525	16322	16136	15955	15788
5.00 CFS	15631	15484	15344	15209	15085	14974	14868	14768
5.40 CFS	14672	14553	14349	14101	13835	13567	13282	12970
5.80 CFS	12634	12280	11906	11513	11111	10704	10293	9875
6.20 CFS	9452	9023	8592	8160	7729	7300	6873	6452
6.60 CFS	6040	5645	5277	4941	4643	4380	4148	3945
7.00 CFS	3764	3605	3459	3320	3188	3059	2933	2810
7.40 CFS	2690	2571	2456	2342	2231	2123	2019	1917
7.80 CFS	1819	1724	1633	1545	1461	1380	1303	1230
8.20 CFS	1159	1093	1029	969	912	857	806	757

8.60 CFS	711	667	626	587	551	516	484	453
9.00 CFS	424	397	371	347	325	304	284	265
9.40 CFS	248	232	216	202	188	176	164	153
9.80 CFS	143	133	124	116	108	100	94	87
10.20 CFS	81.15	75.56	70.35	65.49	60.95	56.72	52.78	49.10
10.60 CFS	45.68	42.49	39.51	36.74	34.17	31.76	29.52	27.44
11.00 CFS	25.50	23.70	22.02	20.46	19.00	17.65	16.40	15.23
11.40 CFS	14.14	13.13	12.19	11.31	10.50	9.74	9.04	8.39
11.80 CFS	7.78	7.22	6.70	6.21	5.76	5.34	4.95	4.59
12.20 CFS	4.26	3.95	3.66	3.39	3.14	2.91	2.70	2.50
12.60 CFS	2.32	2.14	1.99	1.84	1.70	1.58	1.46	1.35
13.00 CFS	1.25	1.15	1.07	.99	.91	.84	.78	.72
13.40 CFS	.67	.61	.57	.52	.48			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.54 WATERSHED INCHES; 113361 CFS-HRS; 9368.2 ACRE-FEET.

--- XSECTION 76, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

*** MESSAGE - STRUCTURE 1, USER ENTERED STARTING ELEVATION (1199.2 FEET) CAN ADD .456 INCHES OF RUNOFF TO THE OUTFLOW HYDROGRAPH VOLUME.***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 1, TRUNCATED AT 400 POINTS WITH 3215.75 AC-FT (.24 WATERSHED INCHES) FLOOD STORAGE REMAINING IN RESERVOIR AT ELEV. 1212.00. ***

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.76	23712.1	1215.95

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 20.57 SQ.MI.			
.70 CFS	.21	.21	.21	.21	.21	.21	.21	.21
1.10 CFS	.21	.21	.21	.21	.21	.21	.21	.21
1.50 CFS	.22	.22	.22	.23	.24	.24	.26	.27
1.90 CFS	.28	.30	.32	.35	.38	.43	.50	.61
2.30 CFS	.77	.99	1.12	1.17	1.22	1.28	1.33	1.39
2.70 CFS	1	1	2	2	991	2978	6165	9089
3.10 CFS	11965	14343	16401	18177	19592	20713	21593	22275
3.50 CFS	22788	23163	23424	23591	23682	23712	23692	23629
3.90 CFS	23527	23392	23228	23041	22833	22608	22367	22116
4.30 CFS	21855	21590	21321	21049	20776	20502	20229	19958
4.70 CFS	19690	19426	19166	18912	18664	18422	18188	17960
5.10 CFS	17740	17527	17321	17123	16932	16749	16574	16404
5.50 CFS	16235	16061	15880	15691	15495	15307	15115	14911
5.90 CFS	14694	14465	14223	13968	13702	13424	13135	12835
6.30 CFS	12526	12207	11880	11544	11202	10853	10499	10142
6.70 CFS	9782	9423	9067	8717	8375	8060	7801	7547
7.10 CFS	7299	7057	6823	6594	6372	6156	5946	5741

7.50 CFS	5542	5348	5159	4975	4795	4621	4451	4285
7.90 CFS	4124	3968	3816	3668	3524	3385	3250	3118
8.30 CFS	2991	2868	2749	2634	2558	2502	2447	2393
8.70 CFS	2338	2284	2231	2178	2126	2074	2023	1973
9.10 CFS	1924	1875	1827	1780	1734	1688	1644	1600
9.50 CFS	1557	1515	1474	1434	1395	1356	1319	1282
9.90 CFS	1246	1211	1177	1143	1111	1079	1048	1018
10.30 CFS	988	960	932	905	878	852	827	803
10.70 CFS	779	756	734	712	691	670	650	631
11.10 CFS	612	593	575	558	541	525	509	494
11.50 CFS	479	464	450	436	423	410	398	385
11.90 CFS	374	362	351	340	330	320	310	301
12.30 CFS	291	282	274	265	257	249	241	234
12.70 CFS	227	220	213	206	200	194	188	182
13.10 CFS	176	171	166	161	156	151	146	142
13.50 CFS	137	133	129	125	121	117	114	110
13.90 CFS	107	103	100	97	94	91	88	85
14.30 CFS	82.82	80.25	77.75	75.34	73.00	70.73	68.53	66.40
14.70 CFS	64.34	62.34	60.40	58.52	56.70	54.94	53.23	51.57
15.10 CFS	49.97	48.41	46.91	45.45	44.03	42.66	41.34	40.05
15.50 CFS	38.80	37.60	36.42	35.29	34.19	33.13	32.10	31.10
15.90 CFS	30.13	29.19	28.28	27.40	26.55	25.72	24.92	24.15
16.30 CFS	23.39	22.67	21.96	21.28	20.62	19.97	19.35	18.75
16.70 CFS	18.17	17.60	17.05	16.52	16.01	15.51	15.03	14.56
17.10 CFS	14.11	13.67	13.24	12.83	12.43	12.04	11.67	11.30
17.50 CFS	10.95	10.61	10.28	9.96	9.65	9.35	9.06	8.78
17.90 CFS	8.50	8.24	7.98	7.73	7.49	7.26	7.03	6.81
18.30 CFS	6.60	6.40	6.20	6.00	5.82	5.64	5.46	5.29
18.70 CFS	5.13	4.97	4.81	4.66	4.52	4.38	4.24	4.11
19.10 CFS	3.98	3.86	3.74	3.62	3.51	3.40	3.29	3.19
19.50 CFS	3.09	2.99	2.90	2.81	2.72	2.64	2.56	2.48
19.90 CFS	2.40	2.33	2.25	2.18	2.12	2.05	1.99	1.92
20.30 CFS	1.86	1.80	1.75	1.69	1.64	1.60	1.60	1.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 80464 CFS-HRS; 6649.6 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

RAINFALL OF 12.70 inches AND 6.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 1, ARC 2
MAIN TIME INCREMENT .050 HOURS

ALTERNATE 1 STORM 1

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
XSECTION 1	RUNOFF	2.46	11.09	---	2.71	17873	7265.4
XSECTION 5	REACH	2.46	11.09	8.21	3.32	10200	4146.3
XSECTION 10	REACH	2.46	11.09	9.08	3.96	7060	2869.9
XSECTION 2	RUNOFF	2.38	10.12	---	2.64	16996	7141.2
XSECTION 12	ADDHYD	4.84	10.62	---	2.64	17248	3563.6
XSECTION 12	DIVERT	4.84	5.98	---	2.25F	4100F	847.1
XSECTION 200	DIVERT	.00	5.98	---	2.64	13148	********
XSECTION 20	REACH	4.84	5.98	7.94	3.35F	4100F	847.1
XSECTION 25	REACH	4.84	5.98	5.03	3.40F	4100F	847.1
XSECTION 3	RUNOFF	3.94	11.10	---	2.73	28009	7108.9
XSECTION 30	REACH	3.94	11.10	6.29	3.40	16238	4121.3
XSECTION 5	REACH	3.94	11.10	8.50	4.00	11557	2933.2
XSECTION 25	REACH	3.94	11.10	8.90	4.06	11552	2932.0
XSECTION 4	RUNOFF	2.06	9.75	---	2.68	13580	6592.2
XSECTION 34	ADDHYD	6.00	10.63	---	2.69	13913	2318.8
XSECTION 35	ADDHYD	10.84	8.55	---	2.69	17992	1659.8
XSECTION 35	DIVERT	10.84	6.98	---	2.45F	11000F	1014.8
XSECTION 199	DIVERT	.00	6.98	---	2.69	6992	********
XSECTION 45	REACH	10.84	6.98	8.46	3.60F	11000F	1014.8
XSECTION 6	RUNOFF	1.47	11.12	---	2.44	14477	9848.3
XSECTION 60	REACH	1.47	11.12	9.94	2.65	11037	7508.2
XSECTION 67	REACH	1.47	11.12	7.60	2.98	7397	5032.0
XSECTION 64	ADDHYD	12.31	7.48	---	2.98	18394	1494.2
XSECTION 5	RUNOFF	4.78	9.96	---	2.67	32339	6765.5
XSECTION 7	RUNOFF	3.48	10.35	---	2.83	21194	6090.2
XSECTION 75	ADDHYD	8.26	10.12	---	2.72	51863	6278.8
XSECTION 76	ADDHYD	20.57	8.54	---	2.74	68291	3319.9
STRUCTURE 1	RESVOR	20.57	6.06	1215.95	3.76	23712	1152.7

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE k* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

			HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.				
XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 1											
5	9100		17866	2.7	10182	3.3	1.77	1.09	.634	.570	.08
10	9100		10182	3.3	7060	4.0	2.37	1.06	.361	.693	.08
20	3332		4100	2.3	4100	3.3	.14	1.63	.003	1.000	.50
25	1950		4100	3.3	4100	3.4	.052	1.73	.001	1.000	.65
30	8865		27941	2.8	16238	3.4	.95	1.15	.638	.581	.08
5	8865		16238	3.4	11557	4.0	1.76	1.09	.334	.712	.08
25	1950		11557	4.0	11551	4.1	.062	1.70	.002	.999	.84?
45	4200		11000	2.5	11000	3.6	.049	1.72	.003	1.000	.47
60	7540		14453	2.5	11037	2.7	.28	1.44	.236	.764	.24
67	5140		11037	2.7	7386	3.0	1.78	1.09	.367	.669	.13

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
STRUCTURE	1	20.57	
ALTERNATE	1		23712
XSECTION	1	2.46	
ALTERNATE	1		17873
XSECTION	2	2.38	
ALTERNATE	1		16996
XSECTION	3	3.94	
ALTERNATE	1		28009
XSECTION	4	2.06	
ALTERNATE	1		13580
XSECTION	5	4.78	
ALTERNATE	1		32339
XSECTION	6	1.47	
ALTERNATE	1		14477
XSECTION	7	3.48	
ALTERNATE	1		21194
XSECTION	10	2.46	
ALTERNATE	1		7060
XSECTION	12	4.84	
ALTERNATE	1		4100
XSECTION	20	4.84	
ALTERNATE	1		4100
XSECTION	25	3.94	
ALTERNATE	1		11552
XSECTION	30	3.94	
ALTERNATE	1		16238
XSECTION	34	6.00	

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
XSECTION 34		6.00	
ALTERNATE	1		13913
XSECTION 35		10.84	
ALTERNATE	1		11000
XSECTION 45		10.84	
ALTERNATE	1		11000
XSECTION 60		1.47	
ALTERNATE	1		11037
XSECTION 64		12.31	
ALTERNATE	1		18394
XSECTION 67		1.47	
ALTERNATE	1		7397
XSECTION 75		8.26	
ALTERNATE	1		51863
XSECTION 76		20.57	
ALTERNATE	1		68291
XSECTION 199		.00	
ALTERNATE	1		6992
XSECTION 200		.00	
ALTERNATE	1		13148

ECON2 DATA FILE

```
ECON2
TITLE        WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE         6HR LOCAL, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
FLOW-FREQ     -1         23712.                                    ALT  1   1
FLOW-FREQ      1         17873.                                    ALT  1   2
FLOW-FREQ      2         16996.                                    ALT  1   3
FLOW-FREQ      3         28009.                                    ALT  1   4
FLOW-FREQ      4         13580.                                    ALT  1   5
FLOW-FREQ      5         32339.                                    ALT  1   6
FLOW-FREQ      6         14477.                                    ALT  1   7
FLOW-FREQ      7         21194.                                    ALT  1   8
FLOW-FREQ     10          7060.                                    ALT  1   9
FLOW-FREQ     12          4100.                                    ALT  1  10
FLOW-FREQ     20          4100.                                    ALT  1  11
FLOW-FREQ     25         11552.                                    ALT  1  12
FLOW-FREQ     30         16238.                                    ALT  1  13
FLOW-FREQ     34         13913.                                    ALT  1  14
FLOW-FREQ     35         11000.                                    ALT  1  15
FLOW-FREQ     45         11000.                                    ALT  1  16
FLOW-FREQ     60         11037.                                    ALT  1  17
FLOW-FREQ     64         18394.                                    ALT  1  18
FLOW-FREQ     67          7397.                                    ALT  1  19
FLOW-FREQ     75         51863.                                    ALT  1  20
FLOW-FREQ     76         68291.                                    ALT  1  21
FLOW-FREQ    199          6992.                                    ALT  1  22
FLOW-FREQ    200         13148.                                    ALT  1  23
```

```
TR20 ------------------------------------------------------------------- SCS -
WT3PMP6      WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
11/15/**      6HR LOCAL, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT      2.04TEST


END OF  1 JOBS IN THIS RUN




                    SCS  TR-20,  VERSION 2.04TEST
                          WT3PMP6   FILES

     INPUT  = 6L.DAT                                  , GIVEN DATA FILE
     OUTPUT = 6LOUTT.OUT                              , DATED 11/15/**,17:10:05

              FILES GENERATED - DATED 11/15/**,17:10:05

    FILE LLL.TEC CONTAINS ECON2 INFORMATION

    FILE LLL.TRD CONTAINS READHD INFORMATION


           TOTAL NUMBER OF WARNINGS =   0,  MESSAGES =   2

                       JOB ENDED AT 17:10:05
                   *** TR-20 RUN COMPLETED ***
```

```
******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

JOB TR-20 WT3PMP72  ECON                PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     72-HR PMP (MTI=.2), RESERVOIR INIT EMPTY W/100-YR SED
 5 RAINFL 1             0.1                                          6HRLOCAL
 8          .0000       .003        .006        .009        .013
 8          .016        .020        .025        .030        .035
 8          .039        .046        .052        .058        .065
 8          .071        .080        .090        .099        .109
 8          .118        .283        .449        .567        .622
 8          .669        .701        .732        .756        .780
 8          .795        .809        .824        .838        .852
 8          .866        .876        .885        .894        .904
 8          .913        .920        .926        .932        .939
 8          .945        .950        .954        .959        .964
 8          .969        .972        .976        .980        .984
 8          .988        .991        .993        .995        .998
 8          1.          1.          1.          1.          1.
 9 ENDTBL
 5 RAINFL 2             .1                                           6HR GEN
 8          .000        .005        .013        .020        .028
 8          .038        .045        .053        .060        .070
 8          .080        .085        .095        .108        .120
 8          .138        .150        .165        .190        .210
 8          .238        .280        .350        .440        .550
 8          .590        .620        .645        .668        .685
 8          .700        .720        .735        .753        .765
 8          .775        .790        .800        .810        .820
 8          .835        .843        .850        .863        .870
 8          .880        .890        .898        .908        .915
 8          .925        .930        .940        .945        .955
 8          .963        .970        .978        .985        .990
 8          1.00        1.00        1.00        1.00        1.00
 9 ENDTBL
 5 RAINFL 3             0.1                                          12HRGEN
 8          .000        .003        .007        .010        .013
 8          .016        .019        .022        .025        .028
 8          .031        .034        .037        .040        .043
 8          .045        .050        .054        .058        .062
 8          .066        .071        .075        .080        .085
 8          .089        .095        .101        .107        .112
 8          .118        .125        .132        .139        .146
 8          .153        .162        .171        .180        .189
 8          .198        .211        .224        .237        .250
 8          .264        .300        .345        .391        .436
 8          .491        .536        .564        .586        .607
 8          .629        .643        .657        .672        .686
 8          .700        .711        .721        .732        .742
 8          .753        .761        .769        .778        .786
 8          .795        .802        .809        .817        .824
 8          .832        .837        .843        .848        .854
 8          .859        .865        .870        .875        .881
 8          .886        .891        .895        .900        .905
 8          .909        .913        .917        .921        .925
 8          .929        .933        .936        .940        .944
 8          .948        .951        .954        .957        .960
 8          .963        .966        .969        .971        .974
```

```
 8          .977        .980        .982        .984        .986
 8          .989        .991        .993        .995        .998
 8         1.000       01.000       1.000       1.000       1.00
 9 ENDTBL
 5 RAINFL 4              0.1                                          18HRGEN
 8          .000        .001        .002        .003        .004
 8          .005        .005        .006        .007        .008
 8          .009        .012        .014        .017        .020
 8          .023        .025        .028        .031        .033
 8          .036        .040        .044        .049        .053
 8          .057        .061        .065        .070        .074
 8          .078        .084        .090        .096        .102
 8          .108        .114        .120        .126        .132
 8          .138        .146        .154        .162        .170
 8          .179        .187        .195        .203        .211
 8          .220        .238        .256        .275        .293
 8          .311        .330        .348        .367        .385
 8          .403        .430        .457        .484        .511
 8          .538        .557        .577        .597        .616
 8          .636        .653        .670        .687        .704
 8          .721        .734        .746        .759        .771
 8          .784        .792        .801        .810        .818
 8          .827        .832        .838        .843        .848
 8          .853        .856        .859        .862        .864
 8          .867        .870        .872        .875        .878
 8          .880        .882        .885        .887        .889
 8          .891        .893        .895        .897        .899
 8          .901        .903        .905        .907        .909
 8          .911        .912        .914        .916        .917
 8          .919        .920        .922        .924        .925
 8          .927        .929        .930        .932        .934
 8          .935        .937        .938        .940        .941
 8          .943        .945        .946        .948        .949
 8          .951        .952        .953        .955        .956
 8          .957        .959        .960        .961        .963
 8          .964        .965        .967        .968        .970
 8          .971        .972        .974        .975        .976
 8          .978        .979        .980        .982        .983
 8          .984        .985        .986        .988        .989
 8          .990        .991        .992        .993        .994
 8          .995        .996        .997        .998        .999
 8         1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 5 RAINFL 5              0.1                                          24HRGEN
 8        0.000       0.000       0.001       0.001       0.002
 8        0.002       0.002       0.003       0.003       0.003
 8        0.004       0.005       0.007       0.009       0.010
 8        0.012       0.013       0.015       0.016       0.018
 8        0.019       0.022       0.024       0.027       0.030
 8        0.032       0.035       0.037       0.040       0.042
 8        0.045       0.048       0.051       0.055       0.058
 8        0.061       0.064       0.068       0.071       0.074
 8        0.078       0.082       0.087       0.091       0.096
 8        0.100       0.104       0.109       0.113       0.118
 8        0.122       0.127       0.132       0.137       0.142
 8        0.147       0.151       0.156       0.161       0.166
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 8          0.171       0.177       0.184       0.191       0.198
 8          0.205       0.214       0.224       0.233       0.242
 8          0.252       0.265       0.278       0.291       0.303
 8          0.316       0.334       0.351       0.368       0.386
 8          0.403       0.425       0.447       0.468       0.490
 8          0.512       0.527       0.543       0.558       0.574
 8          0.589       0.603       0.617       0.631       0.645
 8          0.659       0.671       0.684       0.696       0.709
 8          0.721       0.731       0.741       0.751       0.761
 8          0.771       0.779       0.786       0.793       0.800
 8          0.808       0.814       0.820       0.825       0.831
 8          0.837       0.840       0.843       0.847       0.850
 8          0.853       0.855       0.857       0.859       0.861
 8          0.864       0.866       0.868       0.870       0.872
 8          0.874       0.876       0.878       0.880       0.881
 8          0.883       0.885       0.886       0.888       0.890
 8          0.891       0.893       0.895       0.896       0.898
 8          0.899       0.901       0.902       0.904       0.905
 8          0.907       0.908       0.909       0.910       0.912
 8          0.913       0.914       0.915       0.916       0.917
 8          0.919       0.920       0.921       0.922       0.923
 8          0.924       0.926       0.927       0.928       0.929
 8          0.930       0.932       0.933       0.935       0.936
 8          0.938       0.940       0.941       0.943       0.944
 8          0.946       0.947       0.947       0.948       0.949
 8          0.950       0.950       0.951       0.952       0.953
 8          0.953       0.955       0.956       0.957       0.958
 8          0.959       0.960       0.961       0.962       0.963
 8          0.964       0.965       0.966       0.967       0.968
 8          0.969       0.970       0.971       0.972       0.973
 8          0.974       0.975       0.976       0.977       0.978
 8          0.979       0.980       0.981       0.982       0.983
 8          0.984       0.985       0.986       0.987       0.988
 8          0.988       0.989       0.990       0.991       0.991
 8          0.992       0.993       0.994       0.995       0.995
 8          0.996       0.997       0.998       0.998       0.999
 8          1.000       1.000       1.000       1.000       1.000
 9  ENDTBL
 5 RAINFL 6             .25                                          48HRGEN
 8          0.0000      0.0015      0.0029      0.0044      0.0058
 8          0.0073      0.0088      0.0102      0.0117      0.0131
 8          0.0146      0.0160      0.0175      0.0190      0.0204
 8          0.0219      0.0233      0.0248      0.0263      0.0277
 8          0.0292      0.0306      0.0321      0.0335      0.0350
 8          0.0365      0.0379      0.0394      0.0408      0.0423
 8          0.0438      0.0452      0.0467      0.0481      0.0496
 8          0.0510      0.0525      0.0542      0.0558      0.0575
 8          0.0592      0.0608      0.0625      0.0642      0.0658
 8          0.0692      0.0725      0.0758      0.0792      0.0825
 8          0.0858      0.0892      0.0925      0.0975      0.1025
 8          0.1075      0.1125      0.1175      0.1225      0.1275
 8          0.1325      0.1442      0.1560      0.1677      0.1794
 8          0.1985      0.2176      0.2366      0.2557      0.3239
 8          0.3921      0.4603      0.5285      0.5520      0.5754
 8          0.5989      0.6224      0.6356      0.6488      0.6620
 8          0.6752      0.6862      0.6972      0.7082      0.7192
```

```
 8          0.7267      0.7342      0.7417      0.7492      0.7558
 8          0.7625      0.7692      0.7758      0.7825      0.7892
 8          0.7958      0.8025      0.8083      0.8142      0.8200
 8          0.8258      0.8308      0.8358      0.8408      0.8458
 8          0.8508      0.8558      0.8608      0.8658      0.8683
 8          0.8708      0.8733      0.8758      0.8783      0.8808
 8          0.8833      0.8858      0.8875      0.8892      0.8908
 8          0.8925      0.8942      0.8958      0.8975      0.8992
 8          0.9008      0.9025      0.9042      0.9058      0.9075
 8          0.9092      0.9108      0.9125      0.9140      0.9154
 8          0.9169      0.9183      0.9198      0.9213      0.9227
 8          0.9242      0.9256      0.9271      0.9285      0.9300
 8          0.9315      0.9329      0.9344      0.9358      0.9373
 8          0.9388      0.9402      0.9417      0.9431      0.9446
 8          0.9460      0.9475      0.9490      0.9504      0.9519
 8          0.9533      0.9548      0.9563      0.9577      0.9592
 8          0.9606      0.9621      0.9635      0.9650      0.9665
 8          0.9679      0.9694      0.9708      0.9723      0.9737
 8          0.9752      0.9767      0.9781      0.9796      0.9810
 8          0.9825      0.9840      0.9854      0.9869      0.9883
 8          0.9898      0.9912      0.9927      0.9942      0.9956
 8          0.9971      0.9985      1.0000      1.0000      1.0
 9 ENDTBL
 5 RAINFL 7                .25                                          72HRGEN
 8          0.0000      0.0005      0.0009      0.0014      0.0019
 8          0.0025      0.0032      0.0038      0.0044      0.0051
 8          0.0057      0.0063      0.0070      0.0076      0.0082
 8          0.0089      0.0095      0.0103      0.0111      0.0119
 8          0.0127      0.0134      0.0142      0.0150      0.0158
 8          0.0171      0.0184      0.0196      0.0209      0.0222
 8          0.0234      0.0247      0.0259      0.0272      0.0285
 8          0.0297      0.0310      0.0323      0.0335      0.0348
 8          0.0361      0.0375      0.0389      0.0403      0.0418
 8          0.0432      0.0446      0.0460      0.0475      0.0489
 8          0.0503      0.0517      0.0532      0.0546      0.0560
 8          0.0574      0.0589      0.0604      0.0620      0.0636
 8          0.0652      0.0668      0.0684      0.0699      0.0715
 8          0.0731      0.0747      0.0763      0.0778      0.0797
 8          0.0816      0.0835      0.0854      0.0877      0.0899
 8          0.0921      0.0943      0.0968      0.0994      0.1019
 8          0.1044      0.1073      0.1101      0.1130      0.1158
 8          0.1193      0.1228      0.1263      0.1297      0.1335
 8          0.1373      0.1411      0.1449      0.1491      0.1532
 8          0.1573      0.1614      0.1725      0.1837      0.1948
 8          0.2059      0.2241      0.2422      0.2603      0.2784
 8          0.3431      0.4078      0.4726      0.5373      0.5596
 8          0.5819      0.6042      0.6265      0.6390      0.6515
 8          0.6641      0.6766      0.6870      0.6975      0.7079
 8          0.7184      0.7255      0.7326      0.7397      0.7468
 8          0.7535      0.7601      0.7668      0.7734      0.7794
 8          0.7854      0.7915      0.7975      0.8030      0.8085
 8          0.8141      0.8196      0.8247      0.8297      0.8348
 8          0.8399      0.8443      0.8487      0.8532      0.8576
 8          0.8598      0.8620      0.8642      0.8665      0.8685
 8          0.8706      0.8726      0.8747      0.8766      0.8785
 8          0.8804      0.8823      0.8840      0.8858      0.8875
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********
 8          0.8892      0.8908      0.8924      0.8940      0.8956
 8          0.8972      0.8987      0.9003      0.9019      0.9035
 8          0.9051      0.9066      0.9082      0.9098      0.9114
 8          0.9130      0.9146      0.9160      0.9174      0.9188
 8          0.9203      0.9217      0.9231      0.9245      0.9259
 8          0.9274      0.9288      0.9302      0.9316      0.9329
 8          0.9342      0.9354      0.9367      0.9380      0.9392
 8          0.9405      0.9418      0.9430      0.9443      0.9456
 8          0.9468      0.9481      0.9494      0.9506      0.9519
 8          0.9530      0.9541      0.9552      0.9563      0.9574
 8          0.9585      0.9597      0.9608      0.9619      0.9630
 8          0.9641      0.9652      0.9661      0.9671      0.9680
 8          0.9690      0.9699      0.9709      0.9718      0.9728
 8          0.9736      0.9744      0.9752      0.9759      0.9767
 8          0.9775      0.9783      0.9791      0.9797      0.9804
 8          0.9810      0.9816      0.9823      0.9829      0.9835
 8          0.9842      0.9847      0.9851      0.9856      0.9861
 8          0.9866      0.9870      0.9875      0.9880      0.9884
 8          0.9889      0.9894      0.9899      0.9902      0.9905
 8          0.9908      0.9911      0.9915      0.9918      0.9921
 8          0.9924      0.9927      0.9930      0.9934      0.9937
 8          0.9940      0.9943      0.9946      0.9949      0.9953
 8          0.9956      0.9959      0.9962      0.9965      0.9968
 8          0.9972      0.9975      0.9978      0.9981      0.9984
 8          0.9987      0.9989      0.9991      0.9992      0.9994
 8          0.9995      0.9997      0.9998      1.0000      1.0000
 9 ENDTBL
 5 RAINFL 8     1        2.4                                          10-DAY
 8          .0000       .0024       .0048       .0073       .0097
 8          .0121       .0148       .0174       .0201       .0228
 8          .0254       .0284       .0314       .0344       .0374
 8          .0404       .0437       .0471       .0505       .0539
 8          .0572       .0612       .0651       .0690       .0729
 8          .0768       .0815       .0862       .0909       .0955
 8          .1002       .1061       .1120       .1179       .1238
 8          .1297       .1377       .1458       .1538       .1618
 8          .1699       .1832       .1966       .2099       .2232
 8          .2366       .2548       .2778       .3093       .3614
 8          1.092       1.174       1.213       1.240       1.260
 8          1.276       1.286       1.296       1.306       1.316
 8          1.326       1.333       1.340       1.347       1.354
 8          1.360       1.365       1.371       1.376       1.381
 8          1.386       1.391       1.395       1.399       1.403
 8          1.408       1.411       1.415       1.418       1.422
 8          1.426       1.429       1.432       1.435       1.438
 8          1.442       1.444       1.447       1.450       1.453
 8          1.456       1.458       1.461       1.463       1.466
 8          1.468       1.471       1.473       1.475       1.477
 8          1.48        1.48        1.48        1.48        1.48
 9 ENDTBL
 4 DIMHYD               .0556                                        WT3
 8          0.0         .03         .10         .19         .31
 8          .47         .66         .82         .93         .99
 8          1.0         .99         .93         .82         .66
 8          .47         .31         .03         .00         .00
 9 ENDTBL
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 2 XSECTN    005         1.0         8.77                                BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN    010         1.0         8.94                                BOSSCS#4
 8                       0.          0.0         0.0
 8                       0.91        5.          4.95
 8                       2.03        50.         24.80
 8                       2.63        100.        41.32
 8                       3.34        200.        74.14
 8                       4.15        400.        130.28
 8                       5.23        800.        223.37
 8                       6.41        1600.       447.51
 8                       7.65        3200.       898.64
 8                       8.94        6400.       1690.88
 8                       10.29       12800.      3331.95
 8                       11.64       25600.      6185.81
 8                       13.14       51200.      10661.04
 9 ENDTBL
 2 XSECTN    020         1.0         7.3                                 REACHC
 8                       0.          0.0         0.0
 8                       1.01        100.        57.78
 8                       1.49        200.        86.81
 8                       1.88        300.        110.25
 8                       2.49        500.        149.47
 8                       3.68        1000.       226.31
 8                       5.40        2000.       346.26
 8                       7.85        4000.       533.39
 8                       9.64        6000.       688.07
 8                       11.16       8000.       838.10
 8                       12.46       10000.      985.31
 8                       13.61       12000.      1122.03
 8                       14.56       14000.      1236.94
 8                       15.43       16000.      1345.18
 8                       16.31       18000.      1456.68
 9 ENDTBL
 2 XSECTN    025         1.0         7.3                                 REACHB
 8                       0.          0.0         0.0
 8                       0.63        100.        80.89
 8                       0.93        200.        120.32
 8                       1.17        300.        151.77
 8                       1.56        500.        203.28
 8                       2.30        1000.       302.00
 8                       3.38        2000.       449.24
 8                       4.97        4000.       673.73
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                      6.23        6000.       855.96
 8                      7.31        8000.       1016.35
 8                      8.24        10000.      1158.51
 8                      9.09        12000.      1293.31
 8                      9.90        14000.      1425.57
 8                      10.64       16000.      1549.17
 8                      11.36       18000.      1673.11
 9 ENDTBL
 2 XSECTN   030         1.0         9.45                            BOSSCS#6
 8                      0.          0.0         0.0
 8                      0.77        5.          4.67
 8                      1.54        50.         32.06
 8                      1.78        100.        56.64
 8                      2.10        200.        100.59
 8                      2.50        400.        179.97
 8                      3.01        800.        320.25
 8                      3.63        1600.       589.66
 8                      4.35        3200.       1110.72
 8                      5.21        6400.       2084.48
 8                      6.03        12800.      4119.83
 8                      6.99        25600.      6856.75
 8                      8.28        51200.      11085.87
 9 ENDTBL
 2 XSECTN   045         1.0         4.87                            REACHA
 8                      0.          0.0         0.0
 8                      0.60        100.        85.69
 8                      0.90        200.        127.94
 8                      1.13        300.        161.93
 8                      1.52        500.        217.27
 8                      2.25        1000.       324.03
 8                      3.31        2000.       483.02
 8                      4.87        4000.       722.17
 8                      6.09        6000.       914.99
 8                      7.15        8000.       1084.61
 8                      8.05        10000.      1234.17
 8                      8.87        12000.      1373.80
 8                      9.64        14000.      1507.84
 8                      10.34       16000.      1633.45
 8                      11.00       18000.      1753.12
 9 ENDTBL
 2 XSECTN   060         1.0         4.7                             2CP6CP7
 8                      0.          0.0         0.0
 8                      2.36        100.        45.12
 8                      2.88        200.        83.75
 8                      3.18        300.        114.33
 8                      3.64        500.        172.72
 8                      4.42        1000.       289.04
 8                      5.40        2000.       470.72
 8                      6.87        4000.       782.74
 8                      7.91        6000.       1020.12
 8                      8.79        8000.       1231.25
 8                      9.60        10000.      1435.05
 8                      10.26       12000.      1618.34
 8                      10.94       14000.      1812.58
 8                      11.47       16000.      1983.46
 8                      11.96       18000.      2150.12
```

```
 9 ENDTBL
 2 XSECTN   067          1.0         8.77                                BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 3 STRUCT      01                                                          95/11/6
 8                       1178.0      0.00        0.
 8                       1188.0      0.02        44.8
 8                       1196.8      0.13        300.
 8                       1199.2      0.21        500.
 8                       1202.0      1.1         845.55
 8                       1204.0      1.2         1176.28
 8                       1206.0      1.3         1575.25
 8                       1208.0      1.4         2044.97
 8                       1210.0      1.5         2593.40
 8                       1212.0      1.6         3218.00
 8                       1213.0      2593.0      3556.67
 8                       1214.0      8133.0      3916.02
 8                       1215.0      15443.0     4294.13
 8                       1216.0      24165.0     4692.68
 8                       1217.0      34099.0     5113.19
 8                       1218.0      45112.0     5556.01
 8                       1219.0      57107.0     6021.50
 8                       1220.0      70010.0     6509.75
 9 ENDTBL
 6 RUNOFF 1 001        1 2.46        87.2        0.85        1 1
 6 REACH  3 005   1    7 9100.                               1           BOSS#6
 6 REACH  3 010   7    2 9100.                               1           BOSS#4
 6 RUNOFF 1 002        3 2.38        79.9        0.73        1 1
 6 ADDHYD 4 012   2 3 1                                      1 1
 6 DIVERT 6 012   1 4 7 4100.       1.00        200.        1 1         OLIVE
 6 REACH  3 020   4    7 3332.                               1           REACH C
 6 REACH  3 025   7    5 1950.                               1           REACH B
 6 RUNOFF 1 003        6 3.94        87.2        0.88        1 1
 6 REACH  3 030   6    7 8865.                               1           BOSS#6
 6 REACH  3 005   7    1 8865.                               1           BOSS#5
 6 REACH  3 025   1    7 1950.                               1           REACH B
 6 RUNOFF 1 004        1 2.06        77.3        0.79        1 1
 6 ADDHYD 4 034   7 1 2                                      1 1
 6 ADDHYD 4 035   5 2 3                                      1 1
 6 DIVERT 6 035   3 4 7 11000.      1.00        199.        1 1         NORTHERN
 6 REACH  3 045   4    5 4200.                               1           REACH A
 6 RUNOFF 1 006        2 1.47        87.7        0.47        1 1
 6 REACH  3 060   2    3 7540.                               1           CP6CP7
 6 REACH  3 067   3    4 5140.                               1           BOSS#5
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 6 ADDHYD 4 064   5 4 3                                    1 1
 6 RUNOFF 1 005       6 4.78        78.8        0.78       1 1
 6 RUNOFF 1 007       7 3.48        81.7        1.01       1 1
 6 ADDHYD 4 075   6 7 1                                    1 1
 6 ADDHYD 4 076   1 3 2                                    1 1     1
 6 RESVOR 2    01 2   1 1199.2                             1 1     1
   ENDATA
 7 LIST               1.0                    1.
 7 INCREM 6           0.20
 7 COMPUT 7 001     01 0.          15.8        1.0        7 2  01  07
   ENDCMP 1
   ENDJOB 2

**********END OF 80-80 LIST**********
```

RUNOFF OPTION USED WITH RAINTABLE NO. 8, RUNOFF CURVE NO. = 100.

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

EXECUTIVE CONTROL LIST 1. 0. 1.

LISTING OF CURRENT DATA

COMPUTED TIME INCREMENT
DIMHYD .0556

.0000	.0300	.1000	.1900	.3100
.4700	.6600	.8200	.9300	.9900
1.0000	.9900	.9300	.8200	.6600
.4700	.3100	.0300	.0000	.0000

ENDTBL

COMPUTED PEAK RATE FACTOR = 664.607

TABLE NO. TIME INCREMENT
RAINFL 1 .1000

.0000	.0030	.0060	.0090	.0130
.0160	.0200	.0250	.0300	.0350
.0390	.0460	.0520	.0580	.0650
.0710	.0800	.0900	.0990	.1090
.1180	.2830	.4490	.5670	.6220
.6690	.7010	.7320	.7560	.7800
.7950	.8090	.8240	.8380	.8520
.8660	.8760	.8850	.8940	.9040
.9130	.9200	.9260	.9320	.9390
.9450	.9500	.9540	.9590	.9640
.9690	.9720	.9760	.9800	.9840
.9880	.9910	.9930	.9950	.9980
1.0000	1.0000	1.0000	1.0000	1.0000

ENDTBL

STANDARD CONTROL INSTRUCTIONS

```
RUNOFF      1        1      2.4600     87.2000       .85001 1 0 0 0 1
REACH       5   1    7   9100.0000       .0000       .00001 0 0 0 0 1
REACH      10   7    2   9100.0000       .0000       .00001 0 0 0 0 1
RUNOFF      2        3      2.3800     79.9000       .73001 1 0 0 0 1
ADDHYD     12   2 3  1                                    1 1 0 0 0 1
DIVERT     12   1 4  7   4100.0000      1.0000    200.00001 1 0 0 0 1
REACH      20   4    7   3332.0000       .0000       .00001 0 0 0 0 1
REACH      25   7    5   1950.0000       .0000       .00001 0 0 0 0 1
RUNOFF      3        6      3.9400     87.2000       .88001 1 0 0 0 1
REACH      30   6    7   8865.0000       .0000       .00001 0 0 0 0 1
REACH       5   7    1   8865.0000       .0000       .00001 0 0 0 0 1
REACH      25   1    7   1950.0000       .0000       .00001 0 0 0 0 1
RUNOFF      4        1      2.0600     77.3000       .79001 1 0 0 0 1
ADDHYD     34   7 1  2                                    1 1 0 0 0 1
ADDHYD     35   5 2  3                                    1 1 0 0 0 1
DIVERT     35   3 4  7  11000.0000      1.0000    199.00001 1 0 0 0 1
REACH      45   4    5   4200.0000       .0000       .00001 0 0 0 0 1
RUNOFF      6        2      1.4700     87.7000       .47001 1 0 0 0 1
REACH      60   2    3   7540.0000       .0000       .00001 0 0 0 0 1
REACH      67   3    4   5140.0000       .0000       .00001 0 0 0 0 1
ADDHYD     64   5 4  3                                    1 1 0 0 0 1
RUNOFF      5        6      4.7800     78.8000       .78001 1 0 0 0 1
RUNOFF      7        7      3.4800     81.7000      1.01001 1 0 0 0 1
ADDHYD     75   6 7  1                                    1 1 0 0 0 1
ADDHYD     76   1 3  2                                    1 1 0 0 1 1
RESVOR        1 2   1   1199.2000                        1 1 0 0 1 1
ENDATA
```

END OF LISTING

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .200 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO STRUCTURE 1
STARTING TIME = .00 RAIN DEPTH = 15.80 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .200 HOURS
ALTERNATE NO. = 1 STORM NO. = 7 RAIN TABLE NO. = 7

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.01	6290.9	(RUNOFF)
37.14	222.8	(RUNOFF)
42.48	160.6	(RUNOFF)
43.88	160.6	(RUNOFF)
45.39	144.8	(RUNOFF)
46.63	144.8	(RUNOFF)
48.53	128.1	(RUNOFF)
49.25	128.1	(RUNOFF)
50.01	128.2	(RUNOFF)
50.78	128.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 2.46 SQ.MI.			
6.80 CFS	.23	.99	2.60	4.92	7.41	9.80	12.16	14.48
8.40 CFS	16.85	19.25	21.48	23.29	25.31	27.59	29.55	31.06
10.00 CFS	32.94	35.51	38.49	41.46	44.22	46.72	49.35	51.53
11.60 CFS	52.88	53.84	55.72	58.23	60.26	61.25	61.85	63.48
13.20 CFS	65.94	67.81	68.54	68.83	70.26	73.02	76.35	79.85
14.80 CFS	83.14	86.13	88.09	89.48	90.66	91.14	91.12	92.08
16.40 CFS	94	97	98	98	100	105	113	121
18.00 CFS	124	127	135	144	151	152	154	162
19.60 CFS	172	180	184	186	193	204	212	215
21.20 CFS	220	234	253	270	275	277	284	296
22.80 CFS	306	311	315	325	337	345	350	394
24.40 CFS	545	760	926	983	1033	1205	1437	1616
26.00 CFS	1680	1996	3130	4708	5958	6290	6037	5038
27.60 CFS	3598	2474	2209	2138	1905	1567	1316	1248
29.20 CFS	1233	1182	1109	1057	1041	1019	937	822
30.80 CFS	735	709	707	696	681	669	665	660
32.40 CFS	643	621	606	604	601	587	568	556
34.00 CFS	554	552	540	522	510	507	504	489
35.60 CFS	465	448	444	429	373	294	237	222
37.20 CFS	223	219	212	207	206	205	202	197
38.80 CFS	192	190	189	185	179	176	174	172
40.40 CFS	167	164	161	161	161	160	158	156
42.00 CFS	157	159	160	160	159	157	156	158
43.60 CFS	160	161	161	159	154	147	142	142

45.20 CFS	144	145	144	141	141	141	143	145
46.80 CFS	144	142	140	137	134	130	127	126
48.40 CFS	128	128	126	127	128	128	126	127
50.00 CFS	128	127	126	127	128	127	125	122
51.60 CFS	117	112	110	110	110	111	112	114
53.20 CFS	115	113	111	110	110	109	104	99
54.80 CFS	95.92	95.49	95.53	95.31	95.58	95.24	95.48	94.73
56.40 CFS	91.62	86.71	81.65	79.19	77.09	76.07	77.39	79.64
58.00 CFS	80.28	78.85	74.36	69.21	65.85	64.21	62.73	63.19
59.60 CFS	64.51	63.90	62.57	63.01	60.90	54.36	47.42	46.33
61.20 CFS	48.46	49.63	48.07	46.12	46.28	47.66	47.31	45.89
62.80 CFS	46.76	48.96	48.66	43.81	36.83	31.65	30.19	30.89
64.40 CFS	32.94	34.37	33.62	31.35	30.17	30.15	30.41	31.81
66.00 CFS	33.98	34.30	32.52	30.50	30.15	30.18	30.92	32.95
67.60 CFS	34.48	33.68	31.30	30.16	30.15	30.33	31.78	33.88
69.20 CFS	34.35	32.60	30.51	30.15	30.11	29.43	26.91	23.19
70.80 CFS	19.16	16.26	15.21	14.96	15.26	14.90	15.12	14.45
72.40 CFS	11.29	6.32	1.19	.00				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 22681 CFS-HRS; 1874.3 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.54	4816.3	6.72
42.76	160.0	1.72
44.25	159.6	1.72
46.94	143.7	1.63
51.01	127.5	1.54
53.42	113.7	1.47
63.33	48.1	1.00
66.47	32.9	.77
68.00	32.7	.77
69.50	32.6	.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 22692 CFS-HRS; 1875.3 ACRE-FEET.

OPERATION REACH XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
28.12	3932.3	7.95
44.51	159.4	3.05
68.36	32.2	1.59
69.88	32.1	1.58

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 22690 CFS-HRS; 1875.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.97	5804.6	(RUNOFF)
27.91	2083.0	(RUNOFF)
32.95	574.5	(RUNOFF)
33.97	527.8	(RUNOFF)
34.96	482.6	(RUNOFF)
35.91	425.5	(RUNOFF)
37.12	212.6	(RUNOFF)
41.10	153.0	(RUNOFF)
42.43	153.0	(RUNOFF)
43.72	153.1	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =			2.38 SQ.MI.
9.40 CFS	.14	.63	1.68	3.16	4.81	6.60	8.47	10.27
11.00 CFS	12.14	14.12	15.84	17.19	18.61	20.39	22.36	23.92
12.60 CFS	24.94	26.12	27.84	29.82	31.23	32.00	32.96	34.62
14.20 CFS	36.86	39.25	41.70	44.25	46.40	47.92	49.37	50.69
15.80 CFS	51.39	51.89	53.40	55.71	57.36	58.57	59.27	60.59
17.40 CFS	65.67	72.65	76.93	78.70	82.05	89.12	96.33	99.53
19.00 CFS	101	104	111	119	125	127	129	138
20.60 CFS	147	152	155	161	174	192	201	204
22.20 CFS	207	216	228	235	239	244	255	267
23.80 CFS	272	274	324	491	691	792	812	882
25.40 CFS	1076	1303	1422	1470	1892	3231	4839	5662
27.00 CFS	5799	5531	4259	2748	2071	2073	1988	1688
28.60 CFS	1339	1182	1177	1158	1092	1019	987	985
30.20 CFS	955	852	729	672	672	669	656	639
31.80 CFS	630	630	624	603	580	573	574	569
33.40 CFS	551	532	526	528	524	508	489	481
35.00 CFS	482	479	457	432	422	423	401	330
36.60 CFS	249	212	211	212	207	199	196	196
38.20 CFS	195	191	185	181	181	180	174	169
39.80 CFS	167	166	162	158	155	153	153	153
41.40 CFS	152	150	148	150	152	153	153	151
43.00 CFS	149	149	152	153	153	153	151	145
44.60 CFS	137	134	136	138	138	136	134	134
46.20 CFS	135	138	139	137	134	133	130	126
47.80 CFS	122	120	121	123	122	120	121	123
49.40 CFS	121	120	122	123	120	120	123	122
51.00 CFS	120	119	115	109	106	105	105	105
52.60 CFS	106	108	110	109	107	105	105	105
54.20 CFS	103	98	93	91	91	91	91	91
55.80 CFS	91.23	91.13	90.16	86.63	80.12	76.62	75.20	72.57

57.40 CFS	72.39	75.00	76.69	76.65	74.70	68.97	64.00	62.46
59.00 CFS	60.92	59.14	61.17	62.23	60.18	59.29	60.96	57.31
60.60 CFS	48.43	43.26	44.74	47.42	47.41	45.10	43.32	44.67
62.20 CFS	46.36	44.37	43.36	45.53	47.73	46.08	39.71	32.21
63.80 CFS	28.79	28.81	29.70	32.36	33.49	31.36	29.05	28.80
65.40 CFS	28.79	29.11	31.05	33.35	32.66	29.83	28.80	28.80
67.00 CFS	28.82	29.71	32.40	33.52	31.37	29.04	28.80	28.80
68.60 CFS	29.10	31.02	33.34	32.68	29.88	28.80	28.80	28.77
70.20 CFS	27.82	24.66	20.68	17.06	14.62	14.36	14.56	14.23
71.80 CFS	14.45	14.35	13.29	9.79	3.54	.17		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.26 WATERSHED INCHES; 20363 CFS-HRS; 1682.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.15	7758.9	(NULL)
28.05	5991.2	(NULL)
42.16	319.5	(NULL)
43.60	313.0	(NULL)
45.17	294.5	(NULL)
46.50	285.0	(NULL)
48.33	261.8	(NULL)
49.13	256.0	(NULL)
49.92	252.4	(NULL)
50.66	250.9	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 4.84 SQ.MI.			
7.60 CFS	.31	.76	1.47	2.44	3.66	5.08	6.68	8.43
9.20 CFS	10.32	12.37	14.83	17.89	21.39	25.05	28.81	32.69
10.80 CFS	36.59	40.66	44.94	49.03	52.79	56.64	60.79	64.98
12.40 CFS	68.67	71.80	75.05	78.77	82.60	85.76	88.29	91.01
14.00 CFS	94	98	102	106	110	114	118	122
15.60 CFS	125	128	131	135	139	142	145	147
17.20 CFS	150	156	165	171	175	181	192	202
18.80 CFS	210	215	223	235	249	260	266	275
20.40 CFS	289	304	314	323	335	355	379	395
22.00 CFS	406	418	436	457	473	486	500	520
23.60 CFS	540	553	564	622	797	1008	1131	1193
25.20 CFS	1323	1589	1892	2095	2242	2778	4235	5976
26.80 CFS	7013	7503	7727	7011	6032	5765	5982	5910
28.40 CFS	5496	4966	4590	4337	4052	3727	3415	3168
30.00 CFS	2974	2775	2526	2277	2110	2006	1905	1801
31.60 CFS	1705	1627	1568	1510	1446	1387	1348	1322
33.20 CFS	1292	1252	1214	1191	1177	1158	1128	1097
34.80 CFS	1077	1067	1052	1020	984	965	955	921
36.40 CFS	838	745	693	671	644	609	573	543
38.00 CFS	519	497	475	454	437	426	414	400

39.60 CFS	388	380	373	364	355	347	341	337
41.20 CFS	334	330	324	320	319	319	318	316
42.80 CFS	313	310	310	313	313	313	312	310
44.40 CFS	304	297	293	294	294	293	288	285
46.00 CFS	284	283	285	285	282	279	278	274
47.60 CFS	270	265	262	261	262	258	255	255
49.20 CFS	256	252	250	252	252	249	249	251
50.80 CFS	250	248	246	243	236	232	231	230
52.40 CFS	228	226	227	227	226	222	220	220
54.00 CFS	220	217	211	205	203	201	200	198
55.60 CFS	196	194	193	191	186	179	174	172
57.20 CFS	167	165	165	165	163	159	153	147
58.80 CFS	144	141	137	137	137	133	130	130
60.40 CFS	126	116	110	110	110	108	104	100
62.00 CFS	99.93	100.12	96.80	94.73	96.04	97.46	95.17	88.45
63.60 CFS	80.75	76.90	75.87	75.11	75.80	74.97	71.19	67.60
65.20 CFS	66.31	65.31	64.63	65.66	67.17	65.92	62.83	61.76
66.80 CFS	61.70	61.52	62.12	64.50	65.36	63.16	60.98	60.96
68.40 CFS	61.01	61.18	62.91	65.00	64.23	61.54	60.71	60.90
70.00 CFS	60.84	59.75	56.38	52.13	48.04	44.79	43.32	41.96
71.60 CFS	39.92	38.46	36.84	34.42	29.76	22.49	18.03	16.46
73.20 CFS	14.61	12.59	10.60	8.78	7.18	5.80	4.65	3.70
74.80 CFS	2.93	2.30	1.80	1.41	1.09	.85	.65	.50
76.40 CFS	.38							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.78 WATERSHED INCHES; 43053 CFS-HRS; 3557.9 ACRE-FEET.

OPERATION DIVERT XSECTION 12
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.40	4100.0 *	(DIVERT)
42.16	319.5	(DIVERT)
43.60	313.0	(DIVERT)
45.17	294.5	(DIVERT)
46.50	285.0	(DIVERT)
48.33	261.8	(DIVERT)
49.13	256.0	(DIVERT)
49.92	252.4	(DIVERT)
50.66	250.9	(DIVERT)
52.97	227.5	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,			DRAINAGE AREA =			4.84 SQ.MI.
7.60 CFS	.31	.76	1.47	2.44	3.66	5.08	6.68	8.43
9.20 CFS	10.32	12.37	14.83	17.89	21.39	25.05	28.81	32.69
10.80 CFS	36.59	40.66	44.94	49.03	52.79	56.64	60.79	64.98

12.40 CFS	68.67	71.80	75.05	78.77	82.60	85.76	88.29	91.01
14.00 CFS	94	98	102	106	110	114	118	122
15.60 CFS	125	128	131	135	139	142	145	147
17.20 CFS	150	156	165	171	175	181	192	202
18.80 CFS	210	215	223	235	249	260	266	275
20.40 CFS	289	304	314	323	335	355	379	395
22.00 CFS	406	418	436	457	473	486	500	520
23.60 CFS	540	553	564	622	797	1008	1131	1193
25.20 CFS	1323	1589	1892	2095	2242	2778	4100	4100
26.80 CFS	4100	4100	4100	4100	4100	4100	4100	4100
28.40 CFS	4100	4100	4100	4100	4052	3727	3415	3168
30.00 CFS	2974	2775	2526	2277	2110	2006	1905	1801
31.60 CFS	1705	1627	1568	1510	1446	1387	1348	1322
33.20 CFS	1292	1252	1214	1191	1177	1158	1128	1097
34.80 CFS	1077	1067	1052	1020	984	965	955	921
36.40 CFS	838	745	693	671	644	609	573	543
38.00 CFS	519	497	475	454	437	426	414	400
39.60 CFS	388	380	373	364	355	347	341	337
41.20 CFS	334	330	324	320	319	319	318	316
42.80 CFS	313	310	310	313	313	313	312	310
44.40 CFS	304	297	293	294	294	293	288	285
46.00 CFS	284	283	285	285	282	279	278	274
47.60 CFS	270	265	262	261	262	258	255	255
49.20 CFS	256	252	250	252	252	249	249	251
50.80 CFS	250	248	246	243	236	232	231	230
52.40 CFS	228	226	227	227	226	222	220	220
54.00 CFS	220	217	211	205	203	201	200	198
55.60 CFS	196	194	193	191	186	179	174	172
57.20 CFS	167	165	165	165	163	159	153	147
58.80 CFS	144	141	137	137	137	133	130	130
60.40 CFS	126	116	110	110	110	108	104	100
62.00 CFS	99.93	100.12	96.80	94.73	96.04	97.46	95.17	88.45
63.60 CFS	80.75	76.90	75.87	75.11	75.80	74.97	71.19	67.60
65.20 CFS	66.31	65.31	64.63	65.66	67.17	65.92	62.83	61.76
66.80 CFS	61.70	61.52	62.12	64.50	65.36	63.16	60.98	60.96
68.40 CFS	61.01	61.18	62.91	65.00	64.23	61.54	60.71	60.90
70.00 CFS	60.84	59.75	56.38	52.13	48.04	44.79	43.32	41.96
71.60 CFS	39.92	38.46	36.84	34.42	29.76	22.49	18.03	16.46
73.20 CFS	14.61	12.59	10.60	8.78	7.18	5.80	4.65	3.70
74.80 CFS	2.93	2.30	1.80	1.41	1.09	.85	.65	.50
76.40 CFS	.38							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.16 WATERSHED INCHES; 37998 CFS-HRS; 3140.2 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.15	3658.9	(DIVERT)
28.05	1891.2	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =			.00 SQ.MI.
26.20 CFS	0	135	1876	2913	3403	3627	2911	1932
27.80 CFS	1665	1882	1810	1396	866	490	237	0

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5055 CFS-HRS; 417.7 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 20. ***

OPERATION REACH XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.40	4100.0 *	7.94
42.16	319.5	1.94
43.60	313.0	1.92
45.17	294.5	1.86
46.50	285.0	1.82
48.33	261.8	1.73
49.13	256.0	1.71
49.92	252.4	1.69
50.66	250.9	1.69
52.97	227.5	1.60

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.16 WATERSHED INCHES; 37998 CFS-HRS; 3140.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 25. ***

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.40	4100.0 *	5.03
42.16	319.5	1.21
43.60	313.0	1.20
45.17	294.5	1.16
46.50	285.0	1.13
48.33	261.8	1.08
49.13	256.0	1.06
49.92	252.4	1.06
50.66	250.9	1.05
52.97	227.5	1.00

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.16 WATERSHED INCHES; 37998 CFS-HRS; 3140.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.03	10040.5	(RUNOFF)
37.12	356.5	(RUNOFF)
41.10	257.2	(RUNOFF)
42.50	257.2	(RUNOFF)
43.87	257.2	(RUNOFF)
45.40	231.7	(RUNOFF)
46.65	231.7	(RUNOFF)
48.55	205.0	(RUNOFF)
50.03	205.0	(RUNOFF)
50.79	205.1	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 3.94 SQ.MI.

HRS								
6.80 CFS	.34	1.45	3.89	7.54	11.53	15.39	19.17	22.84
8.40 CFS	26.59	30.43	34.07	37.14	40.32	43.87	47.03	49.53
10.00 CFS	52.51	56.50	61.23	65.95	70.39	74.49	78.70	82.25
11.60 CFS	85	86	89	93	96	98	99	101
13.20 CFS	105	108	110	110	112	117	122	127
14.80 CFS	133	138	141	143	145	146	146	147
16.40 CFS	151	154	157	158	159	167	180	192
18.00 CFS	198	203	215	230	241	244	247	258
19.60 CFS	274	287	294	297	308	325	339	345
21.20 CFS	353	373	403	429	440	443	454	472
22.80 CFS	489	497	504	519	538	551	558	621
24.40 CFS	852	1184	1469	1571	1659	1902	2263	2558
26.00 CFS	2703	3170	4869	7282	9355	10029	9667	8221
27.60 CFS	5995	4199	3538	3445	3081	2567	2137	2004
29.20 CFS	1977	1901	1788	1701	1668	1637	1511	1335
30.80 CFS	1187	1138	1132	1117	1093	1073	1065	1058

32.40 CFS	1033	998	973	967	963	942	912	892
34.00 CFS	887	884	867	840	818	812	807	785
35.60 CFS	748	719	710	688	605	485	388	355
37.20 CFS	356	351	341	332	329	328	323	316
38.80 CFS	308	305	303	296	288	282	279	275
40.40 CFS	269	263	259	257	257	256	254	251
42.00 CFS	251	254	257	257	255	251	251	253
43.60 CFS	256	257	257	255	248	237	228	227
45.20 CFS	230	232	230	226	225	226	229	232
46.80 CFS	231	227	224	220	215	208	203	203
48.40 CFS	204	205	203	203	205	205	203	203
50.00 CFS	205	204	202	204	205	203	200	195
51.60 CFS	188	180	177	177	177	177	179	183
53.20 CFS	184	181	178	177	177	175	168	160
54.80 CFS	154	153	153	153	153	153	153	152
56.40 CFS	147	140	132	127	124	122	124	127
58.00 CFS	129	127	120	112	106	103	101	101
59.60 CFS	103	102	101	101	98	88	77	74
61.20 CFS	77.10	79.45	77.17	74.29	74.14	76.15	75.93	73.85
62.80 CFS	74.62	77.92	78.02	70.90	60.16	51.49	48.30	49.34
64.40 CFS	52.39	54.88	54.13	50.67	48.42	48.28	48.64	50.74
66.00 CFS	54.08	54.91	52.48	49.07	48.29	48.36	49.44	52.43
67.60 CFS	54.81	53.98	50.67	48.40	48.29	48.68	50.71	53.91
69.20 CFS	54.79	52.53	49.19	48.29	48.24	47.24	43.47	37.73
70.80 CFS	31.21	26.55	24.54	23.82	24.43	24.09	23.99	23.32
72.40 CFS	18.27	11.03	2.94	.12				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 36347 CFS-HRS; 3003.7 ACRE-FEET.

OPERATION REACH XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.78	7435.3	5.34
42.91	256.8	2.21
44.45	255.5	2.21
47.13	230.4	2.16
50.38	204.6	2.11
51.21	204.2	2.11
53.62	182.4	2.04
63.53	77.1	1.67
66.69	52.7	1.55
68.22	52.2	1.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.30 WATERSHED INCHES; 36355 CFS-HRS; 3004.3 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
28.39	6138.2	7.27
44.55	255.5	2.13
68.57	51.6	1.04
70.11	51.4	1.04

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.30 WATERSHED INCHES; 36353 CFS-HRS; 3004.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 25. ***

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
28.39	6138.2	6.30
44.55	255.5	1.06
68.57	51.6	.32
70.11	51.4	.32

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.30 WATERSHED INCHES; 36353 CFS-HRS; 3004.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.01	4861.6	(RUNOFF)
32.92	492.2	(RUNOFF)
33.95	452.3	(RUNOFF)
37.13	182.2	(RUNOFF)
42.46	131.5	(RUNOFF)
43.75	131.5	(RUNOFF)
45.36	118.9	(RUNOFF)
46.60	118.9	(RUNOFF)
49.22	105.4	(RUNOFF)
49.98	105.4	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 2.06 SQ.MI.

HRS								
10.60 CFS	.44	1.24	2.48	3.94	5.36	6.65	7.89	9.27
12.20 CFS	10.74	12.07	13.16	14.21	15.50	16.98	18.25	19.14
13.80 CFS	19.98	21.24	22.86	24.65	26.54	28.44	30.17	31.57
15.40 CFS	32.82	33.98	34.79	35.41	36.53	38.22	39.73	40.82
17.00 CFS	41.60	42.73	45.98	50.80	54.70	56.41	58.79	63.74
18.60 CFS	69.28	72.69	73.87	76.25	81.12	87.59	92.71	94.71

20.20 CFS	97	103	110	115	117	122	132	145
21.80 CFS	154	158	160	167	176	183	187	191
23.40 CFS	200	209	215	217	251	368	521	625
25.00 CFS	653	705	846	1029	1155	1197	1491	2480
26.60 CFS	3780	4657	4861	4677	3805	2608	1849	1768
28.20 CFS	1709	1489	1203	1026	1006	993	945	883
29.80 CFS	847	843	822	746	646	583	575	573
31.40 CFS	564	550	541	540	536	520	501	492
33.00 CFS	492	489	475	459	451	452	450	438
34.60 CFS	423	414	414	411	396	375	363	363
36.20 CFS	348	295	227	186	181	182	178	172
37.80 CFS	168	168	167	165	160	156	156	154
39.40 CFS	150	146	144	143	140	136	133	132
41.00 CFS	131	131	131	129	128	128	131	131
42.60 CFS	131	130	128	128	130	131	131	131
44.20 CFS	130	125	119	116	116	118	119	117
45.80 CFS	115	115	116	118	119	118	116	114
47.40 CFS	112	109	106	104	104	105	105	103
49.00 CFS	104	105	104	103	104	105	104	103
50.60 CFS	105	105	104	102	100	95	91	91
52.20 CFS	90.63	90.64	90.88	92.26	94.14	94.12	92.10	90.69
53.80 CFS	90.67	90.60	89.19	84.94	80.60	78.49	78.43	78.29
55.40 CFS	78.35	78.44	78.27	78.37	77.50	74.80	70.18	66.39
57.00 CFS	64.88	62.84	62.23	63.93	65.76	65.92	64.49	60.24
58.60 CFS	55.90	53.70	52.67	51.12	52.17	53.31	52.22	51.16
60.20 CFS	51.85	49.69	43.38	38.08	38.11	40.32	40.86	39.10
61.80 CFS	37.54	38.17	39.57	38.58	37.50	38.68	40.75	39.92
63.40 CFS	35.14	28.96	25.22	24.80	25.52	27.45	28.54	27.35
65.00 CFS	25.23	24.76	24.76	24.95	26.35	28.23	28.22	26.27
66.60 CFS	24.86	24.76	24.78	25.42	27.43	28.56	27.40	25.33
68.20 CFS	24.77	24.77	25.00	26.37	28.27	28.27	26.22	24.84
69.80 CFS	24.77	24.73	24.01	21.69	18.44	15.17	12.99	12.36
71.40 CFS	12.40	12.44	12.29	12.40	11.54	8.86	4.23	.50
73.00 CFS	.00							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.87 WATERSHED INCHES; 17108 CFS-HRS; 1413.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.24	7273.8	(NULL)
28.25	7762.8	(NULL)
43.54	389.7	(NULL)
45.15	371.8	(NULL)
50.68	311.1	(NULL)
61.10	145.4	(NULL)
62.94	122.6	(NULL)
65.94	84.5	(NULL)
67.56	80.3	(NULL)
69.07	79.5	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 6.00 SQ.MI.			
7.80 CFS	.43	1.07	2.10	3.54	5.35	7.50	9.93	12.62
9.40 CFS	15.50	18.51	21.60	24.76	27.97	31.23	34.74	38.74
11.00 CFS	43.30	48.23	53.28	58.30	63.39	68.64	73.89	78.81
12.60 CFS	83	88	92	97	101	105	109	113
14.20 CFS	117	122	126	130	135	139	144	148
15.80 CFS	153	157	162	167	171	175	178	182
17.40 CFS	188	195	201	206	211	221	232	241
19.00 CFS	248	257	270	284	297	307	317	332
20.60 CFS	349	362	374	388	408	430	450	464
22.20 CFS	479	499	523	545	562	581	604	627
23.80 CFS	646	662	709	839	1006	1125	1186	1298
25.40 CFS	1529	1820	2063	2234	2680	3842	5325	6410
27.00 CFS	6933	7265	7120	6765	6830	7417	7751	7627
28.60 CFS	7224	6815	6489	6116	5675	5217	4808	4463
30.20 CFS	4134	3782	3440	3168	2974	2800	2627	2463
31.80 CFS	2320	2201	2095	1991	1896	1823	1769	1717
33.40 CFS	1660	1606	1565	1536	1506	1468	1430	1400
35.00 CFS	1380	1358	1324	1285	1257	1240	1208	1136
36.60 CFS	1049	988	960	929	884	832	783	741
38.20 CFS	701	664	629	600	577	557	536	517
39.80 CFS	502	490	477	465	454	444	437	430
41.40 CFS	424	416	409	406	404	401	397	393
43.00 CFS	390	388	389	390	388	388	386	381
44.60 CFS	375	371	371	372	370	365	361	358
46.20 CFS	357	356	355	352	349	347	344	340
47.80 CFS	336	333	331	331	328	324	321	321
49.40 CFS	318	315	314	314	312	310	311	311
51.00 CFS	309	307	304	299	295	294	293	290
52.60 CFS	288	286	286	283	279	276	275	275
54.20 CFS	272	267	262	259	258	256	253	250
55.80 CFS	247	245	242	237	230	225	222	218
57.40 CFS	215	213	212	208	204	197	191	187
59.00 CFS	184	180	179	177	172	168	166	162
60.60 CFS	154	147	145	145	143	137	133	130
62.20 CFS	129	126	123	122	123	120	114	108
63.80 CFS	103	102	101	101	99	95	90	87

65.40 CFS	85.71	84.27	84.05	84.42	83.09	80.13	78.18	77.89
67.00 CFS	77.76	78.06	79.59	80.22	78.63	76.40	75.99	76.26
68.60 CFS	76.59	77.80	79.41	79.08	76.85	75.58	75.84	76.07
70.20 CFS	75.37	72.85	69.30	65.63	62.78	60.98	59.24	56.97
71.80 CFS	54.23	51.74	48.46	43.59	37.07	31.66	29.39	27.21
73.40 CFS	24.42	21.29	18.17	15.25	12.65	10.38	8.44	6.82
75.00 CFS	5.48	4.38	3.48	2.76	2.18	1.72	1.35	1.05
76.60 CFS	.82	.64	.50					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.81 WATERSHED INCHES; 53461 CFS-HRS; 4418.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.24	11373.8	(NULL)
28.25	11862.8	(NULL)
43.56	702.7	(NULL)
45.16	666.3	(NULL)
46.41	641.0	(NULL)
49.91	566.9	(NULL)
50.66	562.0	(NULL)
52.91	513.5	(NULL)
61.13	255.8	(NULL)
62.96	220.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,			DRAINAGE AREA = 10.84 SQ.MI.				
7.60 CFS	.44	1.19	2.53	4.54	7.19	10.43	14.18	18.37
9.20 CFS	22.93	27.87	33.34	39.49	46.16	53.02	60.04	67.44
10.80 CFS	75	84	93	102	111	120	129	139
12.40 CFS	147	155	163	171	180	187	193	200
14.00 CFS	207	215	224	232	241	249	257	265
15.60 CFS	274	281	288	296	306	313	320	325
17.20 CFS	332	344	360	372	380	393	413	434
18.80 CFS	450	463	481	505	533	557	573	592
20.40 CFS	621	652	677	697	723	763	809	845
22.00 CFS	870	897	936	980	1018	1048	1081	1124
23.60 CFS	1167	1199	1226	1331	1636	2013	2256	2378
25.20 CFS	2621	3118	3712	4157	4477	5458	7942	9425
26.80 CFS	10510	11033	11365	11220	10865	10930	11517	11851
28.40 CFS	11727	11324	10915	10589	10169	9402	8633	7976
30.00 CFS	7438	6909	6308	5718	5278	4980	4704	4429
31.60 CFS	4168	3947	3769	3605	3436	3284	3171	3091
33.20 CFS	3009	2912	2820	2756	2713	2664	2596	2527
34.80 CFS	2477	2447	2410	2344	2269	2221	2195	2129
36.40 CFS	1974	1794	1681	1631	1573	1493	1405	1326
38.00 CFS	1260	1199	1140	1083	1037	1003	971	936
39.60 CFS	905	882	863	841	820	801	786	774
41.20 CFS	764	753	740	729	724	723	719	714

42.80 CFS	707	700	699	702	703	701	700	696
44.40 CFS	685	672	664	665	666	663	654	646
46.00 CFS	642	640	641	640	634	628	624	618
47.60 CFS	610	601	595	592	592	586	579	577
49.20 CFS	576	570	565	566	566	561	559	562
50.80 CFS	561	557	554	547	536	528	525	522
52.40 CFS	518	514	513	513	509	501	497	496
54.00 CFS	494	490	478	467	462	459	455	451
55.60 CFS	446	442	438	432	423	409	399	394
57.20 CFS	385	380	379	377	371	363	350	337
58.80 CFS	331	325	318	316	313	305	298	297
60.40 CFS	288	269	256	255	255	251	241	233
62.00 CFS	230	229	223	217	218	220	216	203
63.60 CFS	188	180	178	177	177	174	166	158
65.20 CFS	154	151	149	150	152	149	143	140
66.80 CFS	140	139	140	144	146	142	137	137
68.40 CFS	137	138	141	144	143	138	136	137
70.00 CFS	137	135	129	121	114	108	104	101
71.60 CFS	96.90	92.69	88.57	82.87	73.36	59.56	49.69	45.85
73.20 CFS	41.82	37.01	31.89	26.95	22.43	18.45	15.03	12.14
74.80 CFS	9.75	7.78	6.18	4.89	3.85	3.03	2.37	1.85
76.40 CFS	1.44	1.12	.87	.67	.52	.40		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.07 WATERSHED INCHES; 91445 CFS-HRS; 7557.0 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.00	11000.0 *	(DIVERT)
28.00	11000.0 *	(DIVERT)
43.56	702.7	(DIVERT)
45.16	666.3	(DIVERT)
46.41	641.0	(DIVERT)
49.91	566.9	(DIVERT)
50.66	562.0	(DIVERT)
52.91	513.5	(DIVERT)
61.13	255.8	(DIVERT)
62.96	220.1	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
HRS MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 10.84 SQ.MI.

HRS								
7.60 CFS	.44	1.19	2.53	4.54	7.19	10.43	14.18	18.37
9.20 CFS	22.93	27.87	33.34	39.49	46.16	53.02	60.04	67.44
10.80 CFS	75	84	93	102	111	120	129	139
12.40 CFS	147	155	163	171	180	187	193	200
14.00 CFS	207	215	224	232	241	249	257	265

15.60 CFS	274	281	288	296	306	313	320	325
17.20 CFS	332	344	360	372	380	393	413	434
18.80 CFS	450	463	481	505	533	557	573	592
20.40 CFS	621	652	677	697	723	763	809	845
22.00 CFS	870	897	936	980	1018	1048	1081	1124
23.60 CFS	1167	1199	1226	1331	1636	2013	2256	2378
25.20 CFS	2621	3118	3712	4157	4477	5458	7942	9425
26.80 CFS	10510	11000	11000	11000	10865	10930	11000	11000
28.40 CFS	11000	11000	10915	10589	10169	9402	8633	7976
30.00 CFS	7438	6909	6308	5718	5278	4980	4704	4429
31.60 CFS	4168	3947	3769	3605	3436	3284	3171	3091
33.20 CFS	3009	2912	2820	2756	2713	2664	2596	2527
34.80 CFS	2477	2447	2410	2344	2269	2221	2195	2129
36.40 CFS	1974	1794	1681	1631	1573	1493	1405	1326
38.00 CFS	1260	1199	1140	1083	1037	1003	971	936
39.60 CFS	905	882	863	841	820	801	786	774
41.20 CFS	764	753	740	729	724	723	719	714
42.80 CFS	707	700	699	702	703	701	700	696
44.40 CFS	685	672	664	665	666	663	654	646
46.00 CFS	642	640	641	640	634	628	624	618
47.60 CFS	610	601	595	592	592	586	579	577
49.20 CFS	576	570	565	566	566	561	559	562
50.80 CFS	561	557	554	547	536	528	525	522
52.40 CFS	518	514	513	513	509	501	497	496
54.00 CFS	494	490	478	467	462	459	455	451
55.60 CFS	446	442	438	432	423	409	399	394
57.20 CFS	385	380	379	377	371	363	350	337
58.80 CFS	331	325	318	316	313	305	298	297
60.40 CFS	288	269	256	255	255	251	241	233
62.00 CFS	230	229	223	217	218	220	216	203
63.60 CFS	188	180	178	177	177	174	166	158
65.20 CFS	154	151	149	150	152	149	143	140
66.80 CFS	140	139	140	144	146	142	137	137
68.40 CFS	137	138	141	144	143	138	136	137
70.00 CFS	137	135	129	121	114	108	104	101
71.60 CFS	96.90	92.69	88.57	82.87	73.36	59.56	49.69	45.85
73.20 CFS	41.82	37.01	31.89	26.95	22.43	18.45	15.03	12.14
74.80 CFS	9.75	7.78	6.18	4.89	3.85	3.03	2.37	1.85
76.40 CFS	1.44	1.12	.87	.67	.52	.40		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.99 WATERSHED INCHES; 90850 CFS-HRS; 7507.8 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.24	373.8	(DIVERT)
28.25	862.8	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =			.00 SQ.MI.
26.80 CFS	0	33	365	220	0	0	517	851
28.40 CFS	727	324	0					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
595 CFS-HRS; 49.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 45. ***

OPERATION REACH XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.00	11000.0 *	8.46
28.00	11000.0 *	8.46
43.56	702.7	1.82
45.16	666.3	1.76
46.41	641.0	1.73
49.91	566.9	1.62
50.66	562.0	1.61
52.91	513.5	1.54
61.13	255.8	1.03
62.96	220.1	.95

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.99 WATERSHED INCHES; 90850 CFS-HRS; 7507.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
21.84	167.4	(RUNOFF)
26.91	3876.1	(RUNOFF)
27.90	1343.4	(RUNOFF)
28.90	752.9	(RUNOFF)
30.90	425.2	(RUNOFF)
31.90	399.8	(RUNOFF)
32.90	363.9	(RUNOFF)
33.90	334.0	(RUNOFF)
34.94	306.1	(RUNOFF)
35.88	267.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =			1.47 SQ.MI.
6.60 CFS	.30	1.29	2.91	4.65	6.19	7.39	9.02	10.41
8.20 CFS	11.55	13.39	14.79	15.46	16.67	18.57	19.60	19.88
9.80 CFS	21.35	23.15	24.75	27.00	28.43	29.62	31.63	33.39
11.40 CFS	33.22	33.89	34.93	36.91	38.61	38.11	38.59	39.51

13.00 CFS	41.48	43.13	42.35	42.67	43.49	45.46	47.91	49.32
14.60 CFS	52.03	53.78	54.61	55.40	56.16	56.67	55.66	56.24
16.20 CFS	58.78	59.66	60.31	60.86	60.06	62.65	72.28	75.36
17.80 CFS	76.15	77.01	82.04	91.96	92.94	92.70	93.65	97.87
19.40 CFS	107	112	112	111	117	128	129	131
21.00 CFS	133	140	160	166	167	167	171	183
22.60 CFS	187	188	190	196	208	210	209	212
24.20 CFS	307	524	588	593	597	703	936	1001
25.80 CFS	1008	1023	1718	3306	3746	3784	3805	3173
27.40 CFS	1696	1323	1325	1325	1177	831	745	748
29.00 CFS	749	714	640	625	624	623	575	454
30.60 CFS	424	424	424	418	403	397	398	398
32.20 CFS	386	364	359	362	363	352	334	330
33.80 CFS	333	333	324	308	302	303	305	295
35.40 CFS	270	264	267	267	230	152	132	132
37.00 CFS	134	133	123	124	123	122	122	116
38.60 CFS	114	114	114	111	105	106	105	102
40.20 CFS	100	97	96	96	96	96	95	92
41.80 CFS	93.41	95.91	96.01	96.01	95.65	92.75	92.58	95.64
43.40 CFS	96.02	96.03	96.03	95.97	92.86	85.84	84.03	84.16
45.00 CFS	86.47	88.07	84.94	84.04	84.04	84.07	85.63	88.28
46.60 CFS	85.71	84.05	84.02	82.47	78.95	77.69	74.74	74.58
48.20 CFS	77.68	77.20	74.07	75.48	77.98	76.49	73.81	76.40
49.80 CFS	77.96	75.63	73.98	77.17	77.71	74.75	74.53	74.61
51.40 CFS	67.84	66.06	66.06	66.06	66.06	66.07	66.42	69.39
53.00 CFS	69.62	66.38	66.07	66.07	66.07	66.06	63.00	56.65
54.60 CFS	58.04	56.76	56.53	58.22	55.78	58.03	56.77	56.53
56.20 CFS	56.68	49.83	48.06	47.94	45.62	43.90	47.17	48.06
57.80 CFS	48.06	48.02	44.98	38.67	39.99	38.64	36.14	37.60
59.40 CFS	40.33	37.73	36.19	38.46	38.60	30.97	26.10	27.45
61.00 CFS	29.96	30.04	29.21	26.10	27.45	29.92	28.47	25.74
62.60 CFS	28.37	30.04	29.98	26.87	19.78	18.02	18.03	18.06
64.20 CFS	19.62	22.31	19.70	18.02	18.03	18.03	18.02	18.39
65.80 CFS	21.31	21.47	18.41	18.03	18.03	18.03	18.06	19.62
67.40 CFS	22.27	19.68	18.03	18.03	18.03	18.03	18.38	21.33
69.00 CFS	21.48	18.40	18.03	18.03	18.03	18.01	16.44	12.92
70.60 CFS	11.66	8.70	8.53	10.07	7.77	10.00	8.69	8.50
72.20 CFS	8.50	1.80	.00					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.39 WATERSHED INCHES; 13656 CFS-HRS; 1128.5 ACRE-FEET.

OPERATION REACH XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.40	3596.1	6.57
42.89	95.7	2.26
44.31	96.1	2.27
45.60	87.1	2.05
46.86	86.7	2.05
48.73	77.1	1.82
49.48	76.8	1.81
50.23	76.9	1.81
50.98	76.9	1.82
53.39	68.7	1.62

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.36 WATERSHED INCHES; 13620 CFS-HRS; 1125.6 ACRE-FEET.

OPERATION REACH XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.76	3220.8	6.05
43.15	95.5	1.36
44.56	95.6	1.36
47.18	85.9	1.29
49.73	76.5	1.22
50.49	76.3	1.22
51.23	76.4	1.22
53.67	67.9	1.16
58.55	47.6	.99
60.71	38.3	.85

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.37 WATERSHED INCHES; 13631 CFS-HRS; 1126.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.80	14144.0	(NULL)
43.51	797.1	(NULL)
46.36	726.5	(NULL)
49.85	642.6	(NULL)
50.64	638.2	(NULL)
62.95	248.2	(NULL)
65.97	170.2	(NULL)
67.55	164.1	(NULL)
69.05	163.0	(NULL)
69.84	156.4	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 12.31 SQ.MI.			
7.40 CFS	.46	1.40	3.10	5.61	8.86	12.86	17.48	22.57
9.00 CFS	28.20	34.22	40.45	47.15	54.66	62.64	70.59	78.72
10.60 CFS	87	97	107	118	128	139	149	160
12.20 CFS	171	180	189	198	207	217	225	232
13.80 CFS	240	248	257	266	275	285	295	304
15.40 CFS	314	324	333	342	351	361	369	376
17.00 CFS	383	390	403	419	432	443	459	482
18.60 CFS	506	525	542	564	592	622	648	669
20.20 CFS	692	725	759	787	811	842	885	935
21.80 CFS	975	1007	1042	1088	1138	1180	1215	1254
23.40 CFS	1301	1348	1385	1417	1528	1838	2218	2483
25.00 CFS	2674	2998	3563	4209	4713	5128	6210	8777
26.60 CFS	10324	11598	12607	13205	13709	13950	14144	13935
28.20 CFS	13517	13146	12866	12555	11994	11368	10446	9570
29.80 CFS	8836	8228	7645	7004	6387	5920	5575	5250
31.40 CFS	4934	4645	4403	4208	4030	3852	3693	3574
33.00 CFS	3483	3391	3288	3191	3121	3070	3013	2940
34.60 CFS	2866	2812	2775	2731	2659	2580	2528	2493
36.20 CFS	2417	2254	2070	1946	1869	1781	1676	1571
37.80 CFS	1480	1404	1336	1272	1211	1163	1126	1091
39.40 CFS	1054	1022	997	975	951	929	908	891
41.00 CFS	877	865	852	838	826	821	819	814
42.60 CFS	809	802	795	794	797	797	795	795
44.20 CFS	791	780	767	759	758	757	751	741
45.80 CFS	733	728	726	726	725	719	714	710
47.40 CFS	704	695	686	678	674	672	664	656
49.00 CFS	654	653	646	641	643	642	637	635
50.60 CFS	638	637	632	630	623	611	603	599
52.20 CFS	594	588	583	581	580	576	568	565
53.80 CFS	563	562	556	545	534	528	523	517
55.40 CFS	511	505	500	495	490	480	466	456
57.00 CFS	449	439	431	429	425	419	411	397
58.60 CFS	385	378	370	361	358	354	344	338
60.20 CFS	336	326	308	294	291	289	283	272
61.80 CFS	263	260	258	251	246	247	248	243
63.40 CFS	231	217	209	205	201	199	195	186
65.00 CFS	178	174	171	168	169	170	167	162
66.60 CFS	160	159	159	159	163	164	160	157
68.20 CFS	157	157	157	159	163	162	157	156
69.80 CFS	156	156	154	148	140	132	124	120
71.40 CFS	115	109	104	99	93	83	69	59
73.00 CFS	53.25	47.22	40.69	34.30	28.48	23.39	19.04	15.39
74.60 CFS	12.36	9.88	7.86	6.22	4.91	3.87	3.03	2.37
76.20 CFS	1.85	1.44	1.12	.87	.67	.52	.40	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.15 WATERSHED INCHES; 104481 CFS-HRS; 8634.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.00	11470.2	(RUNOFF)
32.95	1148.8	(RUNOFF)
33.95	1055.1	(RUNOFF)
35.90	851.1	(RUNOFF)
37.13	424.7	(RUNOFF)
41.10	306.3	(RUNOFF)
42.46	306.5	(RUNOFF)
43.79	306.5	(RUNOFF)
45.35	277.2	(RUNOFF)
46.60	277.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 4.78 SQ.MI.

HRS								
9.80	CFS	.17	.88	2.64	5.48	8.88	12.34	15.87	19.61
11.40	CFS	23.07	25.98	28.79	32.15	35.85	39.03	41.43	43.75
13.00	CFS	46.94	50.62	53.59	55.52	57.42	60.45	64.54	69.10
14.60	CFS	73.78	78.50	82.82	86.04	88.94	91.63	93.34	94.60
16.20	CFS	97	101	105	108	109	112	120	133
17.80	CFS	142	146	152	164	178	186	189	194
19.40	CFS	207	223	235	239	244	259	277	288
21.00	CFS	294	305	329	361	384	391	397	413
22.60	CFS	435	452	459	470	490	512	525	534
24.20	CFS	623	905	1277	1520	1577	1689	2044	2490
25.80	CFS	2775	2885	3634	5974	9027	11023	11470	11007
27.40	CFS	8865	5998	4286	4139	3998	3467	2789	2389
29.00	CFS	2351	2319	2204	2061	1978	1970	1922	1736
30.60	CFS	1497	1356	1343	1337	1315	1284	1263	1261
32.20	CFS	1250	1213	1168	1146	1149	1141	1108	1070
33.80	CFS	1053	1055	1048	1021	986	965	965	959
35.40	CFS	922	872	846	847	811	683	524	431
37.00	CFS	423	424	415	401	393	392	390	384
38.60	CFS	372	364	363	360	350	340	335	332
40.20	CFS	326	318	311	307	306	306	305	301
41.80	CFS	298	299	304	306	306	303	298	298
43.40	CFS	303	306	306	306	303	292	278	269
45.00	CFS	271	276	277	273	269	268	270	275
46.60	CFS	277	274	269	267	261	254	246	241
48.20	CFS	241	245	244	240	242	246	243	241
49.80	CFS	243	246	242	241	244	245	241	238
51.40	CFS	232	220	212	211	211	211	212	215
53.00	CFS	219	219	214	211	211	211	208	198
54.60	CFS	187	183	183	182	183	183	182	183
56.20	CFS	181	174	163	154	151	146	145	149
57.80	CFS	153	154	150	140	130	125	123	119
59.40	CFS	122	124	122	119	121	116	101	88
61.00	CFS	88.84	94.09	95.16	90.93	87.21	88.97	92.51	89.79

62.60 CFS	87.29	90.19	94.81	92.54	81.45	67.19	58.59	57.70
64.20 CFS	59.20	64.01	66.64	63.72	58.85	57.68	57.68	58.25
65.80 CFS	61.55	65.97	65.73	60.86	57.69	57.69	57.73	59.33
67.40 CFS	64.01	66.55	63.67	58.85	57.70	57.69	58.22	61.50
69.00 CFS	66.00	65.84	60.87	57.79	57.70	57.62	55.95	50.37
70.60 CFS	42.70	35.08	30.08	28.71	28.96	29.05	28.72	29.10
72.20 CFS	27.20	20.64	9.19	.81	.00			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.10 WATERSHED INCHES; 40399 CFS-HRS; 3338.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.12	8392.6	(RUNOFF)
42.60	224.5	(RUNOFF)
43.91	224.8	(RUNOFF)
45.48	201.9	(RUNOFF)
46.73	201.9	(RUNOFF)
48.62	178.6	(RUNOFF)
49.41	178.6	(RUNOFF)
50.13	178.5	(RUNOFF)
50.87	178.7	(RUNOFF)
53.23	159.9	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 3.48 SQ.MI.			
8.80 CFS	.24	.95	2.29	4.33	6.65	9.00	11.37	13.93
10.40 CFS	16.73	19.73	22.74	25.72	28.67	31.47	33.95	36.07
12.00 CFS	38.28	41.00	43.70	45.92	47.72	49.59	52.14	54.64
13.60 CFS	56.59	58.06	59.73	62.40	65.81	69.63	73.54	77.11
15.20 CFS	80.23	82.71	84.69	86.26	87.33	88.70	90.88	93.63
16.80 CFS	96	98	99	104	111	120	126	131
18.40 CFS	138	147	156	161	165	171	181	192
20.00 CFS	200	205	212	222	233	242	249	262
21.60 CFS	281	301	316	322	330	342	356	367
23.20 CFS	374	385	399	412	421	463	591	813
24.80 CFS	1044	1197	1285	1448	1698	1953	2149	2524
26.40 CFS	3559	5276	7060	8232	8309	7435	5884	4292
28.00 CFS	3293	2991	2765	2398	2026	1783	1719	1673
29.60 CFS	1591	1509	1459	1428	1348	1221	1092	1007
31.20 CFS	986	976	959	941	930	922	906	882
32.80 CFS	858	845	839	827	806	786	775	771
34.40 CFS	761	742	722	711	705	691	666	640
36.00 CFS	624	606	554	464	373	321	310	308
37.60 CFS	301	294	288	287	284	278	272	268
39.20 CFS	265	261	255	249	245	242	237	232
40.80 CFS	228	225	225	224	223	220	220	221
42.40 CFS	223	224	223	221	220	220	223	225
44.00 CFS	225	223	218	211	203	199	200	202

45.60 CFS	202	200	197	198	200	202	202	200
47.20 CFS	197	194	190	184	180	178	178	179
48.80 CFS	178	178	178	179	178	178	178	178
50.40 CFS	178	178	179	178	176	172	167	161
52.00 CFS	156	155	155	155	156	159	160	159
53.60 CFS	157	155	155	153	149	143	137	134
55.20 CFS	134	134	134	134	134	133	130	124
56.80 CFS	118	113	109	108	108	110	112	111
58.40 CFS	107	101	95	91	89	89	89	90
60.00 CFS	89.06	88.07	85.84	80.03	71.88	66.46	66.43	68.48
61.60 CFS	68.33	66.16	65.30	65.78	66.19	65.53	65.34	66.92
63.20 CFS	68.11	64.03	56.32	48.50	43.31	42.97	44.89	46.96
64.80 CFS	47.39	45.74	43.20	42.27	42.48	43.85	46.20	47.42
66.40 CFS	46.73	44.40	42.46	42.33	43.03	44.98	47.00	47.28
68.00 CFS	45.63	43.22	42.31	42.54	43.90	46.13	47.33	46.71
69.60 CFS	44.40	42.49	42.21	41.55	39.07	35.00	29.68	24.77
71.20 CFS	22.38	21.11	21.09	21.33	20.80	20.64	17.41	11.87
72.80 CFS	5.89	1.17	.00					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.52 WATERSHED INCHES; 30362 CFS-HRS; 2509.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.06	19796.8	(NULL)
42.53	530.7	(NULL)
43.89	531.3	(NULL)
45.39	478.8	(NULL)
46.63	478.9	(NULL)
48.48	423.6	(NULL)
49.23	423.9	(NULL)
49.99	424.1	(NULL)
50.76	424.0	(NULL)
53.13	379.5	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 8.26 SQ.MI.

HRS								
8.80 CFS	.24	.95	2.29	4.33	6.66	9.17	12.25	16.57
10.40 CFS	22.21	28.61	35.07	41.59	48.28	54.54	59.93	64.86
12.00 CFS	70	77	83	87	91	97	103	108
13.60 CFS	112	115	120	127	135	143	152	160
15.20 CFS	166	172	176	180	182	186	192	199
16.80 CFS	204	207	211	224	244	262	273	283
18.40 CFS	302	325	342	350	359	378	404	427
20.00 CFS	439	449	471	499	522	536	553	591
21.60 CFS	642	685	706	719	743	777	808	826
23.20 CFS	844	876	911	937	955	1087	1496	2090
24.80 CFS	2564	2774	2975	3492	4188	4728	5034	6158
26.40 CFS	9533	14303	18083	19702	19317	16300	11881	8578

28.00 CFS	7432	6988	6231	5187	4415	4134	4038	3877
29.60 CFS	3652	3487	3429	3350	3084	2718	2448	2350
31.20 CFS	2323	2291	2243	2205	2190	2172	2119	2049
32.80 CFS	2004	1994	1981	1936	1876	1839	1830	1819
34.40 CFS	1782	1728	1687	1675	1664	1613	1538	1486
36.00 CFS	1471	1416	1238	989	804	744	734	723
37.60 CFS	703	686	680	677	668	651	636	631
39.20 CFS	625	611	594	584	577	567	555	542
40.80 CFS	534	531	531	529	524	518	519	525
42.40 CFS	530	530	526	519	518	524	529	531
44.00 CFS	531	526	510	489	473	470	476	479
45.60 CFS	475	468	466	467	474	479	476	470
47.20 CFS	464	455	443	430	421	419	423	423
48.80 CFS	419	420	424	422	419	421	424	421
50.40 CFS	419	422	424	420	415	404	387	373
52.00 CFS	367	366	366	367	371	378	379	374
53.60 CFS	368	366	366	361	347	330	320	317
55.20 CFS	316	316	316	316	316	314	304	287
56.80 CFS	273	264	256	253	257	263	266	261
58.40 CFS	247	230	220	213	208	210	213	211
60.00 CFS	208	209	201	181	160	155	161	164
61.60 CFS	159	153	154	158	156	153	156	162
63.20 CFS	161	145	124	107	101	102	109	114
64.80 CFS	111	105	101	100	101	105	112	113
66.40 CFS	108	102	100	100	102	109	114	111
68.00 CFS	104	101	100	101	105	112	113	108
69.60 CFS	102	100	100	97	89	78	65	55
71.20 CFS	51.09	50.07	50.14	50.05	49.90	47.84	38.06	21.05
72.80 CFS	6.70	1.17	.00					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.27 WATERSHED INCHES; 70760 CFS-HRS; 5847.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.12	32763.8	(NULL)
42.29	1343.9	(NULL)
43.78	1326.6	(NULL)
45.23	1232.4	(NULL)
46.56	1204.1	(NULL)
48.34	1095.7	(NULL)
49.15	1077.2	(NULL)
49.95	1066.8	(NULL)
50.71	1061.7	(NULL)
53.03	958.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
HRS MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 20.57 SQ.MI.

7.40 CFS	.46	1.40	3.10	5.61	8.86	12.86	17.52	22.81

9.00 CFS	29	37	45	54	64	75	87	101
10.60 CFS	116	132	148	166	183	199	214	230
12.20 CFS	247	263	276	289	304	319	333	344
13.80 CFS	355	368	384	401	418	437	455	471
15.40 CFS	486	501	513	524	537	553	567	580
17.00 CFS	589	601	627	663	694	716	742	784
18.60 CFS	831	867	892	924	970	1027	1075	1108
20.20 CFS	1141	1196	1258	1308	1347	1395	1476	1577
21.80 CFS	1660	1713	1761	1831	1915	1987	2041	2098
23.40 CFS	2177	2260	2322	2372	2615	3334	4308	5047
25.00 CFS	5448	5972	7055	8397	9441	10163	12368	18311
26.60 CFS	24627	29682	32309	32521	30010	25831	22722	21367
28.20 CFS	20505	19377	18053	16970	16128	15406	14323	13222
29.80 CFS	12323	11657	10995	10088	9105	8368	7925	7573
31.40 CFS	7226	6888	6608	6398	6202	5971	5742	5578
33.00 CFS	5477	5372	5223	5067	4960	4901	4832	4721
34.60 CFS	4594	4499	4451	4395	4271	4118	4014	3963
36.20 CFS	3833	3492	3059	2751	2613	2515	2399	2274
37.80 CFS	2167	2084	2013	1939	1862	1800	1757	1716
39.40 CFS	1665	1616	1581	1552	1519	1484	1450	1425
41.00 CFS	1408	1395	1382	1362	1344	1340	1344	1343
42.60 CFS	1339	1328	1314	1312	1320	1326	1327	1326
44.20 CFS	1318	1291	1256	1232	1227	1232	1230	1216
45.80 CFS	1201	1194	1193	1201	1204	1195	1183	1174
47.40 CFS	1158	1138	1116	1098	1093	1095	1087	1075
49.00 CFS	1074	1077	1068	1060	1064	1066	1057	1054
50.60 CFS	1060	1061	1052	1044	1027	998	976	966
52.20 CFS	960	954	950	952	958	955	942	933
53.80 CFS	930	927	918	891	864	848	839	833
55.40 CFS	827	821	817	812	804	785	754	729
57.00 CFS	713	694	684	686	688	684	672	644
58.60 CFS	616	598	584	569	568	567	556	546
60.20 CFS	545	527	488	455	447	450	446	431
61.80 CFS	416	415	417	407	399	402	410	404
63.40 CFS	377	341	316	306	303	308	308	297
65.00 CFS	283	275	271	269	274	282	281	270
66.60 CFS	262	259	259	261	272	278	271	261
68.20 CFS	258	257	258	265	275	275	265	258
69.80 CFS	257	256	252	237	218	196	179	171
71.40 CFS	165	159	154	149	141	121	90	65
73.00 CFS	54.41	47.22	40.69	34.30	28.48	23.39	19.04	15.39
74.60 CFS	12.36	9.88	7.86	6.22	4.91	3.87	3.03	2.37
76.20 CFS	1.85	1.44	1.12	.87	.67	.52	.40	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.20 WATERSHED INCHES; 175222 CFS-HRS; 14480.4 ACRE-FEET.

--- XSECTION 76, ALTERNATE 1, STORM 7, HYDROGRAPH ADDED TO READHD FILE ---

*** MESSAGE - STRUCTURE 1, USER ENTERED STARTING ELEVATION (1199.2 FEET) CAN ADD .456 INCHES OF RUNOFF TO THE OUTFLOW HYDROGRAPH VOLUME.***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 1, TRUNCATED AT 400 POINTS WITH 3215.06 AC-FT (.24 WATERSHED INCHES) FLOOD STORAGE REMAINING IN RESERVOIR AT ELEV. 1212.00. ***

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.79	23504.6	1215.92
69.18	273.0	1212.10

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
HRS MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 20.57 SQ.MI.

6.40 CFS	.21	.21	.21	.21	.21	.21	.21	.21
8.00 CFS	.21	.21	.21	.21	.21	.21	.21	.22
9.60 CFS	.22	.22	.22	.23	.23	.24	.24	.25
11.20 CFS	.25	.26	.27	.28	.29	.30	.31	.32
12.80 CFS	.33	.35	.36	.37	.39	.40	.42	.43
14.40 CFS	.45	.47	.49	.50	.52	.54	.57	.59
16.00 CFS	.61	.63	.65	.68	.70	.73	.75	.78
17.60 CFS	.81	.84	.87	.90	.93	.96	1.00	1.04
19.20 CFS	1.08	1.10	1.11	1.11	1.12	1.12	1.13	1.14
20.80 CFS	1.14	1.15	1.15	1.16	1.17	1.18	1.19	1.19
22.40 CFS	1.20	1.21	1.22	1.23	1.24	1.24	1.25	1.26
24.00 CFS	1.27	1.28	1.30	1.31	1.33	1.34	1.36	1.39
25.60 CFS	1	1	1	2	2	12	3823	10366
27.20 CFS	16552	21059	23161	23503	23056	22407	21651	20752
28.80 CFS	19759	18776	17854	16938	15969	15035	14196	13405
30.40 CFS	12616	11784	10945	10174	9506	8925	8410	7985
32.00 CFS	7650	7345	7061	6788	6533	6306	6107	5924
33.60 CFS	5748	5582	5435	5306	5186	5067	4949	4842
35.20 CFS	4747	4654	4550	4441	4338	4239	4109	3920
36.80 CFS	3691	3463	3260	3078	2911	2755	2612	2536
38.40 CFS	2470	2402	2334	2268	2205	2144	2084	2026
40.00 CFS	1971	1920	1870	1822	1776	1733	1694	1658
41.60 CFS	1624	1591	1562	1536	1513	1492	1473	1455
43.20 CFS	1438	1424	1412	1402	1393	1384	1375	1363
44.80 CFS	1349	1334	1322	1311	1301	1290	1279	1269
46.40 CFS	1260	1253	1247	1240	1233	1225	1216	1205
48.00 CFS	1193	1182	1171	1162	1152	1143	1135	1127
49.60 CFS	1120	1113	1107	1102	1096	1092	1088	1084
51.20 CFS	1080	1075	1067	1058	1047	1037	1028	1019
52.80 CFS	1011	1004	998	992	986	979	973	967
54.40 CFS	960	950	939	928	917	906	897	887
56.00 CFS	879	870	861	850	837	824	809	795
57.60 CFS	782	771	761	751	740	727	712	698
59.20 CFS	683	670	658	646	635	624	614	601

60.80 CFS	586	570	555	542	530	517	505	495
62.40 CFS	485	475	466	459	453	445	435	422
64.00 CFS	409	397	386	377	368	359	349	340
65.60 CFS	332	324	319	315	310	305	299	295
67.20 CFS	290	288	286	285	282	280	277	275
68.80 CFS	273	273	273	273	271	270	268	266
70.40 CFS	264	259	253	245	237	229	221	213
72.00 CFS	206	199	190	180	168	155	143	131
73.60 CFS	120	109	99	90	81	73	66	59
75.20 CFS	53.02	47.38	42.26	37.65	33.49	29.76	26.41	23.42
76.80 CFS	20.76	18.38	16.26	14.38	12.71	11.23	9.92	8.76
78.40 CFS	7.73	6.82	6.02	5.31	4.68	4.13	3.64	3.21
80.00 CFS	2.83	2.49	2.19	1.93	1.70	1.60	1.60	1.60
81.60 CFS	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
83.20 CFS	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60
84.80 CFS	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.72 WATERSHED INCHES; 142359 CFS-HRS; 11764.6 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 1, STORM 7, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

RAINFALL OF 15.80 inches AND 72.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 7, ARC 2
MAIN TIME INCREMENT .200 HOURS

ALTERNATE 1 STORM 7

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
XSECTION 1	RUNOFF	2.46	14.29	---	27.01	6291	2557.3
XSECTION 5	REACH	2.46	14.29	6.72	27.54	4816	1957.7
XSECTION 10	REACH	2.46	14.29	7.95	28.12	3932	1598.4
XSECTION 2	RUNOFF	2.38	13.26	---	26.97	5805	2439.1
XSECTION 12	ADDHYD	4.84	13.78	---	27.15	7759	1603.1
XSECTION 12	DIVERT	4.84	12.16	---	26.40F	4100F	847.1
XSECTION 200	DIVERT	.00	12.16	---	27.15	3659	********
XSECTION 20	REACH	4.84	12.16	7.94	26.40F	4100F	847.1
XSECTION 25	REACH	4.84	12.16	5.03	26.40F	4100F	847.1
XSECTION 3	RUNOFF	3.94	14.29	---	27.03	10041	2548.5
XSECTION 30	REACH	3.94	14.30	5.34	27.78	7435	1887.1
XSECTION 5	REACH	3.94	14.30	7.27	28.39	6138	1557.9
XSECTION 25	REACH	3.94	14.30	6.30	28.39	6138	1557.9
XSECTION 4	RUNOFF	2.06	12.87	---	27.01	4862	2360.2
XSECTION 34	ADDHYD	6.00	13.81	---	28.25	7763	1293.8
XSECTION 35	ADDHYD	10.84	13.07	---	28.25	11863	1094.4
XSECTION 35	DIVERT	10.84	12.99	---	27.00F	11000F	1014.8
XSECTION 199	DIVERT	.00	12.99	---	28.25	863	********
XSECTION 45	REACH	10.84	12.99	8.46	27.00F	11000F	1014.8
XSECTION 6	RUNOFF	1.47	14.39	---	26.91	3876	2636.7
XSECTION 60	REACH	1.47	14.36	6.57	27.40	3596	2446.3
XSECTION 67	REACH	1.47	14.37	6.05	27.76	3221	2191.2
XSECTION 64	ADDHYD	12.31	13.15	---	27.80	14144	1149.0
XSECTION 5	RUNOFF	4.78	13.10	---	27.00	11470	2399.6
XSECTION 7	RUNOFF	3.48	13.52	---	27.12	8393	2411.8
XSECTION 75	ADDHYD	8.26	13.27	---	27.06	19797	2396.7
XSECTION 76	ADDHYD	20.57	13.20	---	27.12	32764	1592.8
STRUCTURE 1	RESVOR	20.57	10.72	1215.92	27.79	23505	1142.7

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE k* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

			HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.				
XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 7											
5	9100		6290	27.0	4800	27.6	1.95	1.08	.175	.763	.26
10	9100		4800	27.6	3922	28.2	2.17	1.07	.126	.817	.27
20	3332		4100	26.4	4100	26.4	.14	1.63	.001	1.000	1.00?
25	1950		4100	26.4	4100	26.4	.052	1.73	.000	1.000	1.00?
30	8865		10029	27.0	7433	27.8	1.57	1.08	.193	.741	.24
5	8865		7433	27.8	6138	28.4	1.91	1.08	.119	.826	.27
25	1950		6138	28.4	6138	28.4	.056	1.72	.001	1.000	1.00?
45	4200		11000	27.0	11000	27.0	.049	1.72	.001	1.000	1.00?
60	7540		3805	27.0	3596	27.4	.48	1.36	.054	.945	.49
67	5140		3596	27.4	3214	27.8	1.59	1.11	.085	.894	.42

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 7
STRUCTURE	1	20.57	
ALTERNATE	1		23505
XSECTION	1	2.46	
ALTERNATE	1		6291
XSECTION	2	2.38	
ALTERNATE	1		5805
XSECTION	3	3.94	
ALTERNATE	1		10041
XSECTION	4	2.06	
ALTERNATE	1		4862
XSECTION	5	4.78	
ALTERNATE	1		11470
XSECTION	6	1.47	
ALTERNATE	1		3876
XSECTION	7	3.48	
ALTERNATE	1		8393
XSECTION	10	2.46	
ALTERNATE	1		3932
XSECTION	12	4.84	
ALTERNATE	1		4100
XSECTION	20	4.84	
ALTERNATE	1		4100
XSECTION	25	3.94	
ALTERNATE	1		6138
XSECTION	30	3.94	
ALTERNATE	1		7435
XSECTION	34	6.00	

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 7
XSECTION 34		6.00	
ALTERNATE	1		7763
XSECTION 35		10.84	
ALTERNATE	1		11000
XSECTION 45		10.84	
ALTERNATE	1		11000
XSECTION 60		1.47	
ALTERNATE	1		3596
XSECTION 64		12.31	
ALTERNATE	1		14144
XSECTION 67		1.47	
ALTERNATE	1		3221
XSECTION 75		8.26	
ALTERNATE	1		19797
XSECTION 76		20.57	
ALTERNATE	1		32764
XSECTION 199		.00	
ALTERNATE	1		863
XSECTION 200		.00	
ALTERNATE	1		3659

ECON2 DATA FILE

```
ECON2
TITLE       WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE       72-HR PMP (MTI=.2), RESERVOIR INIT EMPTY W/100-YR SED
FLOW-FREQ    -1         23505.                                    ALT  1   1
FLOW-FREQ     1          6291.                                    ALT  1   2
FLOW-FREQ     2          5805.                                    ALT  1   3
FLOW-FREQ     3         10041.                                    ALT  1   4
FLOW-FREQ     4          4862.                                    ALT  1   5
FLOW-FREQ     5         11470.                                    ALT  1   6
FLOW-FREQ     6          3876.                                    ALT  1   7
FLOW-FREQ     7          8393.                                    ALT  1   8
FLOW-FREQ    10          3932.                                    ALT  1   9
FLOW-FREQ    12          4100.                                    ALT  1  10
FLOW-FREQ    20          4100.                                    ALT  1  11
FLOW-FREQ    25          6138.                                    ALT  1  12
FLOW-FREQ    30          7435.                                    ALT  1  13
FLOW-FREQ    34          7763.                                    ALT  1  14
FLOW-FREQ    35         11000.                                    ALT  1  15
FLOW-FREQ    45         11000.                                    ALT  1  16
FLOW-FREQ    60          3596.                                    ALT  1  17
FLOW-FREQ    64         14144.                                    ALT  1  18
FLOW-FREQ    67          3221.                                    ALT  1  19
FLOW-FREQ    75         19797.                                    ALT  1  20
FLOW-FREQ    76         32764.                                    ALT  1  21
FLOW-FREQ   199           863.                                    ALT  1  22
FLOW-FREQ   200          3659.                                    ALT  1  23
```

```
TR20 ------------------------------------------------------------------------ SCS -
WT3PMP72     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
11/16/**     72-HR PMP (MTI=.2), RESERVOIR INIT EMPTY W/100-YR SED      2.04TEST


END OF  1 JOBS IN THIS RUN
```

```
                    SCS  TR-20,  VERSION 2.04TEST
                           WT3PMP72  FILES

 INPUT  = 72HG.DAT                                , GIVEN DATA FILE
 OUTPUT = 72HGOUT.OUT                             , DATED 11/16/**,08:50:34

          FILES GENERATED - DATED 11/16/**,08:50:34

 FILE 111.TEC CONTAINS ECON2 INFORMATION

 FILE 111.TRD CONTAINS READHD INFORMATION


        TOTAL NUMBER OF WARNINGS =   4,  MESSAGES =   2

                     JOB ENDED AT 08:50:34
                  *** TR-20 RUN COMPLETED ***
```

(1)

CALCULATION PACKAGE NO. E-4

URS

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County (FCDMC)

Project Name: White Tank FRS No. 3 Design

Project/Calculation Number: 23443748

Title:

RESERVOIR ROUTING OF A 6-HR LOCAL AND 72-HR GENERAL PMF HYDROGRAPHS FOR FUTURE CONDITION WITH AN OPEN PRINCIPAL SPILLWAY (ADWR CRITERIA)

Total Number of Pages (including cover sheet):

Total Number of Computer Runs:

Prepared by: Hammad Hussain Date: 07/22/04

Checked by: Todd Ringsmuth Date: 7/22/04

Description and Purpose:

See Page 2

Design Basis /Assumptions

See Page 2

Remarks/Conclusions/Results:

See Page 3.

- slight change to Table 1
- need to confirm 72 hr rainfall total → provide reference
- 72 hr run has same 4 warnings as in closed prin. spwy calc → not a problem, provides a conservative answer.

Calculation Approved by: 7/27/04
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:
1	Revised Table 1	Todd Ringsmuth 7-27-04
2	Updated Principal Spillway Capacity	Todd Ringsmuth 8-17-04
3	Updated all Models w/ Zero Inflow	3/1/05

RESERVOIR ROUTING OF A 6-HR LOCAL AND 72-HR GENERAL PMF HYDROGRAPHS FOR FUTURE CONDITION WITH AN OPEN PRINCIPAL SPILLWAY (ADWR CRITERIA – ZERO INFILTRATION)

(WHITE TANK FLOOD RETARDING STRUCTURE (FRS) NO. 3)
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC)
23443748

PROBLEM STATEMENT

This particular calculation package addresses the reservoir routing results for the ***Future Condition*** with an ***Open Principal Spillway (zero infiltration)*** based on ADWR criteria.

DESIGN BASIS/ASSUMPTIONS/REFERENCES

FUTRE CONDITION (Principal Spillway Open)

The Future Condition (Principal Spillway Open) represents the time period following construction of the downstream conveyance channel and the principal spillway is opened. The inlet to the principal spillway is set at an elevation of 1,200 feet (NAVD 88). Under this condition, the outflow from the reservoir occurs through the principal spillway set at 1200.0 ft and the emergency spillway set at Elevation 1212.0 ft.

Please note that the reservoir routing for the ADWR models is performed with zero infiltration. Please also note that rating curve developed for the ***Future Condition*** with an ***Open Principal Spillway (zero infiltration)*** includes minor outflows from 0 to 1.3 cfs for elevations 1178 ft to 1200 ft. The inclusion of these outflows is required because the TR-20 Model becomes unstable if zero flows are indicated for elevations 1178 ft to 1200.0 ft. However, given the range of outflows is extremely low (<2 cfs), it will not impact the reservoir routing results. The reservoir routing for the Future Condition with an Open Principal Spillway was carried out for 6-hr Local and 72-hr General Probable Maximum Flood (PMF) hydrographs based on ADWR criteria. The ADWR criterion for the Future Condition with an Open Principal spillway is explained as follows.

ADWR Routing Criteria: For the Future Condition (Principal Spillway Open), the antecedent reservoir condition (ARC) for the routing of the 6-hr Local and 72-hr General PMF hydrographs will be based on the inlet elevation of the principal spillway or at elevation 1200.0 ft (NAVD 88).

RESULTS

ADWR Routing: The ARC for the routing of the 6-hour Local and 72-hr General PMF hydrographs was set at the inlet elevation of the principal spillway or at elevation 1200.0 ft (NAVD 88). The reservoir routing results i.e. ARC, peak inflows, peak outflows, and the maximum reservoir elevation for the 6-hour Local and 72-hr General PMF hydrographs for the Future condition (Principal Spillway Open) based on ADWR criteria (zero-infiltration) are provided in Table 1 (Please See page 4). The input file and the detailed output results of TR-20 modeling of reservoir routing of 6-hour Local and 72-hr General PMF hydrographs based on ADWR criteria are attached at the end of this calculation package.

TABLE 1
RESERVOIR ROUTING RESULTS
(BASED ON ADWR CRITERION ONLY)

(FUTURE CONDITON – PRINCIPAL SPILLWAY OPEN)
(ZERO - INFILTRATION)

Storm Event	Inflow to White Tank FRS No.3		Outflow from White Tank FRS No.3		
	Precipitation (inches)	Peak Inflow (cfs)	Antecedent Reservoir Condition (ARC)	Peak Outflow (cfs)	Maximum Reservoir Elevation (NAVD 88) (ft)
6-hr Local	12.70	68,291	1200.0	24,169	1216.0
72-hr General	15.80	32,764	1200.0	23,230	1215.9

6-hr Local Modeling Results
(Principal spillway Open - Future Condition)

```
******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

JOB TR-20 WT3PMP6   ECON                PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     6HR LOCAL, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
 5 RAINFL 1             0.1                                          6HRLOCAL
 8          .0000       .003        .006        .009        .013
 8          .016        .020        .025        .030        .035
 8          .039        .046        .052        .058        .065
 8          .071        .080        .090        .099        .109
 8          .118        .283        .449        .567        .622
 8          .669        .701        .732        .756        .780
 8          .795        .809        .824        .838        .852
 8          .866        .876        .885        .894        .904
 8          .913        .920        .926        .932        .939
 8          .945        .950        .954        .959        .964
 8          .969        .972        .976        .980        .984
 8          .988        .991        .993        .995        .998
 8          1.          1.          1.          1.          1.
 9 ENDTBL
 5 RAINFL 2             .1                                           6HR GEN
 8          .000        .005        .013        .020        .028
 8          .038        .045        .053        .060        .070
 8          .080        .085        .095        .108        .120
 8          .138        .150        .165        .190        .210
 8          .238        .280        .350        .440        .550
 8          .590        .620        .645        .668        .685
 8          .700        .720        .735        .753        .765
 8          .775        .790        .800        .810        .820
 8          .835        .843        .850        .863        .870
 8          .880        .890        .898        .908        .915
 8          .925        .930        .940        .945        .955
 8          .963        .970        .978        .985        .990
 8          1.00        1.00        1.00        1.00        1.00
 9 ENDTBL
 5 RAINFL 3             0.1                                          12HRGEN
 8          .000        .003        .007        .010        .013
 8          .016        .019        .022        .025        .028
 8          .031        .034        .037        .040        .043
 8          .045        .050        .054        .058        .062
 8          .066        .071        .075        .080        .085
 8          .089        .095        .101        .107        .112
 8          .118        .125        .132        .139        .146
 8          .153        .162        .171        .180        .189
 8          .198        .211        .224        .237        .250
 8          .264        .300        .345        .391        .436
 8          .491        .536        .564        .586        .607
 8          .629        .643        .657        .672        .686
 8          .700        .711        .721        .732        .742
 8          .753        .761        .769        .778        .786
 8          .795        .802        .809        .817        .824
 8          .832        .837        .843        .848        .854
 8          .859        .865        .870        .875        .881
 8          .886        .891        .895        .900        .905
 8          .909        .913        .917        .921        .925
 8          .929        .933        .936        .940        .944
 8          .948        .951        .954        .957        .960
 8          .963        .966        .969        .971        .974
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 8          .977        .980        .982        .984        .986
 8          .989        .991        .993        .995        .998
 8         1.000       01.000       1.000       1.000       1.00
 9 ENDTBL
 5 RAINFL 4              0.1                                        18HRGEN
 8          .000        .001        .002        .003        .004
 8          .005        .005        .006        .007        .008
 8          .009        .012        .014        .017        .020
 8          .023        .025        .028        .031        .033
 8          .036        .040        .044        .049        .053
 8          .057        .061        .065        .070        .074
 8          .078        .084        .090        .096        .102
 8          .108        .114        .120        .126        .132
 8          .138        .146        .154        .162        .170
 8          .179        .187        .195        .203        .211
 8          .220        .238        .256        .275        .293
 8          .311        .330        .348        .367        .385
 8          .403        .430        .457        .484        .511
 8          .538        .557        .577        .597        .616
 8          .636        .653        .670        .687        .704
 8          .721        .734        .746        .759        .771
 8          .784        .792        .801        .810        .818
 8          .827        .832        .838        .843        .848
 8          .853        .856        .859        .862        .864
 8          .867        .870        .872        .875        .878
 8          .880        .882        .885        .887        .889
 8          .891        .893        .895        .897        .899
 8          .901        .903        .905        .907        .909
 8          .911        .912        .914        .916        .917
 8          .919        .920        .922        .924        .925
 8          .927        .929        .930        .932        .934
 8          .935        .937        .938        .940        .941
 8          .943        .945        .946        .948        .949
 8          .951        .952        .953        .955        .956
 8          .957        .959        .960        .961        .963
 8          .964        .965        .967        .968        .970
 8          .971        .972        .974        .975        .976
 8          .978        .979        .980        .982        .983
 8          .984        .985        .986        .988        .989
 8          .990        .991        .992        .993        .994
 8          .995        .996        .997        .998        .999
 8         1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 5 RAINFL 5              0.1                                        24HRGEN
 8        0.000       0.000       0.001       0.001       0.002
 8        0.002       0.002       0.003       0.003       0.003
 8        0.004       0.005       0.007       0.009       0.010
 8        0.012       0.013       0.015       0.016       0.018
 8        0.019       0.022       0.024       0.027       0.030
 8        0.032       0.035       0.037       0.040       0.042
 8        0.045       0.048       0.051       0.055       0.058
 8        0.061       0.064       0.068       0.071       0.074
 8        0.078       0.082       0.087       0.091       0.096
 8        0.100       0.104       0.109       0.113       0.118
 8        0.122       0.127       0.132       0.137       0.142
 8        0.147       0.151       0.156       0.161       0.166
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8          0.171       0.177       0.184       0.191       0.198
 8          0.205       0.214       0.224       0.233       0.242
 8          0.252       0.265       0.278       0.291       0.303
 8          0.316       0.334       0.351       0.368       0.386
 8          0.403       0.425       0.447       0.468       0.490
 8          0.512       0.527       0.543       0.558       0.574
 8          0.589       0.603       0.617       0.631       0.645
 8          0.659       0.671       0.684       0.696       0.709
 8          0.721       0.731       0.741       0.751       0.761
 8          0.771       0.779       0.786       0.793       0.800
 8          0.808       0.814       0.820       0.825       0.831
 8          0.837       0.840       0.843       0.847       0.850
 8          0.853       0.855       0.857       0.859       0.861
 8          0.864       0.866       0.868       0.870       0.872
 8          0.874       0.876       0.878       0.880       0.881
 8          0.883       0.885       0.886       0.888       0.890
 8          0.891       0.893       0.895       0.896       0.898
 8          0.899       0.901       0.902       0.904       0.905
 8          0.907       0.908       0.909       0.910       0.912
 8          0.913       0.914       0.915       0.916       0.917
 8          0.919       0.920       0.921       0.922       0.923
 8          0.924       0.926       0.927       0.928       0.929
 8          0.930       0.932       0.933       0.935       0.936
 8          0.938       0.940       0.941       0.943       0.944
 8          0.946       0.947       0.947       0.948       0.949
 8          0.950       0.950       0.951       0.952       0.953
 8          0.953       0.955       0.956       0.957       0.958
 8          0.959       0.960       0.961       0.962       0.963
 8          0.964       0.965       0.966       0.967       0.968
 8          0.969       0.970       0.971       0.972       0.973
 8          0.974       0.975       0.976       0.977       0.978
 8          0.979       0.980       0.981       0.982       0.983
 8          0.984       0.985       0.986       0.987       0.988
 8          0.988       0.989       0.990       0.991       0.991
 8          0.992       0.993       0.994       0.995       0.995
 8          0.996       0.997       0.998       0.998       0.999
 8          1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 5 RAINFL 6                .25                                          48HRGEN
 8          0.0000      0.0015      0.0029      0.0044      0.0058
 8          0.0073      0.0088      0.0102      0.0117      0.0131
 8          0.0146      0.0160      0.0175      0.0190      0.0204
 8          0.0219      0.0233      0.0248      0.0263      0.0277
 8          0.0292      0.0306      0.0321      0.0335      0.0350
 8          0.0365      0.0379      0.0394      0.0408      0.0423
 8          0.0438      0.0452      0.0467      0.0481      0.0496
 8          0.0510      0.0525      0.0542      0.0558      0.0575
 8          0.0592      0.0608      0.0625      0.0642      0.0658
 8          0.0692      0.0725      0.0758      0.0792      0.0825
 8          0.0858      0.0892      0.0925      0.0975      0.1025
 8          0.1075      0.1125      0.1175      0.1225      0.1275
 8          0.1325      0.1442      0.1560      0.1677      0.1794
 8          0.1985      0.2176      0.2366      0.2557      0.3239
 8          0.3921      0.4603      0.5285      0.5520      0.5754
 8          0.5989      0.6224      0.6356      0.6488      0.6620
 8          0.6752      0.6862      0.6972      0.7082      0.7192
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8          0.7267      0.7342      0.7417      0.7492      0.7558
 8          0.7625      0.7692      0.7758      0.7825      0.7892
 8          0.7958      0.8025      0.8083      0.8142      0.8200
 8          0.8258      0.8308      0.8358      0.8408      0.8458
 8          0.8508      0.8558      0.8608      0.8658      0.8683
 8          0.8708      0.8733      0.8758      0.8783      0.8808
 8          0.8833      0.8858      0.8875      0.8892      0.8908
 8          0.8925      0.8942      0.8958      0.8975      0.8992
 8          0.9008      0.9025      0.9042      0.9058      0.9075
 8          0.9092      0.9108      0.9125      0.9140      0.9154
 8          0.9169      0.9183      0.9198      0.9213      0.9227
 8          0.9242      0.9256      0.9271      0.9285      0.9300
 8          0.9315      0.9329      0.9344      0.9358      0.9373
 8          0.9388      0.9402      0.9417      0.9431      0.9446
 8          0.9460      0.9475      0.9490      0.9504      0.9519
 8          0.9533      0.9548      0.9563      0.9577      0.9592
 8          0.9606      0.9621      0.9635      0.9650      0.9665
 8          0.9679      0.9694      0.9708      0.9723      0.9737
 8          0.9752      0.9767      0.9781      0.9796      0.9810
 8          0.9825      0.9840      0.9854      0.9869      0.9883
 8          0.9898      0.9912      0.9927      0.9942      0.9956
 8          0.9971      0.9985      1.0000      1.0000      1.0
 9 ENDTBL
 5 RAINFL 7              .25                                          72HRGEN
 8          0.0000      0.0005      0.0009      0.0014      0.0019
 8          0.0025      0.0032      0.0038      0.0044      0.0051
 8          0.0057      0.0063      0.0070      0.0076      0.0082
 8          0.0089      0.0095      0.0103      0.0111      0.0119
 8          0.0127      0.0134      0.0142      0.0150      0.0158
 8          0.0171      0.0184      0.0196      0.0209      0.0222
 8          0.0234      0.0247      0.0259      0.0272      0.0285
 8          0.0297      0.0310      0.0323      0.0335      0.0348
 8          0.0361      0.0375      0.0389      0.0403      0.0418
 8          0.0432      0.0446      0.0460      0.0475      0.0489
 8          0.0503      0.0517      0.0532      0.0546      0.0560
 8          0.0574      0.0589      0.0604      0.0620      0.0636
 8          0.0652      0.0668      0.0684      0.0699      0.0715
 8          0.0731      0.0747      0.0763      0.0778      0.0797
 8          0.0816      0.0835      0.0854      0.0877      0.0899
 8          0.0921      0.0943      0.0968      0.0994      0.1019
 8          0.1044      0.1073      0.1101      0.1130      0.1158
 8          0.1193      0.1228      0.1263      0.1297      0.1335
 8          0.1373      0.1411      0.1449      0.1491      0.1532
 8          0.1573      0.1614      0.1725      0.1837      0.1948
 8          0.2059      0.2241      0.2422      0.2603      0.2784
 8          0.3431      0.4078      0.4726      0.5373      0.5596
 8          0.5819      0.6042      0.6265      0.6390      0.6515
 8          0.6641      0.6766      0.6870      0.6975      0.7079
 8          0.7184      0.7255      0.7326      0.7397      0.7468
 8          0.7535      0.7601      0.7668      0.7734      0.7794
 8          0.7854      0.7915      0.7975      0.8030      0.8085
 8          0.8141      0.8196      0.8247      0.8297      0.8348
 8          0.8399      0.8443      0.8487      0.8532      0.8576
 8          0.8598      0.8620      0.8642      0.8665      0.8685
 8          0.8706      0.8726      0.8747      0.8766      0.8785
 8          0.8804      0.8823      0.8840      0.8858      0.8875
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 8          0.8892      0.8908      0.8924      0.8940      0.8956
 8          0.8972      0.8987      0.9003      0.9019      0.9035
 8          0.9051      0.9066      0.9082      0.9098      0.9114
 8          0.9130      0.9146      0.9160      0.9174      0.9188
 8          0.9203      0.9217      0.9231      0.9245      0.9259
 8          0.9274      0.9288      0.9302      0.9316      0.9329
 8          0.9342      0.9354      0.9367      0.9380      0.9392
 8          0.9405      0.9418      0.9430      0.9443      0.9456
 8          0.9468      0.9481      0.9494      0.9506      0.9519
 8          0.9530      0.9541      0.9552      0.9563      0.9574
 8          0.9585      0.9597      0.9608      0.9619      0.9630
 8          0.9641      0.9652      0.9661      0.9671      0.9680
 8          0.9690      0.9699      0.9709      0.9718      0.9728
 8          0.9736      0.9744      0.9752      0.9759      0.9767
 8          0.9775      0.9783      0.9791      0.9797      0.9804
 8          0.9810      0.9816      0.9823      0.9829      0.9835
 8          0.9842      0.9847      0.9851      0.9856      0.9861
 8          0.9866      0.9870      0.9875      0.9880      0.9884
 8          0.9889      0.9894      0.9899      0.9902      0.9905
 8          0.9908      0.9911      0.9915      0.9918      0.9921
 8          0.9924      0.9927      0.9930      0.9934      0.9937
 8          0.9940      0.9943      0.9946      0.9949      0.9953
 8          0.9956      0.9959      0.9962      0.9965      0.9968
 8          0.9972      0.9975      0.9978      0.9981      0.9984
 8          0.9987      0.9989      0.9991      0.9992      0.9994
 8          0.9995      0.9997      0.9998      1.0000      1.0000
 9 ENDTBL
 5 RAINFL 8     1        2.4                                          10-DAY
 8          .0000       .0024       .0048       .0073       .0097
 8          .0121       .0148       .0174       .0201       .0228
 8          .0254       .0284       .0314       .0344       .0374
 8          .0404       .0437       .0471       .0505       .0539
 8          .0572       .0612       .0651       .0690       .0729
 8          .0768       .0815       .0862       .0909       .0955
 8          .1002       .1061       .1120       .1179       .1238
 8          .1297       .1377       .1458       .1538       .1618
 8          .1699       .1832       .1966       .2099       .2232
 8          .2366       .2548       .2778       .3093       .3614
 8          1.092       1.174       1.213       1.240       1.260
 8          1.276       1.286       1.296       1.306       1.316
 8          1.326       1.333       1.340       1.347       1.354
 8          1.360       1.365       1.371       1.376       1.381
 8          1.386       1.391       1.395       1.399       1.403
 8          1.408       1.411       1.415       1.418       1.422
 8          1.426       1.429       1.432       1.435       1.438
 8          1.442       1.444       1.447       1.450       1.453
 8          1.456       1.458       1.461       1.463       1.466
 8          1.468       1.471       1.473       1.475       1.477
 8          1.48        1.48        1.48        1.48        1.48
 9 ENDTBL
 4 DIMHYD                .0556                                        WT3
 8          0.0         .03         .10         .19         .31
 8          .47         .66         .82         .93         .99
 8          1.0         .99         .93         .82         .66
 8          .47         .31         .03         .00         .00
 9 ENDTBL
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 2 XSECTN   005         1.0         8.77                                  BOSSCS#5
 8                      0.          0.0         0.0
 8                      0.35        5.          5.56
 8                      1.03        50.         30.95
 8                      1.39        100.        52.16
 8                      1.94        200.        88.72
 8                      2.63        400.        148.61
 8                      3.51        800.        260.63
 8                      4.62        1600.       459.66
 8                      6.04        3200.       929.36
 8                      7.38        6400.       1811.51
 8                      8.77        12800.      3374.20
 8                      10.17       25600.      6398.87
 8                      11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN   010         1.0         8.94                                  BOSSCS#4
 8                      0.          0.0         0.0
 8                      0.91        5.          4.95
 8                      2.03        50.         24.80
 8                      2.63        100.        41.32
 8                      3.34        200.        74.14
 8                      4.15        400.        130.28
 8                      5.23        800.        223.37
 8                      6.41        1600.       447.51
 8                      7.65        3200.       898.64
 8                      8.94        6400.       1690.88
 8                      10.29       12800.      3331.95
 8                      11.64       25600.      6185.81
 8                      13.14       51200.      10661.04
 9 ENDTBL
 2 XSECTN   020         1.0         7.3                                   REACHC
 8                      0.          0.0         0.0
 8                      1.01        100.        57.78
 8                      1.49        200.        86.81
 8                      1.88        300.        110.25
 8                      2.49        500.        149.47
 8                      3.68        1000.       226.31
 8                      5.40        2000.       346.26
 8                      7.85        4000.       533.39
 8                      9.64        6000.       688.07
 8                      11.16       8000.       838.10
 8                      12.46       10000.      985.31
 8                      13.61       12000.      1122.03
 8                      14.56       14000.      1236.94
 8                      15.43       16000.      1345.18
 8                      16.31       18000.      1456.68
 9 ENDTBL
 2 XSECTN   025         1.0         7.3                                   REACHB
 8                      0.          0.0         0.0
 8                      0.63        100.        80.89
 8                      0.93        200.        120.32
 8                      1.17        300.        151.77
 8                      1.56        500.        203.28
 8                      2.30        1000.       302.00
 8                      3.38        2000.       449.24
 8                      4.97        4000.       673.73
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                      6.23        6000.       855.96
 8                      7.31        8000.       1016.35
 8                      8.24        10000.      1158.51
 8                      9.09        12000.      1293.31
 8                      9.90        14000.      1425.57
 8                      10.64       16000.      1549.17
 8                      11.36       18000.      1673.11
 9 ENDTBL
 2 XSECTN    030        1.0         9.45                                BOSSCS#6
 8                      0.          0.0         0.0
 8                      0.77        5.          4.67
 8                      1.54        50.         32.06
 8                      1.78        100.        56.64
 8                      2.10        200.        100.59
 8                      2.50        400.        179.97
 8                      3.01        800.        320.25
 8                      3.63        1600.       589.66
 8                      4.35        3200.       1110.72
 8                      5.21        6400.       2084.48
 8                      6.03        12800.      4119.83
 8                      6.99        25600.      6856.75
 8                      8.28        51200.      11085.87
 9 ENDTBL
 2 XSECTN    045        1.0         4.87                                REACHA
 8                      0.          0.0         0.0
 8                      0.60        100.        85.69
 8                      0.90        200.        127.94
 8                      1.13        300.        161.93
 8                      1.52        500.        217.27
 8                      2.25        1000.       324.03
 8                      3.31        2000.       483.02
 8                      4.87        4000.       722.17
 8                      6.09        6000.       914.99
 8                      7.15        8000.       1084.61
 8                      8.05        10000.      1234.17
 8                      8.87        12000.      1373.80
 8                      9.64        14000.      1507.84
 8                      10.34       16000.      1633.45
 8                      11.00       18000.      1753.12
 9 ENDTBL
 2 XSECTN    060        1.0         4.7                                 2CP6CP7
 8                      0.          0.0         0.0
 8                      2.36        100.        45.12
 8                      2.88        200.        83.75
 8                      3.18        300.        114.33
 8                      3.64        500.        172.72
 8                      4.42        1000.       289.04
 8                      5.40        2000.       470.72
 8                      6.87        4000.       782.74
 8                      7.91        6000.       1020.12
 8                      8.79        8000.       1231.25
 8                      9.60        10000.      1435.05
 8                      10.26       12000.      1618.34
 8                      10.94       14000.      1812.58
 8                      11.47       16000.      1983.46
 8                      11.96       18000.      2150.12
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 9 ENDTBL
 2 XSECTN   067          1.0         8.77                              BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 3 STRUCT      01                                                        95/11/6
 8                       1178.0      0.0         0.
 8                       1188.0      1.10        44.8
 8                       1196.8      1.20        300.
 8                       1200.0      1.30        586.
 8                       1202.0      171.0       845.55
 8                       1204.0      191.20      1176.28
 8                       1206.0      209.5       1575.25
 8                       1208.0      226.3       2044.97
 8                       1210.0      241.9       2593.40
 8                       1212.0      256.60      3218.00
 8                       1213.0      2856.00     3556.67
 8                       1214.0      8404.00     3916.02
 8                       1215.0      15720.0     4294.13
 8                       1216.0      24449.0     4692.68
 8                       1217.0      34389.0     5113.19
 8                       1218.0      45408.0     5556.01
 8                       1219.0      57410.0     6021.50
 8                       1220.0      70318.0     6509.75
 9 ENDTBL
 6 RUNOFF 1 001        1 2.46        87.2        0.85        1 1
 6 REACH  3 005   1    7 9100.                               1           BOSS#6
 6 REACH  3 010   7    2 9100.                               1           BOSS#4
 6 RUNOFF 1 002        3 2.38        79.9        0.73        1 1
 6 ADDHYD 4 012   2 3 1                                      1 1
 6 DIVERT 6 012   1 4  7 4100.       1.00        200.        1 1         OLIVE
 6 REACH  3 020   4    7 3332.                               1           REACH C
 6 REACH  3 025   7    5 1950.                               1           REACH B
 6 RUNOFF 1 003        6 3.94        87.2        0.88        1 1
 6 REACH  3 030   6    7 8865.                               1           BOSS#6
 6 REACH  3 005   7    1 8865.                               1           BOSS#5
 6 REACH  3 025   1    7 1950.                               1           REACH B
 6 RUNOFF 1 004        1 2.06        77.3        0.79        1 1
 6 ADDHYD 4 034   7 1 2                                      1 1
 6 ADDHYD 4 035   5 2 3                                      1 1
 6 DIVERT 6 035   3 4  7 11000.      1.00        199.        1 1         NORTHERN
 6 REACH  3 045   4    5 4200.                               1           REACH A
 6 RUNOFF 1 006        2 1.47        87.7        0.47        1 1
 6 REACH  3 060   2    3 7540.                               1           CP6CP7
 6 REACH  3 067   3    4 5140.                               1           BOSS#5
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 6 ADDHYD 4 064   5 4 3                                    1 1
 6 RUNOFF 1 005       6 4.78        78.8        0.78       1 1
 6 RUNOFF 1 007       7 3.48        81.7        1.01       1 1
 6 ADDHYD 4 075   6 7 1                                    1 1
 6 ADDHYD 4 076   1 3 2                                    1 1     1
 6 RESVOR 2    01 2   1 1200.0                             1 1     1
 ENDATA
 7 LIST                 1.0                    1.
 7 INCREM 6             0.05
 7 COMPUT 7 001      01 0.          12.7        1.0        1 2  01  01
   ENDCMP 1
   ENDJOB 2

**********END OF 80-80 LIST**********
```

RUNOFF OPTION USED WITH RAINTABLE NO. 8, RUNOFF CURVE NO. = 100.

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

EXECUTIVE CONTROL LIST 1. 0. 1.

LISTING OF CURRENT DATA

COMPUTED TIME INCREMENT
DIMHYD .0556

.0000	.0300	.1000	.1900	.3100
.4700	.6600	.8200	.9300	.9900
1.0000	.9900	.9300	.8200	.6600
.4700	.3100	.0300	.0000	.0000

ENDTBL

COMPUTED PEAK RATE FACTOR = 664.607

TABLE NO. TIME INCREMENT
RAINFL 1 .1000

.0000	.0030	.0060	.0090	.0130
.0160	.0200	.0250	.0300	.0350
.0390	.0460	.0520	.0580	.0650
.0710	.0800	.0900	.0990	.1090
.1180	.2830	.4490	.5670	.6220
.6690	.7010	.7320	.7560	.7800
.7950	.8090	.8240	.8380	.8520
.8660	.8760	.8850	.8940	.9040
.9130	.9200	.9260	.9320	.9390
.9450	.9500	.9540	.9590	.9640
.9690	.9720	.9760	.9800	.9840
.9880	.9910	.9930	.9950	.9980
1.0000	1.0000	1.0000	1.0000	1.0000

ENDTBL

STANDARD CONTROL INSTRUCTIONS

```
RUNOFF      1       1      2.4600     87.2000      .85001 1 0 0 0 1
REACH       5   1   7   9100.0000       .0000      .00001 0 0 0 0 1
REACH      10   7   2   9100.0000       .0000      .00001 0 0 0 0 1
RUNOFF      2       3      2.3800     79.9000      .73001 1 0 0 0 1
ADDHYD     12   2 3 1                                   1 1 0 0 0 1
DIVERT     12   1 4 7   4100.0000      1.0000   200.00001 1 0 0 0 1
REACH      20   4   7   3332.0000       .0000      .00001 0 0 0 0 1
REACH      25   7   5   1950.0000       .0000      .00001 0 0 0 0 1
RUNOFF      3       6      3.9400     87.2000      .88001 1 0 0 0 1
REACH      30   6   7   8865.0000       .0000      .00001 0 0 0 0 1
REACH       5   7   1   8865.0000       .0000      .00001 0 0 0 0 1
REACH      25   1   7   1950.0000       .0000      .00001 0 0 0 0 1
RUNOFF      4       1      2.0600     77.3000      .79001 1 0 0 0 1
ADDHYD     34   7 1 2                                   1 1 0 0 0 1
ADDHYD     35   5 2 3                                   1 1 0 0 0 1
DIVERT     35   3 4 7  11000.0000      1.0000   199.00001 1 0 0 0 1
REACH      45   4   5   4200.0000       .0000      .00001 0 0 0 0 1
RUNOFF      6       2      1.4700     87.7000      .47001 1 0 0 0 1
REACH      60   2   3   7540.0000       .0000      .00001 0 0 0 0 1
REACH      67   3   4   5140.0000       .0000      .00001 0 0 0 0 1
ADDHYD     64   5 4 3                                   1 1 0 0 0 1
RUNOFF      5       6      4.7800     78.8000      .78001 1 0 0 0 1
RUNOFF      7       7      3.4800     81.7000     1.01001 1 0 0 0 1
ADDHYD     75   6 7 1                                   1 1 0 0 0 1
ADDHYD     76   1 3 2                                   1 1 0 0 1 1
RESVOR       1 2   1   1200.0000                        1 1 0 0 1 1
ENDATA
```

END OF LISTING

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .050 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO STRUCTURE 1
STARTING TIME = .00 RAIN DEPTH = 12.70 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .050 HOURS
ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 1

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET) (RUNOFF)
2.71	17873.0	

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.46 SQ.MI.

HRS								
.75 CFS	.38	1.15	2.73	5.54	9.95	16.43	25.70	38.37
1.15 CFS	55	75	99	128	160	196	235	276
1.55 CFS	318	362	409	458	510	566	625	688
1.95 CFS	753	830	978	1279	1794	2595	3743	5287
2.35 CFS	7187	9294	11447	13473	15219	16590	17491	17866
2.75 CFS	17674	16919	15643	13899	11960	10148	8586	7352
3.15 CFS	6416	5736	5217	4765	4374	4049	3771	3525
3.55 CFS	3312	3138	2995	2873	2772	2690	2613	2530
3.95 CFS	2439	2343	2247	2154	2065	1978	1896	1819
4.35 CFS	1749	1687	1631	1574	1516	1458	1400	1342
4.75 CFS	1287	1239	1196	1160	1128	1098	1069	1038
5.15 CFS	1007	976	947	922	901	882	867	852
5.55 CFS	837	819	800	781	762	742	721	700
5.95 CFS	676	646	612	576	539	500	458	413
6.35 CFS	367	322	278	234	191	147	106	68
6.75 CFS	37.92	17.14	5.12	.74	.04			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.09 WATERSHED INCHES; 17613 CFS-HRS; 1455.5 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.32	10200.1	8.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.09 WATERSHED INCHES; 17613 CFS-HRS; 1455.5 ACRE-FEET.

OPERATION REACH XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.96	7060.0	9.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.09 WATERSHED INCHES; 17613 CFS-HRS; 1455.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.64	16995.9	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.38 SQ.MI.

HRS								
1.05 CFS	.16	.69	1.94	4.40	8.67	15.34	25.03	38.19
1.45 CFS	55	75	99	128	161	198	240	286
1.85 CFS	336	390	445	523	689	1033	1648	2632
2.25 CFS	4059	5924	8106	10407	12610	14524	15972	16813
2.65 CFS	16970	16435	15174	13412	11508	9715	8223	7053
3.05 CFS	6203	5583	5079	4636	4253	3923	3631	3372
3.45 CFS	3155	2982	2842	2733	2654	2597	2536	2461
3.85 CFS	2371	2271	2170	2073	1981	1896	1820	1752
4.25 CFS	1694	1642	1588	1530	1468	1405	1343	1286
4.65 CFS	1236	1194	1158	1126	1094	1061	1028	995
5.05 CFS	962	932	906	886	869	852	836	819
5.45 CFS	801	781	762	746	733	721	708	691
5.85 CFS	668	636	601	565	530	495	459	422
6.25 CFS	383	341	298	252	204	155	108	65
6.65 CFS	33.37	12.75	2.82	.21				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.12 WATERSHED INCHES; 15550 CFS-HRS; 1285.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.64	17248.4	(NULL)
3.81	9386.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 4.84 SQ.MI.

HRS								
1.05 CFS	.16	.69	1.94	4.40	8.68	15.37	25.12	38.38
1.45 CFS	55	76	101	130	164	203	246	295
1.85 CFS	349	407	468	552	726	1078	1702	2698
2.25 CFS	4138	6017	8214	10533	12754	14690	16164	17035
2.65 CFS	17234	16756	15574	13921	12165	10563	9314	8436
3.05 CFS	7930	7699	7624	7638	7731	7880	8056	8240
3.45 CFS	8433	8628	8811	8978	9131	9262	9350	9385
3.85 CFS	9371	9316	9230	9123	8998	8860	8713	8560
4.25 CFS	8404	8243	8072	7889	7696	7497	7295	7095
4.65 CFS	6900	6711	6528	6348	6169	5990	5812	5635

5.05 CFS	5461	5291	5129	4974	4825	4679	4537	4397
5.45 CFS	4259	4123	3991	3865	3745	3630	3517	3404
5.85 CFS	3287	3165	3043	2923	2807	2695	2585	2475
6.25 CFS	2367	2259	2152	2045	1937	1831	1727	1631
6.65 CFS	1547	1475	1416	1364	1316	1269	1223	1177
7.05 CFS	1132	1087	1043	999	956	913	871	830
7.45 CFS	790	751	714	678	642	609	576	545
7.85 CFS	516	487	460	434	409	386	363	342
8.25 CFS	322	303	285	268	252	236	222	208
8.65 CFS	195	183	172	161	151	141	132	124
9.05 CFS	116	109	102	95	89	83	78	73
9.45 CFS	67.78	63.31	59.13	55.22	51.55	48.12	44.91	41.90
9.85 CFS	39.10	36.47	34.01	31.72	29.57	27.57	25.70	23.95
10.25 CFS	22.32	20.79	19.37	18.04	16.81	15.65	14.57	13.57
10.65 CFS	12.63	11.76	10.94	10.18	9.47	8.81	8.20	7.63
11.05 CFS	7.10	6.60	6.14	5.71	5.30	4.93	4.58	4.26
11.45 CFS	3.96	3.68	3.42	3.18	2.95	2.74	2.55	2.37
11.85 CFS	2.20	2.04	1.89	1.76	1.63	1.51	1.40	1.30
12.25 CFS	1.21	1.12	1.04	.97	.90	.83	.77	.71
12.65 CFS	.66	.61	.57	.53	.49			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.62 WATERSHED INCHES; 33163 CFS-HRS; 2740.6 ACRE-FEET.

OPERATION DIVERT XSECTION 12
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.25	4100.0 *	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 4.84 SQ.MI.

HRS								
1.05 CFS	.16	.69	1.94	4.40	8.68	15.37	25.12	38.38
1.45 CFS	55	76	101	130	164	203	246	295
1.85 CFS	349	407	468	552	726	1078	1702	2698
2.25 CFS	4100	4100	4100	4100	4100	4100	4100	4100
2.65 CFS	4100	4100	4100	4100	4100	4100	4100	4100
3.05 CFS	4100	4100	4100	4100	4100	4100	4100	4100
3.45 CFS	4100	4100	4100	4100	4100	4100	4100	4100
3.85 CFS	4100	4100	4100	4100	4100	4100	4100	4100
4.25 CFS	4100	4100	4100	4100	4100	4100	4100	4100
4.65 CFS	4100	4100	4100	4100	4100	4100	4100	4100
5.05 CFS	4100	4100	4100	4100	4100	4100	4100	4100
5.45 CFS	4100	4100	3991	3865	3745	3630	3517	3404
5.85 CFS	3287	3165	3043	2923	2807	2695	2585	2475
6.25 CFS	2367	2259	2152	2045	1937	1831	1727	1631
6.65 CFS	1547	1475	1416	1364	1316	1269	1223	1177
7.05 CFS	1132	1087	1043	999	956	913	871	830

7.45 CFS	790	751	714	678	642	609	576	545
7.85 CFS	516	487	460	434	409	386	363	342
8.25 CFS	322	303	285	268	252	236	222	208
8.65 CFS	195	183	172	161	151	141	132	124
9.05 CFS	116	109	102	95	89	83	78	73
9.45 CFS	67.78	63.31	59.13	55.22	51.55	48.12	44.91	41.90
9.85 CFS	39.10	36.47	34.01	31.72	29.57	27.57	25.70	23.95
10.25 CFS	22.32	20.79	19.37	18.04	16.81	15.65	14.57	13.57
10.65 CFS	12.63	11.76	10.94	10.18	9.47	8.81	8.20	7.63
11.05 CFS	7.10	6.60	6.14	5.71	5.30	4.93	4.58	4.26
11.45 CFS	3.96	3.68	3.42	3.18	2.95	2.74	2.55	2.37
11.85 CFS	2.20	2.04	1.89	1.76	1.63	1.51	1.40	1.30
12.25 CFS	1.21	1.12	1.04	.97	.90	.83	.77	.71
12.65 CFS	.66	.61	.57	.53	.49			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 18666 CFS-HRS; 1542.6 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.64	13148.4	(DIVERT)
3.81	5286.1	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = .00 SQ.MI.

HRS								
2.20 CFS	0	38	1917	4114	6433	8654	10590	12064
2.60 CFS	12935	13134	12656	11474	9821	8065	6463	5214
3.00 CFS	4336	3830	3599	3524	3538	3631	3780	3956
3.40 CFS	4140	4333	4528	4711	4878	5031	5162	5250
3.80 CFS	5285	5271	5216	5130	5023	4898	4760	4613
4.20 CFS	4460	4304	4143	3972	3789	3596	3397	3195
4.60 CFS	2995	2800	2611	2428	2248	2069	1890	1712
5.00 CFS	1535	1361	1191	1029	874	725	579	437
5.40 CFS	297	159	23	0				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14497 CFS-HRS; 1198.0 ACRE-FEET.

OPERATION REACH XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.35	4100.0 *	7.94

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 18674 CFS-HRS; 1543.2 ACRE-FEET.

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.40	4100.0 *	5.03

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 18671 CFS-HRS; 1543.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.73	28008.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 3.94 SQ.MI.

HRS								
.70 CFS	.11	.53	1.63	3.91	7.97	14.38	23.74	37.26
1.10 CFS	56	80	110	147	190	239	295	355
1.50 CFS	419	485	555	629	707	789	876	970
1.90 CFS	1070	1172	1291	1520	1978	2754	3947	5645
2.30 CFS	7914	10709	13856	17125	20269	23051	25326	26959
2.70 CFS	27856	27941	27181	25638	23334	20446	17522	14870
3.10 CFS	12659	10940	9640	8690	7921	7256	6690	6220
3.50 CFS	5813	5453	5146	4895	4684	4501	4348	4218
3.90 CFS	4089	3952	3806	3656	3508	3364	3224	3089
4.30 CFS	2960	2840	2733	2639	2550	2461	2371	2280
4.70 CFS	2188	2099	2016	1942	1879	1824	1775	1729
5.10 CFS	1682	1634	1585	1537	1492	1455	1423	1396
5.50 CFS	1372	1350	1324	1294	1262	1230	1197	1163
5.90 CFS	1128	1091	1048	998	943	885	823	756
6.30 CFS	686	612	539	468	398	331	264	199
6.70 CFS	138	85	45	18	5	0		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION REACH XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.40	16237.6	6.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
4.00	11557.4	8.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
4.06	11552.0	8.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.10 WATERSHED INCHES; 28213 CFS-HRS; 2331.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.68	13580.0	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.06 SQ.MI.

HRS								
1.20 CFS	.32	.94	2.20	4.53	8.43	14.25	22.34	33.25
1.60 CFS	48	65	87	114	145	180	219	260
2.00 CFS	305	403	622	1013	1651	2596	3893	5471
2.40 CFS	7211	8963	10567	11924	12911	13469	13552	13136
2.80 CFS	12289	10903	9457	8031	6802	5872	5130	4648
3.20 CFS	4233	3871	3547	3287	3055	2849	2670	2532
3.60 CFS	2417	2323	2247	2197	2140	2073	1998	1916
4.00 CFS	1834	1756	1682	1611	1545	1485	1430	1385
4.40 CFS	1339	1292	1243	1192	1143	1095	1051	1014
4.80 CFS	980	952	925	899	874	848	822	796
5.20 CFS	773	754	738	723	709	697	684	668
5.60 CFS	652	638	624	611	596	581	561	535
6.00 CFS	506	477	447	416	384	349	313	276
6.40 CFS	239	203	165	126	89	55	29	12
6.80 CFS	2.44	.16						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.75 WATERSHED INCHES; 12960 CFS-HRS; 1071.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.69	13913.0	(NULL)
3.98	13359.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 6.00 SQ.MI.

HRS								
1.20 CFS	.32	.94	2.20	4.54	8.47	14.37	22.62	33.79

1.60 CFS	49	67	90	118	151	190	233	279
2.00 CFS	331	437	665	1068	1719	2680	3994	5593
2.40 CFS	7355	9131	10763	12150	13171	13769	13900	13547
2.80 CFS	12787	11520	10239	9034	8094	7531	7235	7282
3.20 CFS	7472	7784	8186	8690	9239	9807	10376	10937
3.60 CFS	11459	11929	12340	12699	12977	13175	13298	13353
4.00 CFS	13354	13307	13219	13096	12942	12763	12562	12350
4.40 CFS	12118	11870	11608	11334	11053	10768	10482	10199
4.80 CFS	9918	9642	9367	9094	8823	8555	8290	8028
5.20 CFS	7773	7527	7288	7056	6829	6609	6394	6181
5.60 CFS	5974	5774	5582	5394	5212	5034	4857	4679
6.00 CFS	4504	4334	4169	4009	3851	3697	3545	3398
6.40 CFS	3255	3116	2979	2846	2718	2596	2485	2385
6.80 CFS	2295	2215	2138	2062	1988	1916	1844	1773
7.20 CFS	1702	1633	1564	1495	1428	1362	1297	1234
7.60 CFS	1172	1112	1054	998	945	893	844	796
8.00 CFS	751	708	667	628	591	555	522	490
8.40 CFS	460	432	405	380	356	334	312	292
8.80 CFS	274	256	239	224	209	195	182	170
9.20 CFS	159	148	139	129	120	112	105	98
9.60 CFS	90.94	84.72	78.91	73.48	68.41	63.69	59.27	55.16
10.00 CFS	51.32	47.74	44.40	41.29	38.39	35.69	33.17	30.83
10.40 CFS	28.65	26.62	24.73	22.97	21.34	19.81	18.40	17.08
10.80 CFS	15.86	14.72	13.66	12.68	11.76	10.91	10.12	9.39
11.20 CFS	8.71	8.08	7.49	6.95	6.44	5.97	5.53	5.13
11.60 CFS	4.75	4.40	4.08	3.78	3.50	3.24	3.00	2.78
12.00 CFS	2.58	2.38	2.21	2.04	1.89	1.75	1.62	1.50
12.40 CFS	1.39	1.28	1.19	1.10	1.02	.94	.87	.80
12.80 CFS	.74	.69	.63	.58	.54	.50		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.63 WATERSHED INCHES; 41173 CFS-HRS; 3402.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.69	17992.4	(NULL)
3.98	17459.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
HRS MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 10.84 SQ.MI.

1.15 CFS	.13	.58	1.78	4.30	8.98	16.87	28.87	45.91
1.55 CFS	69	99	137	183	238	302	377	461
1.95 CFS	554	656	817	1111	1616	2456	3763	5660
2.35 CFS	8149	10567	12747	14606	16117	17202	17834	17983
2.75 CFS	17639	16883	15618	14338	13133	12193	11631	11335
3.15 CFS	11382	11572	11884	12286	12790	13339	13907	14476
3.55 CFS	15037	15559	16029	16440	16799	17077	17275	17398
3.95 CFS	17453	17454	17407	17319	17196	17042	16863	16662
4.35 CFS	16450	16218	15970	15708	15434	15153	14868	14582

4.75 CFS	14299	14018	13742	13467	13194	12923	12655	12390
5.15 CFS	12128	11873	11627	11388	11156	10929	10709	10494
5.55 CFS	10281	10074	9839	9576	9296	9008	8722	8434
5.95 CFS	8142	7851	7562	7278	6998	6725	6456	6193
6.35 CFS	5935	5683	5435	5191	4950	4714	4487	4272
6.75 CFS	4077	3900	3743	3600	3466	3338	3215	3094
7.15 CFS	2976	2860	2745	2631	2519	2408	2299	2192
7.55 CFS	2087	1985	1886	1790	1697	1608	1522	1439
7.95 CFS	1360	1285	1212	1143	1078	1015	956	899
8.35 CFS	846	795	747	701	658	618	579	543
8.75 CFS	509	477	447	418	392	366	343	321
9.15 CFS	300	280	262	245	228	213	199	186
9.55 CFS	173	162	151	141	131	122	114	106
9.95 CFS	98.98	92.21	85.89	79.99	74.48	69.34	64.54	60.07
10.35 CFS	55.90	52.01	48.39	45.01	41.87	38.94	36.21	33.66
10.75 CFS	31.29	29.09	27.04	25.13	23.35	21.69	20.15	18.72
11.15 CFS	17.39	16.15	15.00	13.92	12.93	12.00	11.14	10.34
11.55 CFS	9.59	8.90	8.26	7.66	7.11	6.60	6.12	5.68
11.95 CFS	5.26	4.88	4.52	4.19	3.89	3.60	3.34	3.09
12.35 CFS	2.87	2.66	2.46	2.28	2.11	1.96	1.81	1.68
12.75 CFS	1.55	1.44	1.33	1.23	1.14	1.05	.97	.90
13.15 CFS	.83	.77	.71	.65	.61	.56	.51	.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.55 WATERSHED INCHES; 59845 CFS-HRS; 4945.6 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.45	11000.0 *	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 10.84 SQ.MI.

HRS								
1.15 CFS	.13	.58	1.78	4.30	8.98	16.87	28.87	45.91
1.55 CFS	69	99	137	183	238	302	377	461
1.95 CFS	554	656	817	1111	1616	2456	3763	5660
2.35 CFS	8149	10567	11000	11000	11000	11000	11000	11000
2.75 CFS	11000	11000	11000	11000	11000	11000	11000	11000
3.15 CFS	11000	11000	11000	11000	11000	11000	11000	11000
3.55 CFS	11000	11000	11000	11000	11000	11000	11000	11000
3.95 CFS	11000	11000	11000	11000	11000	11000	11000	11000
4.35 CFS	11000	11000	11000	11000	11000	11000	11000	11000
4.75 CFS	11000	11000	11000	11000	11000	11000	11000	11000
5.15 CFS	11000	11000	11000	11000	11000	10929	10709	10494
5.55 CFS	10281	10074	9839	9576	9296	9008	8722	8434
5.95 CFS	8142	7851	7562	7278	6998	6725	6456	6193
6.35 CFS	5935	5683	5435	5191	4950	4714	4487	4272

6.75 CFS	4077	3900	3743	3600	3466	3338	3215	3094
7.15 CFS	2976	2860	2745	2631	2519	2408	2299	2192
7.55 CFS	2087	1985	1886	1790	1697	1608	1522	1439
7.95 CFS	1360	1285	1212	1143	1078	1015	956	899
8.35 CFS	846	795	747	701	658	618	579	543
8.75 CFS	509	477	447	418	392	366	343	321
9.15 CFS	300	280	262	245	228	213	199	186
9.55 CFS	173	162	151	141	131	122	114	106
9.95 CFS	98.98	92.21	85.89	79.99	74.48	69.34	64.54	60.07
10.35 CFS	55.90	52.01	48.39	45.01	41.87	38.94	36.21	33.66
10.75 CFS	31.29	29.09	27.04	25.13	23.35	21.69	20.15	18.72
11.15 CFS	17.39	16.15	15.00	13.92	12.93	12.00	11.14	10.34
11.55 CFS	9.59	8.90	8.26	7.66	7.11	6.60	6.12	5.68
11.95 CFS	5.26	4.88	4.52	4.19	3.89	3.60	3.34	3.09
12.35 CFS	2.87	2.66	2.46	2.28	2.11	1.96	1.81	1.68
12.75 CFS	1.55	1.44	1.33	1.23	1.14	1.05	.97	.90
13.15 CFS	.83	.77	.71	.65	.61	.56	.51	.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.98 WATERSHED INCHES; 48844 CFS-HRS; 4036.5 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.69	6992.4	(DIVERT)
3.98	6459.3	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = .00 SQ.MI.			
2.40 CFS	0	1747	3606	5117	6202	6834	6983	6639
2.80 CFS	5883	4618	3338	2133	1193	631	335	382
3.20 CFS	572	884	1286	1790	2339	2907	3476	4037
3.60 CFS	4559	5029	5440	5799	6077	6275	6398	6453
4.00 CFS	6454	6407	6319	6196	6042	5863	5662	5450
4.40 CFS	5218	4970	4708	4434	4153	3868	3582	3299
4.80 CFS	3018	2742	2467	2194	1923	1655	1390	1128
5.20 CFS	873	627	388	156	0			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11001 CFS-HRS; 909.1 ACRE-FEET.

OPERATION REACH XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.60	11000.0 *	8.46

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.98 WATERSHED INCHES; 48837 CFS-HRS; 4035.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.44	14477.1	(RUNOFF)
5.09	565.7	(RUNOFF)
5.57	467.7	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 1.47 SQ.MI.

HRS								
.70 CFS	.49	1.79	4.72	10.27	19.17	31.25	46.11	63.69
1.10 CFS	84	107	133	161	189	217	246	272
1.50 CFS	296	320	348	382	424	473	525	578
1.90 CFS	629	673	751	1016	1675	2951	4958	7479
2.30 CFS	10139	12487	14048	14453	13548	11805	9813	7930
2.70 CFS	6413	5301	4595	4109	3719	3397	3144	2908
3.10 CFS	2660	2416	2203	2019	1869	1766	1716	1699
3.50 CFS	1689	1673	1643	1594	1528	1446	1355	1265
3.90 CFS	1188	1135	1109	1100	1091	1070	1033	980
4.30 CFS	915	851	800	767	752	748	744	734
4.70 CFS	711	676	634	596	571	559	559	563
5.10 CFS	565	559	539	512	488	468	456	454
5.50 CFS	460	467	466	456	437	410	376	342
5.90 CFS	311	289	278	271	262	243	211	166
6.30 CFS	116	68	32	10	1	0		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.12 WATERSHED INCHES; 10551 CFS-HRS; 871.9 ACRE-FEET.

OPERATION REACH XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.65	11037.3	9.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.12 WATERSHED INCHES; 10551 CFS-HRS; 871.9 ACRE-FEET.

OPERATION REACH XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.98	7397.2	7.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.12 WATERSHED INCHES; 10551 CFS-HRS; 871.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.98	18393.8	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 12.31 SQ.MI.

HRS								
1.00 CFS	.28	.72	1.60	3.11	5.54	9.19	14.51	22.08
1.40 CFS	33	47	67	92	124	163	210	265
1.80 CFS	330	405	491	588	696	816	970	1207
2.20 CFS	1588	2212	3205	4714	6841	9347	11203	12592
2.60 CFS	13786	14881	15877	16738	17427	17925	18235	18378
3.00 CFS	18383	18283	18103	17867	17594	17296	16984	16665
3.40 CFS	16344	16027	15718	15420	15137	14873	14630	14407
3.80 CFS	14203	14018	13849	13692	13546	13409	13280	13159
4.20 CFS	13045	12940	12844	12756	12674	12599	12527	12459
4.60 CFS	12392	12329	12268	12212	12160	12112	12068	12026
5.00 CFS	11986	11947	11910	11874	11840	11809	11781	11755
5.40 CFS	11731	11675	11531	11344	11135	10918	10685	10430
5.80 CFS	10158	9872	9581	9285	8984	8680	8375	8071
6.20 CFS	7771	7475	7184	6898	6617	6340	6066	5795
6.60 CFS	5526	5260	5000	4750	4516	4299	4102	3922
7.00 CFS	3757	3603	3459	3320	3188	3059	2933	2810
7.40 CFS	2690	2571	2456	2342	2231	2123	2019	1917
7.80 CFS	1819	1724	1633	1545	1461	1380	1303	1230
8.20 CFS	1159	1093	1029	969	912	857	806	757
8.60 CFS	711	667	626	587	551	516	484	453
9.00 CFS	424	397	371	347	325	304	284	265
9.40 CFS	248	232	216	202	188	176	164	153
9.80 CFS	143	133	124	116	108	100	94	87
10.20 CFS	81.15	75.56	70.35	65.49	60.95	56.72	52.78	49.10
10.60 CFS	45.68	42.49	39.51	36.74	34.17	31.76	29.52	27.44
11.00 CFS	25.50	23.70	22.02	20.46	19.00	17.65	16.40	15.23
11.40 CFS	14.14	13.13	12.19	11.31	10.50	9.74	9.04	8.39
11.80 CFS	7.78	7.22	6.70	6.21	5.76	5.34	4.95	4.59
12.20 CFS	4.26	3.95	3.66	3.39	3.14	2.91	2.70	2.50
12.60 CFS	2.32	2.14	1.99	1.84	1.70	1.58	1.46	1.35
13.00 CFS	1.25	1.15	1.07	.99	.91	.84	.78	.72
13.40 CFS	.67	.61	.57	.52	.48			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.48 WATERSHED INCHES; 59391 CFS-HRS; 4908.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.67	32338.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 4.78 SQ.MI.			
1.10 CFS	.35	1.23	3.30	7.30	14.19	25.19	41.59	63.91
1.50 CFS	93	129	173	226	289	361	444	535
1.90 CFS	634	737	869	1142	1708	2714	4325	6694
2.30 CFS	9866	13685	17849	21989	25760	28874	31081	32214
2.70 CFS	32167	30967	28567	25291	21793	18489	15718	13544
3.10 CFS	11939	10771	9814	8968	8240	7625	7085	6605
3.50 CFS	6203	5882	5620	5407	5246	5124	4988	4829
3.90 CFS	4648	4454	4262	4079	3905	3741	3591	3453
4.30 CFS	3329	3225	3117	3005	2887	2768	2653	2541
4.70 CFS	2441	2356	2280	2217	2154	2093	2032	1970
5.10 CFS	1909	1848	1797	1756	1718	1685	1653	1624
5.50 CFS	1591	1553	1517	1484	1454	1423	1390	1353
5.90 CFS	1303	1240	1173	1104	1034	961	886	805
6.30 CFS	722	637	550	463	372	282	195	118
6.70 CFS	60.08	22.99	4.65	.29				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.96 WATERSHED INCHES; 30716 CFS-HRS; 2538.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.83	21194.2	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 3.48 SQ.MI.			
1.00 CFS	.19	.70	1.87	4.06	7.63	13.12	21.11	32.24
1.40 CFS	47	66	88	115	147	185	228	276
1.80 CFS	330	390	456	526	613	762	1034	1484
2.20 CFS	2161	3116	4397	6018	7955	10115	12368	14560
2.60 CFS	16553	18252	19605	20564	21097	21158	20717	19797
3.00 CFS	18426	16619	14575	12598	10822	9364	8214	7356
3.40 CFS	6708	6164	5698	5314	4987	4694	4434	4215
3.80 CFS	4027	3858	3706	3582	3469	3358	3243	3124
4.20 CFS	3003	2884	2765	2649	2537	2431	2335	2251
4.60 CFS	2177	2104	2032	1957	1882	1806	1734	1669
5.00 CFS	1613	1566	1525	1486	1449	1410	1370	1328
5.40 CFS	1288	1254	1227	1204	1184	1165	1144	1117
5.80 CFS	1087	1055	1022	988	954	920	884	843
6.20 CFS	795	743	686	625	562	497	435	375
6.60 CFS	320	267	216	168	123	81	47	23
7.00 CFS	7.37	1.46	.17					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.35 WATERSHED INCHES; 23254 CFS-HRS; 1921.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.72	51863.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 8.26 SQ.MI.

HRS								
1.00 CFS	.19	.78	2.22	5.28	10.93	20.42	35.29	57.43
1.40 CFS	89	130	181	244	320	411	517	638
1.80 CFS	774	925	1090	1263	1482	1904	2742	4198
2.20 CFS	6486	9810	14263	19702	25804	32104	38127	43435
2.60 CFS	47634	50466	51771	51531	49664	46449	42510	38287
3.00 CFS	34144	30163	26514	23368	20636	18333	16454	14981
3.40 CFS	13793	12769	11901	11196	10607	10101	9680	9339
3.80 CFS	9015	8687	8354	8036	7732	7437	7148	6866
4.20 CFS	6594	6337	6094	5874	5654	5436	5222	5019
4.60 CFS	4829	4645	4473	4313	4162	4023	3887	3762
5.00 CFS	3645	3536	3434	3335	3245	3165	3087	3012
5.40 CFS	2941	2878	2817	2757	2701	2649	2597	2540
5.80 CFS	2477	2408	2325	2229	2127	2024	1918	1804
6.20 CFS	1681	1548	1408	1262	1112	960	807	657
6.60 CFS	515	385	276	191	127	81	47	23
7.00 CFS	7.37	1.46	.17					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
10.12 WATERSHED INCHES; 53970 CFS-HRS; 4460.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.74	68291.0	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 20.57 SQ.MI.

HRS								
1.00 CFS	.46	1.50	3.81	8.39	16.46	29.61	49.80	79.52
1.40 CFS	121	177	248	336	444	574	726	903
1.80 CFS	1104	1330	1580	1851	2178	2720	3712	5404
2.20 CFS	8074	12021	17468	24416	32645	41451	49331	56027
2.60 CFS	61419	65347	67649	68269	67091	64374	60745	56664
3.00 CFS	52527	48446	44617	41236	38230	35629	33438	31646
3.40 CFS	30137	28797	27619	26615	25744	24974	24309	23745
3.80 CFS	23218	22705	22202	21728	21278	20847	20429	20024
4.20 CFS	19639	19277	18938	18630	18328	18035	17749	17477
4.60 CFS	17221	16974	16741	16525	16322	16136	15955	15788
5.00 CFS	15631	15484	15344	15209	15085	14974	14868	14768
5.40 CFS	14672	14553	14349	14101	13835	13567	13282	12970
5.80 CFS	12634	12280	11906	11513	11111	10704	10293	9875
6.20 CFS	9452	9023	8592	8160	7729	7300	6873	6452
6.60 CFS	6040	5645	5277	4941	4643	4380	4148	3945
7.00 CFS	3764	3605	3459	3320	3188	3059	2933	2810
7.40 CFS	2690	2571	2456	2342	2231	2123	2019	1917
7.80 CFS	1819	1724	1633	1545	1461	1380	1303	1230
8.20 CFS	1159	1093	1029	969	912	857	806	757

8.60 CFS	711	667	626	587	551	516	484	453
9.00 CFS	424	397	371	347	325	304	284	265
9.40 CFS	248	232	216	202	188	176	164	153
9.80 CFS	143	133	124	116	108	100	94	87
10.20 CFS	81.15	75.56	70.35	65.49	60.95	56.72	52.78	49.10
10.60 CFS	45.68	42.49	39.51	36.74	34.17	31.76	29.52	27.44
11.00 CFS	25.50	23.70	22.02	20.46	19.00	17.65	16.40	15.23
11.40 CFS	14.14	13.13	12.19	11.31	10.50	9.74	9.04	8.39
11.80 CFS	7.78	7.22	6.70	6.21	5.76	5.34	4.95	4.59
12.20 CFS	4.26	3.95	3.66	3.39	3.14	2.91	2.70	2.50
12.60 CFS	2.32	2.14	1.99	1.84	1.70	1.58	1.46	1.35
13.00 CFS	1.25	1.15	1.07	.99	.91	.84	.78	.72
13.40 CFS	.67	.61	.57	.52	.48			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.54 WATERSHED INCHES; 113361 CFS-HRS; 9368.2 ACRE-FEET.

--- XSECTION 76, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

*** MESSAGE - STRUCTURE 1, USER ENTERED STARTING ELEVATION (1200.0 FEET) CAN ADD .534 INCHES OF RUNOFF TO THE OUTFLOW HYDROGRAPH VOLUME.***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 1, TRUNCATED AT 400 POINTS WITH 3047.74 AC-FT (.23 WATERSHED INCHES) FLOOD STORAGE REMAINING IN RESERVOIR AT ELEV. 1211.45. ***

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
3.71	24168.3	1215.97

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 20.57 SQ.MI.

HRS								
.70 CFS	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
1.10 CFS	1.30	1.30	1.33	1.38	1.49	1.66	1.92	2.32
1.50 CFS	2.89	3.67	4.71	6.07	7.81	9.98	12.66	15.91
1.90 CFS	20	24	30	36	45	57	75	102
2.30 CFS	141	173	181	190	199	209	218	227
2.70 CFS	235	242	249	255	1802	4286	7396	10464
3.10 CFS	13237	15519	17591	19265	20587	21622	22425	23035
3.50 CFS	23482	23797	24003	24121	24166	24154	24096	23998
3.90 CFS	23864	23699	23509	23297	23067	22821	22562	22294
4.30 CFS	22018	21738	21455	21172	20888	20604	20323	20043
4.70 CFS	19768	19496	19230	18970	18717	18471	18232	18000
5.10 CFS	17776	17560	17351	17150	16957	16772	16594	16422
5.50 CFS	16252	16076	15894	15706	15530	15345	15150	14943
5.90 CFS	14724	14492	14248	13991	13722	13443	13152	12851
6.30 CFS	12540	12220	11891	11555	11211	10862	10507	10148
6.70 CFS	9788	9428	9072	8721	8383	8115	7852	7594
7.10 CFS	7343	7099	6861	6630	6405	6187	5974	5768

7.50 CFS	5566	5371	5180	4994	4814	4638	4466	4300
7.90 CFS	4138	3980	3827	3678	3534	3393	3258	3126
8.30 CFS	2998	2875	2805	2745	2685	2626	2567	2508
8.70 CFS	2450	2392	2336	2279	2224	2169	2115	2062
9.10 CFS	2009	1958	1907	1857	1809	1761	1714	1668
9.50 CFS	1623	1579	1535	1493	1452	1411	1372	1333
9.90 CFS	1296	1259	1223	1188	1154	1121	1089	1057
10.30 CFS	1026	996	967	939	911	884	858	833
10.70 CFS	808	784	761	738	716	695	674	653
11.10 CFS	634	615	596	578	560	543	527	511
11.50 CFS	495	480	466	451	438	424	411	399
11.90 CFS	386	375	363	352	341	331	320	310
12.30 CFS	301	292	283	274	265	257	257	257
12.70 CFS	257	257	256	256	256	256	256	256
13.10 CFS	256	256	256	256	256	256	256	256
13.50 CFS	256	256	256	256	256	256	256	256
13.90 CFS	256	256	256	256	256	256	256	256
14.30 CFS	256	256	256	256	256	256	256	256
14.70 CFS	256	256	255	255	255	255	255	255
15.10 CFS	255	255	255	255	255	255	255	255
15.50 CFS	255	255	255	255	255	255	255	255
15.90 CFS	255	255	255	255	255	255	255	255
16.30 CFS	255	255	255	255	255	255	255	255
16.70 CFS	255	255	254	254	254	254	254	254
17.10 CFS	254	254	254	254	254	254	254	254
17.50 CFS	254	254	254	254	254	254	254	254
17.90 CFS	254	254	254	254	254	254	254	254
18.30 CFS	254	254	254	254	254	254	254	254
18.70 CFS	254	254	254	253	253	253	253	253
19.10 CFS	253	253	253	253	253	253	253	253
19.50 CFS	253	253	253	253	253	253	253	253
19.90 CFS	253	253	253	253	253	253	253	253
20.30 CFS	253	253	253	253	253	253	253	253

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.29 WATERSHED INCHES; 83566 CFS-HRS; 6905.9 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

RAINFALL OF 12.70 inches AND 6.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 1, ARC 2
MAIN TIME INCREMENT .050 HOURS

ALTERNATE 1 STORM 1

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION		DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
XSECTION	1	RUNOFF	2.46	11.09	---	2.71	17873	7265.4
XSECTION	5	REACH	2.46	11.09	8.21	3.32	10200	4146.3
XSECTION	10	REACH	2.46	11.09	9.08	3.96	7060	2869.9
XSECTION	2	RUNOFF	2.38	10.12	---	2.64	16996	7141.2
XSECTION	12	ADDHYD	4.84	10.62	---	2.64	17248	3563.6
XSECTION	12	DIVERT	4.84	5.98	---	2.25F	4100F	847.1
XSECTION	200	DIVERT	.00	5.98	---	2.64	13148	********
XSECTION	20	REACH	4.84	5.98	7.94	3.35F	4100F	847.1
XSECTION	25	REACH	4.84	5.98	5.03	3.40F	4100F	847.1
XSECTION	3	RUNOFF	3.94	11.10	---	2.73	28009	7108.9
XSECTION	30	REACH	3.94	11.10	6.29	3.40	16238	4121.3
XSECTION	5	REACH	3.94	11.10	8.50	4.00	11557	2933.2
XSECTION	25	REACH	3.94	11.10	8.90	4.06	11552	2932.0
XSECTION	4	RUNOFF	2.06	9.75	---	2.68	13580	6592.2
XSECTION	34	ADDHYD	6.00	10.63	---	2.69	13913	2318.8
XSECTION	35	ADDHYD	10.84	8.55	---	2.69	17992	1659.8
XSECTION	35	DIVERT	10.84	6.98	---	2.45F	11000F	1014.8
XSECTION	199	DIVERT	.00	6.98	---	2.69	6992	********
XSECTION	45	REACH	10.84	6.98	8.46	3.60F	11000F	1014.8
XSECTION	6	RUNOFF	1.47	11.12	---	2.44	14477	9848.3
XSECTION	60	REACH	1.47	11.12	9.94	2.65	11037	7508.2
XSECTION	67	REACH	1.47	11.12	7.60	2.98	7397	5032.0
XSECTION	64	ADDHYD	12.31	7.48	---	2.98	18394	1494.2
XSECTION	5	RUNOFF	4.78	9.96	---	2.67	32339	6765.5
XSECTION	7	RUNOFF	3.48	10.35	---	2.83	21194	6090.2
XSECTION	75	ADDHYD	8.26	10.12	---	2.72	51863	6278.8
XSECTION	76	ADDHYD	20.57	8.54	---	2.74	68291	3319.9
STRUCTURE	1	RESVOR	20.57	6.29	1215.97	3.71	24168	1174.9

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE k* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION: INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	ROUTING PARAMETERS: Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 1											
5	9100		17866	2.7	10182	3.3	1.77	1.09	.634	.570	.08
10	9100		10182	3.3	7060	4.0	2.37	1.06	.361	.693	.08
20	3332		4100	2.3	4100	3.3	.14	1.63	.003	1.000	.50
25	1950		4100	3.3	4100	3.4	.052	1.73	.001	1.000	.65
30	8865		27941	2.8	16238	3.4	.95	1.15	.638	.581	.08
5	8865		16238	3.4	11557	4.0	1.76	1.09	.334	.712	.08
25	1950		11557	4.0	11551	4.1	.062	1.70	.002	.999	.84?
45	4200		11000	2.5	11000	3.6	.049	1.72	.003	1.000	.47
60	7540		14453	2.5	11037	2.7	.28	1.44	.236	.764	.24
67	5140		11037	2.7	7386	3.0	1.78	1.09	.367	.669	.13

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
STRUCTURE 1	20.57	
ALTERNATE 1		24168
XSECTION 1	2.46	
ALTERNATE 1		17873
XSECTION 2	2.38	
ALTERNATE 1		16996
XSECTION 3	3.94	
ALTERNATE 1		28009
XSECTION 4	2.06	
ALTERNATE 1		13580
XSECTION 5	4.78	
ALTERNATE 1		32339
XSECTION 6	1.47	
ALTERNATE 1		14477
XSECTION 7	3.48	
ALTERNATE 1		21194
XSECTION 10	2.46	
ALTERNATE 1		7060
XSECTION 12	4.84	
ALTERNATE 1		4100
XSECTION 20	4.84	
ALTERNATE 1		4100
XSECTION 25	3.94	
ALTERNATE 1		11552
XSECTION 30	3.94	
ALTERNATE 1		16238
XSECTION 34	6.00	

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
XSECTION 34		6.00	
ALTERNATE	1		13913
XSECTION 35		10.84	
ALTERNATE	1		11000
XSECTION 45		10.84	
ALTERNATE	1		11000
XSECTION 60		1.47	
ALTERNATE	1		11037
XSECTION 64		12.31	
ALTERNATE	1		18394
XSECTION 67		1.47	
ALTERNATE	1		7397
XSECTION 75		8.26	
ALTERNATE	1		51863
XSECTION 76		20.57	
ALTERNATE	1		68291
XSECTION 199		.00	
ALTERNATE	1		6992
XSECTION 200		.00	
ALTERNATE	1		13148

ECON2 DATA FILE

```
ECON2
TITLE        WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE         6HR LOCAL, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
FLOW-FREQ    -1         24168.                                    ALT  1   1
FLOW-FREQ     1         17873.                                    ALT  1   2
FLOW-FREQ     2         16996.                                    ALT  1   3
FLOW-FREQ     3         28009.                                    ALT  1   4
FLOW-FREQ     4         13580.                                    ALT  1   5
FLOW-FREQ     5         32339.                                    ALT  1   6
FLOW-FREQ     6         14477.                                    ALT  1   7
FLOW-FREQ     7         21194.                                    ALT  1   8
FLOW-FREQ    10          7060.                                    ALT  1   9
FLOW-FREQ    12          4100.                                    ALT  1  10
FLOW-FREQ    20          4100.                                    ALT  1  11
FLOW-FREQ    25         11552.                                    ALT  1  12
FLOW-FREQ    30         16238.                                    ALT  1  13
FLOW-FREQ    34         13913.                                    ALT  1  14
FLOW-FREQ    35         11000.                                    ALT  1  15
FLOW-FREQ    45         11000.                                    ALT  1  16
FLOW-FREQ    60         11037.                                    ALT  1  17
FLOW-FREQ    64         18394.                                    ALT  1  18
FLOW-FREQ    67          7397.                                    ALT  1  19
FLOW-FREQ    75         51863.                                    ALT  1  20
FLOW-FREQ    76         68291.                                    ALT  1  21
FLOW-FREQ   199          6992.                                    ALT  1  22
FLOW-FREQ   200         13148.                                    ALT  1  23
```

```
TR20 ------------------------------------------------------------------------ SCS -
WT3PMP6      WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
01/11/**      6HR LOCAL, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT      2.04TEST


END OF  1 JOBS IN THIS RUN
```

SCS TR-20, VERSION 2.04TEST
WT3PMP6 FILES

INPUT =	6L.DAT	, GIVEN DATA FILE
OUTPUT =	6LOUT.OUT	, DATED 01/11/**,10:15:12

FILES GENERATED - DATED 01/11/**,10:15:12

FILE 6LOUT.TEC CONTAINS ECON2 INFORMATION

FILE 6LOUT.TRD CONTAINS READHD INFORMATION

TOTAL NUMBER OF WARNINGS = 0, MESSAGES = 2

JOB ENDED AT 10:15:12
*** TR-20 RUN COMPLETED ***

72-hr. General

(Future Condition - PS Open)

72-hr General Modeling Results
(Principal Spillway Open - Future Condition)

```
******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

JOB TR-20 WT3PMP72  ECON                PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     72-HR PMP (MTI=.2), RESERVOIR INIT EMPTY W/100-YR SED
 5 RAINFL 1              0.1                                          6HRLOCAL
 8          .0000        .003        .006        .009        .013
 8          .016         .020        .025        .030        .035
 8          .039         .046        .052        .058        .065
 8          .071         .080        .090        .099        .109
 8          .118         .283        .449        .567        .622
 8          .669         .701        .732        .756        .780
 8          .795         .809        .824        .838        .852
 8          .866         .876        .885        .894        .904
 8          .913         .920        .926        .932        .939
 8          .945         .950        .954        .959        .964
 8          .969         .972        .976        .980        .984
 8          .988         .991        .993        .995        .998
 8          1.           1.          1.          1.          1.
 9 ENDTBL
 5 RAINFL 2              .1                                           6HR GEN
 8          .000         .005        .013        .020        .028
 8          .038         .045        .053        .060        .070
 8          .080         .085        .095        .108        .120
 8          .138         .150        .165        .190        .210
 8          .238         .280        .350        .440        .550
 8          .590         .620        .645        .668        .685
 8          .700         .720        .735        .753        .765
 8          .775         .790        .800        .810        .820
 8          .835         .843        .850        .863        .870
 8          .880         .890        .898        .908        .915
 8          .925         .930        .940        .945        .955
 8          .963         .970        .978        .985        .990
 8          1.00         1.00        1.00        1.00        1.00
 9 ENDTBL
 5 RAINFL 3              0.1                                          12HRGEN
 8          .000         .003        .007        .010        .013
 8          .016         .019        .022        .025        .028
 8          .031         .034        .037        .040        .043
 8          .045         .050        .054        .058        .062
 8          .066         .071        .075        .080        .085
 8          .089         .095        .101        .107        .112
 8          .118         .125        .132        .139        .146
 8          .153         .162        .171        .180        .189
 8          .198         .211        .224        .237        .250
 8          .264         .300        .345        .391        .436
 8          .491         .536        .564        .586        .607
 8          .629         .643        .657        .672        .686
 8          .700         .711        .721        .732        .742
 8          .753         .761        .769        .778        .786
 8          .795         .802        .809        .817        .824
 8          .832         .837        .843        .848        .854
 8          .859         .865        .870        .875        .881
 8          .886         .891        .895        .900        .905
 8          .909         .913        .917        .921        .925
 8          .929         .933        .936        .940        .944
 8          .948         .951        .954        .957        .960
 8          .963         .966        .969        .971        .974
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 8          .977        .980        .982        .984        .986
 8          .989        .991        .993        .995        .998
 8         1.000      01.000       1.000       1.000       1.00
 9 ENDTBL
 5 RAINFL 4              0.1                                        18HRGEN
 8          .000        .001        .002        .003        .004
 8          .005        .005        .006        .007        .008
 8          .009        .012        .014        .017        .020
 8          .023        .025        .028        .031        .033
 8          .036        .040        .044        .049        .053
 8          .057        .061        .065        .070        .074
 8          .078        .084        .090        .096        .102
 8          .108        .114        .120        .126        .132
 8          .138        .146        .154        .162        .170
 8          .179        .187        .195        .203        .211
 8          .220        .238        .256        .275        .293
 8          .311        .330        .348        .367        .385
 8          .403        .430        .457        .484        .511
 8          .538        .557        .577        .597        .616
 8          .636        .653        .670        .687        .704
 8          .721        .734        .746        .759        .771
 8          .784        .792        .801        .810        .818
 8          .827        .832        .838        .843        .848
 8          .853        .856        .859        .862        .864
 8          .867        .870        .872        .875        .878
 8          .880        .882        .885        .887        .889
 8          .891        .893        .895        .897        .899
 8          .901        .903        .905        .907        .909
 8          .911        .912        .914        .916        .917
 8          .919        .920        .922        .924        .925
 8          .927        .929        .930        .932        .934
 8          .935        .937        .938        .940        .941
 8          .943        .945        .946        .948        .949
 8          .951        .952        .953        .955        .956
 8          .957        .959        .960        .961        .963
 8          .964        .965        .967        .968        .970
 8          .971        .972        .974        .975        .976
 8          .978        .979        .980        .982        .983
 8          .984        .985        .986        .988        .989
 8          .990        .991        .992        .993        .994
 8          .995        .996        .997        .998        .999
 8         1.000       1.000       1.000       1.000       1.000
 9 ENDTBL
 5 RAINFL 5              0.1                                        24HRGEN
 8        0.000       0.000       0.001       0.001       0.002
 8        0.002       0.002       0.003       0.003       0.003
 8        0.004       0.005       0.007       0.009       0.010
 8        0.012       0.013       0.015       0.016       0.018
 8        0.019       0.022       0.024       0.027       0.030
 8        0.032       0.035       0.037       0.040       0.042
 8        0.045       0.048       0.051       0.055       0.058
 8        0.061       0.064       0.068       0.071       0.074
 8        0.078       0.082       0.087       0.091       0.096
 8        0.100       0.104       0.109       0.113       0.118
 8        0.122       0.127       0.132       0.137       0.142
 8        0.147       0.151       0.156       0.161       0.166
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8          0.171       0.177       0.184       0.191       0.198
 8          0.205       0.214       0.224       0.233       0.242
 8          0.252       0.265       0.278       0.291       0.303
 8          0.316       0.334       0.351       0.368       0.386
 8          0.403       0.425       0.447       0.468       0.490
 8          0.512       0.527       0.543       0.558       0.574
 8          0.589       0.603       0.617       0.631       0.645
 8          0.659       0.671       0.684       0.696       0.709
 8          0.721       0.731       0.741       0.751       0.761
 8          0.771       0.779       0.786       0.793       0.800
 8          0.808       0.814       0.820       0.825       0.831
 8          0.837       0.840       0.843       0.847       0.850
 8          0.853       0.855       0.857       0.859       0.861
 8          0.864       0.866       0.868       0.870       0.872
 8          0.874       0.876       0.878       0.880       0.881
 8          0.883       0.885       0.886       0.888       0.890
 8          0.891       0.893       0.895       0.896       0.898
 8          0.899       0.901       0.902       0.904       0.905
 8          0.907       0.908       0.909       0.910       0.912
 8          0.913       0.914       0.915       0.916       0.917
 8          0.919       0.920       0.921       0.922       0.923
 8          0.924       0.926       0.927       0.928       0.929
 8          0.930       0.932       0.933       0.935       0.936
 8          0.938       0.940       0.941       0.943       0.944
 8          0.946       0.947       0.947       0.948       0.949
 8          0.950       0.950       0.951       0.952       0.953
 8          0.953       0.955       0.956       0.957       0.958
 8          0.959       0.960       0.961       0.962       0.963
 8          0.964       0.965       0.966       0.967       0.968
 8          0.969       0.970       0.971       0.972       0.973
 8          0.974       0.975       0.976       0.977       0.978
 8          0.979       0.980       0.981       0.982       0.983
 8          0.984       0.985       0.986       0.987       0.988
 8          0.988       0.989       0.990       0.991       0.991
 8          0.992       0.993       0.994       0.995       0.995
 8          0.996       0.997       0.998       0.998       0.999
 8          1.000       1.000       1.000       1.000       1.000
 9  ENDTBL
 5 RAINFL 6                .25                                          48HRGEN
 8          0.0000      0.0015      0.0029      0.0044      0.0058
 8          0.0073      0.0088      0.0102      0.0117      0.0131
 8          0.0146      0.0160      0.0175      0.0190      0.0204
 8          0.0219      0.0233      0.0248      0.0263      0.0277
 8          0.0292      0.0306      0.0321      0.0335      0.0350
 8          0.0365      0.0379      0.0394      0.0408      0.0423
 8          0.0438      0.0452      0.0467      0.0481      0.0496
 8          0.0510      0.0525      0.0542      0.0558      0.0575
 8          0.0592      0.0608      0.0625      0.0642      0.0658
 8          0.0692      0.0725      0.0758      0.0792      0.0825
 8          0.0858      0.0892      0.0925      0.0975      0.1025
 8          0.1075      0.1125      0.1175      0.1225      0.1275
 8          0.1325      0.1442      0.1560      0.1677      0.1794
 8          0.1985      0.2176      0.2366      0.2557      0.3239
 8          0.3921      0.4603      0.5285      0.5520      0.5754
 8          0.5989      0.6224      0.6356      0.6488      0.6620
 8          0.6752      0.6862      0.6972      0.7082      0.7192
```

```
8          0.7267      0.7342      0.7417      0.7492      0.7558
8          0.7625      0.7692      0.7758      0.7825      0.7892
8          0.7958      0.8025      0.8083      0.8142      0.8200
8          0.8258      0.8308      0.8358      0.8408      0.8458
8          0.8508      0.8558      0.8608      0.8658      0.8683
8          0.8708      0.8733      0.8758      0.8783      0.8808
8          0.8833      0.8858      0.8875      0.8892      0.8908
8          0.8925      0.8942      0.8958      0.8975      0.8992
8          0.9008      0.9025      0.9042      0.9058      0.9075
8          0.9092      0.9108      0.9125      0.9140      0.9154
8          0.9169      0.9183      0.9198      0.9213      0.9227
8          0.9242      0.9256      0.9271      0.9285      0.9300
8          0.9315      0.9329      0.9344      0.9358      0.9373
8          0.9388      0.9402      0.9417      0.9431      0.9446
8          0.9460      0.9475      0.9490      0.9504      0.9519
8          0.9533      0.9548      0.9563      0.9577      0.9592
8          0.9606      0.9621      0.9635      0.9650      0.9665
8          0.9679      0.9694      0.9708      0.9723      0.9737
8          0.9752      0.9767      0.9781      0.9796      0.9810
8          0.9825      0.9840      0.9854      0.9869      0.9883
8          0.9898      0.9912      0.9927      0.9942      0.9956
8          0.9971      0.9985      1.0000      1.0000      1.0
9 ENDTBL
5 RAINFL 7             .25                                          72HRGEN
8          0.0000      0.0005      0.0009      0.0014      0.0019
8          0.0025      0.0032      0.0038      0.0044      0.0051
8          0.0057      0.0063      0.0070      0.0076      0.0082
8          0.0089      0.0095      0.0103      0.0111      0.0119
8          0.0127      0.0134      0.0142      0.0150      0.0158
8          0.0171      0.0184      0.0196      0.0209      0.0222
8          0.0234      0.0247      0.0259      0.0272      0.0285
8          0.0297      0.0310      0.0323      0.0335      0.0348
8          0.0361      0.0375      0.0389      0.0403      0.0418
8          0.0432      0.0446      0.0460      0.0475      0.0489
8          0.0503      0.0517      0.0532      0.0546      0.0560
8          0.0574      0.0589      0.0604      0.0620      0.0636
8          0.0652      0.0668      0.0684      0.0699      0.0715
8          0.0731      0.0747      0.0763      0.0778      0.0797
8          0.0816      0.0835      0.0854      0.0877      0.0899
8          0.0921      0.0943      0.0968      0.0994      0.1019
8          0.1044      0.1073      0.1101      0.1130      0.1158
8          0.1193      0.1228      0.1263      0.1297      0.1335
8          0.1373      0.1411      0.1449      0.1491      0.1532
8          0.1573      0.1614      0.1725      0.1837      0.1948
8          0.2059      0.2241      0.2422      0.2603      0.2784
8          0.3431      0.4078      0.4726      0.5373      0.5596
8          0.5819      0.6042      0.6265      0.6390      0.6515
8          0.6641      0.6766      0.6870      0.6975      0.7079
8          0.7184      0.7255      0.7326      0.7397      0.7468
8          0.7535      0.7601      0.7668      0.7734      0.7794
8          0.7854      0.7915      0.7975      0.8030      0.8085
8          0.8141      0.8196      0.8247      0.8297      0.8348
8          0.8399      0.8443      0.8487      0.8532      0.8576
8          0.8598      0.8620      0.8642      0.8665      0.8685
8          0.8706      0.8726      0.8747      0.8766      0.8785
8          0.8804      0.8823      0.8840      0.8858      0.8875
```

```
 8          0.8892      0.8908      0.8924      0.8940      0.8956
 8          0.8972      0.8987      0.9003      0.9019      0.9035
 8          0.9051      0.9066      0.9082      0.9098      0.9114
 8          0.9130      0.9146      0.9160      0.9174      0.9188
 8          0.9203      0.9217      0.9231      0.9245      0.9259
 8          0.9274      0.9288      0.9302      0.9316      0.9329
 8          0.9342      0.9354      0.9367      0.9380      0.9392
 8          0.9405      0.9418      0.9430      0.9443      0.9456
 8          0.9468      0.9481      0.9494      0.9506      0.9519
 8          0.9530      0.9541      0.9552      0.9563      0.9574
 8          0.9585      0.9597      0.9608      0.9619      0.9630
 8          0.9641      0.9652      0.9661      0.9671      0.9680
 8          0.9690      0.9699      0.9709      0.9718      0.9728
 8          0.9736      0.9744      0.9752      0.9759      0.9767
 8          0.9775      0.9783      0.9791      0.9797      0.9804
 8          0.9810      0.9816      0.9823      0.9829      0.9835
 8          0.9842      0.9847      0.9851      0.9856      0.9861
 8          0.9866      0.9870      0.9875      0.9880      0.9884
 8          0.9889      0.9894      0.9899      0.9902      0.9905
 8          0.9908      0.9911      0.9915      0.9918      0.9921
 8          0.9924      0.9927      0.9930      0.9934      0.9937
 8          0.9940      0.9943      0.9946      0.9949      0.9953
 8          0.9956      0.9959      0.9962      0.9965      0.9968
 8          0.9972      0.9975      0.9978      0.9981      0.9984
 8          0.9987      0.9989      0.9991      0.9992      0.9994
 8          0.9995      0.9997      0.9998      1.0000      1.0000
 9 ENDTBL
 5 RAINFL 8     1        2.4                                          10-DAY
 8          .0000       .0024       .0048       .0073       .0097
 8          .0121       .0148       .0174       .0201       .0228
 8          .0254       .0284       .0314       .0344       .0374
 8          .0404       .0437       .0471       .0505       .0539
 8          .0572       .0612       .0651       .0690       .0729
 8          .0768       .0815       .0862       .0909       .0955
 8          .1002       .1061       .1120       .1179       .1238
 8          .1297       .1377       .1458       .1538       .1618
 8          .1699       .1832       .1966       .2099       .2232
 8          .2366       .2548       .2778       .3093       .3614
 8          1.092       1.174       1.213       1.240       1.260
 8          1.276       1.286       1.296       1.306       1.316
 8          1.326       1.333       1.340       1.347       1.354
 8          1.360       1.365       1.371       1.376       1.381
 8          1.386       1.391       1.395       1.399       1.403
 8          1.408       1.411       1.415       1.418       1.422
 8          1.426       1.429       1.432       1.435       1.438
 8          1.442       1.444       1.447       1.450       1.453
 8          1.456       1.458       1.461       1.463       1.466
 8          1.468       1.471       1.473       1.475       1.477
 8          1.48        1.48        1.48        1.48        1.48
 9 ENDTBL
 4 DIMHYD                .0556                                        WT3
 8          0.0         .03         .10         .19         .31
 8          .47         .66         .82         .93         .99
 8          1.0         .99         .93         .82         .66
 8          .47         .31         .03         .00         .00
 9 ENDTBL
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 2 XSECTN    005         1.0         8.77                                BOSSCS#5
 8                       0.          0.0         0.0
 8                       0.35        5.          5.56
 8                       1.03        50.         30.95
 8                       1.39        100.        52.16
 8                       1.94        200.        88.72
 8                       2.63        400.        148.61
 8                       3.51        800.        260.63
 8                       4.62        1600.       459.66
 8                       6.04        3200.       929.36
 8                       7.38        6400.       1811.51
 8                       8.77        12800.      3374.20
 8                       10.17       25600.      6398.87
 8                       11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN    010         1.0         8.94                                BOSSCS#4
 8                       0.          0.0         0.0
 8                       0.91        5.          4.95
 8                       2.03        50.         24.80
 8                       2.63        100.        41.32
 8                       3.34        200.        74.14
 8                       4.15        400.        130.28
 8                       5.23        800.        223.37
 8                       6.41        1600.       447.51
 8                       7.65        3200.       898.64
 8                       8.94        6400.       1690.88
 8                       10.29       12800.      3331.95
 8                       11.64       25600.      6185.81
 8                       13.14       51200.      10661.04
 9 ENDTBL
 2 XSECTN    020         1.0         7.3                                 REACHC
 8                       0.          0.0         0.0
 8                       1.01        100.        57.78
 8                       1.49        200.        86.81
 8                       1.88        300.        110.25
 8                       2.49        500.        149.47
 8                       3.68        1000.       226.31
 8                       5.40        2000.       346.26
 8                       7.85        4000.       533.39
 8                       9.64        6000.       688.07
 8                       11.16       8000.       838.10
 8                       12.46       10000.      985.31
 8                       13.61       12000.      1122.03
 8                       14.56       14000.      1236.94
 8                       15.43       16000.      1345.18
 8                       16.31       18000.      1456.68
 9 ENDTBL
 2 XSECTN    025         1.0         7.3                                 REACHB
 8                       0.          0.0         0.0
 8                       0.63        100.        80.89
 8                       0.93        200.        120.32
 8                       1.17        300.        151.77
 8                       1.56        500.        203.28
 8                       2.30        1000.       302.00
 8                       3.38        2000.       449.24
 8                       4.97        4000.       673.73
```

```
 8                      6.23        6000.       855.96
 8                      7.31        8000.       1016.35
 8                      8.24        10000.      1158.51
 8                      9.09        12000.      1293.31
 8                      9.90        14000.      1425.57
 8                      10.64       16000.      1549.17
 8                      11.36       18000.      1673.11
 9 ENDTBL
 2 XSECTN    030        1.0         9.45                                BOSSCS#6
 8                      0.          0.0         0.0
 8                      0.77        5.          4.67
 8                      1.54        50.         32.06
 8                      1.78        100.        56.64
 8                      2.10        200.        100.59
 8                      2.50        400.        179.97
 8                      3.01        800.        320.25
 8                      3.63        1600.       589.66
 8                      4.35        3200.       1110.72
 8                      5.21        6400.       2084.48
 8                      6.03        12800.      4119.83
 8                      6.99        25600.      6856.75
 8                      8.28        51200.      11085.87
 9 ENDTBL
 2 XSECTN    045        1.0         4.87                                REACHA
 8                      0.          0.0         0.0
 8                      0.60        100.        85.69
 8                      0.90        200.        127.94
 8                      1.13        300.        161.93
 8                      1.52        500.        217.27
 8                      2.25        1000.       324.03
 8                      3.31        2000.       483.02
 8                      4.87        4000.       722.17
 8                      6.09        6000.       914.99
 8                      7.15        8000.       1084.61
 8                      8.05        10000.      1234.17
 8                      8.87        12000.      1373.80
 8                      9.64        14000.      1507.84
 8                      10.34       16000.      1633.45
 8                      11.00       18000.      1753.12
 9 ENDTBL
 2 XSECTN    060        1.0         4.7                                 2CP6CP7
 8                      0.          0.0         0.0
 8                      2.36        100.        45.12
 8                      2.88        200.        83.75
 8                      3.18        300.        114.33
 8                      3.64        500.        172.72
 8                      4.42        1000.       289.04
 8                      5.40        2000.       470.72
 8                      6.87        4000.       782.74
 8                      7.91        6000.       1020.12
 8                      8.79        8000.       1231.25
 8                      9.60        10000.      1435.05
 8                      10.26       12000.      1618.34
 8                      10.94       14000.      1812.58
 8                      11.47       16000.      1983.46
 8                      11.96       18000.      2150.12
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 9 ENDTBL
 2 XSECTN    067          1.0         8.77                              BOSSCS#5
 8                        0.          0.0         0.0
 8                        0.35        5.          5.56
 8                        1.03        50.         30.95
 8                        1.39        100.        52.16
 8                        1.94        200.        88.72
 8                        2.63        400.        148.61
 8                        3.51        800.        260.63
 8                        4.62        1600.       459.66
 8                        6.04        3200.       929.36
 8                        7.38        6400.       1811.51
 8                        8.77        12800.      3374.20
 8                        10.17       25600.      6398.87
 8                        11.89       51200.      10982.51
 9 ENDTBL
 3 STRUCT       01                                                       95/11/6
 8                        1178.0      0.0         0.
 8                        1188.0      1.10        44.8
 8                        1196.8      1.20        300.
 8                        1200.0      1.30        586.
 8                        1202.0      171.0       845.55
 8                        1204.0      191.20      1176.28
 8                        1206.0      209.5       1575.25
 8                        1208.0      226.3       2044.97
 8                        1210.0      241.9       2593.40
 8                        1212.0      256.60      3218.00
 8                        1213.0      2856.00     3556.67
 8                        1214.0      8404.00     3916.02
 8                        1215.0      15720.0     4294.13
 8                        1216.0      24449.0     4692.68
 8                        1217.0      34389.0     5113.19
 8                        1218.0      45408.0     5556.01
 8                        1219.0      57410.0     6021.50
 8                        1220.0      70318.0     6509.75
 9 ENDTBL
 6 RUNOFF 1 001       1 2.46          87.2        0.85        1 1
 6 REACH  3 005   1   7 9100.                                 1           BOSS#6
 6 REACH  3 010   7   2 9100.                                 1           BOSS#4
 6 RUNOFF 1 002       3 2.38          79.9        0.73        1 1
 6 ADDHYD 4 012   2 3 1                                       1 1
 6 DIVERT 6 012   1 4 7 4100.         1.00        200.        1 1         OLIVE
 6 REACH  3 020   4   7 3332.                                 1           REACH C
 6 REACH  3 025   7   5 1950.                                 1           REACH B
 6 RUNOFF 1 003       6 3.94          87.2        0.88        1 1
 6 REACH  3 030   6   7 8865.                                 1           BOSS#6
 6 REACH  3 005   7   1 8865.                                 1           BOSS#5
 6 REACH  3 025   1   7 1950.                                 1           REACH B
 6 RUNOFF 1 004       1 2.06          77.3        0.79        1 1
 6 ADDHYD 4 034   7 1 2                                       1 1
 6 ADDHYD 4 035   5 2 3                                       1 1
 6 DIVERT 6 035   3 4 7 11000.        1.00        199.        1 1         NORTHERN
 6 REACH  3 045   4   5 4200.                                 1           REACH A
 6 RUNOFF 1 006       2 1.47          87.7        0.47        1 1
 6 REACH  3 060   2   3 7540.                                 1           CP6CP7
 6 REACH  3 067   3   4 5140.                                 1           BOSS#5
```

```
**********80-80 LIST OF INPUT DATA (CONTINUED)**********

 6 ADDHYD 4 064    5 4 3                                        1 1
 6 RUNOFF 1 005        6 4.78         78.8         0.78         1 1
 6 RUNOFF 1 007        7 3.48         81.7         1.01         1 1
 6 ADDHYD 4 075    6 7 1                                        1 1
 6 ADDHYD 4 076    1 3 2                                        1 1      1
 6 RESVOR 2     01 2   1 1200.0                                 1 1      1
   ENDATA
 7 LIST                  1.0                      1.
 7 INCREM 6              0.20
 7 COMPUT 7 001       01 0.          15.8         1.0          7 2  01  07
   ENDCMP 1
   ENDJOB 2

**********END OF 80-80 LIST**********
```

RUNOFF OPTION USED WITH RAINTABLE NO. 8, RUNOFF CURVE NO. = 100.

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

```
EXECUTIVE CONTROL  LIST           1.          0.          1.

          LISTING OF CURRENT DATA


                    COMPUTED TIME INCREMENT
DIMHYD                          .0556

                  .0000       .0300       .1000       .1900       .3100
                  .4700       .6600       .8200       .9300       .9900
                 1.0000       .9900       .9300       .8200       .6600
                  .4700       .3100       .0300       .0000       .0000
ENDTBL

   COMPUTED PEAK RATE FACTOR =  664.607
```

TABLE NO. TIME INCREMENT
RAINFL 1 .1000

.0000	.0030	.0060	.0090	.0130
.0160	.0200	.0250	.0300	.0350
.0390	.0460	.0520	.0580	.0650
.0710	.0800	.0900	.0990	.1090
.1180	.2830	.4490	.5670	.6220
.6690	.7010	.7320	.7560	.7800
.7950	.8090	.8240	.8380	.8520
.8660	.8760	.8850	.8940	.9040
.9130	.9200	.9260	.9320	.9390
.9450	.9500	.9540	.9590	.9640
.9690	.9720	.9760	.9800	.9840
.9880	.9910	.9930	.9950	.9980
1.0000	1.0000	1.0000	1.0000	1.0000

ENDTBL

STANDARD CONTROL INSTRUCTIONS

```
RUNOFF      1        1      2.4600     87.2000      .85001 1 0 0 0 1
REACH       5   1    7   9100.0000       .0000      .00001 0 0 0 0 1
REACH      10   7    2   9100.0000       .0000      .00001 0 0 0 0 1
RUNOFF      2        3      2.3800     79.9000      .73001 1 0 0 0 1
ADDHYD     12   2 3  1                                   1 1 0 0 0 1
DIVERT     12   1 4  7   4100.0000      1.0000   200.00001 1 0 0 0 1
REACH      20   4    7   3332.0000       .0000      .00001 0 0 0 0 1
REACH      25   7    5   1950.0000       .0000      .00001 0 0 0 0 1
RUNOFF      3        6      3.9400     87.2000      .88001 1 0 0 0 1
REACH      30   6    7   8865.0000       .0000      .00001 0 0 0 0 1
REACH       5   7    1   8865.0000       .0000      .00001 0 0 0 0 1
REACH      25   1    7   1950.0000       .0000      .00001 0 0 0 0 1
RUNOFF      4        1      2.0600     77.3000      .79001 1 0 0 0 1
ADDHYD     34   7 1  2                                   1 1 0 0 0 1
ADDHYD     35   5 2  3                                   1 1 0 0 0 1
DIVERT     35   3 4  7  11000.0000      1.0000   199.00001 1 0 0 0 1
REACH      45   4    5   4200.0000       .0000      .00001 0 0 0 0 1
RUNOFF      6        2      1.4700     87.7000      .47001 1 0 0 0 1
REACH      60   2    3   7540.0000       .0000      .00001 0 0 0 0 1
REACH      67   3    4   5140.0000       .0000      .00001 0 0 0 0 1
ADDHYD     64   5 4  3                                   1 1 0 0 0 1
RUNOFF      5        6      4.7800     78.8000      .78001 1 0 0 0 1
RUNOFF      7        7      3.4800     81.7000     1.01001 1 0 0 0 1
ADDHYD     75   6 7  1                                   1 1 0 0 0 1
ADDHYD     76   1 3  2                                   1 1 0 0 1 1
RESVOR        1 2    1   1200.0000                       1 1 0 0 1 1
ENDATA
```

END OF LISTING

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .200 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO STRUCTURE 1
STARTING TIME = .00 RAIN DEPTH = 15.80 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .200 HOURS
ALTERNATE NO. = 1 STORM NO. = 7 RAIN TABLE NO. = 7

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.01	6290.9	(RUNOFF)
37.14	222.8	(RUNOFF)
42.48	160.6	(RUNOFF)
43.88	160.6	(RUNOFF)
45.39	144.8	(RUNOFF)
46.63	144.8	(RUNOFF)
48.53	128.1	(RUNOFF)
49.25	128.1	(RUNOFF)
50.01	128.2	(RUNOFF)
50.78	128.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 2.46 SQ.MI.			
6.80 CFS	.23	.99	2.60	4.92	7.41	9.80	12.16	14.48
8.40 CFS	16.85	19.25	21.48	23.29	25.31	27.59	29.55	31.06
10.00 CFS	32.94	35.51	38.49	41.46	44.22	46.72	49.35	51.53
11.60 CFS	52.88	53.84	55.72	58.23	60.26	61.25	61.85	63.48
13.20 CFS	65.94	67.81	68.54	68.83	70.26	73.02	76.35	79.85
14.80 CFS	83.14	86.13	88.09	89.48	90.66	91.14	91.12	92.08
16.40 CFS	94	97	98	98	100	105	113	121
18.00 CFS	124	127	135	144	151	152	154	162
19.60 CFS	172	180	184	186	193	204	212	215
21.20 CFS	220	234	253	270	275	277	284	296
22.80 CFS	306	311	315	325	337	345	350	394
24.40 CFS	545	760	926	983	1033	1205	1437	1616
26.00 CFS	1680	1996	3130	4708	5958	6290	6037	5038
27.60 CFS	3598	2474	2209	2138	1905	1567	1316	1248
29.20 CFS	1233	1182	1109	1057	1041	1019	937	822
30.80 CFS	735	709	707	696	681	669	665	660
32.40 CFS	643	621	606	604	601	587	568	556
34.00 CFS	554	552	540	522	510	507	504	489
35.60 CFS	465	448	444	429	373	294	237	222
37.20 CFS	223	219	212	207	206	205	202	197
38.80 CFS	192	190	189	185	179	176	174	172
40.40 CFS	167	164	161	161	161	160	158	156
42.00 CFS	157	159	160	160	159	157	156	158
43.60 CFS	160	161	161	159	154	147	142	142

45.20 CFS	144	145	144	141	141	141	143	145
46.80 CFS	144	142	140	137	134	130	127	126
48.40 CFS	128	128	126	127	128	128	126	127
50.00 CFS	128	127	126	127	128	127	125	122
51.60 CFS	117	112	110	110	110	111	112	114
53.20 CFS	115	113	111	110	110	109	104	99
54.80 CFS	95.92	95.49	95.53	95.31	95.58	95.24	95.48	94.73
56.40 CFS	91.62	86.71	81.65	79.19	77.09	76.07	77.39	79.64
58.00 CFS	80.28	78.85	74.36	69.21	65.85	64.21	62.73	63.19
59.60 CFS	64.51	63.90	62.57	63.01	60.90	54.36	47.42	46.33
61.20 CFS	48.46	49.63	48.07	46.12	46.28	47.66	47.31	45.89
62.80 CFS	46.76	48.96	48.66	43.81	36.83	31.65	30.19	30.89
64.40 CFS	32.94	34.37	33.62	31.35	30.17	30.15	30.41	31.81
66.00 CFS	33.98	34.30	32.52	30.50	30.15	30.18	30.92	32.95
67.60 CFS	34.48	33.68	31.30	30.16	30.15	30.33	31.78	33.88
69.20 CFS	34.35	32.60	30.51	30.15	30.11	29.43	26.91	23.19
70.80 CFS	19.16	16.26	15.21	14.96	15.26	14.90	15.12	14.45
72.40 CFS	11.29	6.32	1.19	.00				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 22681 CFS-HRS; 1874.3 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.54	4816.3	6.72
42.76	160.0	1.72
44.25	159.6	1.72
46.94	143.7	1.63
51.01	127.5	1.54
53.42	113.7	1.47
63.33	48.1	1.00
66.47	32.9	.77
68.00	32.7	.77
69.50	32.6	.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 22692 CFS-HRS; 1875.3 ACRE-FEET.

OPERATION REACH XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
28.12	3932.3	7.95
44.51	159.4	3.05
68.36	32.2	1.59
69.88	32.1	1.58

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 22690 CFS-HRS; 1875.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.97	5804.6	(RUNOFF)
27.91	2083.0	(RUNOFF)
32.95	574.5	(RUNOFF)
33.97	527.8	(RUNOFF)
34.96	482.6	(RUNOFF)
35.91	425.5	(RUNOFF)
37.12	212.6	(RUNOFF)
41.10	153.0	(RUNOFF)
42.43	153.0	(RUNOFF)
43.72	153.1	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 2.38 SQ.MI.			
9.40 CFS	.14	.63	1.68	3.16	4.81	6.60	8.47	10.27
11.00 CFS	12.14	14.12	15.84	17.19	18.61	20.39	22.36	23.92
12.60 CFS	24.94	26.12	27.84	29.82	31.23	32.00	32.96	34.62
14.20 CFS	36.86	39.25	41.70	44.25	46.40	47.92	49.37	50.69
15.80 CFS	51.39	51.89	53.40	55.71	57.36	58.57	59.27	60.59
17.40 CFS	65.67	72.65	76.93	78.70	82.05	89.12	96.33	99.53
19.00 CFS	101	104	111	119	125	127	129	138
20.60 CFS	147	152	155	161	174	192	201	204
22.20 CFS	207	216	228	235	239	244	255	267
23.80 CFS	272	274	324	491	691	792	812	882
25.40 CFS	1076	1303	1422	1470	1892	3231	4839	5662
27.00 CFS	5799	5531	4259	2748	2071	2073	1988	1688
28.60 CFS	1339	1182	1177	1158	1092	1019	987	985
30.20 CFS	955	852	729	672	672	669	656	639
31.80 CFS	630	630	624	603	580	573	574	569
33.40 CFS	551	532	526	528	524	508	489	481
35.00 CFS	482	479	457	432	422	423	401	330
36.60 CFS	249	212	211	212	207	199	196	196
38.20 CFS	195	191	185	181	181	180	174	169
39.80 CFS	167	166	162	158	155	153	153	153
41.40 CFS	152	150	148	150	152	153	153	151
43.00 CFS	149	149	152	153	153	153	151	145
44.60 CFS	137	134	136	138	138	136	134	134
46.20 CFS	135	138	139	137	134	133	130	126
47.80 CFS	122	120	121	123	122	120	121	123
49.40 CFS	121	120	122	123	120	120	123	122
51.00 CFS	120	119	115	109	106	105	105	105
52.60 CFS	106	108	110	109	107	105	105	105
54.20 CFS	103	98	93	91	91	91	91	91
55.80 CFS	91.23	91.13	90.16	86.63	80.12	76.62	75.20	72.57

57.40 CFS	72.39	75.00	76.69	76.65	74.70	68.97	64.00	62.46
59.00 CFS	60.92	59.14	61.17	62.23	60.18	59.29	60.96	57.31
60.60 CFS	48.43	43.26	44.74	47.42	47.41	45.10	43.32	44.67
62.20 CFS	46.36	44.37	43.36	45.53	47.73	46.08	39.71	32.21
63.80 CFS	28.79	28.81	29.70	32.36	33.49	31.36	29.05	28.80
65.40 CFS	28.79	29.11	31.05	33.35	32.66	29.83	28.80	28.80
67.00 CFS	28.82	29.71	32.40	33.52	31.37	29.04	28.80	28.80
68.60 CFS	29.10	31.02	33.34	32.68	29.88	28.80	28.80	28.77
70.20 CFS	27.82	24.66	20.68	17.06	14.62	14.36	14.56	14.23
71.80 CFS	14.45	14.35	13.29	9.79	3.54	.17		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.26 WATERSHED INCHES; 20363 CFS-HRS; 1682.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.15	7758.9	(NULL)
28.05	5991.2	(NULL)
42.16	319.5	(NULL)
43.60	313.0	(NULL)
45.17	294.5	(NULL)
46.50	285.0	(NULL)
48.33	261.8	(NULL)
49.13	256.0	(NULL)
49.92	252.4	(NULL)
50.66	250.9	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =		4.84 SQ.MI.	
7.60 CFS	.31	.76	1.47	2.44	3.66	5.08	6.68	8.43
9.20 CFS	10.32	12.37	14.83	17.89	21.39	25.05	28.81	32.69
10.80 CFS	36.59	40.66	44.94	49.03	52.79	56.64	60.79	64.98
12.40 CFS	68.67	71.80	75.05	78.77	82.60	85.76	88.29	91.01
14.00 CFS	94	98	102	106	110	114	118	122
15.60 CFS	125	128	131	135	139	142	145	147
17.20 CFS	150	156	165	171	175	181	192	202
18.80 CFS	210	215	223	235	249	260	266	275
20.40 CFS	289	304	314	323	335	355	379	395
22.00 CFS	406	418	436	457	473	486	500	520
23.60 CFS	540	553	564	622	797	1008	1131	1193
25.20 CFS	1323	1589	1892	2095	2242	2778	4235	5976
26.80 CFS	7013	7503	7727	7011	6032	5765	5982	5910
28.40 CFS	5496	4966	4590	4337	4052	3727	3415	3168
30.00 CFS	2974	2775	2526	2277	2110	2006	1905	1801
31.60 CFS	1705	1627	1568	1510	1446	1387	1348	1322
33.20 CFS	1292	1252	1214	1191	1177	1158	1128	1097
34.80 CFS	1077	1067	1052	1020	984	965	955	921
36.40 CFS	838	745	693	671	644	609	573	543
38.00 CFS	519	497	475	454	437	426	414	400

39.60 CFS	388	380	373	364	355	347	341	337
41.20 CFS	334	330	324	320	319	319	318	316
42.80 CFS	313	310	310	313	313	313	312	310
44.40 CFS	304	297	293	294	294	293	288	285
46.00 CFS	284	283	285	285	282	279	278	274
47.60 CFS	270	265	262	261	262	258	255	255
49.20 CFS	256	252	250	252	252	249	249	251
50.80 CFS	250	248	246	243	236	232	231	230
52.40 CFS	228	226	227	227	226	222	220	220
54.00 CFS	220	217	211	205	203	201	200	198
55.60 CFS	196	194	193	191	186	179	174	172
57.20 CFS	167	165	165	165	163	159	153	147
58.80 CFS	144	141	137	137	137	133	130	130
60.40 CFS	126	116	110	110	110	108	104	100
62.00 CFS	99.93	100.12	96.80	94.73	96.04	97.46	95.17	88.45
63.60 CFS	80.75	76.90	75.87	75.11	75.80	74.97	71.19	67.60
65.20 CFS	66.31	65.31	64.63	65.66	67.17	65.92	62.83	61.76
66.80 CFS	61.70	61.52	62.12	64.50	65.36	63.16	60.98	60.96
68.40 CFS	61.01	61.18	62.91	65.00	64.23	61.54	60.71	60.90
70.00 CFS	60.84	59.75	56.38	52.13	48.04	44.79	43.32	41.96
71.60 CFS	39.92	38.46	36.84	34.42	29.76	22.49	18.03	16.46
73.20 CFS	14.61	12.59	10.60	8.78	7.18	5.80	4.65	3.70
74.80 CFS	2.93	2.30	1.80	1.41	1.09	.85	.65	.50
76.40 CFS	.38							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.78 WATERSHED INCHES; 43053 CFS-HRS; 3557.9 ACRE-FEET.

OPERATION DIVERT XSECTION 12
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.40	4100.0 *	(DIVERT)
42.16	319.5	(DIVERT)
43.60	313.0	(DIVERT)
45.17	294.5	(DIVERT)
46.50	285.0	(DIVERT)
48.33	261.8	(DIVERT)
49.13	256.0	(DIVERT)
49.92	252.4	(DIVERT)
50.66	250.9	(DIVERT)
52.97	227.5	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 4.84 SQ.MI.			
7.60 CFS	.31	.76	1.47	2.44	3.66	5.08	6.68	8.43
9.20 CFS	10.32	12.37	14.83	17.89	21.39	25.05	28.81	32.69
10.80 CFS	36.59	40.66	44.94	49.03	52.79	56.64	60.79	64.98

12.40 CFS	68.67	71.80	75.05	78.77	82.60	85.76	88.29	91.01
14.00 CFS	94	98	102	106	110	114	118	122
15.60 CFS	125	128	131	135	139	142	145	147
17.20 CFS	150	156	165	171	175	181	192	202
18.80 CFS	210	215	223	235	249	260	266	275
20.40 CFS	289	304	314	323	335	355	379	395
22.00 CFS	406	418	436	457	473	486	500	520
23.60 CFS	540	553	564	622	797	1008	1131	1193
25.20 CFS	1323	1589	1892	2095	2242	2778	4100	4100
26.80 CFS	4100	4100	4100	4100	4100	4100	4100	4100
28.40 CFS	4100	4100	4100	4100	4052	3727	3415	3168
30.00 CFS	2974	2775	2526	2277	2110	2006	1905	1801
31.60 CFS	1705	1627	1568	1510	1446	1387	1348	1322
33.20 CFS	1292	1252	1214	1191	1177	1158	1128	1097
34.80 CFS	1077	1067	1052	1020	984	965	955	921
36.40 CFS	838	745	693	671	644	609	573	543
38.00 CFS	519	497	475	454	437	426	414	400
39.60 CFS	388	380	373	364	355	347	341	337
41.20 CFS	334	330	324	320	319	319	318	316
42.80 CFS	313	310	310	313	313	313	312	310
44.40 CFS	304	297	293	294	294	293	288	285
46.00 CFS	284	283	285	285	282	279	278	274
47.60 CFS	270	265	262	261	262	258	255	255
49.20 CFS	256	252	250	252	252	249	249	251
50.80 CFS	250	248	246	243	236	232	231	230
52.40 CFS	228	226	227	227	226	222	220	220
54.00 CFS	220	217	211	205	203	201	200	198
55.60 CFS	196	194	193	191	186	179	174	172
57.20 CFS	167	165	165	165	163	159	153	147
58.80 CFS	144	141	137	137	137	133	130	130
60.40 CFS	126	116	110	110	110	108	104	100
62.00 CFS	99.93	100.12	96.80	94.73	96.04	97.46	95.17	88.45
63.60 CFS	80.75	76.90	75.87	75.11	75.80	74.97	71.19	67.60
65.20 CFS	66.31	65.31	64.63	65.66	67.17	65.92	62.83	61.76
66.80 CFS	61.70	61.52	62.12	64.50	65.36	63.16	60.98	60.96
68.40 CFS	61.01	61.18	62.91	65.00	64.23	61.54	60.71	60.90
70.00 CFS	60.84	59.75	56.38	52.13	48.04	44.79	43.32	41.96
71.60 CFS	39.92	38.46	36.84	34.42	29.76	22.49	18.03	16.46
73.20 CFS	14.61	12.59	10.60	8.78	7.18	5.80	4.65	3.70
74.80 CFS	2.93	2.30	1.80	1.41	1.09	.85	.65	.50
76.40 CFS	.38							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.16 WATERSHED INCHES; 37998 CFS-HRS; 3140.2 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.15	3658.9	(DIVERT)
28.05	1891.2	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =			.00 SQ.MI.
26.20 CFS	0	135	1876	2913	3403	3627	2911	1932
27.80 CFS	1665	1882	1810	1396	866	490	237	0

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5055 CFS-HRS; 417.7 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 20. ***

OPERATION REACH XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.40	4100.0 *	7.94
42.16	319.5	1.94
43.60	313.0	1.92
45.17	294.5	1.86
46.50	285.0	1.82
48.33	261.8	1.73
49.13	256.0	1.71
49.92	252.4	1.69
50.66	250.9	1.69
52.97	227.5	1.60

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.16 WATERSHED INCHES; 37998 CFS-HRS; 3140.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 25. ***

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.40	4100.0 *	5.03
42.16	319.5	1.21
43.60	313.0	1.20
45.17	294.5	1.16
46.50	285.0	1.13
48.33	261.8	1.08
49.13	256.0	1.06
49.92	252.4	1.06
50.66	250.9	1.05
52.97	227.5	1.00

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.16 WATERSHED INCHES; 37998 CFS-HRS; 3140.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.03	10040.5	(RUNOFF)
37.12	356.5	(RUNOFF)
41.10	257.2	(RUNOFF)
42.50	257.2	(RUNOFF)
43.87	257.2	(RUNOFF)
45.40	231.7	(RUNOFF)
46.65	231.7	(RUNOFF)
48.55	205.0	(RUNOFF)
50.03	205.0	(RUNOFF)
50.79	205.1	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 3.94 SQ.MI.

HRS								
6.80 CFS	.34	1.45	3.89	7.54	11.53	15.39	19.17	22.84
8.40 CFS	26.59	30.43	34.07	37.14	40.32	43.87	47.03	49.53
10.00 CFS	52.51	56.50	61.23	65.95	70.39	74.49	78.70	82.25
11.60 CFS	85	86	89	93	96	98	99	101
13.20 CFS	105	108	110	110	112	117	122	127
14.80 CFS	133	138	141	143	145	146	146	147
16.40 CFS	151	154	157	158	159	167	180	192
18.00 CFS	198	203	215	230	241	244	247	258
19.60 CFS	274	287	294	297	308	325	339	345
21.20 CFS	353	373	403	429	440	443	454	472
22.80 CFS	489	497	504	519	538	551	558	621
24.40 CFS	852	1184	1469	1571	1659	1902	2263	2558
26.00 CFS	2703	3170	4869	7282	9355	10029	9667	8221
27.60 CFS	5995	4199	3538	3445	3081	2567	2137	2004
29.20 CFS	1977	1901	1788	1701	1668	1637	1511	1335
30.80 CFS	1187	1138	1132	1117	1093	1073	1065	1058

32.40 CFS	1033	998	973	967	963	942	912	892
34.00 CFS	887	884	867	840	818	812	807	785
35.60 CFS	748	719	710	688	605	485	388	355
37.20 CFS	356	351	341	332	329	328	323	316
38.80 CFS	308	305	303	296	288	282	279	275
40.40 CFS	269	263	259	257	257	256	254	251
42.00 CFS	251	254	257	257	255	251	251	253
43.60 CFS	256	257	257	255	248	237	228	227
45.20 CFS	230	232	230	226	225	226	229	232
46.80 CFS	231	227	224	220	215	208	203	203
48.40 CFS	204	205	203	203	205	205	203	203
50.00 CFS	205	204	202	204	205	203	200	195
51.60 CFS	188	180	177	177	177	177	179	183
53.20 CFS	184	181	178	177	177	175	168	160
54.80 CFS	154	153	153	153	153	153	153	152
56.40 CFS	147	140	132	127	124	122	124	127
58.00 CFS	129	127	120	112	106	103	101	101
59.60 CFS	103	102	101	101	98	88	77	74
61.20 CFS	77.10	79.45	77.17	74.29	74.14	76.15	75.93	73.85
62.80 CFS	74.62	77.92	78.02	70.90	60.16	51.49	48.30	49.34
64.40 CFS	52.39	54.88	54.13	50.67	48.42	48.28	48.64	50.74
66.00 CFS	54.08	54.91	52.48	49.07	48.29	48.36	49.44	52.43
67.60 CFS	54.81	53.98	50.67	48.40	48.29	48.68	50.71	53.91
69.20 CFS	54.79	52.53	49.19	48.29	48.24	47.24	43.47	37.73
70.80 CFS	31.21	26.55	24.54	23.82	24.43	24.09	23.99	23.32
72.40 CFS	18.27	11.03	2.94	.12				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.29 WATERSHED INCHES; 36347 CFS-HRS; 3003.7 ACRE-FEET.

OPERATION REACH XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.78	7435.3	5.34
42.91	256.8	2.21
44.45	255.5	2.21
47.13	230.4	2.16
50.38	204.6	2.11
51.21	204.2	2.11
53.62	182.4	2.04
63.53	77.1	1.67
66.69	52.7	1.55
68.22	52.2	1.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.30 WATERSHED INCHES; 36355 CFS-HRS; 3004.3 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
28.39	6138.2	7.27
44.55	255.5	2.13
68.57	51.6	1.04
70.11	51.4	1.04

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.30 WATERSHED INCHES; 36353 CFS-HRS; 3004.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 25. ***

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
28.39	6138.2	6.30
44.55	255.5	1.06
68.57	51.6	.32
70.11	51.4	.32

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.30 WATERSHED INCHES; 36353 CFS-HRS; 3004.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.01	4861.6	(RUNOFF)
32.92	492.2	(RUNOFF)
33.95	452.3	(RUNOFF)
37.13	182.2	(RUNOFF)
42.46	131.5	(RUNOFF)
43.75	131.5	(RUNOFF)
45.36	118.9	(RUNOFF)
46.60	118.9	(RUNOFF)
49.22	105.4	(RUNOFF)
49.98	105.4	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =		2.06 SQ.MI.	
10.60 CFS	.44	1.24	2.48	3.94	5.36	6.65	7.89	9.27
12.20 CFS	10.74	12.07	13.16	14.21	15.50	16.98	18.25	19.14
13.80 CFS	19.98	21.24	22.86	24.65	26.54	28.44	30.17	31.57
15.40 CFS	32.82	33.98	34.79	35.41	36.53	38.22	39.73	40.82
17.00 CFS	41.60	42.73	45.98	50.80	54.70	56.41	58.79	63.74
18.60 CFS	69.28	72.69	73.87	76.25	81.12	87.59	92.71	94.71

20.20 CFS	97	103	110	115	117	122	132	145
21.80 CFS	154	158	160	167	176	183	187	191
23.40 CFS	200	209	215	217	251	368	521	625
25.00 CFS	653	705	846	1029	1155	1197	1491	2480
26.60 CFS	3780	4657	4861	4677	3805	2608	1849	1768
28.20 CFS	1709	1489	1203	1026	1006	993	945	883
29.80 CFS	847	843	822	746	646	583	575	573
31.40 CFS	564	550	541	540	536	520	501	492
33.00 CFS	492	489	475	459	451	452	450	438
34.60 CFS	423	414	414	411	396	375	363	363
36.20 CFS	348	295	227	186	181	182	178	172
37.80 CFS	168	168	167	165	160	156	156	154
39.40 CFS	150	146	144	143	140	136	133	132
41.00 CFS	131	131	131	129	128	128	131	131
42.60 CFS	131	130	128	128	130	131	131	131
44.20 CFS	130	125	119	116	116	118	119	117
45.80 CFS	115	115	116	118	119	118	116	114
47.40 CFS	112	109	106	104	104	105	105	103
49.00 CFS	104	105	104	103	104	105	104	103
50.60 CFS	105	105	104	102	100	95	91	91
52.20 CFS	90.63	90.64	90.88	92.26	94.14	94.12	92.10	90.69
53.80 CFS	90.67	90.60	89.19	84.94	80.60	78.49	78.43	78.29
55.40 CFS	78.35	78.44	78.27	78.37	77.50	74.80	70.18	66.39
57.00 CFS	64.88	62.84	62.23	63.93	65.76	65.92	64.49	60.24
58.60 CFS	55.90	53.70	52.67	51.12	52.17	53.31	52.22	51.16
60.20 CFS	51.85	49.69	43.38	38.08	38.11	40.32	40.86	39.10
61.80 CFS	37.54	38.17	39.57	38.58	37.50	38.68	40.75	39.92
63.40 CFS	35.14	28.96	25.22	24.80	25.52	27.45	28.54	27.35
65.00 CFS	25.23	24.76	24.76	24.95	26.35	28.23	28.22	26.27
66.60 CFS	24.86	24.76	24.78	25.42	27.43	28.56	27.40	25.33
68.20 CFS	24.77	24.77	25.00	26.37	28.27	28.27	26.22	24.84
69.80 CFS	24.77	24.73	24.01	21.69	18.44	15.17	12.99	12.36
71.40 CFS	12.40	12.44	12.29	12.40	11.54	8.86	4.23	.50
73.00 CFS	.00							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.87 WATERSHED INCHES; 17108 CFS-HRS; 1413.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.24	7273.8	(NULL)
28.25	7762.8	(NULL)
43.54	389.7	(NULL)
45.15	371.8	(NULL)
50.68	311.1	(NULL)
61.10	145.4	(NULL)
62.94	122.6	(NULL)
65.94	84.5	(NULL)
67.56	80.3	(NULL)
69.07	79.5	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 6.00 SQ.MI.			
7.80 CFS	.43	1.07	2.10	3.54	5.35	7.50	9.93	12.62
9.40 CFS	15.50	18.51	21.60	24.76	27.97	31.23	34.74	38.74
11.00 CFS	43.30	48.23	53.28	58.30	63.39	68.64	73.89	78.81
12.60 CFS	83	88	92	97	101	105	109	113
14.20 CFS	117	122	126	130	135	139	144	148
15.80 CFS	153	157	162	167	171	175	178	182
17.40 CFS	188	195	201	206	211	221	232	241
19.00 CFS	248	257	270	284	297	307	317	332
20.60 CFS	349	362	374	388	408	430	450	464
22.20 CFS	479	499	523	545	562	581	604	627
23.80 CFS	646	662	709	839	1006	1125	1186	1298
25.40 CFS	1529	1820	2063	2234	2680	3842	5325	6410
27.00 CFS	6933	7265	7120	6765	6830	7417	7751	7627
28.60 CFS	7224	6815	6489	6116	5675	5217	4808	4463
30.20 CFS	4134	3782	3440	3168	2974	2800	2627	2463
31.80 CFS	2320	2201	2095	1991	1896	1823	1769	1717
33.40 CFS	1660	1606	1565	1536	1506	1468	1430	1400
35.00 CFS	1380	1358	1324	1285	1257	1240	1208	1136
36.60 CFS	1049	988	960	929	884	832	783	741
38.20 CFS	701	664	629	600	577	557	536	517
39.80 CFS	502	490	477	465	454	444	437	430
41.40 CFS	424	416	409	406	404	401	397	393
43.00 CFS	390	388	389	390	388	388	386	381
44.60 CFS	375	371	371	372	370	365	361	358
46.20 CFS	357	356	355	352	349	347	344	340
47.80 CFS	336	333	331	331	328	324	321	321
49.40 CFS	318	315	314	314	312	310	311	311
51.00 CFS	309	307	304	299	295	294	293	290
52.60 CFS	288	286	286	283	279	276	275	275
54.20 CFS	272	267	262	259	258	256	253	250
55.80 CFS	247	245	242	237	230	225	222	218
57.40 CFS	215	213	212	208	204	197	191	187
59.00 CFS	184	180	179	177	172	168	166	162
60.60 CFS	154	147	145	145	143	137	133	130
62.20 CFS	129	126	123	122	123	120	114	108
63.80 CFS	103	102	101	101	99	95	90	87

65.40 CFS	85.71	84.27	84.05	84.42	83.09	80.13	78.18	77.89
67.00 CFS	77.76	78.06	79.59	80.22	78.63	76.40	75.99	76.26
68.60 CFS	76.59	77.80	79.41	79.08	76.85	75.58	75.84	76.07
70.20 CFS	75.37	72.85	69.30	65.63	62.78	60.98	59.24	56.97
71.80 CFS	54.23	51.74	48.46	43.59	37.07	31.66	29.39	27.21
73.40 CFS	24.42	21.29	18.17	15.25	12.65	10.38	8.44	6.82
75.00 CFS	5.48	4.38	3.48	2.76	2.18	1.72	1.35	1.05
76.60 CFS	.82	.64	.50					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.81 WATERSHED INCHES; 53461 CFS-HRS; 4418.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.24	11373.8	(NULL)
28.25	11862.8	(NULL)
43.56	702.7	(NULL)
45.16	666.3	(NULL)
46.41	641.0	(NULL)
49.91	566.9	(NULL)
50.66	562.0	(NULL)
52.91	513.5	(NULL)
61.13	255.8	(NULL)
62.96	220.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 10.84 SQ.MI.			
7.60 CFS	.44	1.19	2.53	4.54	7.19	10.43	14.18	18.37
9.20 CFS	22.93	27.87	33.34	39.49	46.16	53.02	60.04	67.44
10.80 CFS	75	84	93	102	111	120	129	139
12.40 CFS	147	155	163	171	180	187	193	200
14.00 CFS	207	215	224	232	241	249	257	265
15.60 CFS	274	281	288	296	306	313	320	325
17.20 CFS	332	344	360	372	380	393	413	434
18.80 CFS	450	463	481	505	533	557	573	592
20.40 CFS	621	652	677	697	723	763	809	845
22.00 CFS	870	897	936	980	1018	1048	1081	1124
23.60 CFS	1167	1199	1226	1331	1636	2013	2256	2378
25.20 CFS	2621	3118	3712	4157	4477	5458	7942	9425
26.80 CFS	10510	11033	11365	11220	10865	10930	11517	11851
28.40 CFS	11727	11324	10915	10589	10169	9402	8633	7976
30.00 CFS	7438	6909	6308	5718	5278	4980	4704	4429
31.60 CFS	4168	3947	3769	3605	3436	3284	3171	3091
33.20 CFS	3009	2912	2820	2756	2713	2664	2596	2527
34.80 CFS	2477	2447	2410	2344	2269	2221	2195	2129
36.40 CFS	1974	1794	1681	1631	1573	1493	1405	1326
38.00 CFS	1260	1199	1140	1083	1037	1003	971	936
39.60 CFS	905	882	863	841	820	801	786	774
41.20 CFS	764	753	740	729	724	723	719	714

42.80 CFS	707	700	699	702	703	701	700	696
44.40 CFS	685	672	664	665	666	663	654	646
46.00 CFS	642	640	641	640	634	628	624	618
47.60 CFS	610	601	595	592	592	586	579	577
49.20 CFS	576	570	565	566	566	561	559	562
50.80 CFS	561	557	554	547	536	528	525	522
52.40 CFS	518	514	513	513	509	501	497	496
54.00 CFS	494	490	478	467	462	459	455	451
55.60 CFS	446	442	438	432	423	409	399	394
57.20 CFS	385	380	379	377	371	363	350	337
58.80 CFS	331	325	318	316	313	305	298	297
60.40 CFS	288	269	256	255	255	251	241	233
62.00 CFS	230	229	223	217	218	220	216	203
63.60 CFS	188	180	178	177	177	174	166	158
65.20 CFS	154	151	149	150	152	149	143	140
66.80 CFS	140	139	140	144	146	142	137	137
68.40 CFS	137	138	141	144	143	138	136	137
70.00 CFS	137	135	129	121	114	108	104	101
71.60 CFS	96.90	92.69	88.57	82.87	73.36	59.56	49.69	45.85
73.20 CFS	41.82	37.01	31.89	26.95	22.43	18.45	15.03	12.14
74.80 CFS	9.75	7.78	6.18	4.89	3.85	3.03	2.37	1.85
76.40 CFS	1.44	1.12	.87	.67	.52	.40		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.07 WATERSHED INCHES; 91445 CFS-HRS; 7557.0 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.00	11000.0 *	(DIVERT)
28.00	11000.0 *	(DIVERT)
43.56	702.7	(DIVERT)
45.16	666.3	(DIVERT)
46.41	641.0	(DIVERT)
49.91	566.9	(DIVERT)
50.66	562.0	(DIVERT)
52.91	513.5	(DIVERT)
61.13	255.8	(DIVERT)
62.96	220.1	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 10.84 SQ.MI.			
7.60 CFS	.44	1.19	2.53	4.54	7.19	10.43	14.18	18.37
9.20 CFS	22.93	27.87	33.34	39.49	46.16	53.02	60.04	67.44
10.80 CFS	75	84	93	102	111	120	129	139
12.40 CFS	147	155	163	171	180	187	193	200
14.00 CFS	207	215	224	232	241	249	257	265

15.60 CFS	274	281	288	296	306	313	320	325
17.20 CFS	332	344	360	372	380	393	413	434
18.80 CFS	450	463	481	505	533	557	573	592
20.40 CFS	621	652	677	697	723	763	809	845
22.00 CFS	870	897	936	980	1018	1048	1081	1124
23.60 CFS	1167	1199	1226	1331	1636	2013	2256	2378
25.20 CFS	2621	3118	3712	4157	4477	5458	7942	9425
26.80 CFS	10510	11000	11000	11000	10865	10930	11000	11000
28.40 CFS	11000	11000	10915	10589	10169	9402	8633	7976
30.00 CFS	7438	6909	6308	5718	5278	4980	4704	4429
31.60 CFS	4168	3947	3769	3605	3436	3284	3171	3091
33.20 CFS	3009	2912	2820	2756	2713	2664	2596	2527
34.80 CFS	2477	2447	2410	2344	2269	2221	2195	2129
36.40 CFS	1974	1794	1681	1631	1573	1493	1405	1326
38.00 CFS	1260	1199	1140	1083	1037	1003	971	936
39.60 CFS	905	882	863	841	820	801	786	774
41.20 CFS	764	753	740	729	724	723	719	714
42.80 CFS	707	700	699	702	703	701	700	696
44.40 CFS	685	672	664	665	666	663	654	646
46.00 CFS	642	640	641	640	634	628	624	618
47.60 CFS	610	601	595	592	592	586	579	577
49.20 CFS	576	570	565	566	566	561	559	562
50.80 CFS	561	557	554	547	536	528	525	522
52.40 CFS	518	514	513	513	509	501	497	496
54.00 CFS	494	490	478	467	462	459	455	451
55.60 CFS	446	442	438	432	423	409	399	394
57.20 CFS	385	380	379	377	371	363	350	337
58.80 CFS	331	325	318	316	313	305	298	297
60.40 CFS	288	269	256	255	255	251	241	233
62.00 CFS	230	229	223	217	218	220	216	203
63.60 CFS	188	180	178	177	177	174	166	158
65.20 CFS	154	151	149	150	152	149	143	140
66.80 CFS	140	139	140	144	146	142	137	137
68.40 CFS	137	138	141	144	143	138	136	137
70.00 CFS	137	135	129	121	114	108	104	101
71.60 CFS	96.90	92.69	88.57	82.87	73.36	59.56	49.69	45.85
73.20 CFS	41.82	37.01	31.89	26.95	22.43	18.45	15.03	12.14
74.80 CFS	9.75	7.78	6.18	4.89	3.85	3.03	2.37	1.85
76.40 CFS	1.44	1.12	.87	.67	.52	.40		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.99 WATERSHED INCHES; 90850 CFS-HRS; 7507.8 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.24	373.8	(DIVERT)
28.25	862.8	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,			DRAINAGE AREA =			.00 SQ.MI.
26.80 CFS	0	33	365	220	0	0	517	851
28.40 CFS	727	324	0					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
595 CFS-HRS; 49.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 45. ***

OPERATION REACH XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.00	11000.0 *	8.46
28.00	11000.0 *	8.46
43.56	702.7	1.82
45.16	666.3	1.76
46.41	641.0	1.73
49.91	566.9	1.62
50.66	562.0	1.61
52.91	513.5	1.54
61.13	255.8	1.03
62.96	220.1	.95

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
12.99 WATERSHED INCHES; 90850 CFS-HRS; 7507.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
21.84	167.4	(RUNOFF)
26.91	3876.1	(RUNOFF)
27.90	1343.4	(RUNOFF)
28.90	752.9	(RUNOFF)
30.90	425.2	(RUNOFF)
31.90	399.8	(RUNOFF)
32.90	363.9	(RUNOFF)
33.90	334.0	(RUNOFF)
34.94	306.1	(RUNOFF)
35.88	267.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA =			1.47 SQ.MI.
6.60 CFS	.30	1.29	2.91	4.65	6.19	7.39	9.02	10.41
8.20 CFS	11.55	13.39	14.79	15.46	16.67	18.57	19.60	19.88
9.80 CFS	21.35	23.15	24.75	27.00	28.43	29.62	31.63	33.39
11.40 CFS	33.22	33.89	34.93	36.91	38.61	38.11	38.59	39.51

13.00 CFS	41.48	43.13	42.35	42.67	43.49	45.46	47.91	49.32
14.60 CFS	52.03	53.78	54.61	55.40	56.16	56.67	55.66	56.24
16.20 CFS	58.78	59.66	60.31	60.86	60.06	62.65	72.28	75.36
17.80 CFS	76.15	77.01	82.04	91.96	92.94	92.70	93.65	97.87
19.40 CFS	107	112	112	111	117	128	129	131
21.00 CFS	133	140	160	166	167	167	171	183
22.60 CFS	187	188	190	196	208	210	209	212
24.20 CFS	307	524	588	593	597	703	936	1001
25.80 CFS	1008	1023	1718	3306	3746	3784	3805	3173
27.40 CFS	1696	1323	1325	1325	1177	831	745	748
29.00 CFS	749	714	640	625	624	623	575	454
30.60 CFS	424	424	424	418	403	397	398	398
32.20 CFS	386	364	359	362	363	352	334	330
33.80 CFS	333	333	324	308	302	303	305	295
35.40 CFS	270	264	267	267	230	152	132	132
37.00 CFS	134	133	123	124	123	122	122	116
38.60 CFS	114	114	114	111	105	106	105	102
40.20 CFS	100	97	96	96	96	96	95	92
41.80 CFS	93.41	95.91	96.01	96.01	95.65	92.75	92.58	95.64
43.40 CFS	96.02	96.03	96.03	95.97	92.86	85.84	84.03	84.16
45.00 CFS	86.47	88.07	84.94	84.04	84.04	84.07	85.63	88.28
46.60 CFS	85.71	84.05	84.02	82.47	78.95	77.69	74.74	74.58
48.20 CFS	77.68	77.20	74.07	75.48	77.98	76.49	73.81	76.40
49.80 CFS	77.96	75.63	73.98	77.17	77.71	74.75	74.53	74.61
51.40 CFS	67.84	66.06	66.06	66.06	66.06	66.07	66.42	69.39
53.00 CFS	69.62	66.38	66.07	66.07	66.07	66.06	63.00	56.65
54.60 CFS	58.04	56.76	56.53	58.22	55.78	58.03	56.77	56.53
56.20 CFS	56.68	49.83	48.06	47.94	45.62	43.90	47.17	48.06
57.80 CFS	48.06	48.02	44.98	38.67	39.99	38.64	36.14	37.60
59.40 CFS	40.33	37.73	36.19	38.46	38.60	30.97	26.10	27.45
61.00 CFS	29.96	30.04	29.21	26.10	27.45	29.92	28.47	25.74
62.60 CFS	28.37	30.04	29.98	26.87	19.78	18.02	18.03	18.06
64.20 CFS	19.62	22.31	19.70	18.02	18.03	18.03	18.02	18.39
65.80 CFS	21.31	21.47	18.41	18.03	18.03	18.03	18.06	19.62
67.40 CFS	22.27	19.68	18.03	18.03	18.03	18.03	18.38	21.33
69.00 CFS	21.48	18.40	18.03	18.03	18.03	18.01	16.44	12.92
70.60 CFS	11.66	8.70	8.53	10.07	7.77	10.00	8.69	8.50
72.20 CFS	8.50	1.80	.00					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.39 WATERSHED INCHES; 13656 CFS-HRS; 1128.5 ACRE-FEET.

OPERATION REACH XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.40	3596.1	6.57
42.89	95.7	2.26
44.31	96.1	2.27
45.60	87.1	2.05
46.86	86.7	2.05
48.73	77.1	1.82
49.48	76.8	1.81
50.23	76.9	1.81
50.98	76.9	1.82
53.39	68.7	1.62

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.36 WATERSHED INCHES; 13620 CFS-HRS; 1125.6 ACRE-FEET.

OPERATION REACH XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.76	3220.8	6.05
43.15	95.5	1.36
44.56	95.6	1.36
47.18	85.9	1.29
49.73	76.5	1.22
50.49	76.3	1.22
51.23	76.4	1.22
53.67	67.9	1.16
58.55	47.6	.99
60.71	38.3	.85

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
14.37 WATERSHED INCHES; 13631 CFS-HRS; 1126.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.80	14144.0	(NULL)
43.51	797.1	(NULL)
46.36	726.5	(NULL)
49.85	642.6	(NULL)
50.64	638.2	(NULL)
62.95	248.2	(NULL)
65.97	170.2	(NULL)
67.55	164.1	(NULL)
69.05	163.0	(NULL)
69.84	156.4	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 12.31 SQ.MI.			
7.40 CFS	.46	1.40	3.10	5.61	8.86	12.86	17.48	22.57
9.00 CFS	28.20	34.22	40.45	47.15	54.66	62.64	70.59	78.72
10.60 CFS	87	97	107	118	128	139	149	160
12.20 CFS	171	180	189	198	207	217	225	232
13.80 CFS	240	248	257	266	275	285	295	304
15.40 CFS	314	324	333	342	351	361	369	376
17.00 CFS	383	390	403	419	432	443	459	482
18.60 CFS	506	525	542	564	592	622	648	669
20.20 CFS	692	725	759	787	811	842	885	935
21.80 CFS	975	1007	1042	1088	1138	1180	1215	1254
23.40 CFS	1301	1348	1385	1417	1528	1838	2218	2483
25.00 CFS	2674	2998	3563	4209	4713	5128	6210	8777
26.60 CFS	10324	11598	12607	13205	13709	13950	14144	13935
28.20 CFS	13517	13146	12866	12555	11994	11368	10446	9570
29.80 CFS	8836	8228	7645	7004	6387	5920	5575	5250
31.40 CFS	4934	4645	4403	4208	4030	3852	3693	3574
33.00 CFS	3483	3391	3288	3191	3121	3070	3013	2940
34.60 CFS	2866	2812	2775	2731	2659	2580	2528	2493
36.20 CFS	2417	2254	2070	1946	1869	1781	1676	1571
37.80 CFS	1480	1404	1336	1272	1211	1163	1126	1091
39.40 CFS	1054	1022	997	975	951	929	908	891
41.00 CFS	877	865	852	838	826	821	819	814
42.60 CFS	809	802	795	794	797	797	795	795
44.20 CFS	791	780	767	759	758	757	751	741
45.80 CFS	733	728	726	726	725	719	714	710
47.40 CFS	704	695	686	678	674	672	664	656
49.00 CFS	654	653	646	641	643	642	637	635
50.60 CFS	638	637	632	630	623	611	603	599
52.20 CFS	594	588	583	581	580	576	568	565
53.80 CFS	563	562	556	545	534	528	523	517
55.40 CFS	511	505	500	495	490	480	466	456
57.00 CFS	449	439	431	429	425	419	411	397
58.60 CFS	385	378	370	361	358	354	344	338
60.20 CFS	336	326	308	294	291	289	283	272
61.80 CFS	263	260	258	251	246	247	248	243
63.40 CFS	231	217	209	205	201	199	195	186
65.00 CFS	178	174	171	168	169	170	167	162
66.60 CFS	160	159	159	159	163	164	160	157
68.20 CFS	157	157	157	159	163	162	157	156
69.80 CFS	156	156	154	148	140	132	124	120
71.40 CFS	115	109	104	99	93	83	69	59
73.00 CFS	53.25	47.22	40.69	34.30	28.48	23.39	19.04	15.39
74.60 CFS	12.36	9.88	7.86	6.22	4.91	3.87	3.03	2.37
76.20 CFS	1.85	1.44	1.12	.87	.67	.52	.40	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.15 WATERSHED INCHES; 104481 CFS-HRS; 8634.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.00	11470.2	(RUNOFF)
32.95	1148.8	(RUNOFF)
33.95	1055.1	(RUNOFF)
35.90	851.1	(RUNOFF)
37.13	424.7	(RUNOFF)
41.10	306.3	(RUNOFF)
42.46	306.5	(RUNOFF)
43.79	306.5	(RUNOFF)
45.35	277.2	(RUNOFF)
46.60	277.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 4.78 SQ.MI.			
9.80 CFS	.17	.88	2.64	5.48	8.88	12.34	15.87	19.61
11.40 CFS	23.07	25.98	28.79	32.15	35.85	39.03	41.43	43.75
13.00 CFS	46.94	50.62	53.59	55.52	57.42	60.45	64.54	69.10
14.60 CFS	73.78	78.50	82.82	86.04	88.94	91.63	93.34	94.60
16.20 CFS	97	101	105	108	109	112	120	133
17.80 CFS	142	146	152	164	178	186	189	194
19.40 CFS	207	223	235	239	244	259	277	288
21.00 CFS	294	305	329	361	384	391	397	413
22.60 CFS	435	452	459	470	490	512	525	534
24.20 CFS	623	905	1277	1520	1577	1689	2044	2490
25.80 CFS	2775	2885	3634	5974	9027	11023	11470	11007
27.40 CFS	8865	5998	4286	4139	3998	3467	2789	2389
29.00 CFS	2351	2319	2204	2061	1978	1970	1922	1736
30.60 CFS	1497	1356	1343	1337	1315	1284	1263	1261
32.20 CFS	1250	1213	1168	1146	1149	1141	1108	1070
33.80 CFS	1053	1055	1048	1021	986	965	965	959
35.40 CFS	922	872	846	847	811	683	524	431
37.00 CFS	423	424	415	401	393	392	390	384
38.60 CFS	372	364	363	360	350	340	335	332
40.20 CFS	326	318	311	307	306	306	305	301
41.80 CFS	298	299	304	306	306	303	298	298
43.40 CFS	303	306	306	306	303	292	278	269
45.00 CFS	271	276	277	273	269	268	270	275
46.60 CFS	277	274	269	267	261	254	246	241
48.20 CFS	241	245	244	240	242	246	243	241
49.80 CFS	243	246	242	241	244	245	241	238
51.40 CFS	232	220	212	211	211	211	212	215
53.00 CFS	219	219	214	211	211	211	208	198
54.60 CFS	187	183	183	182	183	183	182	183
56.20 CFS	181	174	163	154	151	146	145	149
57.80 CFS	153	154	150	140	130	125	123	119
59.40 CFS	122	124	122	119	121	116	101	88
61.00 CFS	88.84	94.09	95.16	90.93	87.21	88.97	92.51	89.79

62.60 CFS	87.29	90.19	94.81	92.54	81.45	67.19	58.59	57.70
64.20 CFS	59.20	64.01	66.64	63.72	58.85	57.68	57.68	58.25
65.80 CFS	61.55	65.97	65.73	60.86	57.69	57.69	57.73	59.33
67.40 CFS	64.01	66.55	63.67	58.85	57.70	57.69	58.22	61.50
69.00 CFS	66.00	65.84	60.87	57.79	57.70	57.62	55.95	50.37
70.60 CFS	42.70	35.08	30.08	28.71	28.96	29.05	28.72	29.10
72.20 CFS	27.20	20.64	9.19	.81	.00			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.10 WATERSHED INCHES; 40399 CFS-HRS; 3338.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.12	8392.6	(RUNOFF)
42.60	224.5	(RUNOFF)
43.91	224.8	(RUNOFF)
45.48	201.9	(RUNOFF)
46.73	201.9	(RUNOFF)
48.62	178.6	(RUNOFF)
49.41	178.6	(RUNOFF)
50.13	178.5	(RUNOFF)
50.87	178.7	(RUNOFF)
53.23	159.9	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 3.48 SQ.MI.			
8.80 CFS	.24	.95	2.29	4.33	6.65	9.00	11.37	13.93
10.40 CFS	16.73	19.73	22.74	25.72	28.67	31.47	33.95	36.07
12.00 CFS	38.28	41.00	43.70	45.92	47.72	49.59	52.14	54.64
13.60 CFS	56.59	58.06	59.73	62.40	65.81	69.63	73.54	77.11
15.20 CFS	80.23	82.71	84.69	86.26	87.33	88.70	90.88	93.63
16.80 CFS	96	98	99	104	111	120	126	131
18.40 CFS	138	147	156	161	165	171	181	192
20.00 CFS	200	205	212	222	233	242	249	262
21.60 CFS	281	301	316	322	330	342	356	367
23.20 CFS	374	385	399	412	421	463	591	813
24.80 CFS	1044	1197	1285	1448	1698	1953	2149	2524
26.40 CFS	3559	5276	7060	8232	8309	7435	5884	4292
28.00 CFS	3293	2991	2765	2398	2026	1783	1719	1673
29.60 CFS	1591	1509	1459	1428	1348	1221	1092	1007
31.20 CFS	986	976	959	941	930	922	906	882
32.80 CFS	858	845	839	827	806	786	775	771
34.40 CFS	761	742	722	711	705	691	666	640
36.00 CFS	624	606	554	464	373	321	310	308
37.60 CFS	301	294	288	287	284	278	272	268
39.20 CFS	265	261	255	249	245	242	237	232
40.80 CFS	228	225	225	224	223	220	220	221
42.40 CFS	223	224	223	221	220	220	223	225
44.00 CFS	225	223	218	211	203	199	200	202

45.60 CFS	202	200	197	198	200	202	202	200
47.20 CFS	197	194	190	184	180	178	178	179
48.80 CFS	178	178	178	179	178	178	178	178
50.40 CFS	178	178	179	178	176	172	167	161
52.00 CFS	156	155	155	155	156	159	160	159
53.60 CFS	157	155	155	153	149	143	137	134
55.20 CFS	134	134	134	134	134	133	130	124
56.80 CFS	118	113	109	108	108	110	112	111
58.40 CFS	107	101	95	91	89	89	89	90
60.00 CFS	89.06	88.07	85.84	80.03	71.88	66.46	66.43	68.48
61.60 CFS	68.33	66.16	65.30	65.78	66.19	65.53	65.34	66.92
63.20 CFS	68.11	64.03	56.32	48.50	43.31	42.97	44.89	46.96
64.80 CFS	47.39	45.74	43.20	42.27	42.48	43.85	46.20	47.42
66.40 CFS	46.73	44.40	42.46	42.33	43.03	44.98	47.00	47.28
68.00 CFS	45.63	43.22	42.31	42.54	43.90	46.13	47.33	46.71
69.60 CFS	44.40	42.49	42.21	41.55	39.07	35.00	29.68	24.77
71.20 CFS	22.38	21.11	21.09	21.33	20.80	20.64	17.41	11.87
72.80 CFS	5.89	1.17	.00					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.52 WATERSHED INCHES; 30362 CFS-HRS; 2509.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.06	19796.8	(NULL)
42.53	530.7	(NULL)
43.89	531.3	(NULL)
45.39	478.8	(NULL)
46.63	478.9	(NULL)
48.48	423.6	(NULL)
49.23	423.9	(NULL)
49.99	424.1	(NULL)
50.76	424.0	(NULL)
53.13	379.5	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7

HRS	MAIN TIME INCREMENT = .200 hr,				DRAINAGE AREA = 8.26 SQ.MI.			
8.80 CFS	.24	.95	2.29	4.33	6.66	9.17	12.25	16.57
10.40 CFS	22.21	28.61	35.07	41.59	48.28	54.54	59.93	64.86
12.00 CFS	70	77	83	87	91	97	103	108
13.60 CFS	112	115	120	127	135	143	152	160
15.20 CFS	166	172	176	180	182	186	192	199
16.80 CFS	204	207	211	224	244	262	273	283
18.40 CFS	302	325	342	350	359	378	404	427
20.00 CFS	439	449	471	499	522	536	553	591
21.60 CFS	642	685	706	719	743	777	808	826
23.20 CFS	844	876	911	937	955	1087	1496	2090
24.80 CFS	2564	2774	2975	3492	4188	4728	5034	6158
26.40 CFS	9533	14303	18083	19702	19317	16300	11881	8578

28.00 CFS	7432	6988	6231	5187	4415	4134	4038	3877
29.60 CFS	3652	3487	3429	3350	3084	2718	2448	2350
31.20 CFS	2323	2291	2243	2205	2190	2172	2119	2049
32.80 CFS	2004	1994	1981	1936	1876	1839	1830	1819
34.40 CFS	1782	1728	1687	1675	1664	1613	1538	1486
36.00 CFS	1471	1416	1238	989	804	744	734	723
37.60 CFS	703	686	680	677	668	651	636	631
39.20 CFS	625	611	594	584	577	567	555	542
40.80 CFS	534	531	531	529	524	518	519	525
42.40 CFS	530	530	526	519	518	524	529	531
44.00 CFS	531	526	510	489	473	470	476	479
45.60 CFS	475	468	466	467	474	479	476	470
47.20 CFS	464	455	443	430	421	419	423	423
48.80 CFS	419	420	424	422	419	421	424	421
50.40 CFS	419	422	424	420	415	404	387	373
52.00 CFS	367	366	366	367	371	378	379	374
53.60 CFS	368	366	366	361	347	330	320	317
55.20 CFS	316	316	316	316	316	314	304	287
56.80 CFS	273	264	256	253	257	263	266	261
58.40 CFS	247	230	220	213	208	210	213	211
60.00 CFS	208	209	201	181	160	155	161	164
61.60 CFS	159	153	154	158	156	153	156	162
63.20 CFS	161	145	124	107	101	102	109	114
64.80 CFS	111	105	101	100	101	105	112	113
66.40 CFS	108	102	100	100	102	109	114	111
68.00 CFS	104	101	100	101	105	112	113	108
69.60 CFS	102	100	100	97	89	78	65	55
71.20 CFS	51.09	50.07	50.14	50.05	49.90	47.84	38.06	21.05
72.80 CFS	6.70	1.17	.00					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.27 WATERSHED INCHES; 70760 CFS-HRS; 5847.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.12	32763.8	(NULL)
42.29	1343.9	(NULL)
43.78	1326.6	(NULL)
45.23	1232.4	(NULL)
46.56	1204.1	(NULL)
48.34	1095.7	(NULL)
49.15	1077.2	(NULL)
49.95	1066.8	(NULL)
50.71	1061.7	(NULL)
53.03	958.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
HRS MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 20.57 SQ.MI.

7.40 CFS	.46	1.40	3.10	5.61	8.86	12.86	17.52	22.81

9.00 CFS	29	37	45	54	64	75	87	101
10.60 CFS	116	132	148	166	183	199	214	230
12.20 CFS	247	263	276	289	304	319	333	344
13.80 CFS	355	368	384	401	418	437	455	471
15.40 CFS	486	501	513	524	537	553	567	580
17.00 CFS	589	601	627	663	694	716	742	784
18.60 CFS	831	867	892	924	970	1027	1075	1108
20.20 CFS	1141	1196	1258	1308	1347	1395	1476	1577
21.80 CFS	1660	1713	1761	1831	1915	1987	2041	2098
23.40 CFS	2177	2260	2322	2372	2615	3334	4308	5047
25.00 CFS	5448	5972	7055	8397	9441	10163	12368	18311
26.60 CFS	24627	29682	32309	32521	30010	25831	22722	21367
28.20 CFS	20505	19377	18053	16970	16128	15406	14323	13222
29.80 CFS	12323	11657	10995	10088	9105	8368	7925	7573
31.40 CFS	7226	6888	6608	6398	6202	5971	5742	5578
33.00 CFS	5477	5372	5223	5067	4960	4901	4832	4721
34.60 CFS	4594	4499	4451	4395	4271	4118	4014	3963
36.20 CFS	3833	3492	3059	2751	2613	2515	2399	2274
37.80 CFS	2167	2084	2013	1939	1862	1800	1757	1716
39.40 CFS	1665	1616	1581	1552	1519	1484	1450	1425
41.00 CFS	1408	1395	1382	1362	1344	1340	1344	1343
42.60 CFS	1339	1328	1314	1312	1320	1326	1327	1326
44.20 CFS	1318	1291	1256	1232	1227	1232	1230	1216
45.80 CFS	1201	1194	1193	1201	1204	1195	1183	1174
47.40 CFS	1158	1138	1116	1098	1093	1095	1087	1075
49.00 CFS	1074	1077	1068	1060	1064	1066	1057	1054
50.60 CFS	1060	1061	1052	1044	1027	998	976	966
52.20 CFS	960	954	950	952	958	955	942	933
53.80 CFS	930	927	918	891	864	848	839	833
55.40 CFS	827	821	817	812	804	785	754	729
57.00 CFS	713	694	684	686	688	684	672	644
58.60 CFS	616	598	584	569	568	567	556	546
60.20 CFS	545	527	488	455	447	450	446	431
61.80 CFS	416	415	417	407	399	402	410	404
63.40 CFS	377	341	316	306	303	308	308	297
65.00 CFS	283	275	271	269	274	282	281	270
66.60 CFS	262	259	259	261	272	278	271	261
68.20 CFS	258	257	258	265	275	275	265	258
69.80 CFS	257	256	252	237	218	196	179	171
71.40 CFS	165	159	154	149	141	121	90	65
73.00 CFS	54.41	47.22	40.69	34.30	28.48	23.39	19.04	15.39
74.60 CFS	12.36	9.88	7.86	6.22	4.91	3.87	3.03	2.37
76.20 CFS	1.85	1.44	1.12	.87	.67	.52	.40	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
13.20 WATERSHED INCHES; 175222 CFS-HRS; 14480.4 ACRE-FEET.

--- XSECTION 76, ALTERNATE 1, STORM 7, HYDROGRAPH ADDED TO READHD FILE ---

*** MESSAGE - STRUCTURE 1, USER ENTERED STARTING ELEVATION (1200.0 FEET) CAN ADD .534 INCHES OF RUNOFF TO THE OUTFLOW HYDROGRAPH VOLUME.***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 1, TRUNCATED AT 400 POINTS WITH 2924.90 AC-FT (.22 WATERSHED INCHES) FLOOD STORAGE REMAINING IN RESERVOIR AT ELEV. 1211.06. ***

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.81	23229.3	1215.86
69.19	272.9	1212.01

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 7
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 20.57 SQ.MI.

HRS								
6.40 CFS	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30
8.00 CFS	1.30	1.34	1.44	1.59	1.79	2.05	2.38	2.79
9.60 CFS	3.29	3.89	4.59	5.41	6.36	7.46	8.71	10.12
11.20 CFS	11.70	13.45	15.36	17.41	19.62	21.97	24.48	27.12
12.80 CFS	29.87	32.73	35.73	38.86	42.08	45.39	48.79	52.30
14.40 CFS	55.96	59.76	63.71	67.82	72.06	76.43	80.91	85.49
16.00 CFS	90	95	100	105	110	115	120	125
17.60 CFS	131	137	143	149	156	163	170	172
19.20 CFS	172	173	174	175	176	177	178	179
20.80 CFS	180	181	182	184	185	186	188	189
22.40 CFS	191	192	194	195	197	198	200	201
24.00 CFS	203	204	207	209	212	215	218	222
25.60 CFS	226	230	235	240	246	255	2836	9364
27.20 CFS	15719	20485	22764	23228	22865	22274	21559	20687
28.80 CFS	19713	18743	17831	16922	15956	15055	14210	13415
30.40 CFS	12622	11788	10947	10175	9506	8925	8410	8033
32.00 CFS	7687	7373	7082	6805	6546	6315	6114	5929
33.60 CFS	5751	5584	5436	5307	5187	5067	4950	4842
35.20 CFS	4747	4654	4550	4440	4338	4238	4108	3920
36.80 CFS	3690	3462	3259	3077	2910	2802	2721	2641
38.40 CFS	2562	2483	2405	2330	2260	2192	2126	2063
40.00 CFS	2004	1948	1895	1844	1795	1750	1708	1670
41.60 CFS	1635	1601	1570	1543	1519	1498	1478	1459
43.20 CFS	1442	1427	1415	1404	1395	1386	1376	1364
44.80 CFS	1350	1335	1323	1312	1301	1290	1279	1269
46.40 CFS	1260	1253	1247	1240	1233	1225	1216	1205
48.00 CFS	1193	1182	1171	1162	1152	1143	1135	1127
49.60 CFS	1120	1113	1107	1102	1096	1092	1088	1084
51.20 CFS	1080	1075	1067	1058	1047	1037	1028	1019
52.80 CFS	1011	1004	998	992	986	979	973	967
54.40 CFS	960	950	939	927	916	906	896	887
56.00 CFS	878	870	861	850	837	823	809	795
57.60 CFS	782	770	760	750	739	726	712	698
59.20 CFS	683	670	657	646	635	624	613	601

60.80 CFS	585	569	555	542	530	517	505	494
62.40 CFS	485	475	466	459	453	445	435	422
64.00 CFS	409	396	386	376	368	358	349	340
65.60 CFS	331	324	319	314	310	304	299	294
67.20 CFS	290	287	286	285	282	280	277	275
68.80 CFS	273	273	273	273	271	270	268	266
70.40 CFS	264	259	257	257	257	256	256	256
72.00 CFS	256	256	256	256	256	256	256	256
73.60 CFS	256	256	256	256	255	255	255	255
75.20 CFS	255	255	255	255	255	255	255	254
76.80 CFS	254	254	254	254	254	254	254	254
78.40 CFS	254	253	253	253	253	253	253	253
80.00 CFS	253	253	253	252	252	252	252	252
81.60 CFS	252	252	252	252	252	251	251	251
83.20 CFS	251	251	251	251	251	251	251	250
84.80 CFS	250	250	250	250	250	250	250	250

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.07 WATERSHED INCHES; 146980 CFS-HRS; 12146.4 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 1, STORM 7, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 15.80 inches AND 72.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 7, ARC 2							
MAIN TIME INCREMENT .200 HOURS							
ALTERNATE 1 STORM 7							
XSECTION 1	RUNOFF	2.46	14.29	---	27.01	6291	2557.3
XSECTION 5	REACH	2.46	14.29	6.72	27.54	4816	1957.7
XSECTION 10	REACH	2.46	14.29	7.95	28.12	3932	1598.4
XSECTION 2	RUNOFF	2.38	13.26	---	26.97	5805	2439.1
XSECTION 12	ADDHYD	4.84	13.78	---	27.15	7759	1603.1
XSECTION 12	DIVERT	4.84	12.16	---	26.40F	4100F	847.1
XSECTION 200	DIVERT	.00	12.16	---	27.15	3659	********
XSECTION 20	REACH	4.84	12.16	7.94	26.40F	4100F	847.1
XSECTION 25	REACH	4.84	12.16	5.03	26.40F	4100F	847.1
XSECTION 3	RUNOFF	3.94	14.29	---	27.03	10041	2548.5
XSECTION 30	REACH	3.94	14.30	5.34	27.78	7435	1887.1
XSECTION 5	REACH	3.94	14.30	7.27	28.39	6138	1557.9
XSECTION 25	REACH	3.94	14.30	6.30	28.39	6138	1557.9
XSECTION 4	RUNOFF	2.06	12.87	---	27.01	4862	2360.2
XSECTION 34	ADDHYD	6.00	13.81	---	28.25	7763	1293.8
XSECTION 35	ADDHYD	10.84	13.07	---	28.25	11863	1094.4
XSECTION 35	DIVERT	10.84	12.99	---	27.00F	11000F	1014.8
XSECTION 199	DIVERT	.00	12.99	---	28.25	863	********
XSECTION 45	REACH	10.84	12.99	8.46	27.00F	11000F	1014.8
XSECTION 6	RUNOFF	1.47	14.39	---	26.91	3876	2636.7
XSECTION 60	REACH	1.47	14.36	6.57	27.40	3596	2446.3
XSECTION 67	REACH	1.47	14.37	6.05	27.76	3221	2191.2
XSECTION 64	ADDHYD	12.31	13.15	---	27.80	14144	1149.0
XSECTION 5	RUNOFF	4.78	13.10	---	27.00	11470	2399.6
XSECTION 7	RUNOFF	3.48	13.52	---	27.12	8393	2411.8
XSECTION 75	ADDHYD	8.26	13.27	---	27.06	19797	2396.7
XSECTION 76	ADDHYD	20.57	13.20	---	27.12	32764	1592.8
STRUCTURE 1	RESVOR	20.57	11.07	1215.86	27.81	23229	1129.3

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE k* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

			HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.				
XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 7											
5	9100		6290	27.0	4800	27.6	1.95	1.08	.175	.763	.26
10	9100		4800	27.6	3922	28.2	2.17	1.07	.126	.817	.27
20	3332		4100	26.4	4100	26.4	.14	1.63	.001	1.000	1.00?
25	1950		4100	26.4	4100	26.4	.052	1.73	.000	1.000	1.00?
30	8865		10029	27.0	7433	27.8	1.57	1.08	.193	.741	.24
5	8865		7433	27.8	6138	28.4	1.91	1.08	.119	.826	.27
25	1950		6138	28.4	6138	28.4	.056	1.72	.001	1.000	1.00?
45	4200		11000	27.0	11000	27.0	.049	1.72	.001	1.000	1.00?
60	7540		3805	27.0	3596	27.4	.48	1.36	.054	.945	.49
67	5140		3596	27.4	3214	27.8	1.59	1.11	.085	.894	.42

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 7
STRUCTURE	1	20.57	
ALTERNATE	1		23229
XSECTION	1	2.46	
ALTERNATE	1		6291
XSECTION	2	2.38	
ALTERNATE	1		5805
XSECTION	3	3.94	
ALTERNATE	1		10041
XSECTION	4	2.06	
ALTERNATE	1		4862
XSECTION	5	4.78	
ALTERNATE	1		11470
XSECTION	6	1.47	
ALTERNATE	1		3876
XSECTION	7	3.48	
ALTERNATE	1		8393
XSECTION	10	2.46	
ALTERNATE	1		3932
XSECTION	12	4.84	
ALTERNATE	1		4100
XSECTION	20	4.84	
ALTERNATE	1		4100
XSECTION	25	3.94	
ALTERNATE	1		6138
XSECTION	30	3.94	
ALTERNATE	1		7435
XSECTION	34	6.00	

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 7
XSECTION 34		6.00	
ALTERNATE	1		7763
XSECTION 35		10.84	
ALTERNATE	1		11000
XSECTION 45		10.84	
ALTERNATE	1		11000
XSECTION 60		1.47	
ALTERNATE	1		3596
XSECTION 64		12.31	
ALTERNATE	1		14144
XSECTION 67		1.47	
ALTERNATE	1		3221
XSECTION 75		8.26	
ALTERNATE	1		19797
XSECTION 76		20.57	
ALTERNATE	1		32764
XSECTION 199		.00	
ALTERNATE	1		863
XSECTION 200		.00	
ALTERNATE	1		3659

ECON2 DATA FILE

```
ECON2
TITLE       WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE       72-HR PMP (MTI=.2), RESERVOIR INIT EMPTY W/100-YR SED
FLOW-FREQ    -1        23229.                                    ALT  1   1
FLOW-FREQ     1         6291.                                    ALT  1   2
FLOW-FREQ     2         5805.                                    ALT  1   3
FLOW-FREQ     3        10041.                                    ALT  1   4
FLOW-FREQ     4         4862.                                    ALT  1   5
FLOW-FREQ     5        11470.                                    ALT  1   6
FLOW-FREQ     6         3876.                                    ALT  1   7
FLOW-FREQ     7         8393.                                    ALT  1   8
FLOW-FREQ    10         3932.                                    ALT  1   9
FLOW-FREQ    12         4100.                                    ALT  1  10
FLOW-FREQ    20         4100.                                    ALT  1  11
FLOW-FREQ    25         6138.                                    ALT  1  12
FLOW-FREQ    30         7435.                                    ALT  1  13
FLOW-FREQ    34         7763.                                    ALT  1  14
FLOW-FREQ    35        11000.                                    ALT  1  15
FLOW-FREQ    45        11000.                                    ALT  1  16
FLOW-FREQ    60         3596.                                    ALT  1  17
FLOW-FREQ    64        14144.                                    ALT  1  18
FLOW-FREQ    67         3221.                                    ALT  1  19
FLOW-FREQ    75        19797.                                    ALT  1  20
FLOW-FREQ    76        32764.                                    ALT  1  21
FLOW-FREQ   199          863.                                    ALT  1  22
FLOW-FREQ   200         3659.                                    ALT  1  23
```

```
TR20 ------------------------------------------------------------------------ SCS -
WT3PMP72      WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS       VERSION
01/11/**      72-HR PMP (MTI=.2), RESERVOIR INIT EMPTY W/100-YR SED       2.04TEST


END OF  1 JOBS IN THIS RUN
```

```
                    SCS  TR-20,  VERSION 2.04TEST
                          WT3PMP72  FILES

 INPUT  = 72G.DAT                                  , GIVEN DATA FILE
 OUTPUT = 72GOUT.OUT                               , DATED 01/11/**,10:17:05

          FILES GENERATED - DATED 01/11/**,10:17:05

 FILE 72GOUT.TEC CONTAINS ECON2 INFORMATION

 FILE 72GOUT.TRD CONTAINS READHD INFORMATION


        TOTAL NUMBER OF WARNINGS =   4,  MESSAGES =   2

                    JOB ENDED AT 10:17:05
                *** TR-20 RUN COMPLETED ***
```

APPENDIX F

FISSURE EROSION MODELING

APPENDIX F

INDEX OF FISSURE EROSION MODELING

(WHITE TANK FLOOD RETARDING STRUCTURE NO. 3 REMEDIATION DESIGN STUDY)

Index Number	Title
F-1	WHITE TANKS FRS. NO. 3 FOUNDATION FISSURE MODELING
F-2	INDEPENDENT ASSESSMENT OF CRACK EROSION

Engineering &
Hydrosystems Inc.

Engineering & Hydrosystems
8122 SouthPark Ln, # 208
Littleton, CO 80120

Phone 303-683-5191
Fax 303-683-0940

White Tanks FRS. No. 3 Foundation Fissure Modeling

Development and Analysis

Prepared for:

URS Corporation
8181 East Tufts Avenue
Denver, Colorado 80237

and

Flood Control District of Maricopa County
2801 West Durango St.
Phoenix, AZ 85009

MARCH 21, 2005

Table of Contents

INTRODUCTION 4

STUDY OBJECTIVES 4

PROBLEM DESCRIPTION 4

- Hydraulics 9
- Erosion Processes 13
- Sediment Transport 15

MODEL COMPONENTS 16

- Erosive Capacity 21
- Spatial Distribution 25
- Rate of Erosion 28

ERODIBILITY ASSESSMENT 33

- VJT, EFA, and HET Results Analyses 34
- Seismic Refraction Data Analysis 35
- Soil Erosion Rates and Layer Thicknesses for Fissure Modeling 39

DESIGN TEST SCENARIOS 41

FISSURE MODELING RESULTS 44

MODEL ASSUMPTIONS AND LIMITATIONS 49

CONCLUSIONS 53

REFERENCES 54

APPENDIX A – TEST RESULTS 56

APPENDIX B – DESIGN TEST MODELING RESULTS GRAPHICS 58

APPENDIX C – TESTS RESULTS FOR PREVIOUS MODEL SCENARIOS 64

APPENDIX D – CUTOFF WALL CRACK CALCULATIONS 150

APPENDIX E – EMBANKMENT CRACK CALCULATIONS 158

APPENDIX F – EFFECT OF NON-ERODIBLE LAYER WITH CRACK 162

INTRODUCTION

The Flood Control District of Maricopa County (District) operates and maintains White Tanks FRS. No. 3. The dam was constructed by the Soil Conservation Service (SCS), now called the Natural Resources Conservation Service (NRS), in 1954. Since the original construction of the dam, studies have detected significant ground subsidence related to withdrawal of groundwater, and consolidation of the drained sediments. Earth fissures may exist or may develop in the future, creating unacceptable risk to facilities and lives downstream.

The work on White Tanks FRS. No. 3 forms part of the Flood Control District of Maricopa County's dam safety program. The District is re-designing the White Tanks FRS. No. 3 embankment to better protect against erosion of foundation fissures. As part of the design effort the District retained Engineering and Hydrosystems Inc. (E&H) as a sub-consultant to URS Corporation (URS) to assess the erodibility of the foundation soils and to assess the anticipated performance of the proposed design for preventing failure and excessive erosion of the fissures.

STUDY OBJECTIVES

The objectives of this study are:

- Characterize the foundation material of White Tanks FRS. No. 3, specifically in the Phase I Fissure Risk Zone (FRZ), by quantifying the threshold shear stress of the different earth sub-layers.

- Assess the erosion potential of the different earth layers in a fissure when water flows through it under flood conditions.

PROBLEM DESCRIPTION

The flood retention structures (FRS) owned by the Flood Control District of Maricopa County are characterized by two types of features that could affect the safety of these facilities: 1) cracking in the embankments and 2) earth fissures in the foundations. The cracking in the embankments is believed to be the result of recementation of the Holocene soils and desiccation. These cracks occur at regular intervals in both the longitudinal and transverse directions. The earth fissures form due to regional ground water abstraction and are very much dependent on subsurface stresses. The earth fissures potentially affect dam safety in isolated locations where the two intersect.

This report addresses the anticipated response of earth fissures under embankments where it is possible for water to seep into and along a previously undetected earth fissure, potentially causing erosion and weakening of the dam foundations. Significant dam

foundation erosion could lead to failure of the embankment, pointing to a clear need to protect the foundations against significant erosion.

No information or previous experience exists about the erosion of earth fissures under water pressure head, as would occur behind a dam filled with water. Similarly, very little information about the subsurface conditions of earth fissures, such as aperture width, tortuosity, surface asperities and vertical extent, are known. It is therefore imperative to base analysis and modeling of fissure erosion on a number of assumptions that are deemed reasonable within the bounds of current knowledge. This portion of the report summarizes current understanding of fissure formation, erosion types and internal erosion mechanisms.

Earth Fissure Formation

Earth fissure formation is a complicated process and has been simplified here. The fissures form due to the abstraction of groundwater, which causes consolidation, compaction, differential settlement and, finally, cracking of the earth. The water table in the general vicinity of the White Tanks FRS is estimated to have dropped more than 300 ft. This has let to ground surface subsidence of one to four feet.

Earth fissure formation in areas of large groundwater decline in alluvial aquifers is probably associated with a process of generalized differential compaction. As the earth material subsides due to ground water abstraction it becomes denser due to compaction. The fissures form in this compacted medium due to three likely mechanisms, as explained by dislocation theory. These mechanisms include bending of a compressed plate above a horizontal discontinuity, a tensile crack that forms, and vertical propagation of tensile strain. The latter is caused by draping of the alluvium, which is in compression, over a horizontal discontinuity. These three mechanisms can be used to explain why fissures commonly develop along the perimeter of subsiding basins, often in apparent association with buried or protruding bedrock highs, suspected mountain-front faults, or distinct facies changes in the alluvial section.

Fissures often manifest at the surface as subtle hairline cracks, or as alignments of small potholes, modified by burrowing animals. Intercepted overland flow allows the surface manifestation of the fissure to grow as internal erosion and caving occurs during runoff events. The shallow, weakly cemented Holocene surface soils often erode quickly, leading to large amounts of sediment discharging and disappearing into the fissure during precipitation and ensuing runoff events. The underlying Late Pleistocene soils are often more cemented and resistant to erosion, and usually lead to the formation of ledges at the Holocene/Late Pleistocene contact. Figure 1 is an illustration of how earth fissures could form under compression due to differential subsidence. The highly exaggerated vertical scale in the sketch is used to illustrate the concept. Figure 2 shows erosion of Holocene material into a fissure, which is typical of known fissures in Arizona.

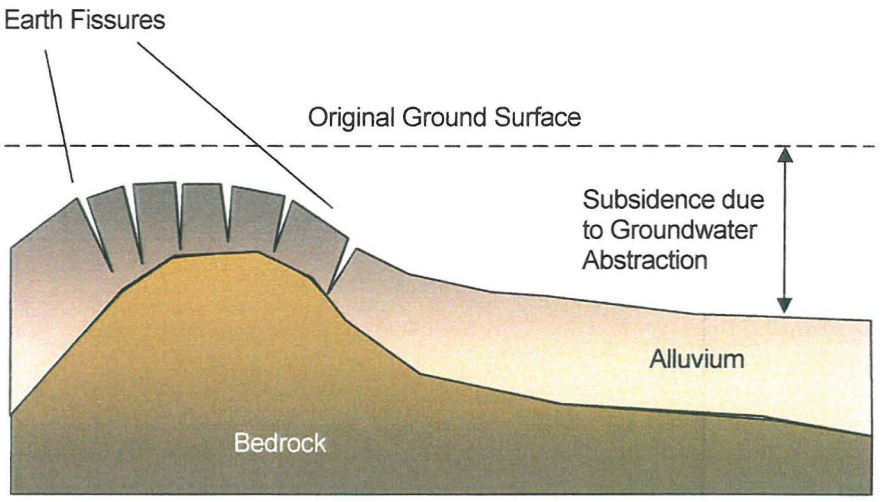


Figure 1. Schematic Showing Fissure Formation due to Differential Subsidence under Compression.

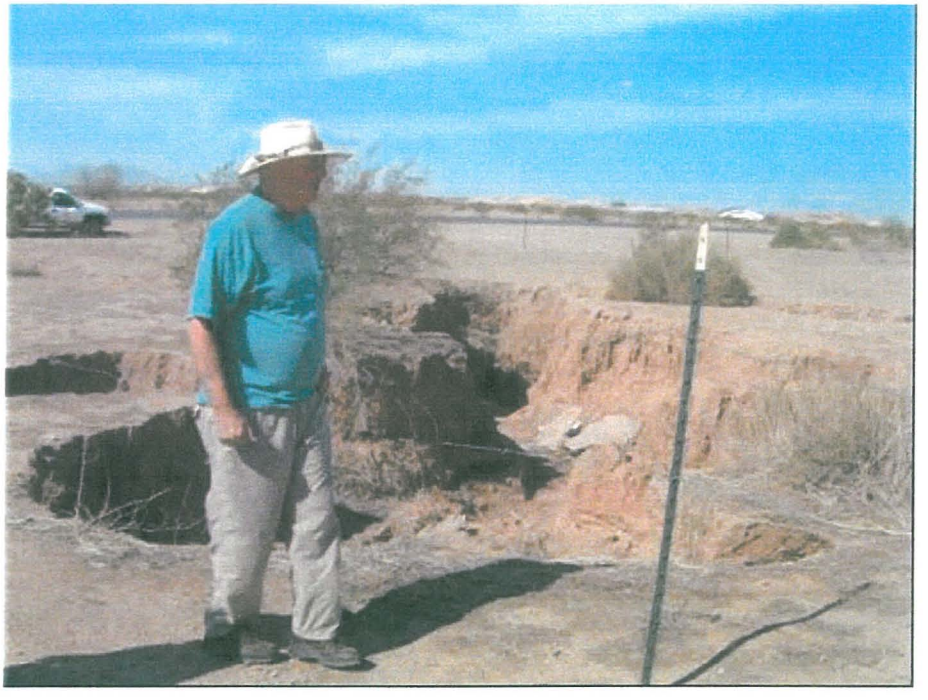


Figure 2. Fissure Erosion.

Erosion Types

McCook (2004) identifies piping and internal erosion as the two basic erosional mechanisms (except for overtopping) that can lead to failure of an embankment dam and its foundation. He argues that other terms used to identify embankment failure

mechanisms, such as *"true" piping, suffusion, heave, scour, blowout, sloughing, backward erosion piping* and *concentrated leak piping* lead to confusion. He suggests only using the terms *piping* and *internal erosion* to distinguish between the two principal erosion types in embankment erosion.

McCook's classification of erosion mechanisms is based on the process involved when erosion is initiated, which can be reduced to these two principal mechanisms. The approach that was followed in this project for analyzing and simulating potential foundation erosion scenarios when water flows through an earth fissure underneath a dam is based on the assumption that *internal erosion* is the dominant mechanism. It is therefore important to clarify what is meant by internal erosion and how it is distinguished from piping. The erosion mechanisms associated with these two processes are different, as are their simulation.

ASTM (2002) defines piping as "the movement of soil particles by percolating water leading to the development of channels" or, alternatively, as "the progressive removal of soil particles from a mass by percolating water, leading to the development of channels". The important term in this definition is *percolation*, which implies water flowing through the pore spaces in an intact soil mass. The removal of soil particles can only occur from the most downstream point where the percolating water emerges from the soil mass. As soil particles are removed at the most downstream end a "pipe" starts to form which moves backwards into the soil mass. This backward movement is facilitated by the continuous removal of soil particles at the most downstream face of the soil mass where the percolating water emerges, which is concurrently the most upstream face of the pipe that thus forms in the soil and continues to move upstream. **Piping is not considered the dominant process in earth fissure erosion.**

Internal erosion occurs in pre-existing earth cracks when water can flow through the crack in a downstream direction, as distinguished from the percolating flow in a piping scenario. When such cracks are fully open, the water flowing along the crack can erode the earth surfaces on opposite sides of the fissure and transport the eroded material in a downstream direction. The openness and continuity of cracks allows such erosion processes to occur. This implies that widening of the crack throughout its entire length is possible as water continues to flow through it and remove soil by erosion from the sides of the crack. The characteristics of earth fissures in Arizona indicate that they are usually open, often quite long and deep, and have the ability to convey water as non-percolating flow. This can be seen in Figure 3, which shows the continuity of an open earth fissure at McMicken Dam. Viewing this fissure, it is easy to conceptualize the flow of water within the fissure should it be subject to water under pressure. **Internal erosion is considered the dominant process in earth fissure erosion.**

Figure 3. Example of an Earth Fissure, Showing Transverse Extent of Opening Formed by Earth Stresses

In summary, of the two identified erosion types it is concluded that internal erosion is the dominant erosion process in earth fissures underneath dams subject to water pressure. Possible flow and sediment transport scenarios in earth fissures and how such flow can lead to internal erosion of the foundations are discussed in the next section of this report.

Internal Erosion Mechanisms

The active internal erosion mechanisms that are considered relevant when investigating earth fissure erosion of dam foundations are discussed under the headings of hydraulics, soil detachment potential and sediment transport. The hydraulic elements include flow types, the effects of laminar sub-layer formation and the role of pressure fluctuations. Under the sub-section on soil detachment potential the concepts of physical and chemical gels, based on percolation theory, and how these concepts can be used to assess and characterize erosion potential, are discussed. The actual characterization of earth materials and determination of their erosion potential are not discussed in this section, but further on in the report. The sub-section on soil detachment potential presented here only deals with conceptual aspects. Once the hydraulic and soil detachment potential concepts have been discussed, a description of potential sediment transport mechanisms in earth fissures follows. That sub-section mainly deals with potential flow scenarios in fissures and how the mass continuity of sediment movement is maintained during the erosion process.

The interaction between turbulent flow and the boundary is facilitated by a theoretical concept known as the laminar sub-layer. The laminar sub-layer is a very thin layer of fluid located directly adjacent to the boundary where viscous dissipation of energy occurs. Under ideal conditions this layer is of uniform thickness and behaves in a stable manner. The presence of this layer explains why it is possible for the flow velocity to be zero at the bed, while having a positive value a small distance from the bed. The velocity distribution over the thickness of the viscous sub-layer is linear, from zero at the boundary to a positive value at its Upper edge. Figure 4 illustrates the concept of the viscous sub-layer in conduit flow with the rough turbulent boundary layer filling the complete flow region within the conduit.

In rough turbulent flow the viscous sub-layer is unstable. Research has shown that the laminar sub-layer is hardly ever stable under normal, rough turbulent flow conditions and that it is characterized by a phenomenon known as "bursting". The "bursting" effects in the laminar sub-layer in rough turbulent flow are caused by the introduction of instabilities into the laminar sub-layer. Whether these instabilities grow to cause bursting in the laminar sub-layer and whether they eventually die down, resulting in continued laminar flow, depends on the magnitude of the Reynolds number.

In order to assess what will happen to the viscous sub-layer under laminar and rough turbulent flow conditions when subjected to the introduction of instabilities, it is good to recall that the Reynolds number is, in essence, a ratio between inertial and viscous forces in the flow. If the Reynolds number is large, as in the case of rough turbulent flow, the effects of the inertial forces are greater than the effects of the viscous forces. Alternatively, if the Reynolds number is small, as in the case of laminar flow, the low value indicates that the viscous forces are much closer in magnitude to the inertial forces. In the case of pure laminar flow, the effects of the viscous forces are greater than the effects of the inertial forces.

Therefore, if the Reynolds number is low, as in the case of purely laminar flow, the viscous forces will dampen out instabilities introduced into the laminar sub-layer and the flow will remain laminar. In rough turbulent flow the effects of the viscous forces are inferior to the effects of the inertial forces in the flow, with the result that they can no longer dampen the effects introduced by instability. The inertial forces therefore overcome the effects of the viscous forces and the viscous sub-layer becomes unstable. In some cases the instability might be intermittent as with "bursting", with the viscous sub-layer becoming turbulent at times and laminar at other times. These instabilities are characterized by the formation of hairpin vortices close to the boundary (Figure 5).

Bursting results in pressure fluctuations, which are the principal cause of initiation and maintenance of the scour process. Bursting incorporates the impacts of positive and negative pressure forces such as jacking and overturning on scour of rough surfaces where a macrostructure in the parent material exists. These contributions to scour are measurable in erosion tests such as Horizontal Erosion Test (HET) and Erosion Function Apparatus (EFA) provided the test scale is sufficient. Therefore, in order to appropriately quantify the magnitude of the erosive capacity of flowing water it is necessary to understand the essence of these bursting processes and determine parameters that can be easily used in practice to quantify the relative magnitude of their effects on scour.

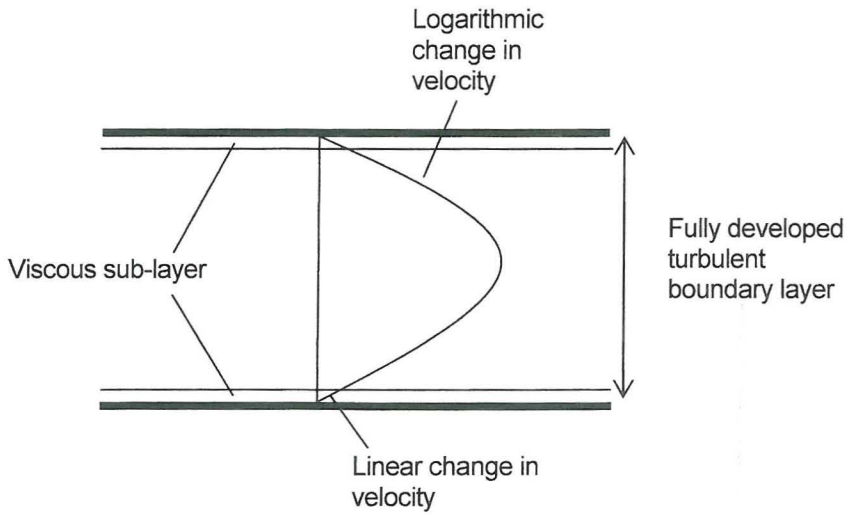


Figure 4. Simplified Representation of the Laminar Sub-Layer in Rough Turbulent Flow.

As these vortices develop (Figure 5), the fronts (most downstream part) of the vortices start to lift. From continuity considerations it then follows that water needs to flow into the space created by the uplifting hairpin vortex. This water flows in from behind and forms what is known as a "high speed sweep". As this water sweeps into the space below the hairpin vortex it causes increased pressure forces below its apex. Continued development of the hairpin vortex eventually results in its apex breaking loose, with its two legs remaining behind. These legs form what is known as "low speed streaks", which in essence are small, streamwise vortices. For a vortex to exist it needs to attach to two surfaces, at its up- and downstream ends. The streamwise vortices attach to the bed at the upstream end and to the top surface of what remained of the viscous sub-layer at its downstream end. The effect of the vortices is therefore that they act like small vacuum cleaners, sucking material up from the bed and spitting it out above the laminar sub-layer. The net effect of the formation of hairpin vortices is that the flow boundary is characterized by pockmarks of high and low pressures which continuously fluctuate. The continuous fluctuation of pressure leads to loosening and suspension of earth material on the boundary, which causes scour.

The key as far as engineering practice is concerned is to find practical ways by which the erosive capacity of the water, i.e. the effect of these fluctuating pressures on the boundary, can be quantified. It is not only difficult to measure such pressure fluctuations, but their actual quantification by mathematical means is even more challenging.

The term "erosive capacity of water" is an elusive concept. The use of this term in scour analysis indicates to the user that if its magnitude increases so will the potential for scour. What normally happens in engineering practice is that parameters are selected to provide an indication of the relative magnitude of the erosive capacity of flowing water. The most common parameters that are used are shear stress, velocity and stream power. Representative parameters are selected with the goal of having a definable, consistent relationship with erosive capacity of water.

It is therefore appropriate to consider the behavior of shear stress, velocity and stream power to represent the erosive capacity of water. In closed conduit flow, which is characteristic of the flow conditions under consideration White (1940) found that flow velocity is an unlikely indicator of erosive capacity, while shear stress, in closed conduit flow, is a good indicator. Stream power, in closed conduit flow, can be shown to be equally representative of erosive capacity as shear stress. In addition, Annandale (1995) illustrated a direct relationship between stream power (also known as rate of energy dissipation) and pressure fluctuation in rough turbulent flow (Figure 6).

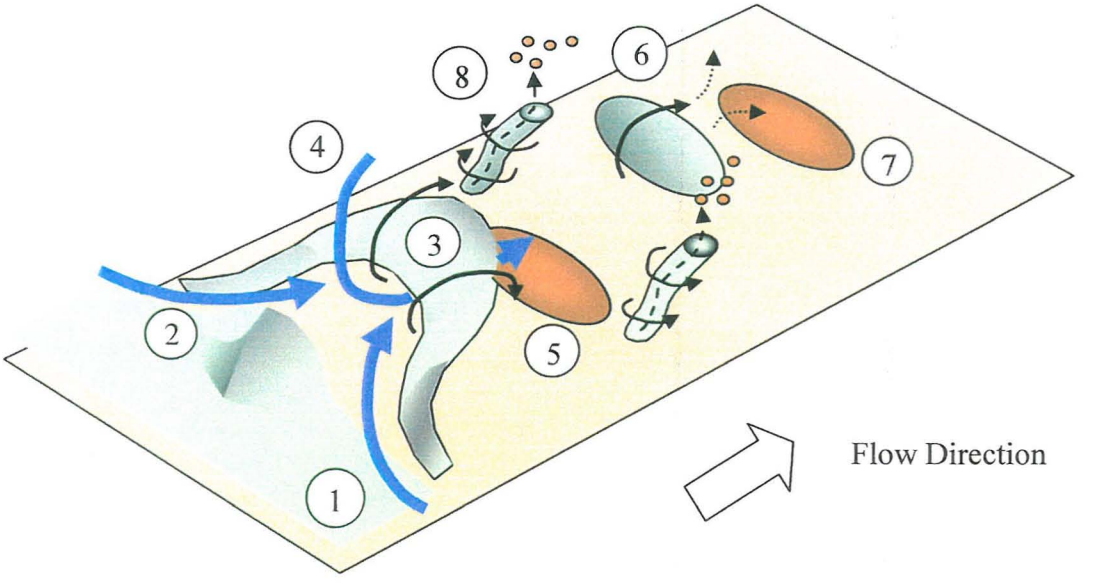


Figure 5 Flow processes at the boundary. 1. Laminar near-boundary layer. 2. Instabilities introduced into the boundary layer results in an irregular surface. 3. The irregular boundary layer surface leads to development of hairpin vortices, in which the most downstream end is lifted upwards. 4. High velocity sweeps of water flowing into the space below the hairpin vortices appear. 5. The high velocity sweeps interact with the bed and lead to a high pressure zone as it collides with the bed. 6. As the hairpin vortex moves further downstream the central part of the vortex breaks loose, and forms an eddy that can move either upward, parallel to the bed or downward. 7. Downward moving elements collide with the bed once more and lead to the formation of high pressure zones. 8. The two remaining legs of the hairpin vortex attach temporarily to the bed where they cause low pressure zones at the points of attachment. The small vortices are known as low velocity streaks. The negative pressure within these vortices sucks sediment upwards and discharges it into the upper body of the flowing water.

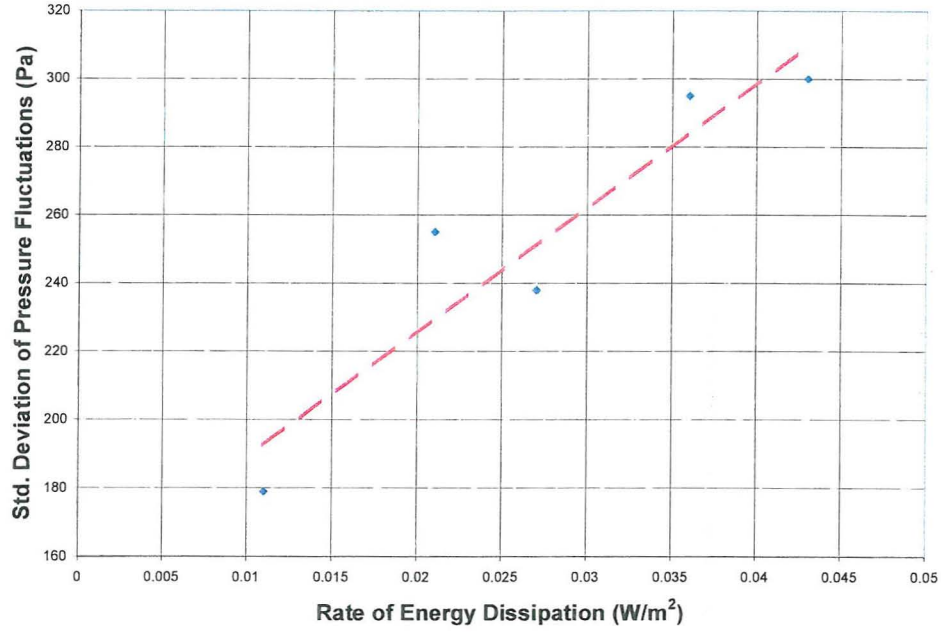


Figure 6. Relationship Between Stream Power (Rate of Energy Dissipation) and the Relative Magnitude of Pressure Fluctuations under a Hydraulic Jump (Annandale 1995).

The four principal flow types are laminar, transition, smooth turbulent and rough turbulent flow, which affect scour of earth materials in different ways. The roughness of the boundary only plays a role in determining flow characteristics in the case of transition and rough turbulent flow. Transition flow in the case of fissure erosion only occurs for very short periods of time and will not be considered here as it is believed to play a minor role in scour formation (because of its short period of existence). When rough turbulent flow occurs, friction losses are a function of the absolute roughness of the boundary and are independent of the Reynolds number. In the cases of laminar and smooth turbulent flow the energy losses are principally a function of the Reynolds number. The reason for the latter is that the friction losses in laminar and smooth turbulent flow are principally dependent on direct viscous dissipation. In the case of rough turbulent flow the energy losses are dependent on the amount of energy extracted from the flow by turbulent eddies, which is subsequently cascaded down into smaller and smaller eddies, which eventually become so small that the energy is dissipated by viscous action. The size of the turbulent eddies in rough turbulent flow, and thus the amount of energy extracted from the flow and converted to turbulent kinetic energy is a function of the absolute roughness of the boundary. The larger the absolute roughness, the larger the energy extracting eddies, and the larger the amount of energy extracted from the flow for eventual dissipation by viscous action.

In the model we have only used laminar and rough turbulent flow regimes to calculate the erosive capacity of water. It is unlikely that smooth turbulent flow will occur for any length of time. Additionally, the erosive capacity associated with smooth turbulent flow will be lower than that of rough turbulent flow with the same Reynolds number. The reason for this is obvious if one considers that the energy losses associated with smooth turbulent

flow will be lower than those associated with rough turbulent flow for the same Reynolds number. By using stream power, i.e. the rate of energy dissipation of flow, as the indicator of the relative magnitude of the erosive capacity of water, it is clear that the erosive capacity of smooth turbulent flow will be lower than the erosive capacity of rough turbulent flow for the same Reynolds number. Ignoring the presence of smooth turbulent flow in the scour analysis therefore leads to a conservative assumption.

Erosion Processes

The objective of this section is to explain the erosion process in terms of the concepts of physical and chemical gels that has been used during the course of this project to assist with earth material characterization. Based on the premise that scour of earth materials is principally initiated and maintained by pressure fluctuations in flowing water it is appropriate to consider earth material response to such forces. In this regard concepts established by Percolation Theory (Sahimi 1994) (PT) have been further developed for application to geomechanics by Rucker (see e.g. Rucker 2004) is used.

PT is based on network theory. A network essentially consists of a lattice of points which are either occupied or not occupied, and are either connected or not connected. If the "lattice" we are considering represents an earth material, the percentage of points (also known as "sites") that are occupied determines its porosity. The nature of the connections between occupied sites determines the network's behavior as one of two types of "gels", i.e. physical or chemical gels.

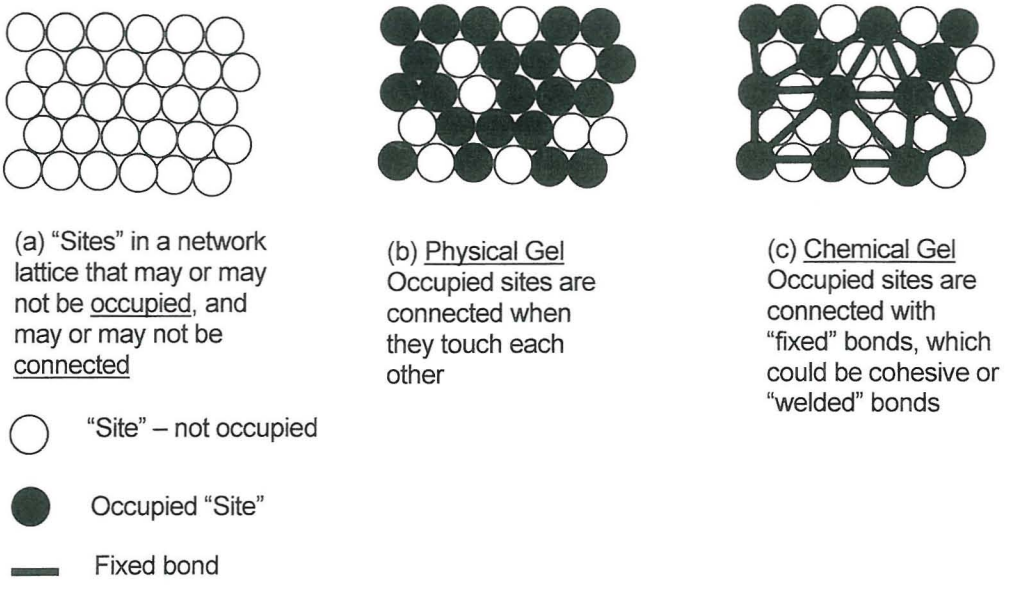


Figure 7 (a) Lattice Network with Potential "Sites" that can be Occupied. (b) Physical Gel Showing Occupied Cites, (c) Chemical Gel, Showing Occupied Sites and "Fixed" Bonds.

In order to develop a better understanding of the concept it is necessary to visualize the images in Figure 7 in three-dimensional context. The open circles in Figure 7 (a) illustrate a lattice of potential sites that can be occupied by a physical element. In the case under

consideration, i.e. an earth material, the sites can potentially be occupied by minerals making up a rock mass, or a cohesive or non-cohesive soil.

If some sites in Figure 7 (a) are occupied by non-cohesive soil minerals that are connected by touching each other, the network is known as a physical gel (Figure 7 (b)). It is possible that not all of the sites will be occupied, i.e. some of the sites may remain empty. The porosity of the assembly is a function of the number of sites that are either occupied or not. Large porosities are associated with low material density, and vice versa. It is reasonable to expect that assemblies of particles with high porosities will be weaker than those with low porosities. It is therefore reasonable to anticipate the existence of a critical porosity, which is required to allow the assembly of occupied sites to perform a certain function. If the porosity is lower than the critical porosity the assembly will be stronger than when it is at the critical porosity.

Figure 7 (c) illustrates a chemical gel. Not all the sites are occupied but those that are connected are by means of "fixed bonds". These connections are chemical bonds such as cohesion or cementation. It is possible that a chemical gel with a high porosity can be stronger than a physical gel with a lower porosity. This higher strength of such a chemical gel is attributed to the existence of the fixed, chemical bonds between occupied sites.

From the simplified explanation above it is easy to see that the elements occupying sites in a lattice making up a physical gel will roll over each other if they touch at least three other occupied sites and are subject to an external force (consider this from a three-dimensional point of view). Non-cohesive soils and highly fractured, weathered rock are examples of physical gels.

Such behavior is not characteristic of chemical gels. In the case of a chemical gel the chemical bonds connecting the particles keep them in place relative to one another when subjected to an external force. This bonding prevents them from rolling over one another. Cohesive soils, cemented soils and intact rock are examples of chemical gels.

Having explained the basic characteristics of physical and chemical gels, what remains is to assess how their characteristics influence earth material response to the erosive capacity of water. In this case it is important to recall that the erosive capacity of water is characterized by fluctuating pressures at the interface between water and the earth material. The behavior of the surface layer of the earth material is therefore the principal zone of interest.

If the net forces imposed by the fluctuating pressures are large enough to cause failure of the upper earth material layer it erodes (or scours) and the earth material below it is exposed. Removal of a layer of earth material impacts the magnitude of the fluctuating water pressures, either decreasing or increasing it. The reason for this is that removal of earth material may change the geometry of the flow environment, which can change the magnitude of the erosive capacity of the water.

If the magnitude of the remaining fluctuating forces are large enough to scour the next earth material layer, it will be removed and the process will be repeated until it eventually ceases. This happens when the erosive capacity of the water has diminished so much relative to the strength of the surface of the remaining earth material that it can no longer remove it. A distinguishing feature of the scour process is that it is the strength of the exposed earth material surface that is important, as opposed to the strength of an earth material mass normally considered in geotechnical engineering. The strength of the latter is often characterized by, amongst other things, quantifying its elastic modulus, which is not of concern in scour analysis.

First, consider the effect of fluctuating water pressures on physical gels. The connections between individual elements of such materials are very weak. From a PT point of view they merely exist because of the fact that they touch each other. The only resisting forces to scour are therefore the submerged weight of individual elements and the friction forces introduced by the contacts between these elements. If one would e.g. consider non-cohesive soil particles (say clean, coarse sand) it is most probably reasonable to assume that they will experience very low friction forces in the surface layer of the earth material. The reason for this is that the lateral pressure between particles that determines the magnitude of the friction forces is very small. In the simplest case it is therefore reasonable to expect that a coarse sediment particle will be removed from the surface layer as soon as the net fluctuating water forces exceed the submerged weight of the particle. No other resisting factors come into play. The effect of gravity acting parallel to the vertical fissure face is neglected. This assumption is not an issue if no scour occurs due to a mitigating design and is only a minor assumption if minimal scour occurs when no mitigation is in place. The scour of physical gels is a relatively simple process.

Scour of chemical gels, such as cohesive and cemented soils, is more complex. As the fixed bonds in cohesive and cemented soils are caused by chemical forces between individual clay platelets or soil particles, both the chemical composition of the water and the relative magnitude of the fluctuating pressure introduced by the flowing water determine whether scour will occur.

The exposure of the earth material right at the surface of a cohesive or cemented soil is affected by the water flowing over it. This effect is usually characterized by weakening of the bonds. Some of the material at the surface can be detached from their bonds when high pressures resulting from the high velocity sweeps pound the boundary. As the high pressures act on the cohesive boundary some of the loosened material may be suspended into the region directly above the laminar sublayer as turbulence develops at the edges of the outward radiating flow at the impact zone.

Other portions on the bed surface, which might contain some of the material loosened by increased pressure from the high velocity sweeps, will be subjected to the suction introduced by the streamwise vortices, known as streaks. These streamwise vortices act like small vacuum cleaners, sucking loose cohesive material from the surface and ejecting it into the turbulent flow layers above the laminar sub-layer, from where it is transported in suspension by the turbulent flow. If the suction forces are strong enough they may dislodge chemically bonded particles from the earth material matrix.

It is relatively easy to conceptualize that increased amounts of power are required to dislodge particles that are subject to bonding by chemical forces of cohesion or cementation. If the negative pressure in the streamwise streaks is high enough it may "pluck" clumps of cohesive or cemented materials from the bed. Such plucking leads to irregular boundary surfaces, once subjected to scour.

Sediment Transport

The continuity of sediment transport is of concern when simulating earth fissure erosion. The software developed to simulate earth fissure erosion for this project is quasi two-dimensional, which required making assumptions related to mass continuity and movement of sediment. The principal assumption is that all material that is eroded can be removed from the zone where erosion occurs. Additionally, it is necessary to conceptualize the erosion and sediment transport processes in order to make decisions pertaining to the selection of appropriate counter measures.

Two possible transport mechanisms are conceptualized. The one assumes that eroded material is transported downwards into the earth fissures, and the other assumes that the material is transported horizontally and eventually upwards (downstream of the dam), from where it is discharged.

It is believed that the vertical extent of earth fissures in Arizona can be significant, possibly on the order of hundreds of feet. Observations of earth fissure erosion indicate that it is possible that the upper, more erodible Holocene soils can erode and be transported downwards into the fissure. It appears as if such erosion often ceases at the interface between the Holocene and the Pleistocene soils, which are normally more erosion resistant. An example of this process can be seen in Figure 2.

Another possible scenario is that flow will predominantly occur in a horizontal fashion through the fissure underneath the dam, with flow eventually flowing vertically upwards and emerging downstream of the dam. This could happen if the earth fissure below the scour zone becomes blocked. This is a possible scenario because earth fissures can extend horizontally for considerable distances (see e.g. Figure 3) and if blocked below the scour zone can form a conduit facilitating horizontal flow.

Assuming that either of these concepts apply, explains how the continuity of scoured earth material is maintained. This conceptualization supports the assumption made in the model that all scoured earth material is removed from the scoured section.

Assuming that either of these concepts apply, explains how the continuity of scoured earth material is maintained. This conceptualization supports the assumption made in the model that all scoured earth material is removed from the scoured section.

The observation that Holocene soils can erode into a fissure, forming a wide opening in the ground, which eventually narrows down at the elevation of the less erodible Pleistocene provides evidence for conceptualizing what could possibly happen at the upstream end of a cutoff wall. We believe that it is possible that the Holocene soil on the upstream side of a cutoff wall can experience erosion into the Lower Pleistocene. We are uncertain whether this will be limited to the Holocene soils in the case of White Tanks 3 FRS because of the potential erodibility of the Upper Pleistocene. We are therefore of the opinion that the mitigation design should account for the possibility that the soil above the lower edge of the upstream cutoff wall could possibly be removed and washed into the fissure below.

MODEL COMPONENTS

Embankment and Foundation Parameters

E&H investigated the potential for fissure erosion underneath a characteristic section provided by URS as shown on Figure 8 and Figure 9. The section consists of a soil cement embankment with common fill slopes on the exterior of the soil cement. When constructed, fill material upstream and downstream of the embankment will be placed as shown on Figure 8. Models in this study were conducted for the case assuming that the fill is intact during a flood event as modeled by the fissure model (Figure 8) and for the case assuming that the common fill has been eroded both upstream and downstream of

the embankment prior to the flood event as modeled by the fissure model (Figure 9). The soil cement design section has an embankment top elevation of 1218 ft. The soil cement embankment has a vertical upstream face and a downstream face slope of 0.65:1 (H:V) and embankment top width of 10 ft. The soil cement embankment base of 31.45 ft is at 1183 ft elevation. Two 30 ft deep Soil Cement Bentonite (SCB) cutoff walls will be constructed below the design embankment as shown on Figure 8 and Figure 9. The common fill is being constructed to extend 75.2 ft upstream of the soil cement embankment and 107.5 ft downstream of the soil cement embankment. The common fill will be placed above an approximately 10 ft thick layer of Holocene material with the toe of the common fill at elevation 1195 ft.

E&H was provided by URS with simplified soil profiles and relevant soil testing results. From the results, E&H and URS have assigned thicknesses of the Pleistocene layers to be:

Layer Number	Layer Name	Layer Thickness (ft)	Depth Below Ground Surface (ft)
1	Upper Pleistocene	25	10 - 35
2	Lower Pleistocene	25	35 - 60
3	Deep Pleistocene	50	60 - 110
4	Non-Erodible Material	100	110 – 210*

*Although the Non-Erodible Material Layer extends indefinitely, it was modeled as being 100 ft thick for the purposes of fissure formation.

Erosion rate equations were developed by E&H and URS and are included in Table 3 of the Erodibility Assessment section of this report.

The model that was developed can simulate fissure erosion in the dam foundation for conditions with and without mitigation. The mitigation measure considered herein consists of two cutoff walls, one at the upstream end and one at the downstream toe of the embankment. Definition sketches are presented in Figure 8 and Figure 9 to define parameters that are required to simulate fissure formation for vertical cutoff walls added to the design embankment. The cutoff wall model is referred to as Fissure Model 5 in the model program. The variables defined in Figure 8 and Figure 9 are used directly in the model. The variables are:

- Erodible Holocene height, H_{hol}, is the depth of any material above the Pleistocene layers that is located above the embankment base elevation. The model case when the common fill is intact has Holocene beneath the common fill portion of the embankment, with Holocene removed below the soil cement embankment. For this case the Holocene's presence upstream and downstream of the soil cement reduces the available head in a possible fissure by the thickness of the Holocene layer. For the design case when the common fill is assumed to be eroded prior to a flood event (Figure 9) the Holocene layer is also assumed to be eroded both upstream and downstream so that reservoir head is greater by the thickness of the removed Holocene layer.

- Datum height, H_d, is the height of the datum of the cutoff walls. Thus, in Figure 8 and Figure 9, H_d = 30 ft.

- Erodible Pleistocene height, H_{ple}, is the height of the Pleistocene strata.

- Fissured Pleistocene height, H_{fple}, is the initial height of the fissure from the bottom of the cutoff walls.

- The length of the cutoff walls, L_{cutoff} is equal to H_d in both model set-ups.

- For a regular, symmetrical trapezoidal embankment cross section with equal upstream and downstream side slopes (Figure 9, Fissure Model 5), flow path length, L, is calculated by the model using
  - Embankment length, L_{emb}, is the length of the top of the dam.
  - Embankment slope, s_{emb}, is the side slope of the dam expressed as rise/run (1/x).
  - Embankment height, H_{emb}, height of embankment above bed elevation.
  - Base length, L_{base}, is ignored with this option.
  - Number of cutoff walls times L_{cutoff} is added to the base width of the embankment.

- For irregularly shaped (non-trapezoidal) embankment cross sections (Figure 8, Fissure Model 5), flow path length, L, is set equal to the parameter called Base length, L_{base}, which accounts for the water flow path length through the fissure around the cutoff walls as calculated by the user (instead of using L_{emb}, H_{emb}, s_{emb}, and L_{cutoff}).

- Initial depth of water in the reservoir, H_{res0}, is the height of the upstream water surface above the downstream channel invert as provided by URS for each storm event.
- Acting head, H_w, is head acting on the fissure which equals H_{res} for both model cases in Figure 8 and Figure 9.

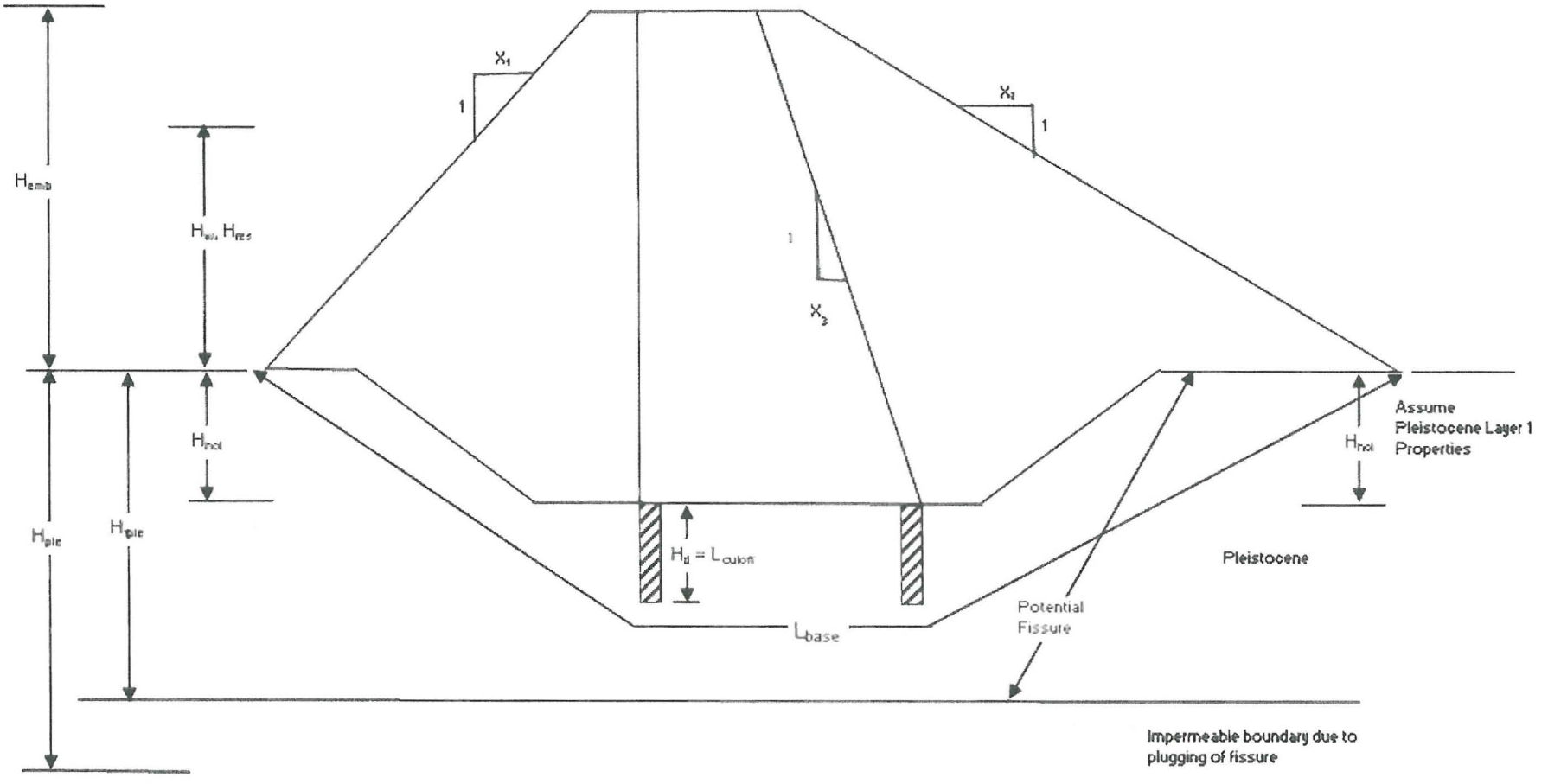


Figure 8. Definition Sketch for Fissure Model with Cutoff Walls and Common Fill Intact (Fissure Model 5)

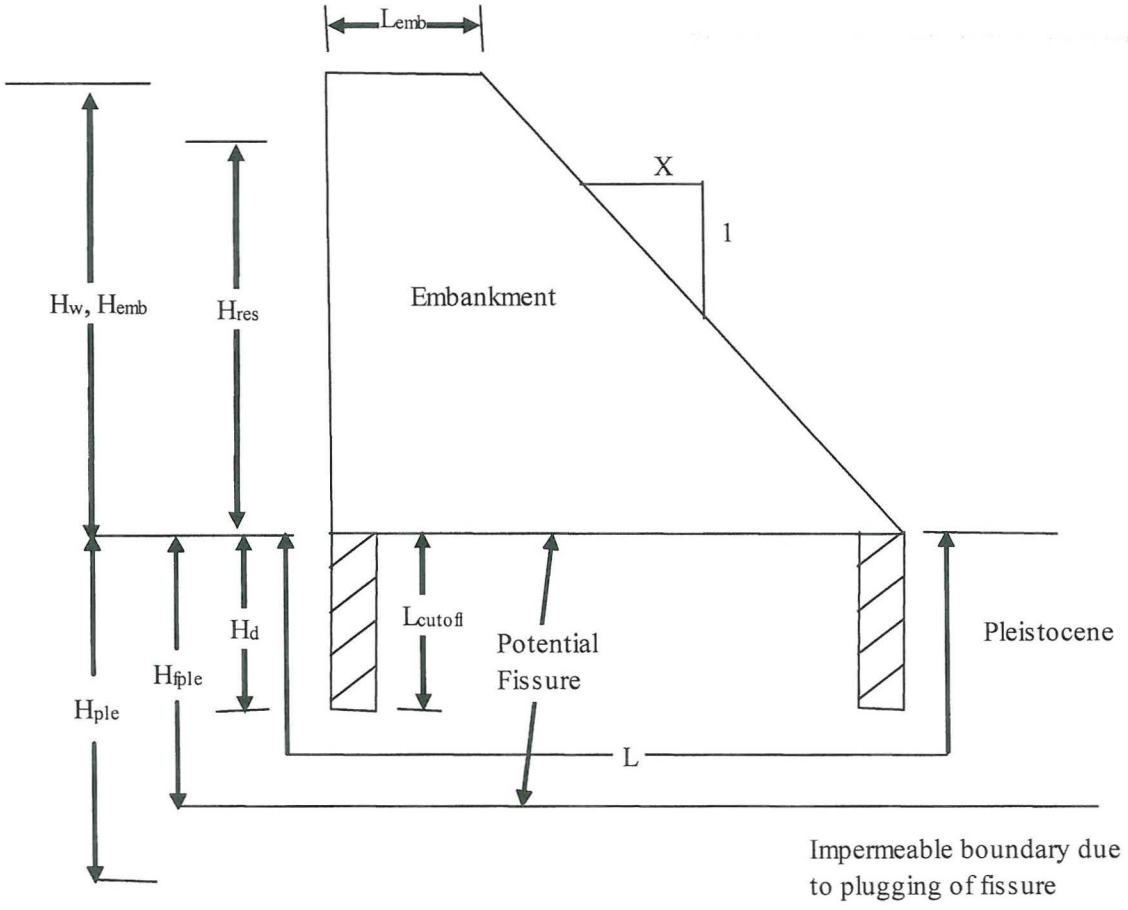


Figure 9. Definition Sketch for Fissure Model with Cutoff Walls with No Common Fill (Fissure Model 5).

To emulate the widening of a fissure, the model simulates the rate of erosion as a function of erosive power and widens the fissure accordingly. Similarly, the change in vertical dimension is simulated by calculating the rate of erosion as a function of the erosive power of water on the bottom of the fissure. Because this model accounts for multiple material layers in the foundation, a method of tracking variable widths along the fissure's height was developed.

The foundation materials and fissure opening vertical dimensions are divided into equal sized divisions of user specification as shown on Figure 10. The division height is assigned by the modeler and is based on sensitivity testing for the site modeled. A division height is chosen that is small enough such that decreasing the division height further does not change the results while balancing the need for minimization of calculation time. Shear stress on the bottom of the fissure is applied to the material type at that location within the foundation. If erosion results, the bottom of the fissure is moved down by an integer number of divisions as calculated by the erosion function. Any erosion less than a whole division is accumulated to the next time step. Note that the White Tanks FRS. No. 3 initial fissure is assumed to extend through the entire soil profile, so no vertical fissure growth will occur in the in the foundation model tests. The model determines which of the material layers (and thus material characteristics) apply to each of the wall divisions within the fissure including the newly added length divisions. The model does this by breaking the fissure into divisions that line up with divisions in the foundation materials as shown on Figure 10. The calculated stream power on the walls at each division is applied. Then the fissure is allowed to widen at a different rate at each division accordingly. Thus, the fissure will no longer be a simple rectangular opening in the foundation once erosion begins, as shown on Figure 11.

The erosive capacity of water can be quantified by calculating the magnitude of applied stream power or shear stress on the vertical walls and bottom of the fissure. The rate of erosion is determined by making use of site-specific relationships between applied shear stress and the rate of erosion. These relationships where determined using the EFA, VJT, HET, and seismic refraction tests as described in the section dealing with material properties. Applied shear stress was calculated in the White Tanks fissure model so that it could be compared to the shear stress versus rate of erosion relationships developed during geotechnical testing.

Erosive Capacity

Quantification of the erosive capacity of water using shear stress is based on the assumption of steady flow. The simplifications that were introduced to estimate flow of water through a foundation fissure is explained in what follows.

It is assumed that the average width of the fissure over its entire height is *a* and the height is *H*; leading to an aspect ratio of H/a. The average width is used once fissure erosion has commenced and each vertical division of the fissure may have a different width. For Fissure Model 5, average velocity, *V*, through the fissure is calculated from the energy equation between the upstream and downstream ends of the embankment where the head at the upstream side equals the velocity head in the fissure less energy losses due to friction in the fissure and at the upstream and downstream cutoff walls. Flow rate, *Q*, through the fissure is average velocity times the average area of the fissure, which is estimated as *a*H*. Again, the average width, *a*, is used when the fissure has grown into a

variable width fissure. Also, the model verifies that the resulting volumetric flow rate in a given time step is not greater than the available volume of water in the reservoir at that time step.

A representative shear stress τ, is calculated using the Darcy-Weisbach friction factor f :

$$\tau = \frac{f}{8} \cdot \rho \cdot V^2$$

where f = friction factor, ρ = density of water. An approach to quantify the value of the friction factor is presented in the Scour Calculation Concept section that follows.

The distribution of the applied shear stress on the fissure walls and ends are calculated using the Knight and Patel (1983) relationships discussed in the following sub-section, Spatial Distribution.

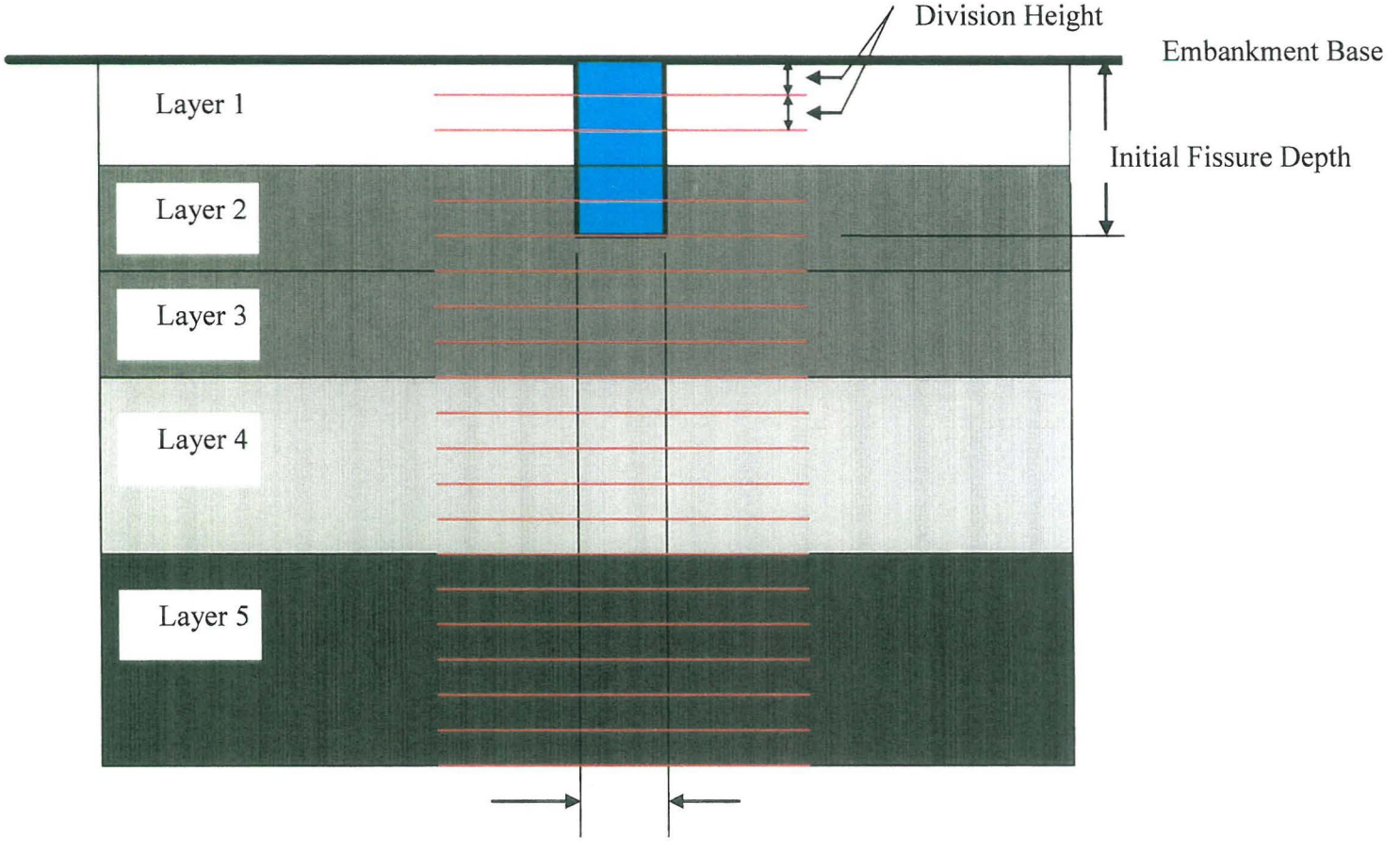


Figure 10. Initial Fissure Configuration in Multi-Layer Foundation with Model Divisions—Looking into Fissure.

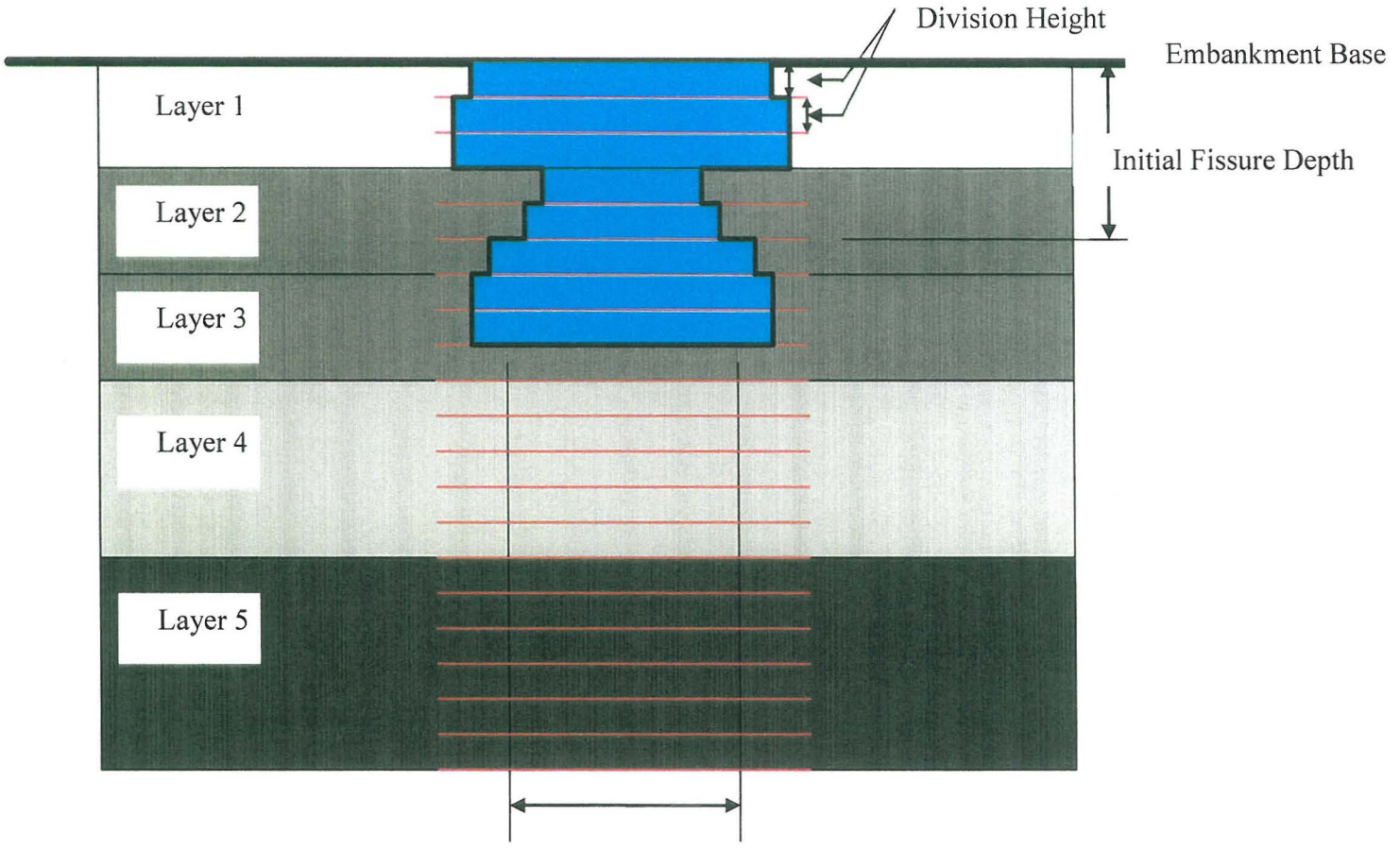


Figure 11. Hypothetical Final Fissure Configuration in Multi-Layer Foundation with Model Divisions—Looking into Fissure.

Spatial Distribution

Knight and Patel (1983) and Rhodes and Knight (1994) conducted laboratory experiments addressing the distribution of applied shear stress in smooth closed ducts of rectangular cross section under turbulent flow conditions for aspect ratios of 1 to 10 and 1 to infinity respectively. The empirical equations developed by these researchers indicate that the shear stress distribution is a function of the aspect ratio of a duct. The aspect ratio is defined differently by the two publications. Knight and Patel (1983) define the aspect ratio as the depth to width ratio and Rhodes and Knight (1994) defines it as the width to depth ratio.

Knight and Patel (1983) describe the width of their duct as the smaller of the two duct dimensions and refer to it as 2H; they represent their length as 2B which is the larger of the two duct dimensions. Knight and Patel's terminology was converted to that used in the E&H fissure model. The bottom of the E&H fissure, a, which is the shorter of the two fissure dimensions, is the width of the Knight and Patel duct, 2H. The length of the Knight and Patel duct, 2B, is equivalent to the height of the E&H fissure in the fissure model, H. Because Knight and Patel's walls are equivalent to the bottom of the E&H fissure, their equation actually determines the percent of shear stress that is applied to the E&H fissure bed. Thus, the percent of shear stress applied to the E&H fissure walls is 100% minus the percent of shear stress applied to the E&H fissure bed. In what follows, the Knight and Patel shear stress distributions are applied using the E&H fissure modeling terminologies.

The proportioning of applied shear stress between the walls and bottom change as the depth to width ratio of the fissure varies. When a vertical fracture is very narrow, the greatest portion of the total shear stress is applied to its walls. As the fracture widens horizontally, the proportioning of the stress of the water changes with more of it applied to the bed and less to the walls. Continued decrease of the erosive stress of the water on the walls (with continued widening) leads to a decrease in the rate of widening of the fissure until the erosive stress of the water becomes less than the threshold values of erosion and the channel widening ceases.

Knight and Patel's 1983 empirical equation for the percent shear force acting on the conduit walls in terms of fissure modeling terminology is

$$\%SF_{w,1983} = 100 - \left(e^{-3.253*\log(\frac{2H}{a}+3)+6.189} \right)$$

where $\%SF_w$ = percent shear force on the walls, H = the height of the fissure wall, and a = the width of the fissure.

Rhodes and Knight (1994) extended Knight and Patel's (1983) research to include aspect ratios of 0.02 to 50. Rhodes and Knight developed an empirical equation for applied wall shear stress in ducts to include all aspect ratios from 0 to infinity. They used duct wall and bed terminology that matches the E&H fissure modeling terminology. Their empirical equation defining the percent shear force acting on the conduit walls in terms of the E&H fissure modeling terminology is

$$\%SF_{w,1994} = \frac{100}{1+\left(\frac{1+1.345\cdot\frac{H}{a}}{1+1.345\cdot\frac{a}{H}}\right)^{-1.057}}$$

Knight and Patel developed an equation to convert percent the shear force on the walls ($\%SF_w$) into a ratio of wall shear stress to total shear stress. The ratio of shear stress on the bed to total shear stress was also given by Knight and Patel (1983):

$$\frac{\bar{\tau}_w}{\tau} = 0.01*\%SF_w\left(1+\frac{a}{H}\right)$$

$$\frac{\bar{\tau}_b}{\tau} = \left(1-0.01*\%S_w\right)\left(1+\frac{H}{a}\right)$$

where $\bar{\tau}_w$ = mean shear stress on the wall, $\bar{\tau}_b$ = mean shear stress on the bed, ρ = density of water, τ = the total boundary shear stress. The ratio of shear stress on the walls and bed for Knight and Patel's $\%SF_{w,1983}$ formulation and Rhodes and Knight's $\%SF_{w,1994}$ formulations are compared in Figure 12.

The initial aspect ratios of modeled fissures for White Tanks FRS. No. 3 modeling vary from 1,300 to 5,300 for a 2" fissure width with a 220' fissure length to a ½" fissure width with a 220' fissure length respectively. For a high erosion rate and 2" initial fissure width a maximum ratio of 165 is obtained.

The aspect ratios for fissure modeling applications are generally much greater than those used in Knight and Patel's research. Fissure modeling aspect ratios do fall within the domain of the Rhodes and Knight's research. After careful review of the behavior of the two sets of equations (Figure 12 and Figure 13), E&H found that the difference between the wall shear stress resulting from the Knight and Patel $\%SF_{w,1983}$ equation and the Rhodes and Knight $\%SF_{w,1994}$ equation is less than about 1% when the aspect ratio of the fissure is greater than 0.7. However, the bed shear stress ratio has a rather large variation between Knight and Patel (1983) and Rhodes and Knight (1994) for aspect ratios greater than 10 as shown on Figure 13. For White Tanks FRS. No. 3, the bed of the fissure is not able to erode downward because of Non-erodible Pleistocene, so use of Knight and Patel (1983) has no effect on the bed of the fissure. Therefore, the Knight and Patel (1983) equations are considered representative estimates of fissure erosion at White Tanks.

Two cases for calculating the magnitude and distribution of the erosive capacity of water and for calculating the rate and ultimate width of fissure widening have been formulated. The two cases are:

Case 1
The flow in the fracture is laminar. The applied shear stress is calculated based on the assumption of laminar flow. The distribution of shear stress on the vertical and horizontal boundaries is calculated as a function of aspect ratio (H/a) (Knight and Patel 1983).

Case 2

The flow is turbulent. The applied shear stress is calculated based on the assumption of turbulent flow. The distribution of shear stress on the vertical and horizontal boundaries is calculated as a function of aspect ratio (H/a) (Knight and Patel 1983).

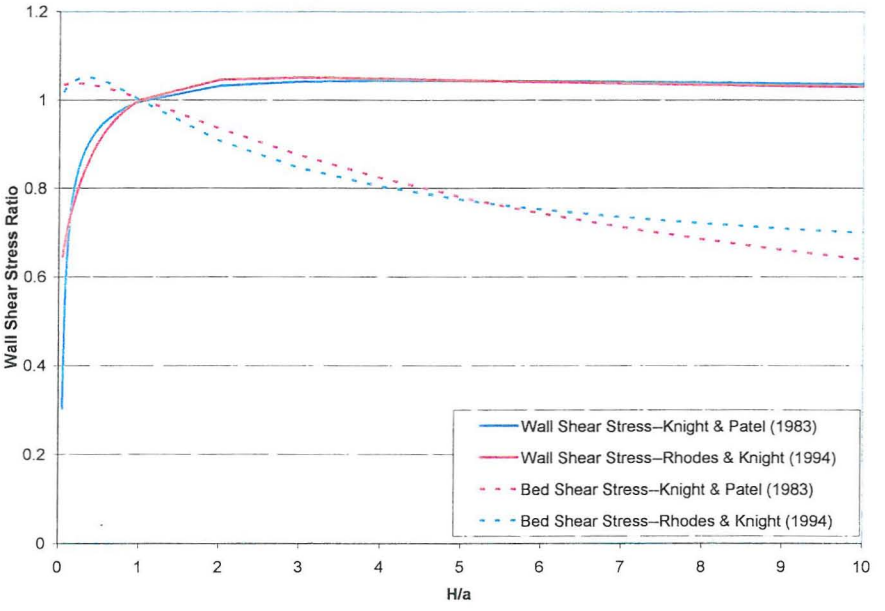


Figure 12. Distribution of Shear Stress on Fissure Walls and Bed as a Function of Aspect Ratio (0.5 < H/a < 10).

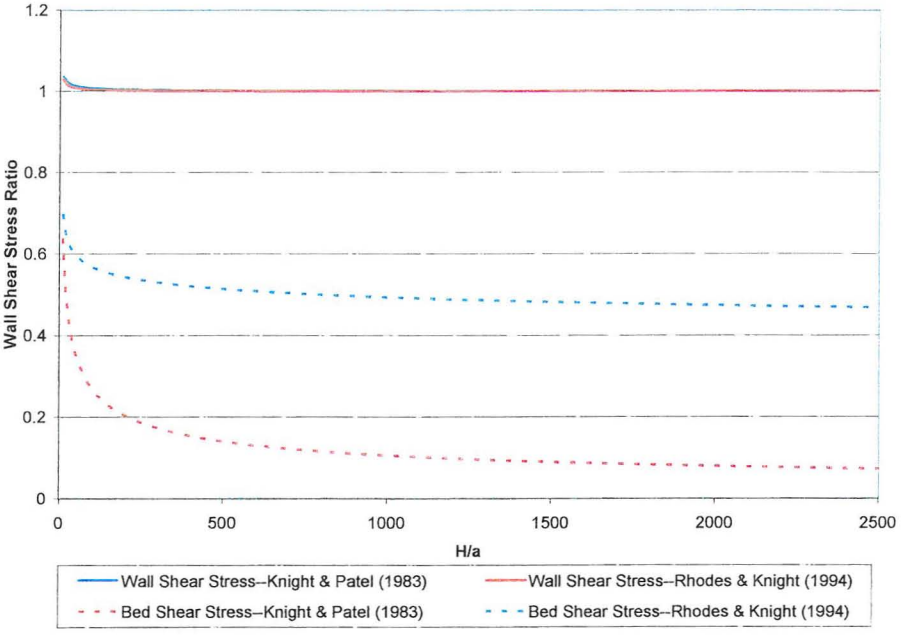


Figure 13. Distribution of Shear Stress on Fissure Walls and Bed as a Function of Aspect Ratio (10 < H/a < 2,500).

Rate of Erosion

A relationship between rate of erosion and applied shear stress schematically shown in Figure 14 can be developed by making use of the EFA, VJT, HET, and seismic velocity testing. Such relationships are used in the foundation fissure model to simulate the rate of erosion of soil as a function of the applied shear stress calculated by the model.

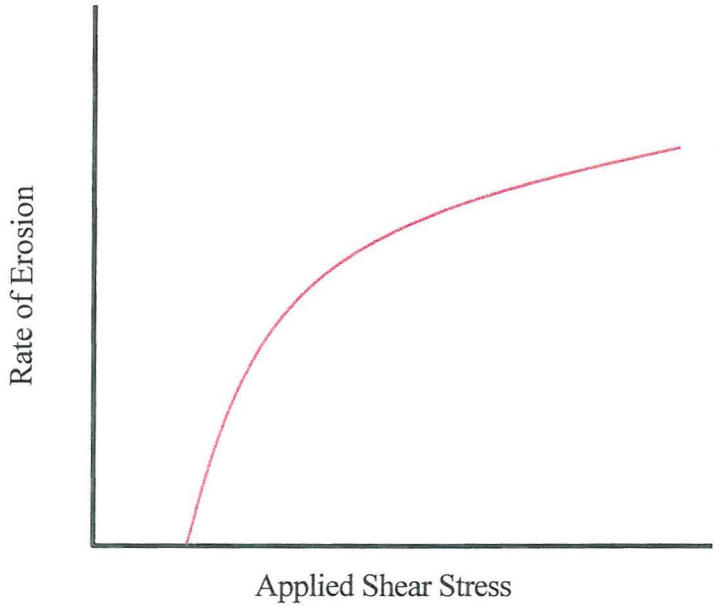
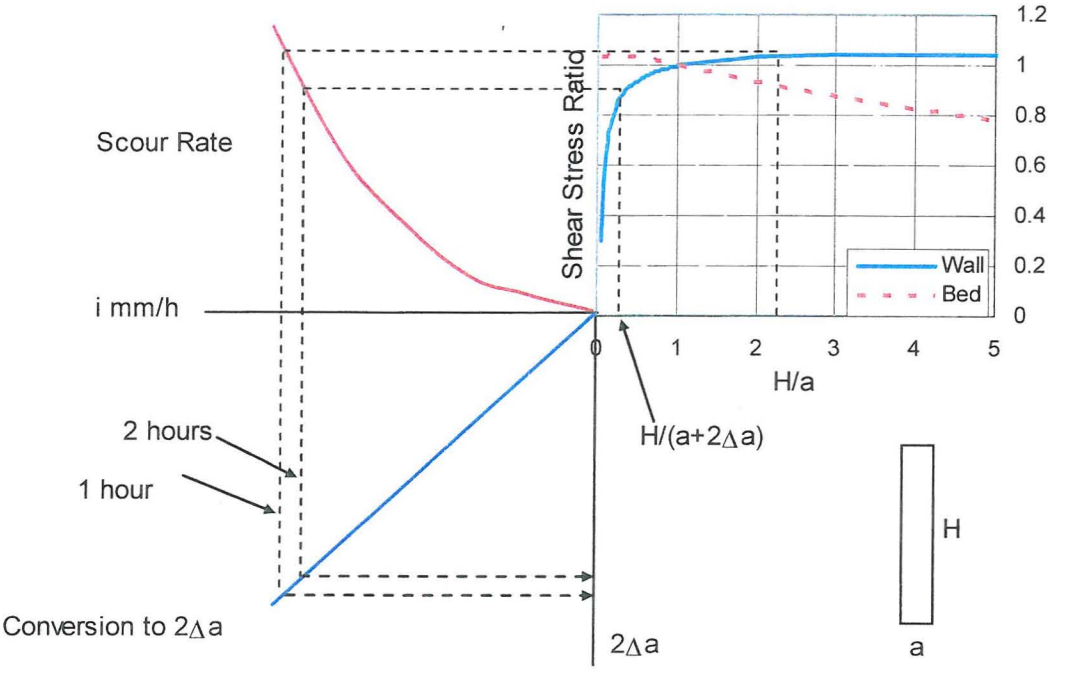


Figure 14. Rate of Erosion as a Function of Shear Stress.

Scour Calculation Concept

The concept used to calculate the widening of the fissure at each division is illustrated in Figure 15. The elements of the calculation procedure consist of first estimating the total shear stress and thereafter its distribution on the walls and end sections (the top right segment in Figure 15 – similar to Figure 12). Once this is done the shear stress on each side used in estimating the rate of scour (the top left segment of Figure 15 – similar to Figure 14). This calculation yields the change in width of the section at each division (bottom left segment in Figure 15). The new average width, $a + 2\Delta a$, is used to re-calculate the aspect ratio and re-enter the top right segment again.



Width Change Calculation

Figure 15 Scour Calculation Procedure

In the case of laminar flow (Case 1) it is assumed that the fissure is so narrow that the following equation can be used to calculate discharge (derived from Schlichting and Gersten 2000):

$$Q = \frac{a \cdot H}{2 \cdot a^2 \cdot \rho} \cdot \left[-\rho^2 \cdot f \cdot \mathrm{Re} \cdot L \cdot \nu + \left[\rho^2 \cdot (f \cdot \mathrm{Re})^2 \cdot L^2 \cdot \nu^2 + 8 \cdot a^4 \cdot \rho \cdot \sqrt{\gamma \cdot H_w} \right] \right]$$

where Re = Reynolds number and ν = kinematic viscosity, ρ = density of water.

For the embankment section using cutoff walls as mitigation (Fissure Model 5) when turbulent flow is occurring (Case 2) discharge is calculated as,

$$Q = \sqrt{\frac{2 \cdot \gamma \cdot H_w}{\rho \cdot \left(1 + 1 + 1.6 + \frac{f \cdot L}{a} \right)}} \cdot a \cdot H$$

where the factors 1 and 1.6 allow for friction loss at the up- and downstream cutoff walls in addition to energy losses (due to friction) for flow through the fissure. If the user wishes to model a single cutoff wall, only a friction loss factor of 1.6 is used to account for the energy loss. Entrance losses typically vary between 0.5 – 1.6 (Bureau of Reclamation 1977). The value E&H chose is extremely conservative, because it increases the energy slope through the fissure, which in turn increases shear stress and erosion. Exit losses are usually assumed to be 1.0 in hydraulics (Daugherty, Franzini, and Finnemore 1985).

The possible impact of local scour was considered at the base of the cutoff walls. When the fissure is very narrow, local turbulence at the base of the cutoff wall could have some affect. However, as the crack widens, the local turbulence will be negligible compared to the turbulence of the overall flow through the fissure. Thus, local scour should not be an issue in the overall design of the cutoff walls.

The product of the friction factor and Reynolds number for laminar flow (Case 1) is calculated with the equation,

$$f \cdot \mathrm{Re} = 41 \cdot 0.04138^{\frac{a}{H}} + 55.21$$

which is representative for flow in a rectangular fissure with aspect ratio $\frac{a}{H}$ (equation developed from Figure 5.17 in Janna, W.S., 1983).

In the fully turbulent flow (Case 2) the friction factor is calculated with the equations,

$$f = 0.01368 \cdot \exp\left[\frac{\left(\ln\left(\frac{\varepsilon}{D_h}\right) + 10.53\right)^2}{34.48}\right] \text{ for } \frac{\varepsilon}{D_h} \geq 0.0004 \text{ and } \frac{\varepsilon}{D_h} \leq 0.05,$$

$$f = 0.017 \text{ if } \frac{\varepsilon}{D_h} \prec 0.0004,$$

$$\text{and } f = 0.075 \text{ if } \frac{\varepsilon}{D_h} \succ 0.05$$

where $D_h = \frac{4 \cdot A}{P}$, where P = wetted perimeter = $2a + 2H$ and ε = absolute roughness of fissure. (Equation developed from Figure 5.15(b) in Janna 1983, representing fully turbulent flow in a pipe).

The roughness used in calculations is the relative roughness—absolute roughness divided by fissure hydraulic diameter. When the fissure is very narrow, the absolute roughness value chosen will have an effect. However, as the fissure erodes, the value of the absolute roughness will be outweighed by the value of the fissure hydraulic diameter. Thus, the initial choice of absolute roughness (0.005mm), while physically reasonable, is not critical to the outcome of the model.

Hydrology and Hydraulics Input

The model conducts a simple mass balance on inflows and outflows to and from the reservoir at a given time step without performing routing calculations. The program allows specification of the stage – storage – discharge relationship where discharge consists of outflow from facilities such as spillways and outlets, as a function of water surface elevation. The user provides a hydrograph (time versus reservoir inflow rate) to the model. The user also provides an infiltration curve (time versus infiltration rate) to the model.

The stage-storage-outflow rating curve data for White Tanks FRS. No. 3 (provided by URS) is shown on Figure 16. The 0 ft depth corresponds to 1183 ft elevation behind the embankment for the test case on Figure 9. This is the exact depth of water in the reservoir for modeling the case on Figure 9 where the embankment toe elevation is at 1183 ft. This assumption is also used for the case on Figure 8 which is conservative because the actual storage and discharge are greater than depicted by the rating curves on Figure 16. By assuming lower discharge, the quantity of water available for fissure erosion for the Figure 8 case increases. Lower assumed storage at a given depth forces the Figure 8 model to increase the depth of water stored in the reservoir, thus causing increased head compared to reality.

The reservoir is assumed to be at an elevation of 1204.8 when the PMF commences based on the precursor event (URS). The starting water head in the fissure model for the Figure 8 set-up is 9.8 ft from the 1195' datum for the PMF. The starting water head in the fissure model for the Figure 9 set-up is 21.8 ft from the 1183' datum for the PMF. The reservoir is assumed to be at an elevation of 1199.2 ft when the 200-year and 500-year events commence as requested by URS. Thus, the starting head for these smaller events is 16.2 ft from the 1183' datum on Figure 9 and 4.2 ft for the 1195 ft datum on Figure 8.

The 72-Hour General PMF, the 500-year event, and the 200-year event inflow hydrographs for White Tanks FRS. No. 3 (provided by URS) is shown on Figure 17. An infiltration rating curve is for the site is given on Figure 18.

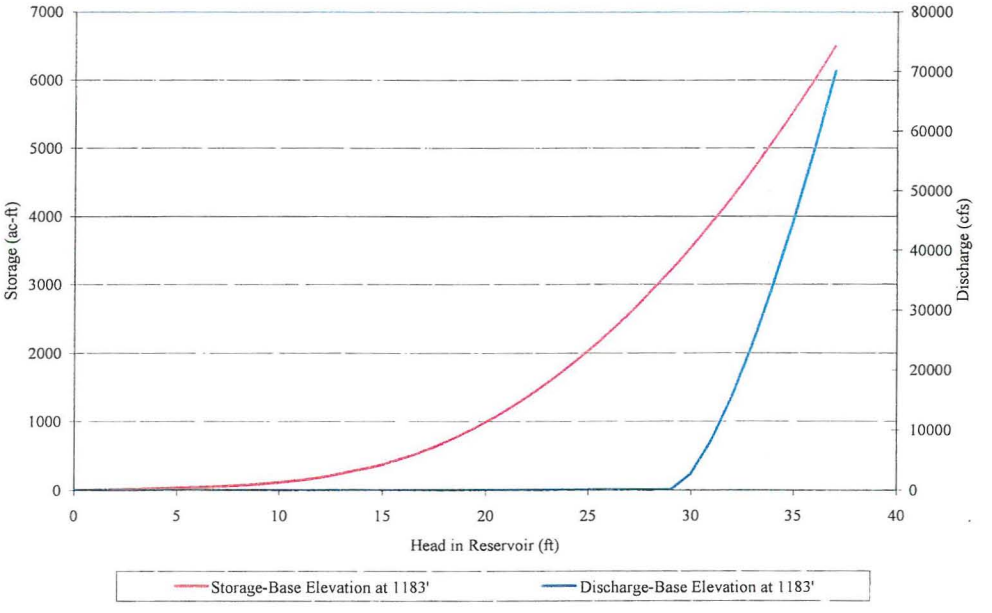


Figure 16. Stage-Storage-Discharge Curve for White Tanks FRS. No. 3.

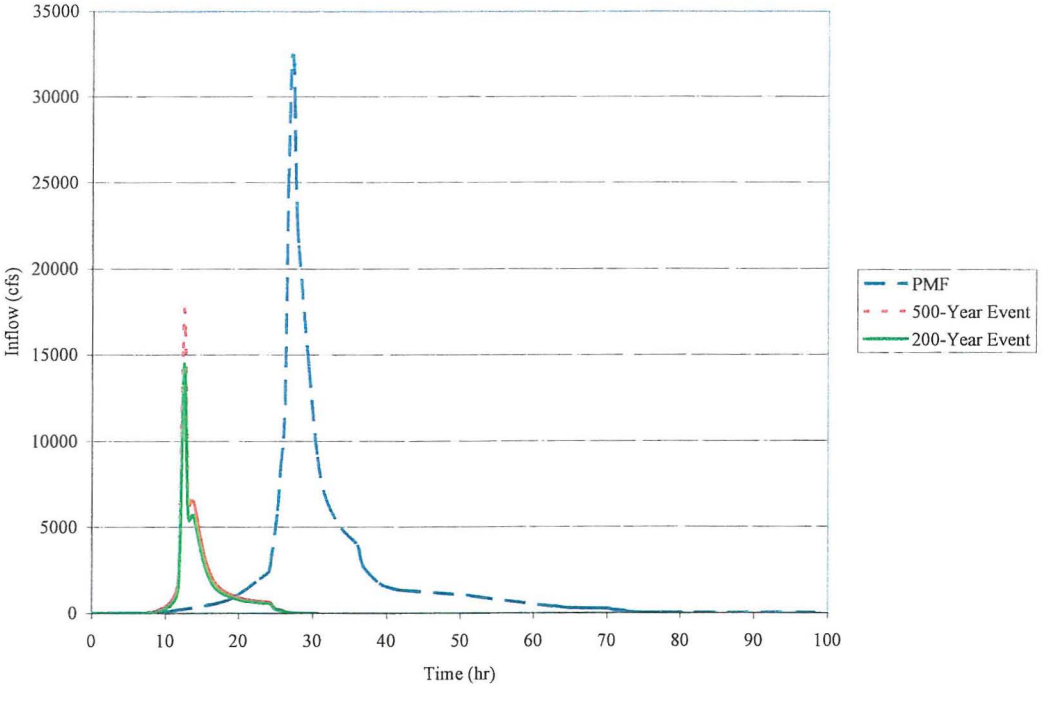


Figure 17. PMF, 500-Year Event, and 200-Year Event Hydrographs for White Tanks FRS. No. 3 Inflow.

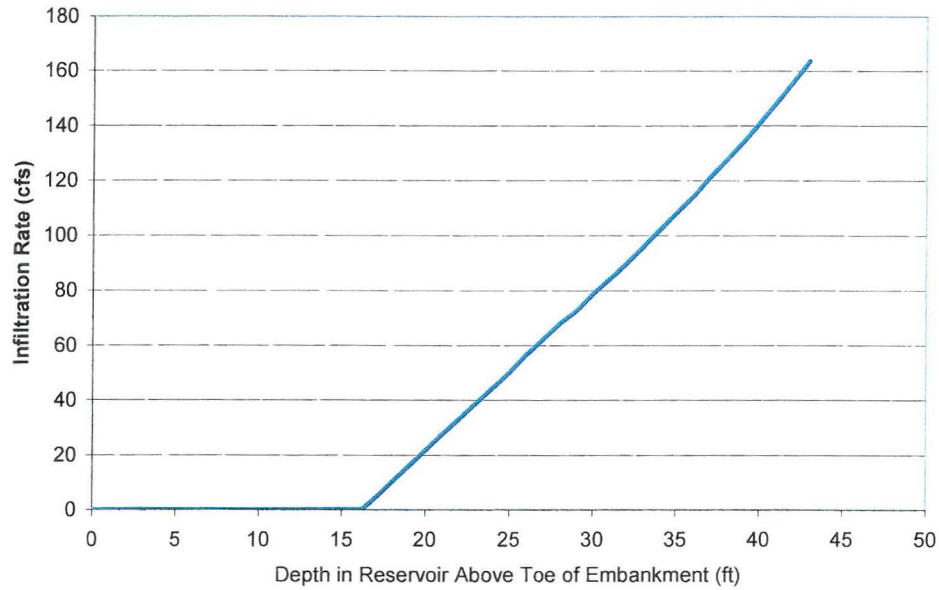


Figure 18. Infiltration Rating Curve.

ERODIBILITY ASSESSMENT

Approach

For this study, the erodibility of the foundation soils at White Tanks FRS. No. 3 was determined by analyzing EFA and VJT apparatus test results. In addition, testing was conducted at the US Bureau of Reclamation using the Horizontal Erosion Test (HET) apparatus. The results of these tests indicated no significant erosion. Seismic refraction test data was used to determine the depth of the contact between the Upper and Lower Pleistocene units in addition to aiding in the determination of the material strengths for the two units. VJT testing was conducted on three separate occasions: June 28, July 14, and July 19, 2004. The EFA testing was conducted on three occasions: February 20, June 22, and July 13, 2004. The data from February 20 was discarded from analysis because the samples were disturbed and did not represent site conditions. Seismic refraction testing occurred in April, 2004. The reader is referred to the comprehensive geotechnical report, the Geotechnical Data Report (URS 2005b), for an in-depth characterization of the soil testing.

Erosion rates at various shear stresses for the multiple VJT and EFA tests performed were examined to develop relationships for the Holocene and Pleistocene layers of soil.

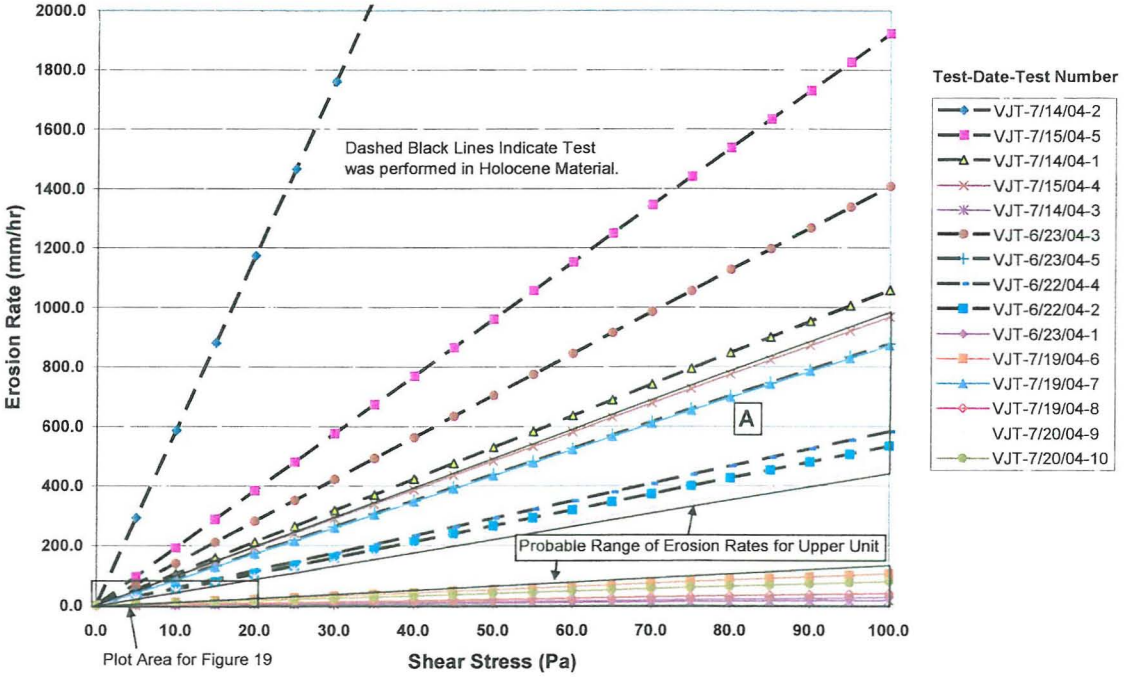


Figure 19 and Figure 21 show the results for VJT and EFA testing, respectively. Figure 20 and Figure 22 are close-up sections of Figure 19 and Figure 21. Figure 22 contains no outlier points so that more definition may be given to the actual erosion rate trends. Outlier points are values associated with large blocks of material removed during EFA testing that are not necessarily representative of the erosion behavior of the material.

Material Characterization

VJT, EFA, and HET Results Analyses

The VJT was only used on materials of relatively shallow depths (<20 ft), thus the results are assumed to be only for the Holocene and Upper Pleistocene units. The highlighted region in Figure 19, labeled "A", is the area where more VJT results are concentrated, indicating the most probable range for erosion rates for the Upper Pleistocene unit. Several tests were conducted in Holocene material and in general have a relatively high erosion rate (see dashed lines on Figure 19 and Figure 20). Some test results gave erosion rates similar to those that might be found in the Lower Pleistocene unit (Figure 20), indicating the presence of more resistant layers which may or may not be continuous throughout the site. The existence of these layers in the Upper Pleistocene unit is supported by EFA testing performed on June 22, 2004. As seen in Figure 22, samples EFA-6/22-B1(22-24) and EFA-6/22-B1(22-24)wet, taken from a depth of 22 ft to 24 ft, give similar low erosion rates. The presence of these more cemented layers appears to become more frequent with depth and is supported by seismic refraction data.

Figure 19 and Figure 21 have been plotted on the same scale to allow for comparison between VJT and EFA results. Data for VJT-7/15/04-5 has been plotted on Figure 21 and Figure 22 for a reference between the VJT and EFA plots.

HET and EFA testing on samples taken from greater than 30ft in depth generally give very low erosion rates and are associated with the Lower Pleistocene unit. The range of erosion rates from EFA testing for the Lower unit is represented by area "B" in Figure 22. In general, erosion rates for the Lower Pleistocene unit are one or two orders of magnitude lower than the Upper Pleistocene unit. In some cases, as shown by EFA testing performed on June 22, 2004 on samples EFA-6/22-B3(32-34) and EFA-6/22-B3(32-34)wet, taken from a depth of 32 ft to 34 ft, no erosion occurred even at very high shear stress values (i.e. 300 to 400 Pa).

A summary of erosion rates may be found in Table 1. These rates were calculated by finding the equations for the lines that bound the areas ("A" and "B" on Figure 20 and Figure 22) associated with the Upper and Lower Pleistocene units. For the Holocene unit, the equations for the highest and lowest erosion rates were used. The symbol "E" in Table 1 represents erosion rate in mm/hr, and the symbol "T" represents shear stress in Pascal.

Table 1. Summary of Erosion Rates.

Unit	Erosion Rate (mm/hr)		Critical Shear Stress (Pa)	Comments
Holocene	Low	E = 5.35T - 1.53	0.29	From VJT testing
	High	E = 58.68T - 0.12	0	From VJT testing
Upper Pleistocene	Low	E = 4.7T - 1.9	0.4	From VJT testing
	High	E = 9.7T - 0.01	0.001	From VJT testing
Upper Pleistocene (more resistant layers)	Low	E = 0.18T - 0.34	1.9	From VJT testing
	High	E = 1.1T - 0.009	0.008	From VJT testing
Lower Pleistocene	Low	E = 0.01T - 0.05	5	Actual erosion rate was zero but was made small for modeling purposes. From EFA testing.
	High	E = 0.3T - 0.90	3	From EFA testing

Seismic Refraction Data Analysis

Review of the seismic refraction survey results outlined in Appendix A of the Preliminary Geotechnical Investigation Report for White Tanks FRS No. 3 submitted by AMEC Earth & Environment (2004), revealed that p-wave and s-wave velocity differences suggest a layer boundary between the Upper and Lower Pleistocene units at a depth near 25 to 35 ft. Seismic surveys were conducted by Geologic Consultants Inc. during April of 2004. Table 2 summarizes the p-wave velocities for each unit. It should be noted that the values presented in Table 2 are not the entire range of p-wave velocities, but rather the range values most commonly observed.

Table 2. P-Wave Velocities from 2004 Seismic Refraction Survey.

Unit	P-Wave Velocity (ft/sec)
Holocene	~ 500 to 1000
Upper Pleistocene (top portion)	~ 1100 to 2000
Upper Pleistocene (bottom portion)	~ 2000 to 2800
Lower Pleistocene	~ 2800 to 5000

P-wave velocities suggest a slight difference in material from the top and bottom portion of the Upper Pleistocene unit, possibly indicating the presence of more resistive (cemented) layers. The presence of multiple erosion resistant layers was confirmed by supplementary field investigations (URS 2005a). This agrees with EFA testing performed on samples EFA-6/22-B1(22-24) and EFA-6/22-B1(22-24)wet as well as HET testing done at lower depths. Figure 23 represents the relation of p-wave velocities to the Erodibility Index and the ease of excavation. In general, materials from the Lower Pleistocene have a higher Erodibility Index and would require power tools for ripping for excavation. However, materials from the Upper Pleistocene have a lower Erodibility Index and would only require a hand pick or spade for excavation. Materials from the Lower Pleistocene have an Erodibility Index approximately one to two orders of magnitude greater than materials from the Upper Pleistocene which is consistent with erosion rates for each unit from testing.

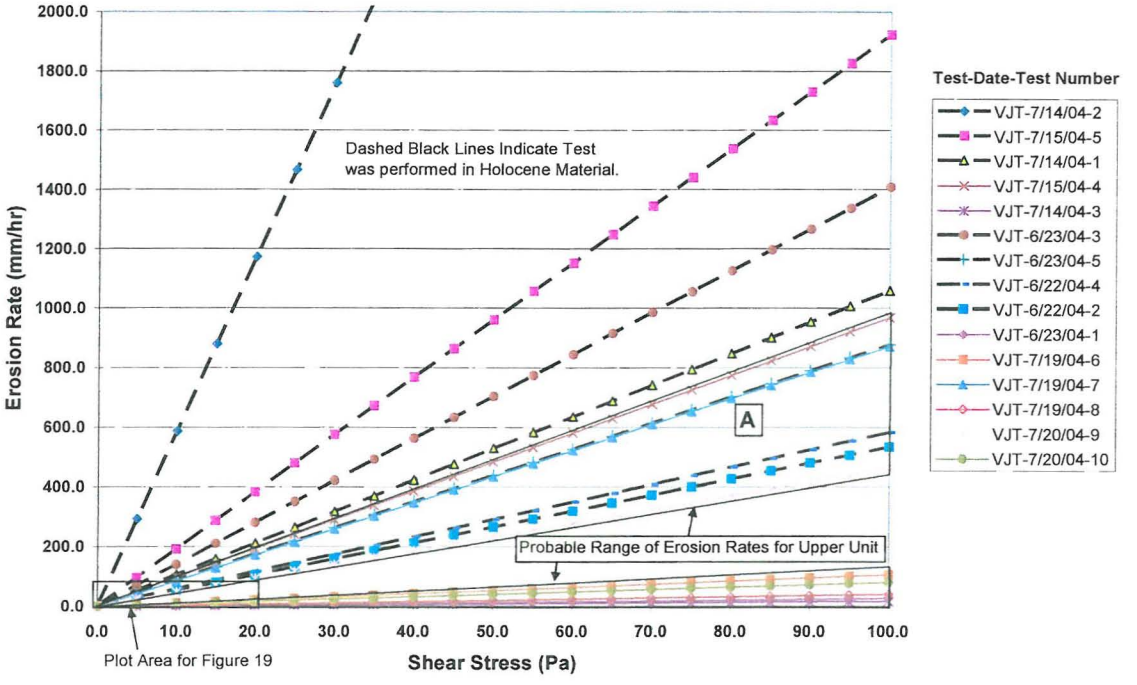


Figure 19. VJT Erosion Rate versus Shear Stress Results.

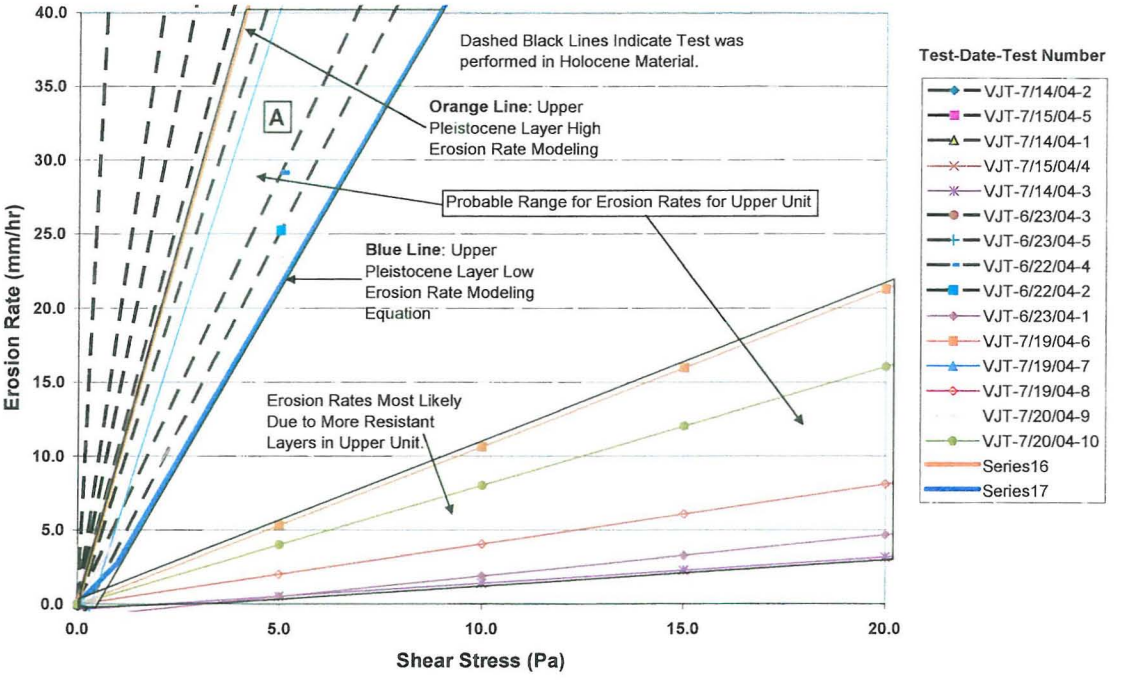


Figure 20. VJT Erosion Rate Versus Shear Stress Results—Subset.

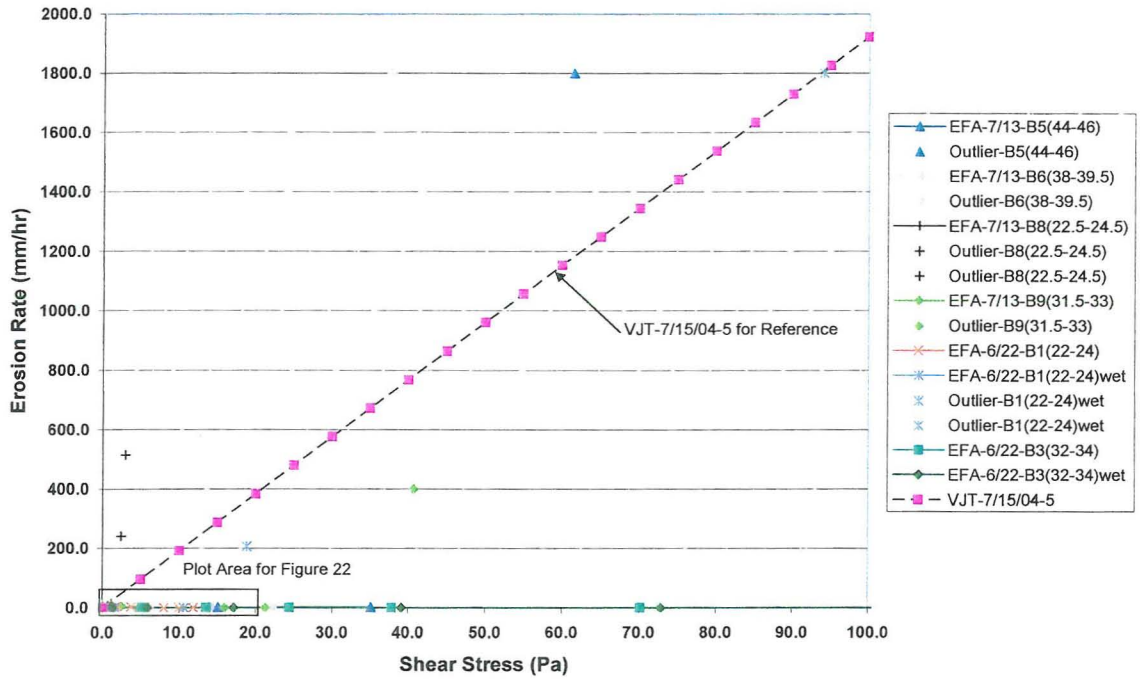


Figure 21. EFA Testing Erosion Rate versus Shear Stress Results.

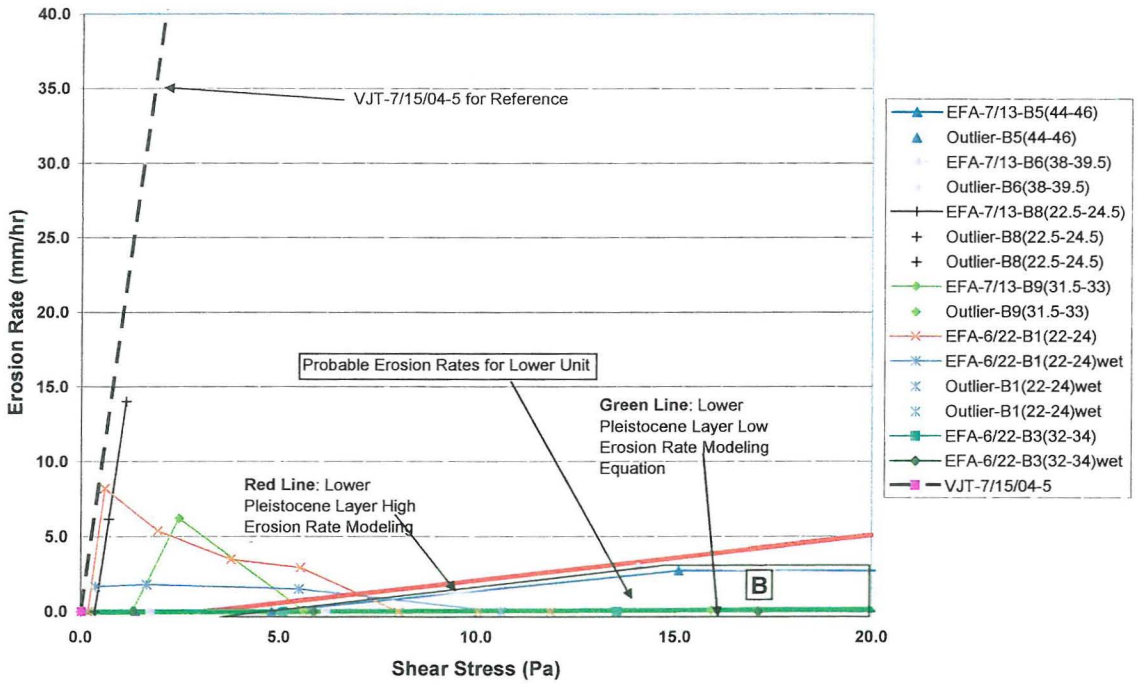


Figure 22. EFA Testing Erosion Rate versus Shear Stress Results—Subset.

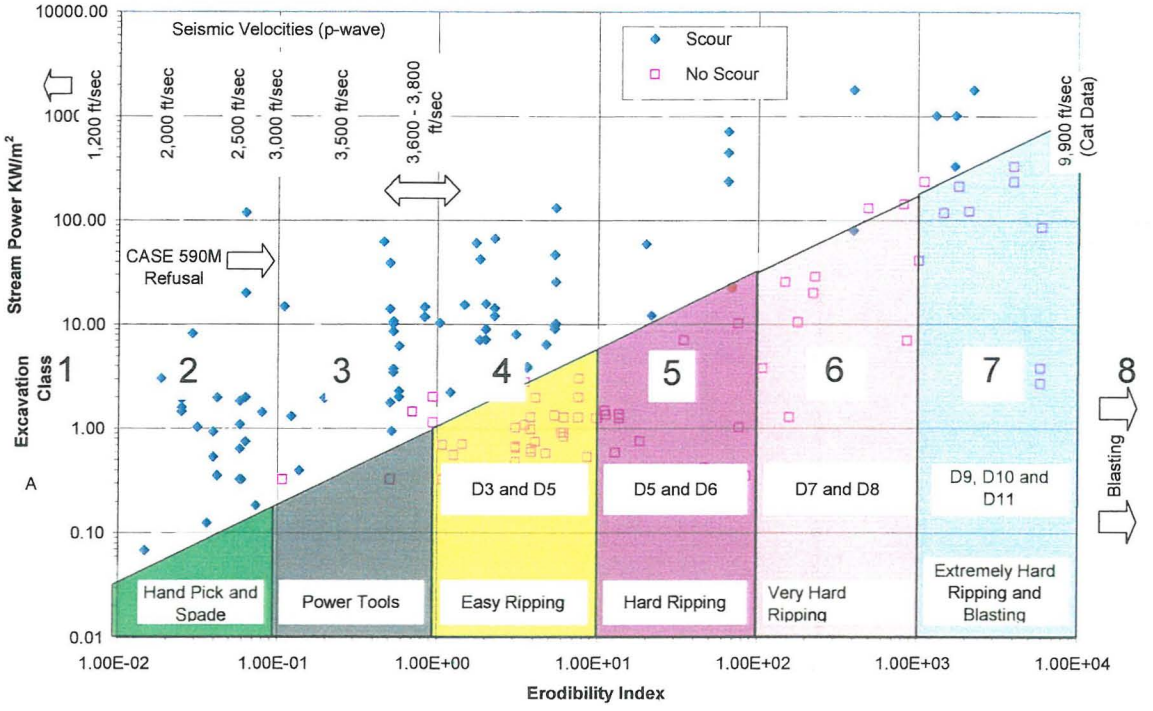


Figure 23. Comparison of P-Wave Velocities to Erodibility Index and Ease of Excavation.

Soil Erosion Rates and Layer Thicknesses for Fissure Modeling

Erosion rate versus shear stress equations were developed for the soils based on the above analyses. For simplification of modeling, URS has divided the soil profile into four layers: Upper, Lower, Deep, and Non-Erodible Pleistocene. Two sets of soil erodibility descriptions were used in the design testing: High Erodibility and Low Erodibility. Figure 24 is a schematic of the soil profile layers and thicknesses estimated under the White Tanks FRS. No. 3 embankment. Results are shown in Table 3. The Deep Pleistocene layer erosion rates in Table 3 were provided by URS based on their geotechnical analysis.

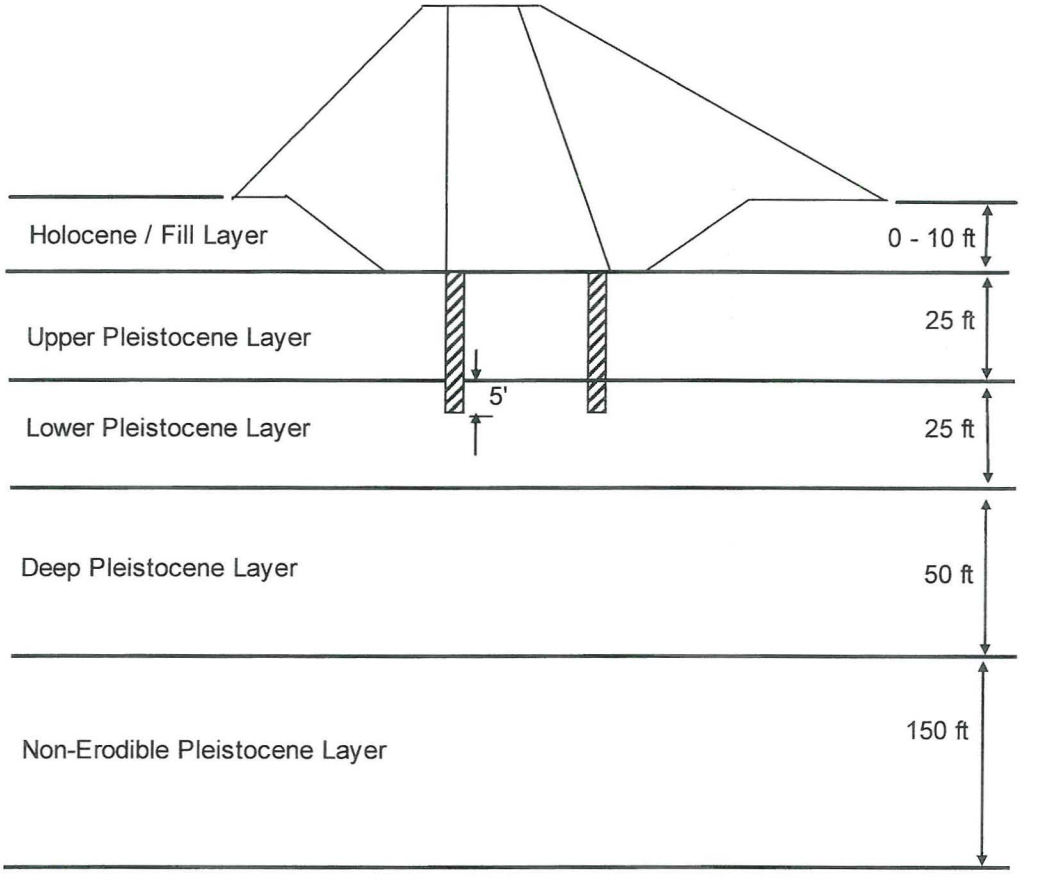


Figure 24. Simplified Soil Profile and Layer Thicknesses Below Embankment (NOT TO SCALE).

NOTE: The presence of continuous to semi-continuous erosion resistant layers in the Pleistocene deposit have been ignored for this simplified model.

Table 3. Erosion Rate Equations for Fissure Modeling.

Layer Description	Erodibility Level	Erodibility Rate (mm/hr)	Critical Shear Stress (Pa)
Upper Pleistocene	High	E(mm/hr) = 9.7T(Pa) – 0.0097	Tc = 0.001
	Low	E(mm/hr) = 4.7T(Pa) – 1.88	Tc = 0.4
Lower Pleistocene	High	E(mm/hr) = 0.3T(Pa) – 0.9	Tc = 3.0
	Low	E(mm/hr) = 0.01T(Pa) – 0.05	Tc = 5.0
Deep Pleistocene*	High	E(mm/hr) = 0.1T(Pa) – 0.4	Tc = 4.0
	Low	E(mm/hr) = 0.005T(Pa) – 0.04	Tc = 8.0
Non-Erodible (Deepest) Pleistocene*	N/A	E(mm/hr) = 0(Pa)	Tc = 1000

*hypothetical equations that predict little to no erosion

DESIGN TEST SCENARIOS

Table 4 includes a list of test names and parameters used for the final five tests that URS selected to best represent the likely simplified conditions at the site. All of these tests were conducted for 312 hours (13 days) of model time after initiation of the flood event or until the reservoir emptied, whichever occurred first.

All tests presented in the main body of this report have two 30-ft long cutoff walls below the base of the soil cement embankment. Cutoff walls will minimize fissure growth in the Upper Pleistocene unit by extending 5 ft in to the Lower Pleistocene unit. All five models use Low Erodibility rate equations in Table 3 for the Lower and Deep Pleistocene Layers as requested by URS for their design case. The erosion rate equation used for the Upper Pleistocene Layer has no affect on the model results because the model only characterizes fissure erosion below the cutoff walls. The initial fissure depth is assumed to span the entire soil profile at 250 ft deep (H_{fple} and H_{ple}). The modeled depth of the Non-Erodible Pleistocene layer is 150 ft, as shown on Figure 24. All tests in the main body of the report utilize the Knight and Patel (1983) shear stress distribution. The initial fissure width given in each of the five tests is 0.5 in, as requested by URS for their design case. A division height of 0.5 ft was used for all five design tests.

Parameters that are varied in the five tests include the storm event, and fissure flow path length. Inflow hydrographs tested were the PMF, the 500-year event, and the 200-year event. The greater the storm event, the greater the greater the available head and shear

stress in the fissure. Thus, a larger storm event is expected to produce a larger eroded fissure in the modeling tests. The fissure flow path for the case on Figure 8 when common fill is intact is significantly longer than that shown on Figure 9 when common fill is eroded. The longer the flowpath, the lower the expected shear stress because there is more friction energy loss in a longer flowpath. The purpose of the five tests is to determine sensitivity of the system to these limited yet varied conditions. Results of these tests are included in Appendix B. Various parametric testing was completed including varying embankment section geometry, erosion rates, initial crack widths, shear stress distributions, flow path lengths, number of cutoff walls, horizontal apron options, and widths used for hydraulic calculations. An input test matrix of previous tests is included in Appendix C. The results from the tests in Appendix C were used to determine the sensitivity of the model and input parameters.

Tests were also conducted to determine the effects of more complicated situations and the effects of model assumptions. One of the model assumptions is that the shear stress is estimated using the average fissure width. The actual fissure width varies over the length of the fissure due to differences of material strength in each soil layer. To determine the effect of this assumption, a test with a fissure that extends only 105 ft into the non-erodible Pleistocene instead of the 250 ft of the other models was completed (D159 in Appendix C).

The division height of 0.5 ft was chosen as a reasonably small value that would not have an effect on the final width results. Because the initial fissure length in White Tanks modeling extends the full length of the soil profile, the fissure cannot grow down vertically, so the choice of the division height is not critical. However, to prove this, a series of sensitivity tests were conducted with different division heights. Test D163 (Appendix C) is identical to test D147 (Appendix B) except that the division height is 0.25 ft. Test D168 (Appendix C) is identical to test D147 except that the division height is 1.0 ft.

In E&H's professional judgment, frictional losses along the vertical cutoff walls should be included for calculating flowrate in the fissure. This is a reasonable approach. It is over-conservative to assume otherwise because the fissure will have to open drastically before such will occur. Monitoring and remediation is expected to keep fissure widths less than ½ in at the initialization of a flood event. However, to show the effect of assuming no friction loss along the vertical walls a test was completed (D146 in Appendix C). This test assumes that the hydraulic head acting on the fissure assumed to extend to the bottom of the cutoff walls.

The erosion rate equations used for the Deep Pleistocene Layer are hypothetical because there were not sufficient geotechnical tests in this layer. Tests that were conducted, however, characterize the Deep Pleistocene Layer as having extremely low erodibility. To determine the effect of the chosen equations, two sensitivity tests were run in which the erosion rates for the Deep Pleistocene were set equal to that for the Lower Pleistocene. A test for the Low Erosion Rate and High Erosion Rate were conducted and are included in Appendix C (Tests D164 and D165).

The fissure model assumes no crack exists in the cutoff walls. However, to test what would occur if a crack does form in the cutoff walls, a separate MathCAD calculation was conducted (Appendix D). The shear stress of water flowing through the crack is compared with the resistive strength of the Pleistocene Material.

Another test scenario was checked to determine whether erosion of the embankment would occur if there were a crack in the embankment (Appendix E). The resistive power of the embankment material was calculated using the Erodibility Index (Annandale 1995)

and compared to the power of the water flowing through a crack assuming an initially full reservoir.

Finally, URS requested that we also conduct an analysis that assumes a continuous to semi-continuous erosion-resistant layer exists near the bottom of the cutoff walls. This analysis was conducted in MathCAD. Theory used and calculations are in Appendix F of this report and also in an appendix of the supplemental design report (URS 2005a).

Table 4. Test Matrix for White Tanks FRS. No. 3 Design Embankment.

Test Number	Erosion Rate (Upper, Lower, Deep Pleistocene Layers)	Storm Event	Flow Path Length (ft)	Initial Fissure Width (in)	Diagram Describing Case
D147	H,L,L	PMF	91.45	0.5	Figure 9
D153	H,L,L	500	91.45	0.5	Figure 9
D156	H,L,L	200	91.45	0.5	Figure 9
D172	L,L,L	PMF	230	0.5	Figure 8
D176	L,L,L	200	230	0.5	Figure 8

*H = High Erosion Rate; L = Low Erosion Rate—Note that Upper Pleistocene layer erosion rate does not affect results because it is above the bottom of the cutoff walls. The model only characterizes the fissure below the cutoff walls.

FISSURE MODELING RESULTS

The fissure model provides graphical and tabular results for hydraulics and an estimate of fissure erosion along the entire depth of the fissure. Figure 25 shows an example of graphical model result details for test D147 including flow velocity in the fissure, shear stress in the fissure, rate of outflow through the fissure, depth of water in the reservoir, and fissure erosion among others. Detailed numerical results for all tests are tabulated in Appendix A. Detailed graphical results such as in Figure 25 are in Appendix B for all five design case tests. Table 5 shows final maximum fissure widths for the five tests.

Table 5 shows that for the URS specified design case of the ½ in fissure with low erodibility rate equations, the final fissure is estimated to be less than a couple of inches for all flood events. The case URS specified as their design case is not the most conservative of the test scenarios conducted in Appendix C, but is considered reasonable because continual monitoring can detect earth fissures of ½ in width and wider. When fissures are detected in the vicinity of White Tanks FRS. No. 3, remedial actions will be taken to alleviate further fissure widening prior to a flood event.

Figure 26 shows the effect of modeling different inflow hydrographs on the ½ in initial fissure width. There is a 38 percent decrease in the maximum fissure width from the PMF event to the 500-year event. However, there is no measurable difference between the maximum fissure width for the 500-year and 200-year events. This can be explained by the fact that the PMF flows are much greater compared to the 500-year and 200-year events. The initial reservoir head plays a greater role in the fissure growth of for the 500-year and 200-year events than do the actual flood inflows.

Figure 27 shows the effect of modeling different fissure flow path lengths which are caused by the two different embankment cases modeled according to Figure 8 and Figure 9. For the PMF event, there is a 67 percent decrease in the maximum fissure width from the short flow path of Figure 9 to the long flow path of Figure 8.

As explained in the Design Test Scenarios section, the present fissure model is not capable of fully modeling the effects of having a single cutoff wall. However, a test is included in Appendix C with a single cutoff wall for discussion purposes. If a single cutoff wall is used at the upstream end of the embankment, erosion will likely occur in the Upper Pleistocene downstream of the cutoff wall under the embankment base. In E&H's professional judgment, a single cutoff wall provides an unnecessary risk to the client.

Tests were conducted to compare the effect of including or neglecting frictional losses along the vertical portion of the flow path along the lengths of the cutoff (D146 in Appendix C and D147 in Appendix B respectively). When friction along the cutoff walls is ignored, the test results indicate an 86 percent increase in maximum fissure formation. This result is provided for informational purposes, but it is E&H's professional opinion that friction along the vertical cutoff wall lengths should be included in the model.

The results of the tests for determining the effect of the Deep Pleistocene Erodibility can be seen in Appendix C (Tests D164 and D165). Test D165 uses the Low Erodibility equation for the Lower Pleistocene for the Lower and Deep Pleistocene Layers, which results in no erosion in the fissure. Test D164 uses the High Erodibility equation for the Lower Pleistocene for the Lower and Deep Pleistocene Layers, which results lower erosion in the Lower Pleistocene Layer and higher erosion in the Deep Pleistocene Layer as compared to the case when the original assumed erosion rate equation for the Deep Pleistocene Layer (test D 157 in Appendix C). The net effect of the original assumed erosion rate equation is that it is conservative because it results in a narrower opening under the embankment section.

To determine the effect of using average fissure width for shear stress calculations a sensitivity test to the effect of the depth of the fissure on the final average width of the fissure was conducted. A fissure that does not extend to the groundwater surface (D159 in Appendix C) has a maximum fissure width 46 percent greater than if the fissure does extend to the groundwater surface (D147 in Appendix B). Although the percentage difference is large, the magnitude of the maximum fissure is still extremely small and is expected to be safely spanned by the embankment based on the URS design specifications.

Three sensitivity tests that varied the division height showed that for the White Tanks FRS. No. 3 set-up, there is no effect on model results in terms of fissure width and shear stresses (test D147 in Appendix B and tests D163 and D168 in Appendix C).

Note that the depths given on Figures are below the bottom of the cutoff walls.

Appendix D includes results outlining that a small crack in the cutoff wall would not cause significant erosion between the cutoff walls.

Appendix E includes results outlining that a small crack in the embankment material would further erode due to a full reservoir.

Appendix F includes theory and results outlining that a narrow crack in the cutoff walls and in a horizontal continuous to semi-continuous erosion-resistant layer does not specifically affect the results of the fissure model unless the fissure slightly widens with respect to the erosion-resistant layer crack. If the fissure widens beyond the width of the erosion-resistant layer crack, then the erosion-resistant layer becomes a confining layer which reduces the overall erosive capacity of water in the fissure.

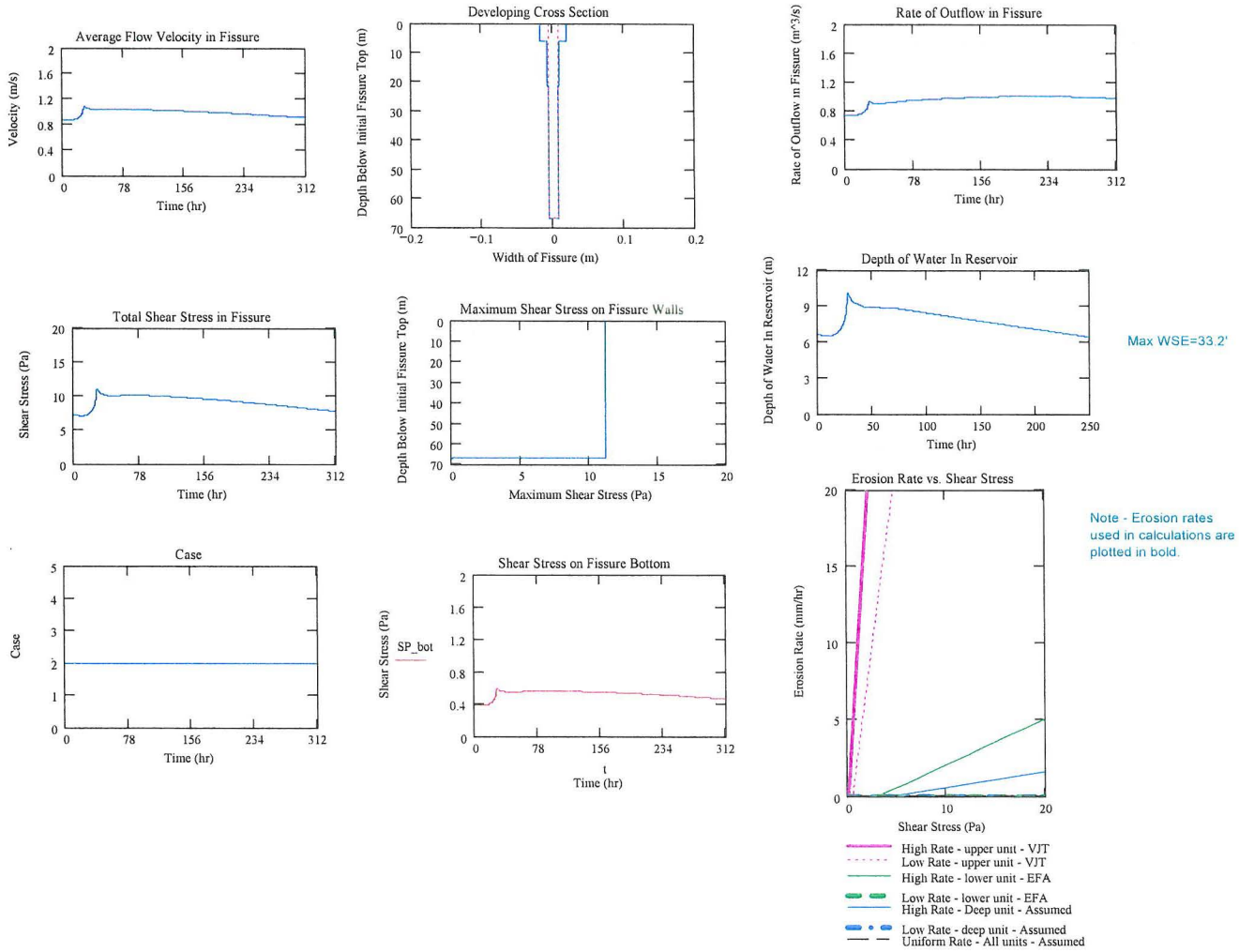


Figure 25. Model Results for Test D147: Low Erosion Rate in Lower and Deep Pleistocene, 1/2" Initial fissure width, 200-Year Event, 2 Cutoff Walls 30' Long, Flow Path for Soil Cement Embankment Section without Common Fill.

Table 5. Summary of Test Results for Five Selected Test Cases.

Input					Results				
Test Number	Erosion Rate (Upper, Lower, Deep Pleistocene Layers)	Storm Event	Flow Path Length (ft)	Initial Fissure Width (in)	Maximum Final Fissure Width each Pleistocene Layer (in)			Maximum Shear Stress/ Minimum Critical Shear Stress	Maximum Fissure Flow (ft3/s)
					Lower	Deep	Non-Erodible		
D147	H,L,L	PMF	91.45	0.5	1.5	0.7	0.5	2.2	36
D153	H,L,L	500	91.45	0.5	1.0	0.6	0.5	2.0	32
D156	H,L,L	200	91.45	0.5	1.0	0.6	0.5	1.1	31
D172	L,L,L	PMF	230	0.5	0.5	0.5	0.5	0.9	21
D176	L,L,L	200	230	0.5	0.5	0.5	0.5	0.7	19

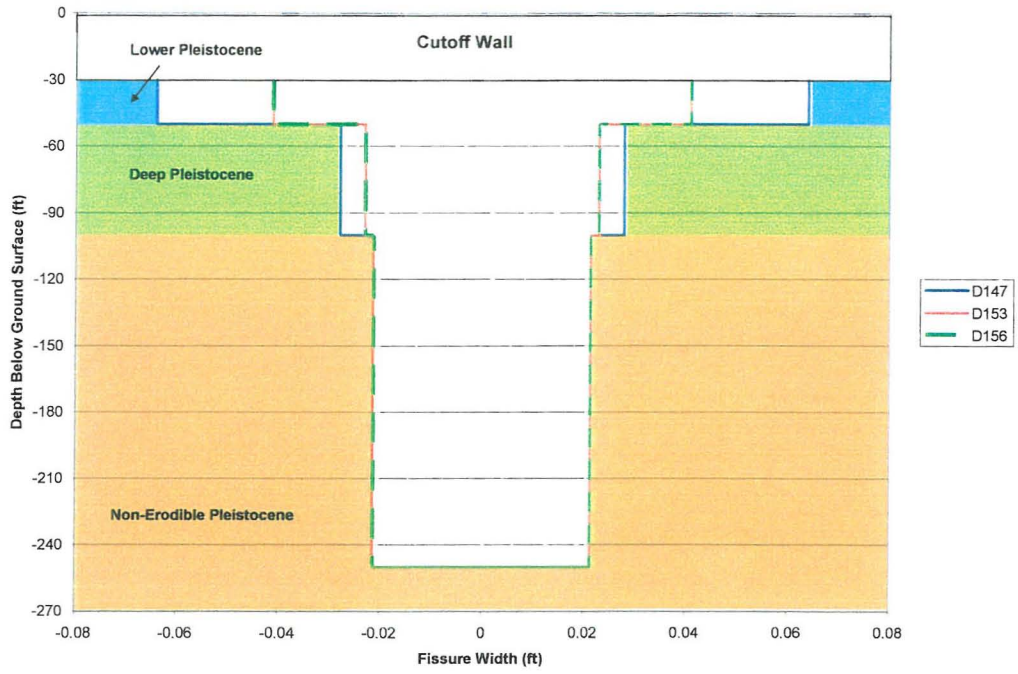


Figure 26. Final Fissure Cross Sections—Effect of Using PMF, 500-Year, and 200-Year Events (see Table 4 for test labeling).

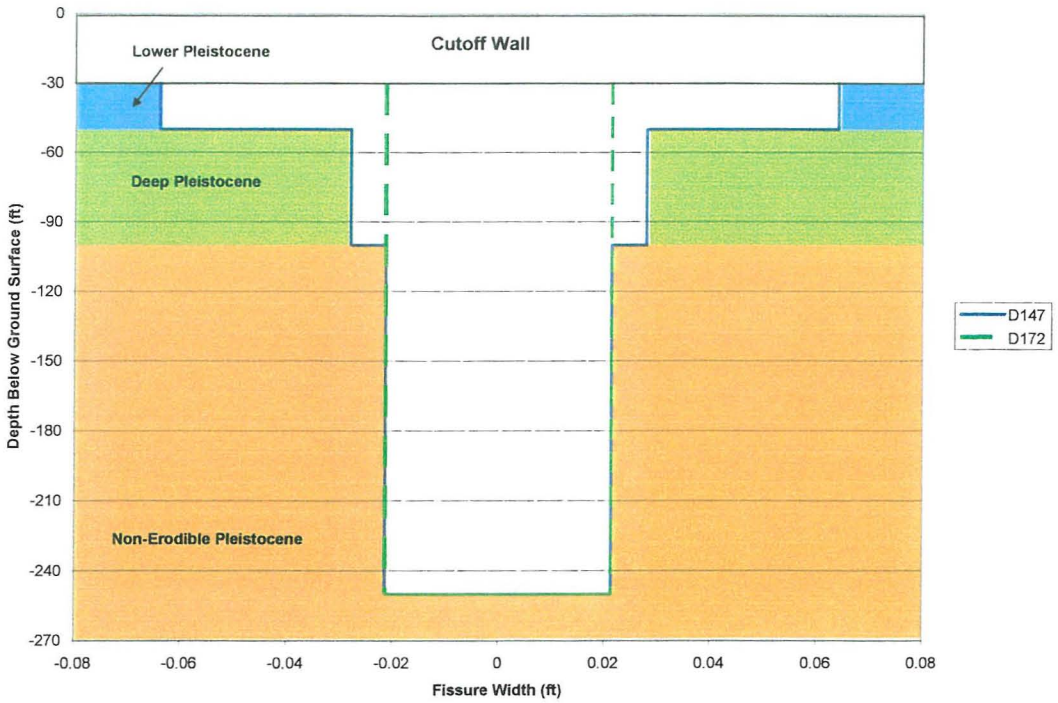


Figure 27. Final Fissure Cross Sections—Effect of Flow Path Length (see Table 4 for test labeling).

MODEL ASSUMPTIONS AND LIMITATIONS

As with any model, there are limitations on its ability to resemble reality. Assumptions and limitations are discussed in detail in this section and are summarized in Table 6.

First, the fissure model developed in this study is only quasi-two-dimensional. The fissure can grow in the horizontal and vertical directions, but it cannot move laterally beneath the embankment. In other words, the model does not account for possible sinuosity of the fissure, which is a conservative approach in terms of flow path length. The flow path length through a sinuous fissure will be longer than that through a straight fissure as shown on Figure 28. The energy loss per unit length of the flow path will therefore be lower in a sinuous path than what it would be in a straight path. Therefore, based on the understanding that the intensity of pressure fluctuations, which causes scour, is closely related to the rate of energy dissipation it means that the erosion will also be less.

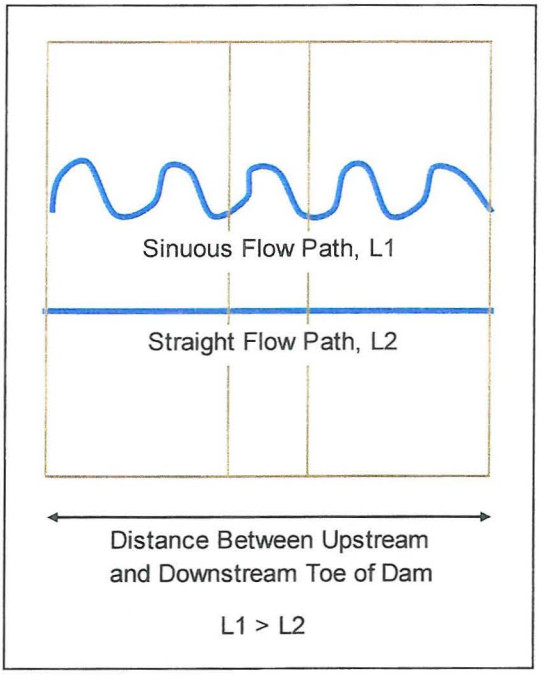


Figure 28. Plan View of Embankment with Straight and Sinuous Fissure.

Another limitation in the fissure model is the fact that the hydrology is a simple mass balance. Routing is desirable to accurately depict the inflow-storage-outflow relationships in a reservoir. However, by not attenuating the peak of the inflow hydrograph, the reservoir peak stage should be higher in the fissure model than in reality. Thus, the fissure model hydrology assumption is conservative and results in possibly greater erosion in the model than might occur in reality if the peak were attenuated.

The Knight and Patel (1983) formulation was chosen to represent the distribution of shear stress (and thus stream power) on the fissure walls and bed. There is no significant difference between the results obtained from tests between the two sets of equations. Thus, the use of Knight and Patel (1983), which was originally used in the model, was considered as providing representative distribution of the erosive capacity of water in a fissure.

The growth of the fissure in the vertical direction (depth) is limited to growth in integer multiples of the division height at a given time step. Because the initial fissure depth spans the entire soil profile and it extends into the Non-Erodible Pleistocene layer, the fissure is not capable of growing the downward direction. Thus, this assumption has no effect on the White Tanks test results.

Erosive stress is calculated by using an average fissure width. However, the actual fissure width varies by depth in the fissure depending on the material in each layer. Thus, the actual shear stress distribution is slightly different than that modeled. Flow rate is also calculated using average fissure width. To quantify this assumption two tests were compared. A fissure that does only extend 5 ft into the Non-Erodible Pleistocene layer (D159 in Appendix C) has a maximum fissure width of 13 in while if the fissure extends 150 ft into the Non-Erodible Layer (assumed to be the groundwater surface—D147 in Appendix B) the maximum fissure width is 3 in. This is a 46 percent increase in erosion for the shorter fissure compared to the longer fissure. The reason is that the average fissure width is taken by averaging the width of the fissure at each division. In the longer fissure, the narrow portions of the fissure in the Non-Erodible Pleistocene have more weight in the average than they do in the shorter fissure. These tests were conducted for the PMF event and the difference is significant. However, the maximum fissure width skews the results and is not completely representative of site conditions either. It would be over conservative to use the maximum width for hydraulic calculations but it is under conservative to use the average width if erosion occurs in the fissure. Nevertheless, regardless of which assumption is made, the maximum erosion that is predicted to occur can be safely spanned by the URS design embankment according to their studies.

The absolute roughness used to calculate the friction factor for energy losses in the fissure model was chosen as a reasonable value of 5mm in light of the foundation materials at McMicken Dam. When friction factor is calculated, the relative roughness (absolute roughness divided by hydraulic diameter of the fissure) that is used becomes smaller as the fissure opens wider. Even if at first the absolute roughness size chosen may be a bit large for physical reality, as the fissure opens wider during a simulation event, the absolute roughness becomes negligible compared to the size of the fissure so that its value does not affect the resulting fissure width predicted by the model.

Fissure hydraulic calculations in the final five tests for White Tanks assume that the fissure is a closed conduit. This assumption is conservative because it results in slightly greater erosion than if open channel flow were assumed.

The fissure model assumes that the embankment is a non-erodible structure. To verify this assumption, the Erodibility Index of the soil cement embankment was calculated and compared to the erosive power of the water on the structures (Appendix C). The embankment and horizontal apron are to be constructed of soil cement with a density of 125 pcf and an unconfined compressive strength of 1000 psi according to URS. The resistive strength of the soil cement is estimated to be 95 kW/m^2 using the Erodibility Index method (Appendix E). A 0.5 inch crack in the embankment was tested; the available stream power is estimated to be only 2.8 kW/m^2 (Appendix E), which is far less than the threshold value of the soil cement.

A key assumption included in the fissure model mitigation studies is that frictional losses will occur along the vertical flow path of cutoff walls if they are constructed below the embankment. This is a reasonable assumption because the soils at McMicken are relatively strong and intact such that friction effect flow energy. Not including the vertical flow path length along the cutoff walls would be overly conservative.

The soil profile used in the design case tests included in the main body of this report is for the Low Erodibility rate equations. URS expects that these reasonably represent the average conditions on site based on extensive field testing. However, it is impossible to guarantee that the soil characteristics are uniformly equal to the simplified Low Erosion Profile utilized herein.

The cutoff walls to be included in the mitigation design are assumed to be intact in the fissure model. A special calculation was done to test whether erosion would occur behind the upstream cutoff wall if there is a vertical crack in the cutoff walls (Appendix F). The testing found that erosion of up to about 8" could occur behind the cutoff wall in the soil profile. This minimal erosion, if it occurs, is not expected to affect the structural integrity of the soil cement embankment section.

The erodibility rate equation for the Deep Pleistocene was assumed because there were not sufficient tests in that layer. To determine the effect of the chosen erosion rate, tests were conducted that set the Deep Pleistocene Layer erosion rate equal to that of the Lower Pleistocene erosion rate. The net effect of the original assumed erosion rate equation is that it is conservative because it results in a no effect to a narrower opening under the embankment section.

The division height for the White Tanks FRS. No. 3 set-up is 0.5 ft. Three sensitivity tests varied the division height show to demonstrate that there is no effect on the model results in terms of fissure width and shear stresses.

Table 6. Summary of Model Assumptions and Limitations.

Assumption / Limitation	Impact			
	Makes Results More Conservative	Makes Results Less Conservative	No Significant Impact	Unknown
Fissure model is quasi-2D and fissure cannot move laterally (see Figure 28)	X			
Model does not route hydrograph; only performs simple mass balance	X			
Choice of Knight and Patel (1983) formulation to distribute shear stress compared to Rhodes and Knight (1994)			X	
Use of divisions to track vertical and horizontal growth in fissure			X	
Use of average fissure width for hydraulic calculations as compared to use of maximum fissure width		X		
Choice of absolute roughness value			X	
Hydraulics calculated for closed conduit conditions	X			
Embankment soil cement structure assumed to be non-erodible			X	
Soil cement apron structures assumed non-erodible			X	
Assumes no narrow crack in vertical soil cement cutoff walls (compared to if a narrow crack were to occur and not be mitigated)			X	
Assumes frictional losses along vertical cutoff walls when cutoff walls are used.		X		
Five design case test results in report assume Low Erodibility rate equations.		X		
Choice of Deep Pleistocene Layer erosion rate equation.	X			
Choice of division height.			X	

CONCLUSIONS

The assessment of soil erodibility and erosion thresholds was used in a computer model that was developed specifically for this project to simulate fissure formation. The model simulates scour in fissures consisting of layered soils with varying erosion thresholds. The objective of the simulation was to develop a quantitative understanding of the sensitivity of the foundation soils to erosion and use this understanding to develop guidelines for preventing failure of the dam resulting from scour of the fissures in the foundation.

The results of the fissure modeling test scenarios show that protection of the dam against erosion of the foundation fissures can be accomplished by using cutoff walls as designed by URS. Continuous monitoring of the foundation for fissure formation should be done. Any detected fissures should be mitigated.

REFERENCES

AMEC Earth & Environmental, Inc. (AMEC). 2004, "Preliminary Geotechnical Investigation Report: White Tanks FRS No. 3).

American Society for Testing Materials (ASTM). 1995. "Standard Test Method for Erodibility Determination of Soil in the Field or in the Laboratory by the Jet Index Method", D 5852-95.

American Society for Testing Materials (ASTM). 2002. ASTM D653-02, "Standard Terminology Relating to Soil, Rock, and Contained Fluids".

Annandale, G.W. 1995. "Erodibility", Journal of Hydraulic Research, Vol. 33, No. 4.

Briaud, J.L., Ting, F.C.K., Chen, H.C., Cao, Y., Han, S.W. and Kwak, K.W. 2001. "Erosion Function Apparatus for Scour Rate Predictions", Journal of Geotechnical and Geoenvironmental Engineering, Vol. 127, No. 2.

Daugherty, Robert L., Franzini, Joseph B., and Finnemore, E. John. 1985. Fluid Mechanics with Engineering Applications, 8th Edition. New York.

Janna, W.S., 1983. "Introduction to Fluid Mechanics", Brooks / Cole Engineering Division, Monterey, California.

Knight, D.W. & Patel, H.S. 1983. "Boundary Shear in Smooth Rectangular Ducts" Journal of Hydraulic Engineering, Vol. 111, No. 1, January 1985, ASCE.

Lindeburg, Michael R. 2002. Civil Engineering Reference Manual, 8th Edition. Belmont, CA.

McCook, D.K.. 2004." A Comprehensive Discussion of Piping and Internal Erosion Failure Mechanisms", Proc. Dam Safety 2004, ASDSO, Phoenix, Arizona.

Rhodes, D.G. and Knight, D.W. 1994. "Distribution of shear force on boundary of smooth rectangular duct", Journal of Hydraulic Engineering, Vol. 120, No. 7, July, 1994, pp. 787-807, ASCE.

Rucker, M.L. 2004. "Percolation Theory Approach to Quantify Geo-Material Density Modulus Relationships", 9th ASCE Specialty Conference on Probabilistic Mechanics and Structural Reliability.

Sahimi, M. 1994. Applications of Percolation Theory, Taylor and Francis, Bristol, Pennsylvania.

Schlichting, H. and Gersten, K. 2000. "Boundary-Layer Theory", 8th Edition, Springer.

White, C.M. 1940. "The Equilibrium of Grains on the Bed of a Stream", Proc. Royal Society of London, Series A 174:322-334.

URS Corporation (URS). 2005a. Supplemental Design and Geotechnical and Geophysical Investigation Report—For the Phase I FRZ for White Tanks FRS. No. 3 Remediation Report. March, 2005.

URS Corporation (URS). 2005b. Geotechnical Data Report, White Tanks Flood Retarding Structure No. 3, Remediation Design Project Phase I.

United States Bureau of Reclamation (USBR). 1987. Design of Small Dams, 3rd Edition. Denver, Colorado.

APPENDIX A – TEST RESULTS SUMMARY

Summary of Test Results for Five Selected Test Cases

Run #	Final Average Fissure Width (ft)	Maximum Final Fissure Width each Pleistocene layer (ft)				Maximum Velocity (ft/s)	Maximum Shear Stress (psf)	Maximum Fissure Discharge (cfs)	Max. Shear Stress / Minimum Critical Shear Stress	Peak Fissure Discharge (cfs)
		Upper	Lower	Deep	Non-Erodible					
D147	0.05	SCB Wall	0.13	0.06	0.04	3.6	0.2	36	2.2	36
D153	0.05	SCB Wall	0.08	0.05	0.04	3.4	0.2	32	2.0	32
D156	0.05	SCB Wall	0.08	0.05	0.04	3.3	0.2	31	1.1	31
D172	0.04	SCB Wall	0.04	0.04	0.04	2.25	0.09	21	0.9	21
D176	0.04	SCB Wall	0.04	0.04	0.04	2.04	0.08	19	0.7	19

APPENDIX B – DESIGN TEST MODELING RESULTS GRAPHICS

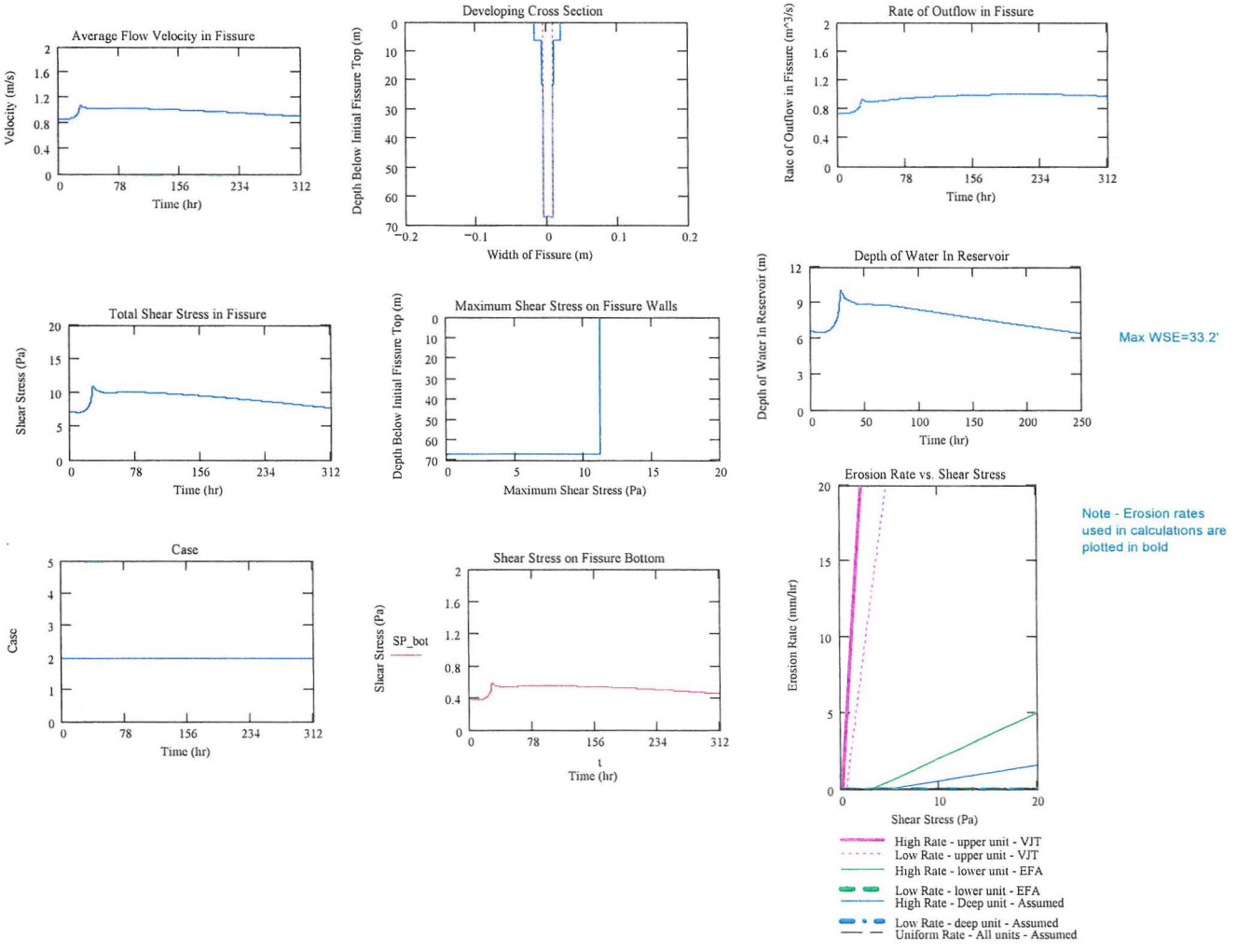


Figure B-1. Test D147 (High erosion rate for Upper Pleistocene Layer, low erosion rates for Lower Pleistocene Layer and Deep Pleistocene Layer, PMF storm event, 91.45 ft flow path length).

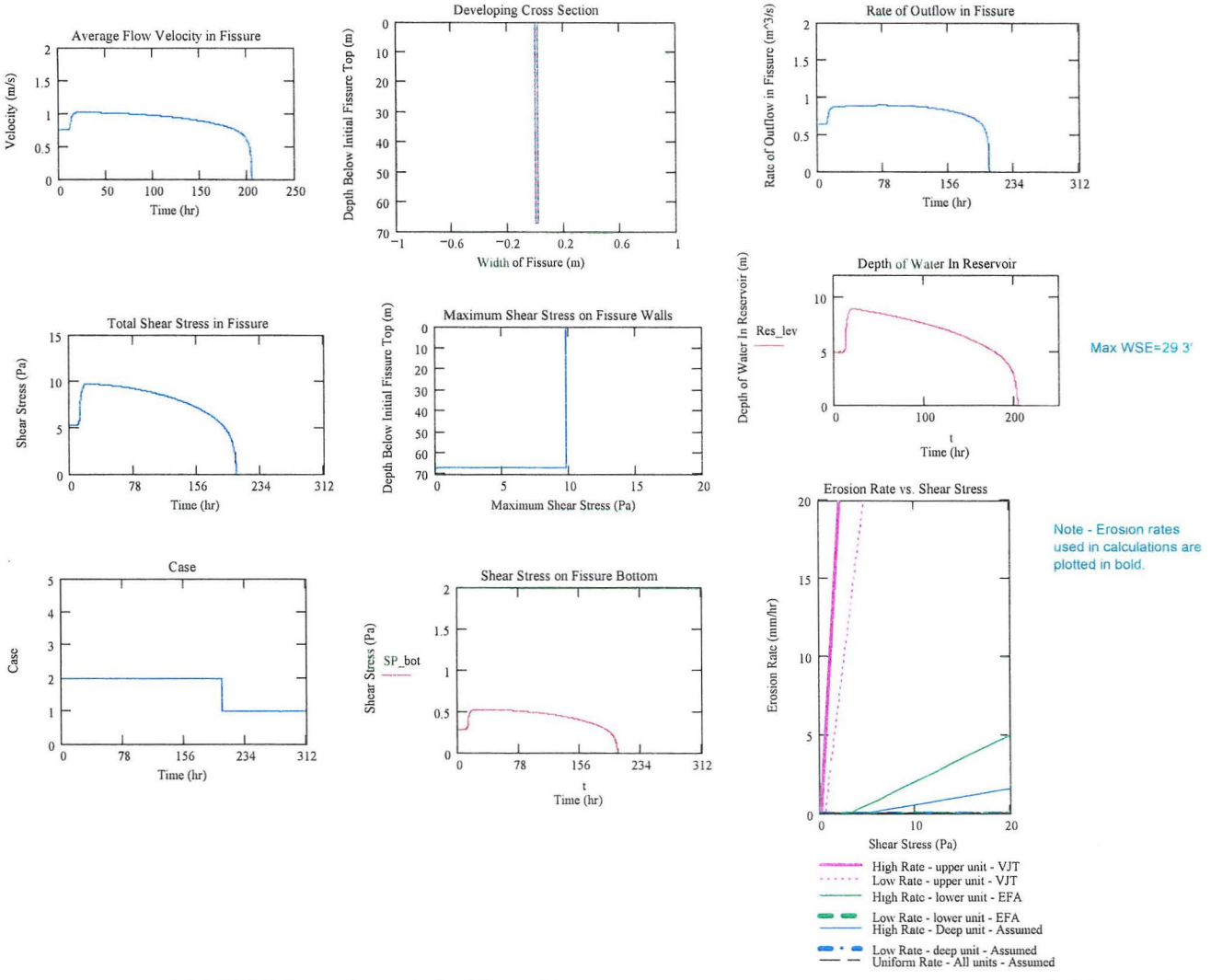


Figure B-2. Test D153 (High erosion rate for Upper Pleistocene Layer, Low erosion rates for Lower Pleistocene Layer and Deep Pleistocene Layer, 500-yr storm event, 91.45 ft flow path length).

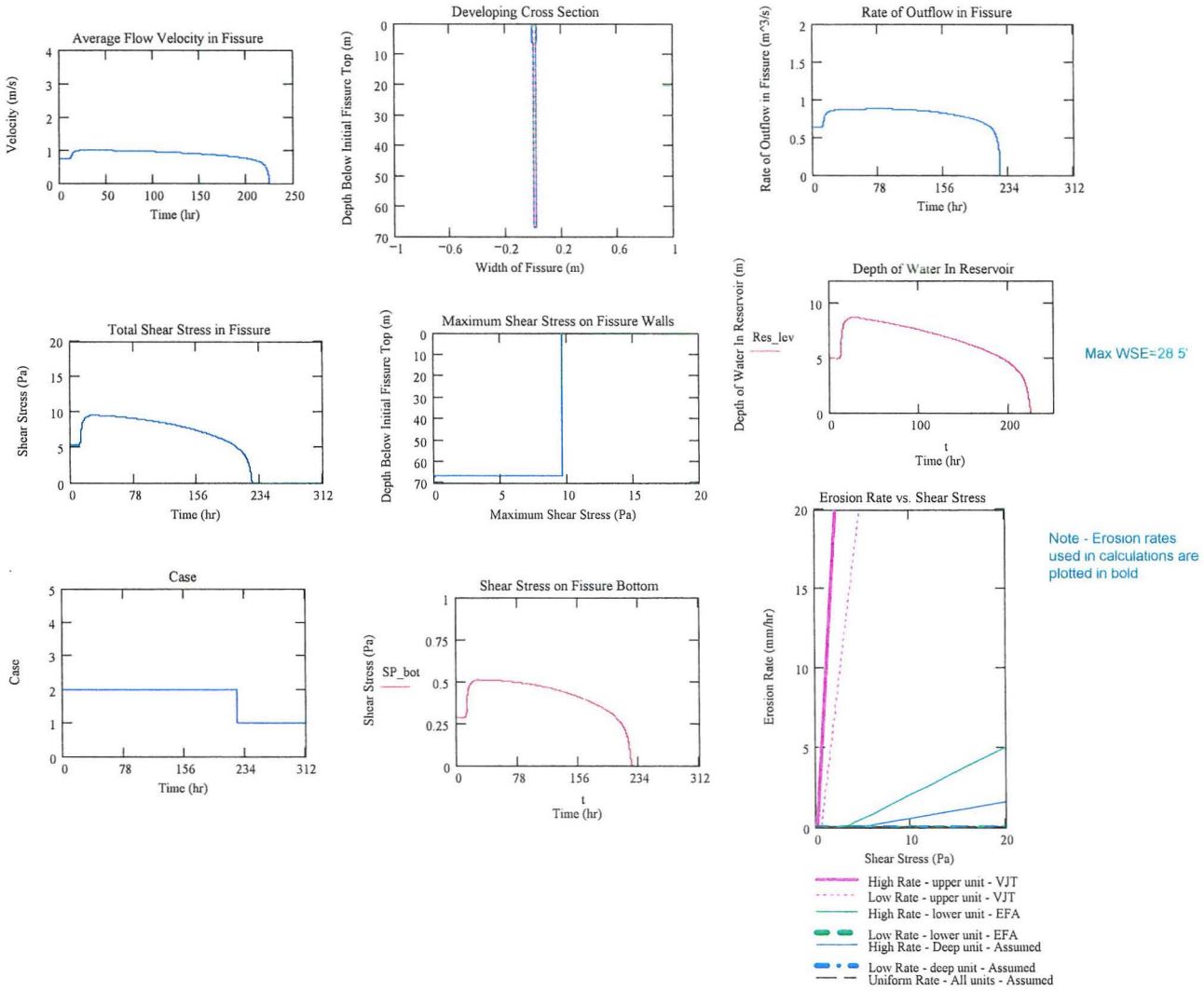


Figure B-3. Test D156 (High erosion rate for Upper Pleistocene Layer, Low erosion rates for Lower Pleistocene Layer and Deep Pleistocene Layer, 500-yr storm event, 91.45 ft flow path length).

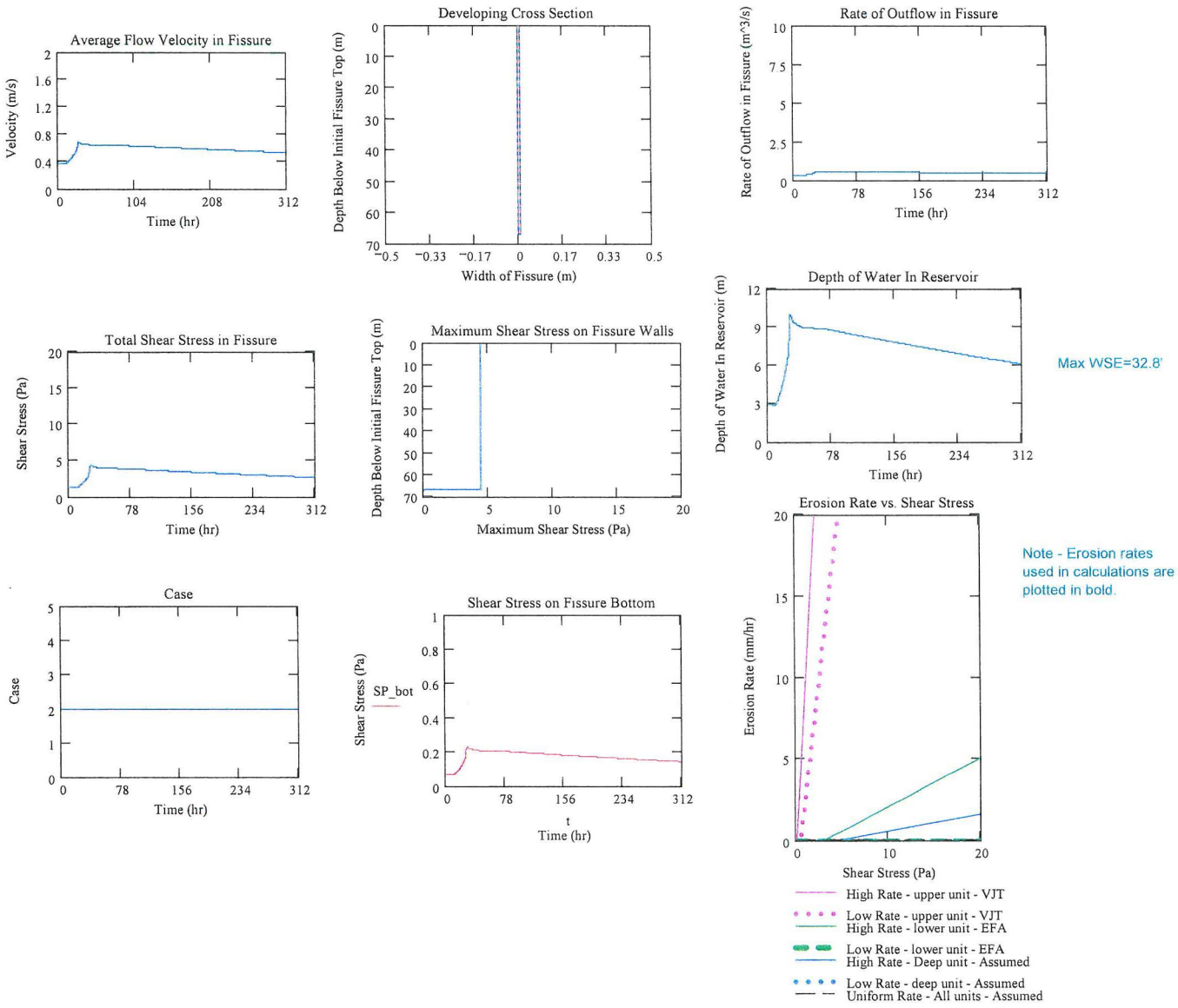


Figure B-4. Test D172 (Low erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and Deep Pleistocene Layer, PMF storm event, 230 ft flow path length).

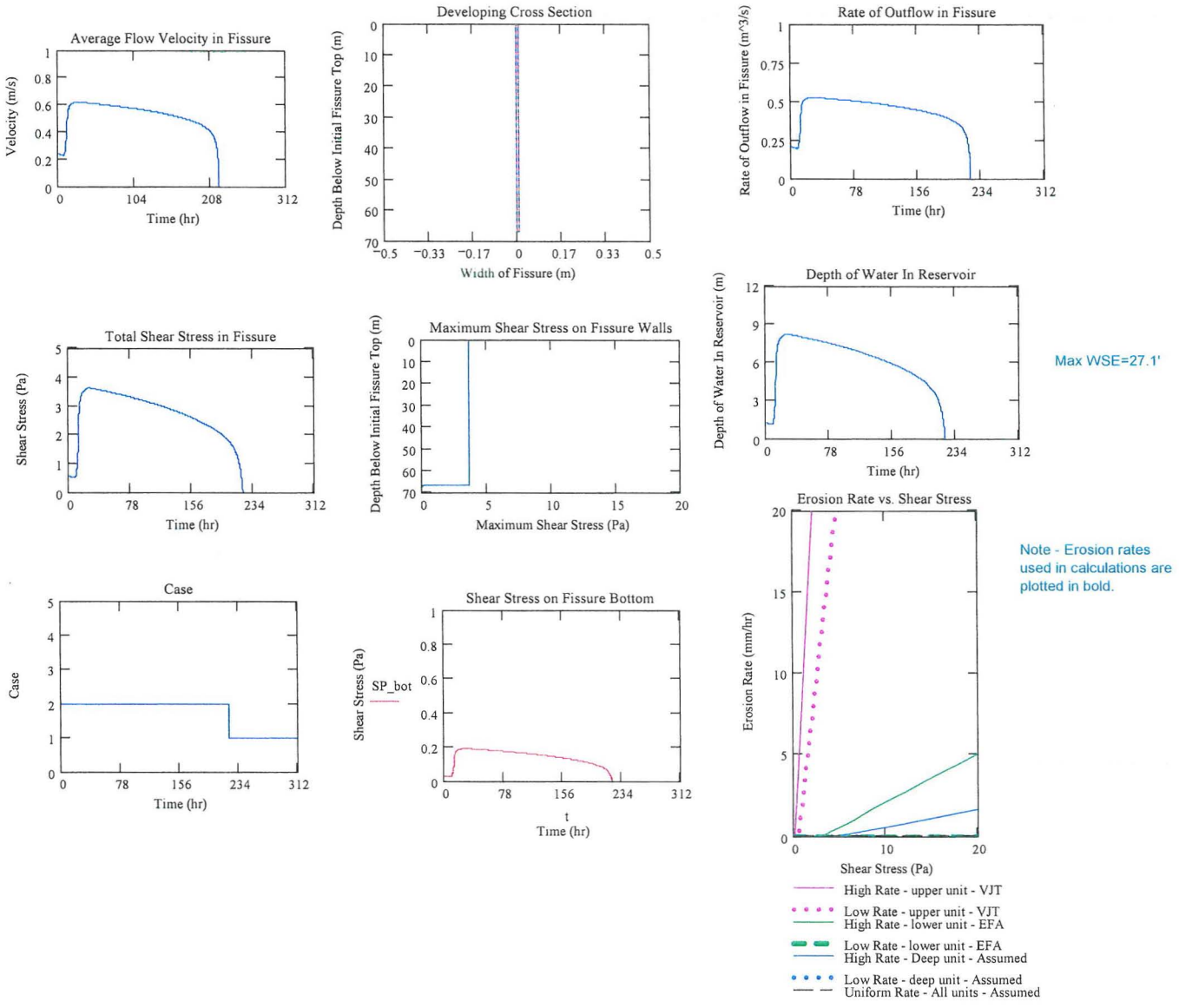


Figure B-5. Test D176 (Low erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and Deep Pleistocene Layer, 200-yr storm event, 230 ft flow path length).

APPENDIX C – TESTS RESULTS FOR PREVIOUS MODEL SCENARIOS

VARIOUS EMBANKMENT SECTIONS, EROSION RATES, INITIAL CRACK WIDTHS, SHEAR STRESS DISTRIBUTIONS, FLOW PATH LENGTHS, NUMBER OF CUTOFF WALLS, HORIZONTAL APRON OPTIONS, AND WIDTHS USED FOR HYDRAULIC CALULCATIONS

White Tanks Input Test Matrix for Sensitivity Testing

Run #	Erosion Rate (Upper, Lower, Deep Pleistocen	Storm Event	Cutoff Walls or Horizontal Apron?	Shear Stress Distribution	Flow Path Length (ft)	Non-Erodible Modeled Depth (ft)	Initial Fissure Width (in)	Cutoff Wall or Apron Length (ft)	10' Fill Layer downstream of embankment?
D100	H,H,H	PMF	Cutoff	WP Ratio	112	150	2	30	No
D100a	H,H,H	PMF	Cutoff	K & P	112	150	2	30	No
D100b	H,H,H	PMF	Cutoff	K & P	112	5	2	30	No
D100c	H,H,H	PMF	Cutoff	WP Ratio	112	5	2	30	No
D100d	H,H,H	PMF	Cutoff	K & P	122	150	2	35	No
D100e	H,H,H	PMF	Cutoff	K & P	132	150	2	40	No
D100f	H,H,H	PMF	Cutoff	K & P	142	150	2	45	No
D100g	H,H,H	PMF	Cutoff	K & P	152	150	2	50	No
D100h	H,H,H	PMF	Cutoff	K & P	162	150	2	55	No
D100i	H,H,H	PMF	Cutoff	K & P	82	150	2	15	No
D100j	H,H,H	PMF	Cutoff	K & P	102	150	2	25	No
D101	H,H,H	PMF	Cutoff	WP Ratio	112	150	1	30	No
D101a	H,H,H	PMF	Cutoff	K & P	112	150	1	30	No
D101b	H,H,H	PMF	Cutoff	K & P	112	5	1	30	No
D101c	H,H,H	PMF	Cutoff	WP Ratio	112	5	1	30	No
D102	H,H,H	PMF	Cutoff	WP Ratio	112	150	0.5	30	No
D103	H,H,H	PMF	Cutoff	WP Ratio	112	150	2	30	Yes
D104	H,H,H	PMF	Cutoff	WP Ratio	112	150	1	30	Yes
D105	H,H,H	PMF	Cutoff	WP Ratio	112	150	0.5	30	Yes
D106	L,L,L	PMF	Cutoff	WP Ratio	112	150	2	30	No
D107	L,L,L	PMF	Cutoff	WP Ratio	112	150	1	30	No
D108	L,L,L	PMF	Cutoff	WP Ratio	112	150	0.5	30	No
D109	L,L,L	PMF	Cutoff	WP Ratio	112	150	2	30	Yes
D110	L,L,L	PMF	Cutoff	WP Ratio	112	150	1	30	Yes
D111	L,L,L	PMF	Cutoff	WP Ratio	112	150	0.5	30	Yes
D112	Uniform	PMF	Cutoff	WP Ratio	112	150	2	30	No
D113	Uniform	PMF	Cutoff	WP Ratio	112	150	1	30	No
D114	Uniform	PMF	Cutoff	WP Ratio	112	150	0.5	30	No
D115	H,H,H	PMF	Apron	K & P	252	150	2	200	No
D116	H,H,H	PMF	Cutoff	K & P	200.5	150	2	30	No
D117	L,L,L	PMF	Cutoff	K & P	200.5	150	2	30	No
D118	H,H,H	PMF	Cutoff	K & P	180.5	150	2	30	No
D119	L,L,L	PMF	Cutoff	K & P	180.5	150	2	30	No
D120	H,H,H	200-Yr	Cutoff	K & P	200.5	150	2	30	No
D121	L,L,L	200-Yr	Cutoff	K & P	200.5	150	2	30	No
D122	H,H,L	PMF	Cutoff	K & P	200.5	150	2	30	No
D123	L,L,H	PMF	Cutoff	K & P	200.5	150	2	30	No
D124	H,H,H	PMF	Cutoff (1)	K & P	192	150	2	30	No
D125	H,H,H	PMF	Cutoff (1)	K & P	207	150	2	45	No
D126	H,H,H	PMF	Cutoff (1)	K & P	90	150	2	30	No
D127	H,H,H	PMF	Cutoff (1)	K & P	105	150	2	45	No
D128	H,H,H	PMF	Cutoff (2)	K & P	112	150	2	95	No
D129	H,H,H	PMF	Cutoff (2)	K & P	112	150	2	100	No

Run #	Erosion Rate (Upper, Lower, Deep Pleistocen	Storm Event	Cutoff Walls or Horizontal Apron?	Shear Stress Distribution	Flow Path Length (ft)	Non-Erodible Modeled Depth (ft)	Initial Fissure Width (in)	Cutoff Wall or Apron Length (ft)	10' Fill Layer downstream of embankment?
D130	L,L,L	PMF	Cutoff (2)	K & P	112	150	2	30	No
D131	L,L,L	PMF	Cutoff (2)	K & P	112	150	1	30	No
D132	H,H,H	PMF	Cutoff (2)	K & P	112	150	0.5	30	No
D133	L,L,L	PMF	Cutoff (2)	K & P	112	150	0.5	30	No
D134	H,H,H	500	Cutoff (2)	K & P	112	150	2	30	No
D135	L,L,L	500	Cutoff (2)	K & P	112	150	2	30	No
D136	H,H,H	500	Cutoff (2)	K & P	112	150	1	30	No
D137	L,L,L	500	Cutoff (2)	K & P	112	150	1	30	No
D138	H,H,H	500	Cutoff (2)	K & P	112	150	0.5	30	No
D139	L,L,L	500	Cutoff (2)	K & P	112	150	0.5	30	No
D140	H,H,H	200	Cutoff (2)	K & P	112	150	2	30	No
D141	L,L,L	200	Cutoff (2)	K & P	112	150	2	30	No
D142	H,H,H	200	Cutoff (2)	K & P	112	150	1	30	No
D143	L,L,L	200	Cutoff (2)	K & P	112	150	1	30	No
D144	H,H,H	200	Cutoff (2)	K & P	112	150	0.5	30	No
D145	L,L,L	200	Cutoff (2)	K & P	112	150	0.5	30	No
D146	H,L,L	PMF	Cutoff (2)	K & P	31.45	150	0.5	30	No
D148	H,H,L	PMF	Cutoff (2)	K & P	91.45	150	0.5	30	No
D149	H,L,L	PMF	Cutoff (2)	K & P	91.45	150	2	30	No
D150	H,L,L	PMF	Cutoff (2)	K & P	91.45	150	1	30	No
D151	H,L,L	500	Cutoff (2)	K & P	91.45	150	2	30	No
D152	H,L,L	500	Cutoff (2)	K & P	91.45	150	1	30	No
D154	H,L,L	200	Cutoff (2)	K & P	91.45	150	2	30	No
D155	H,L,L	200	Cutoff (2)	K & P	91.45	150	1	30	No
D157	H,H,H	PMF	Cutoff (2)	K & P	91.45	150	0.5	30	No
D158	H,L,L	PMF	Cutoff (1)	K & P	74.3	150	0.5	30	No
D159	H,L,L	PMF	Cutoff (2)	K & P	91.45	5	0.5	30	No
D160	H,H,H	PMF	Cutoff (1)	K & P	74.3	150	0.5	30	No
D161	H,H,H	PMF	Cutoff (1)	K & P	74.3	150	2	30	No
D162	H,L,L	PMF	Cutoff (1)	K & P	74.3	150	2	30	No
D163	H,L,L	PMF	Cutoff (2)	K & P	91.45	150	0.5	30 (hdiv=0.25')	No
D164	H,H,H[1]	PMF	Cutoff (2)	K & P	91.45	150	0.5	30	No
D165	H,L,L[1]	PMF	Cutoff (2)	K & P	91.45	5	0.5	30	No
D168	H,L,L	PMF	Cutoff (2)	K & P	91.45	150	0.5	30 (hdiv=1.0')	No
D169	H,H,H	PMF	Cutoff (2)	K & P	230.0	150	0.5	30	Yes (&U/S)
D170	H,H,H	PMF	Cutoff (2)	K & P	230.0	150	1	30	Yes (&U/S)
D171	H,H,H	PMF	Cutoff (2)	K & P	230.0	150	2	30	Yes (&U/S)
D173	L,L,L	PMF	Cutoff (2)	K & P	230.0	150	1	30	Yes (&U/S)
D174	L,L,L	PMF	Cutoff (2)	K & P	230.0	150	2	30	Yes (&U/S)
D175	H,H,H	200	Cutoff (2)	K & P	230.0	150	0.5	30	Yes (&U/S)

WP Ratio = Wetted Perimeter Ratio; K & P = Knight and Patel distribution

H = High Erosion Rate; L = Low Erosion Rate

[1]Deep Pleistocene Layer Erosion Rate Set Equal to that of Lower Pleistocene Erosion Rate

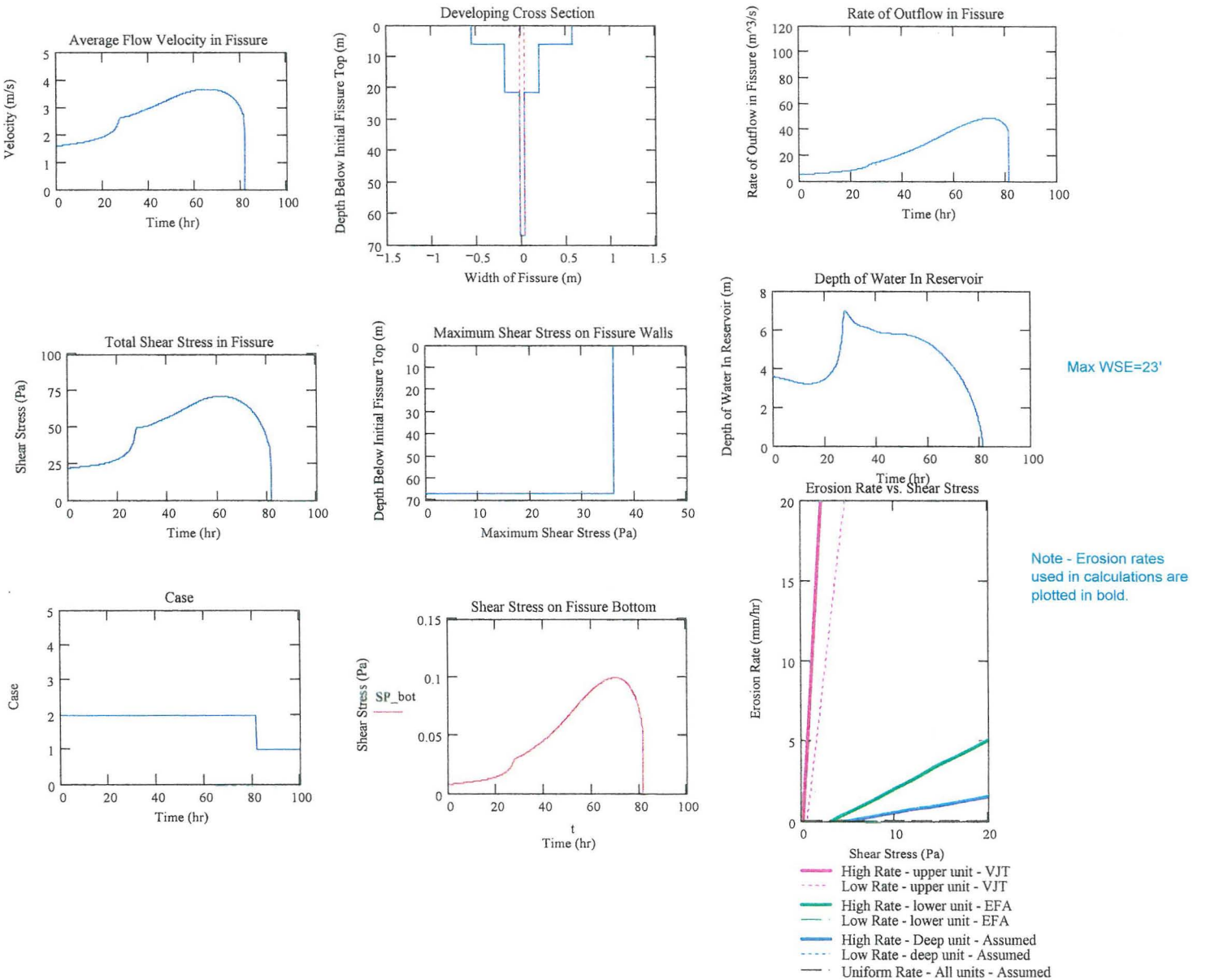


Figure C-1. Test D100 (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WR ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 30 ft, no ten foot fill layer).

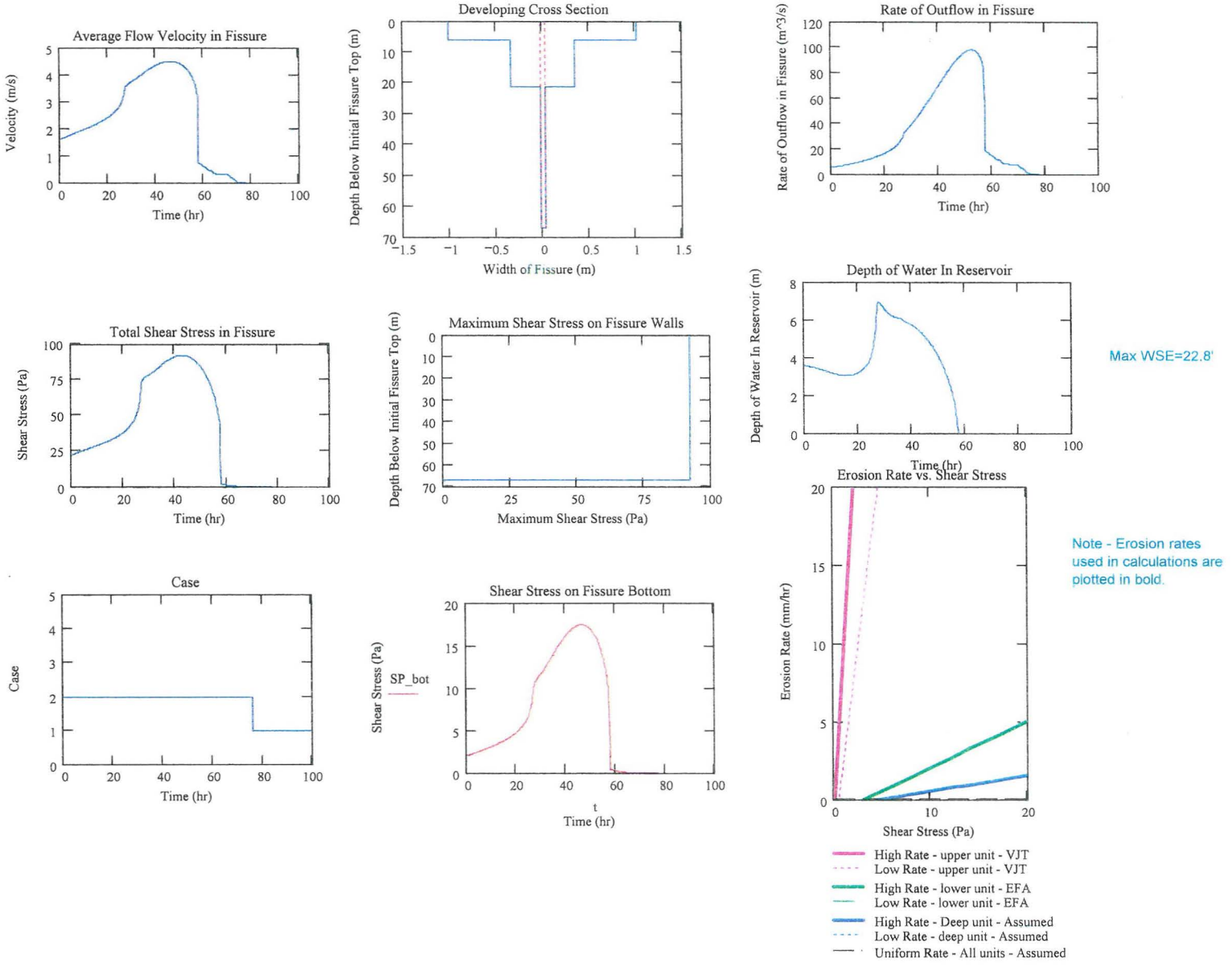


Figure C-2. Test D100a (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 30 ft, no ten foot fill layer).

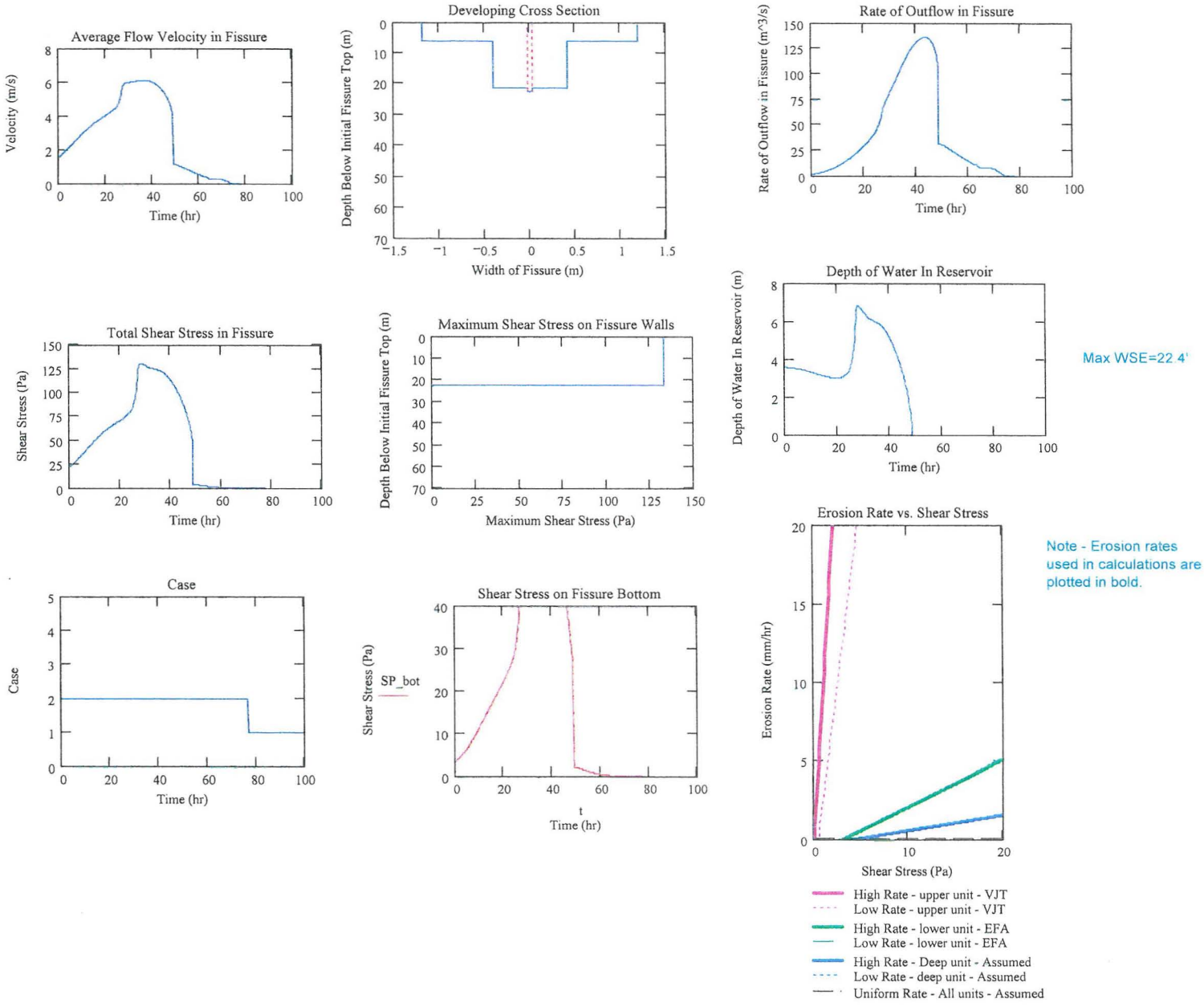


Figure C-3. Test D100b (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 5 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 30 ft, no ten foot fill layer).

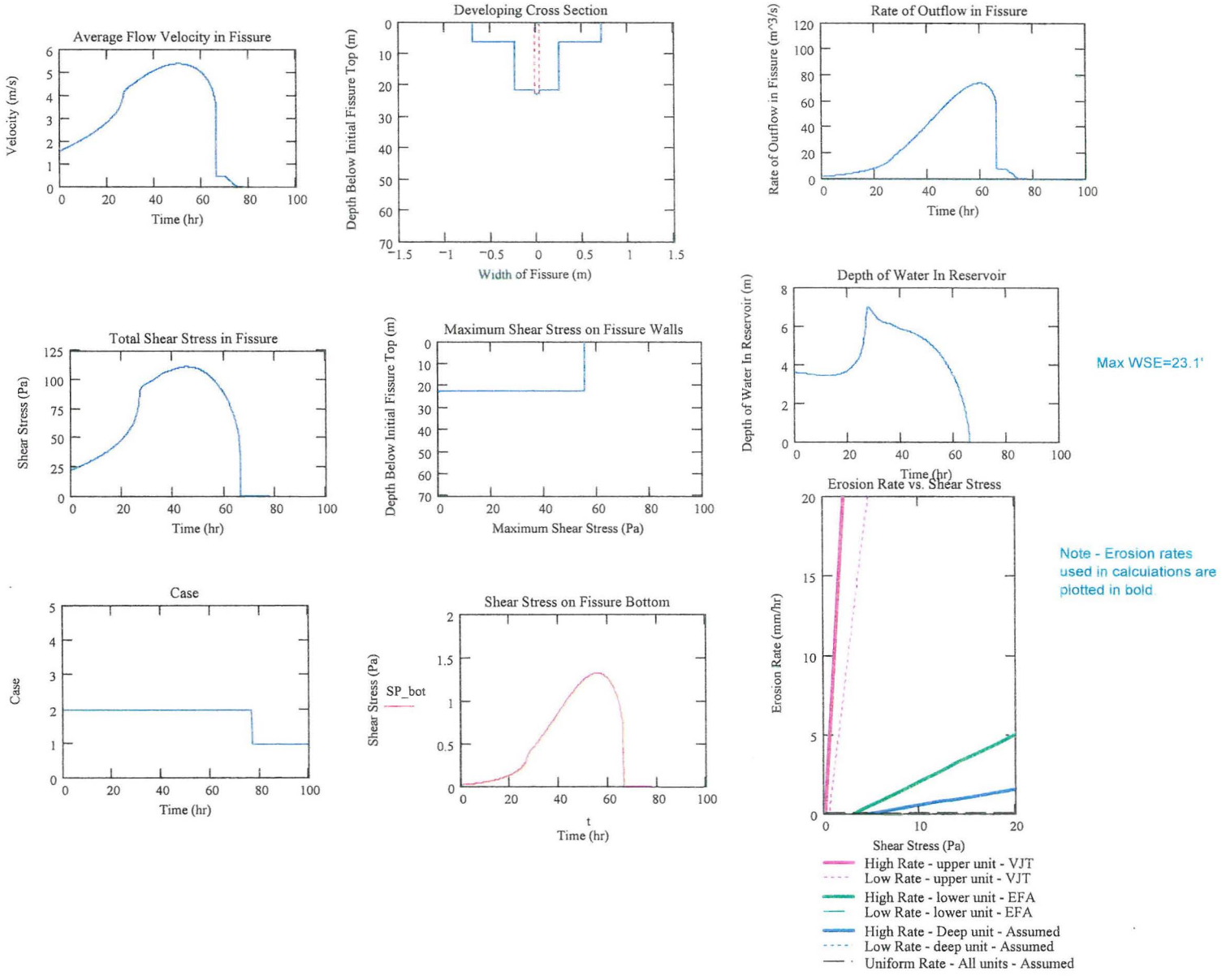


Figure C-4. Test D100c (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 5 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 30 ft, no ten foot fill layer).

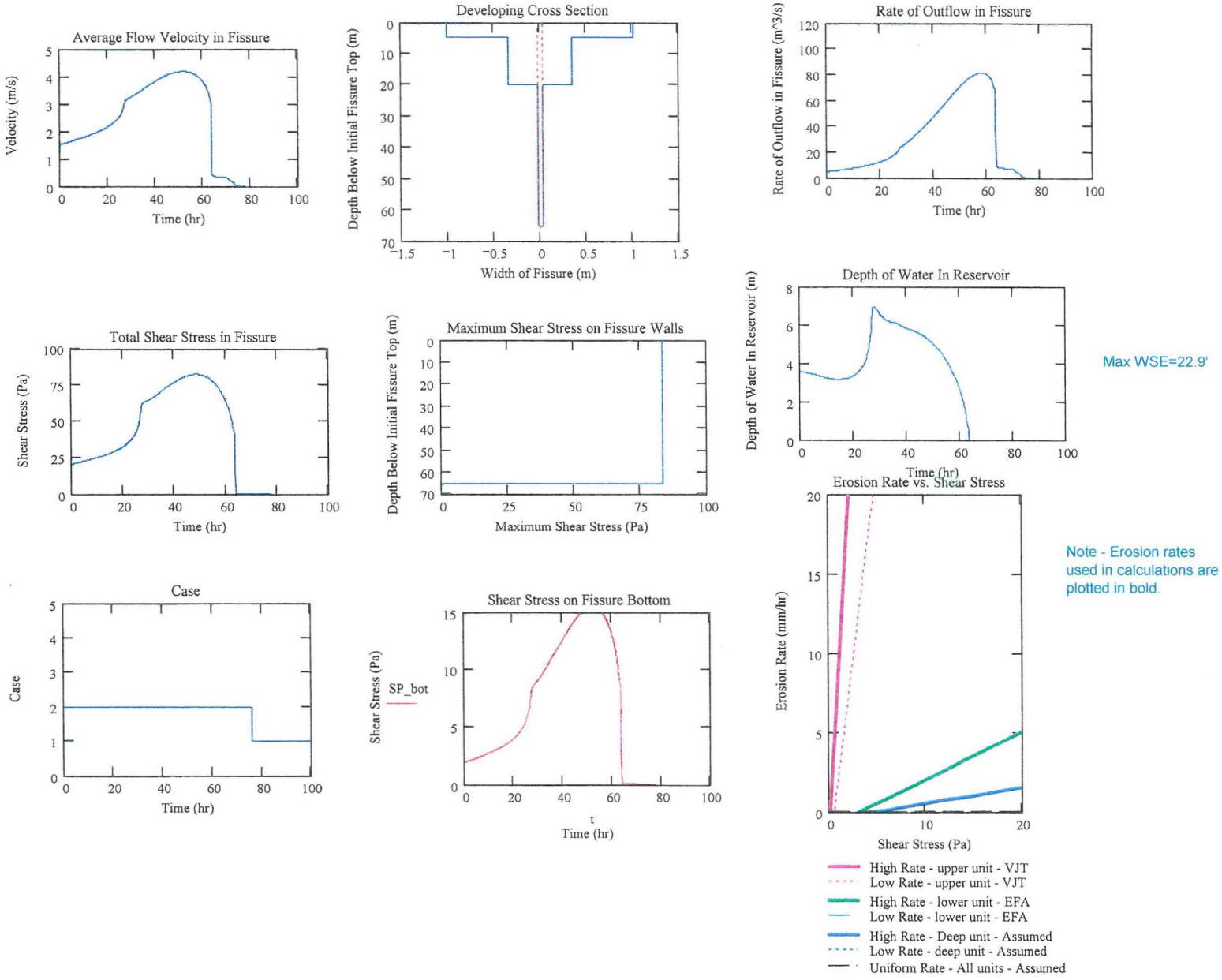


Figure C-5. Test D100d (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 122 ft flow path, 150 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 35 ft, no ten foot fill layer).

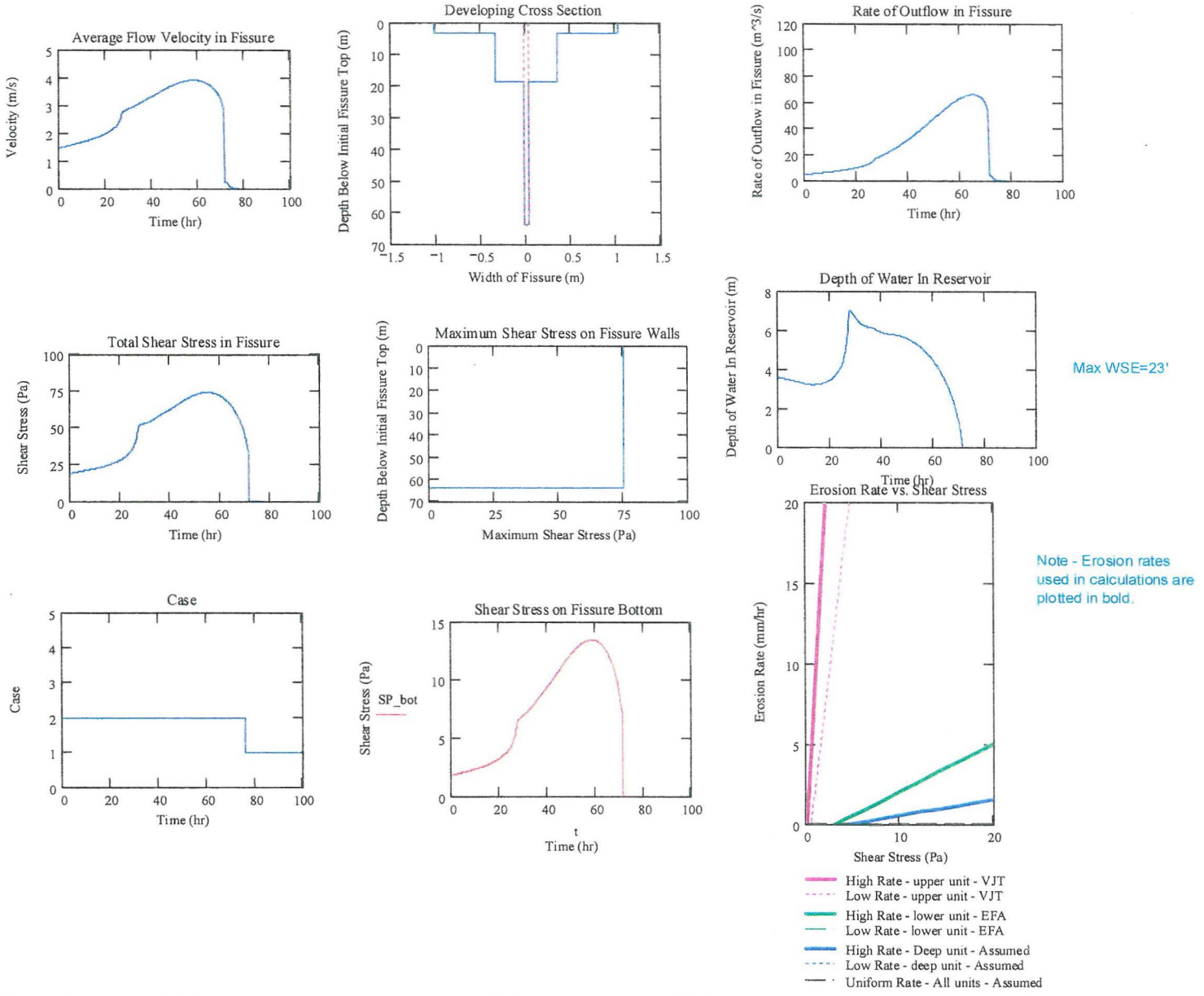


Figure C-6. Test D100e (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 132 ft flow path, 150 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 40 ft, no ten foot fill layer).

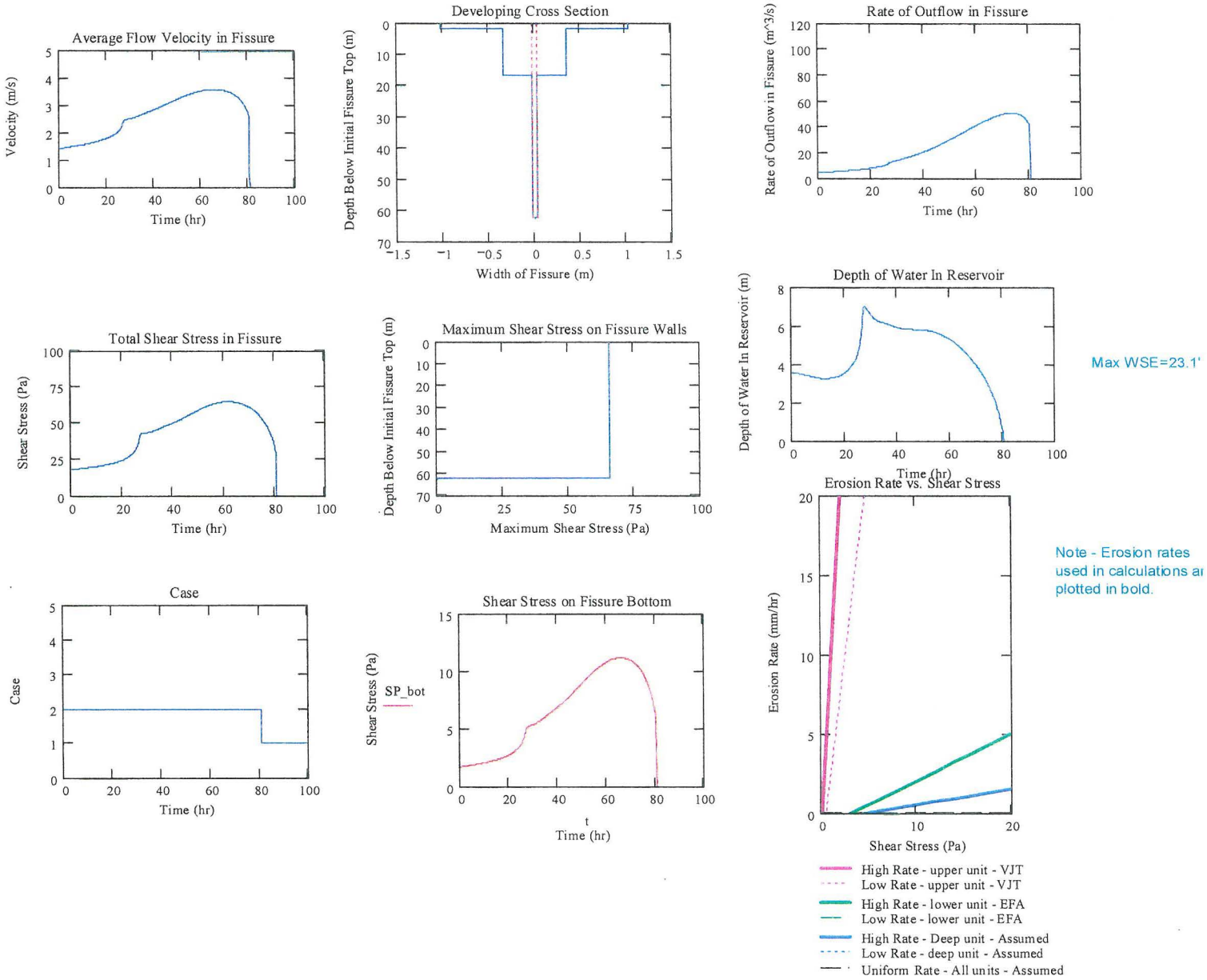


Figure C-7. Test D100f (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 142 ft flow path, 150 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 45 ft, no ten foot fill layer).

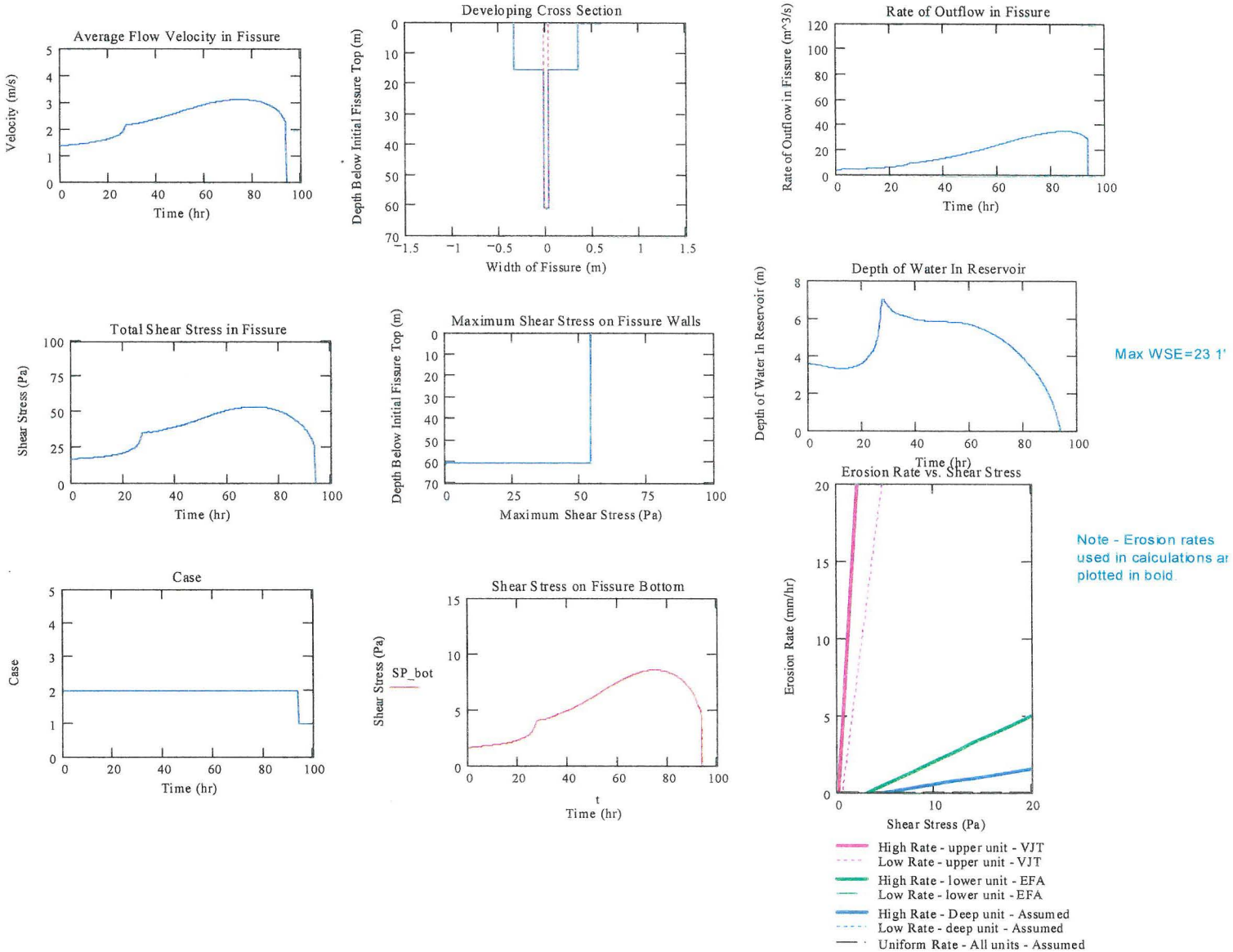


Figure C-8. Test D100g (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 152 ft flow path, 150 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 50 ft, no ten foot fill layer).

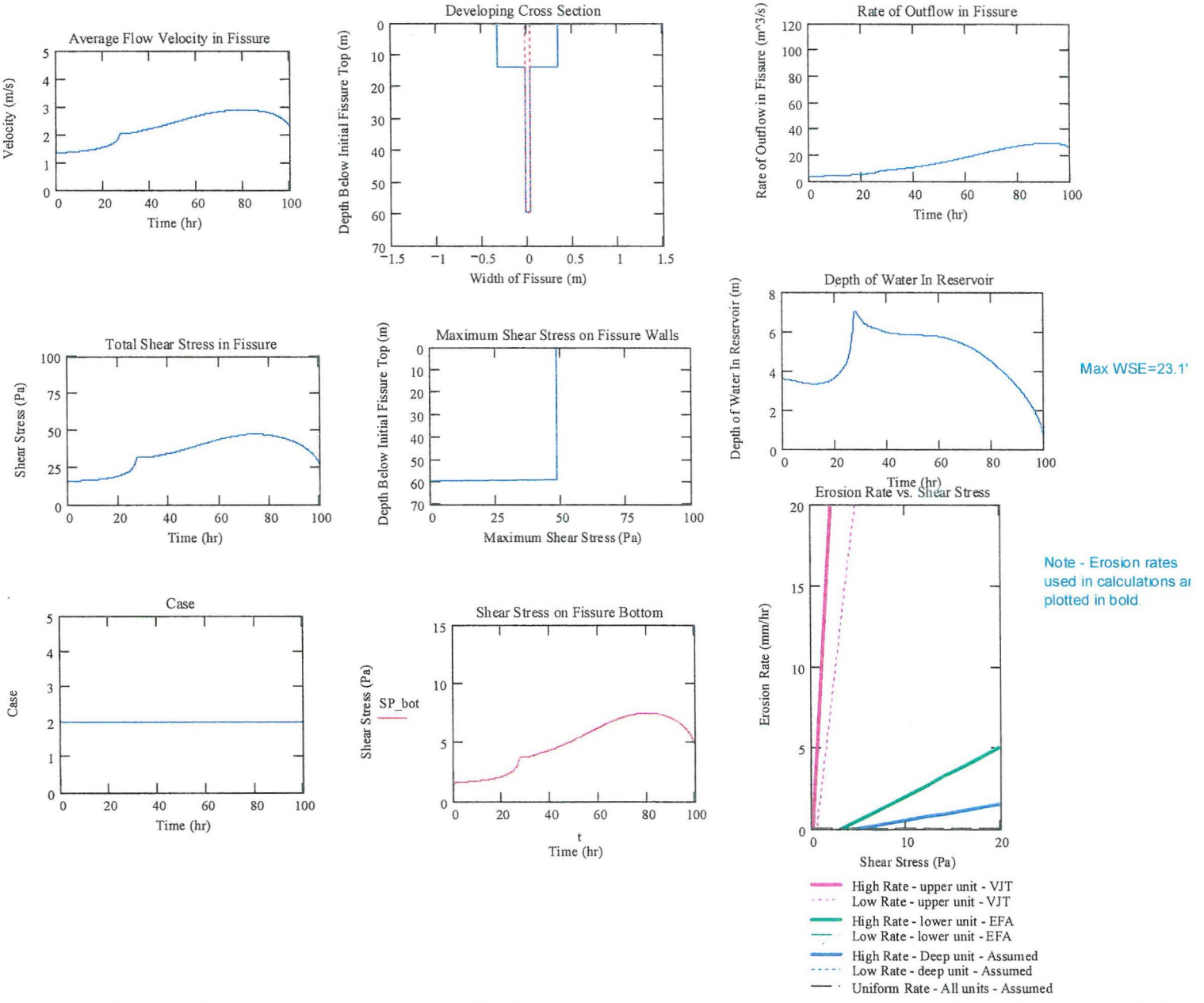


Figure C-9. Test D100h (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 162 ft flow path, 150 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 55 ft, no ten foot fill layer).

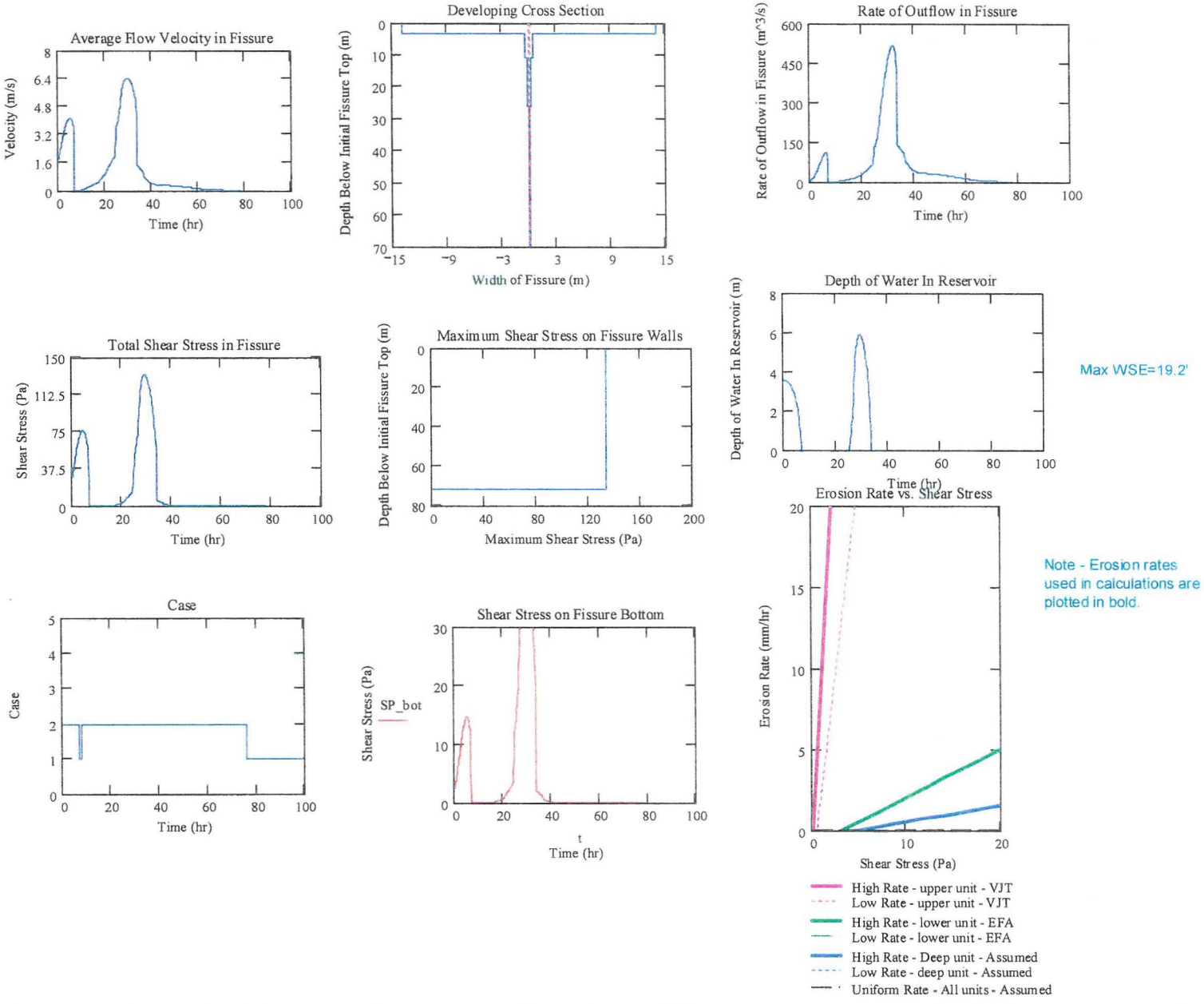


Figure C-10. Test D100i (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 82 ft flow path, 150 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 15 ft, no ten foot fill layer).

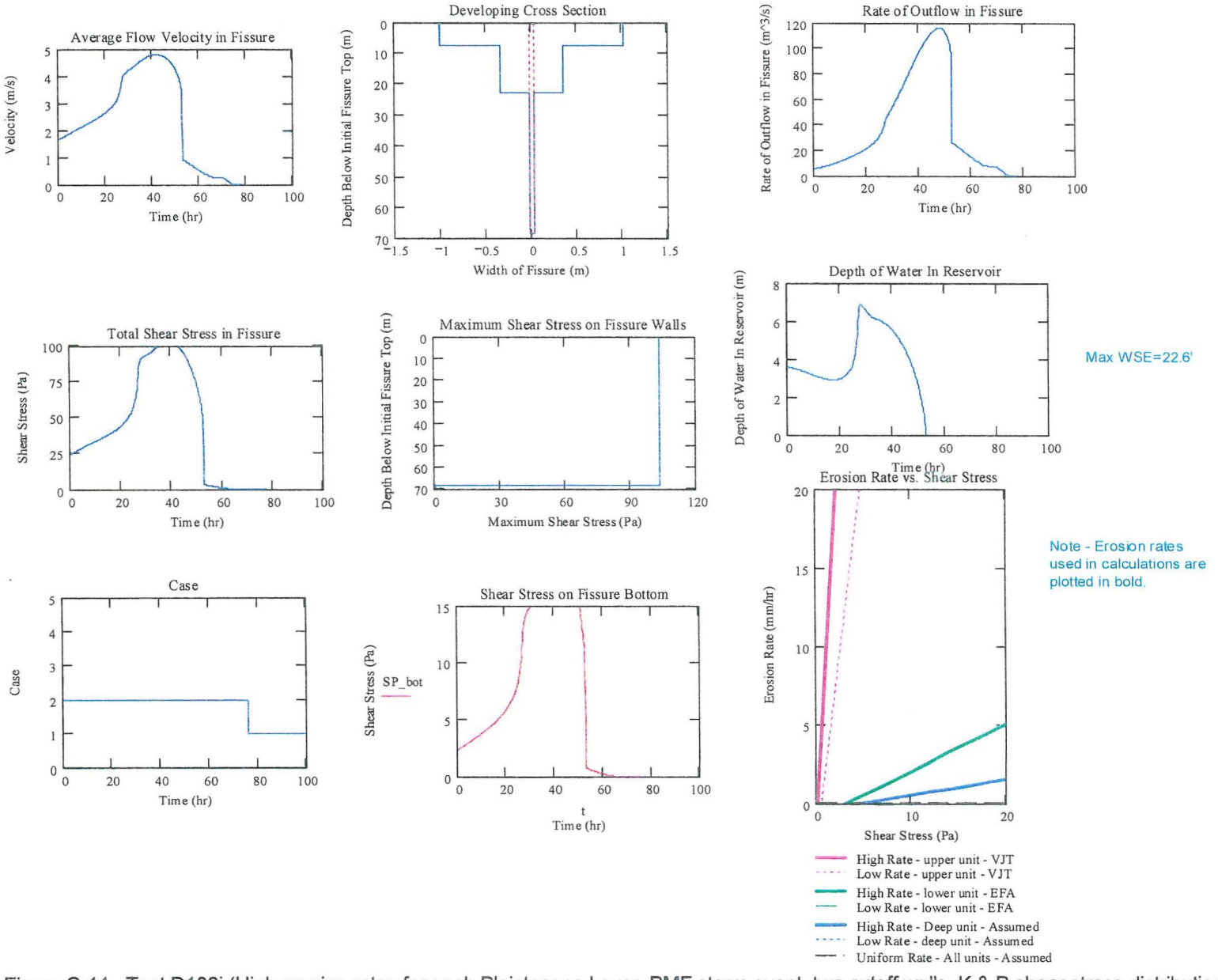


Figure C-11. Test D100j (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 102 ft flow path, 150 ft non-erodible depth, initial fissure width of two inches, cutoff wall length of 25 ft, no ten foot fill layer).

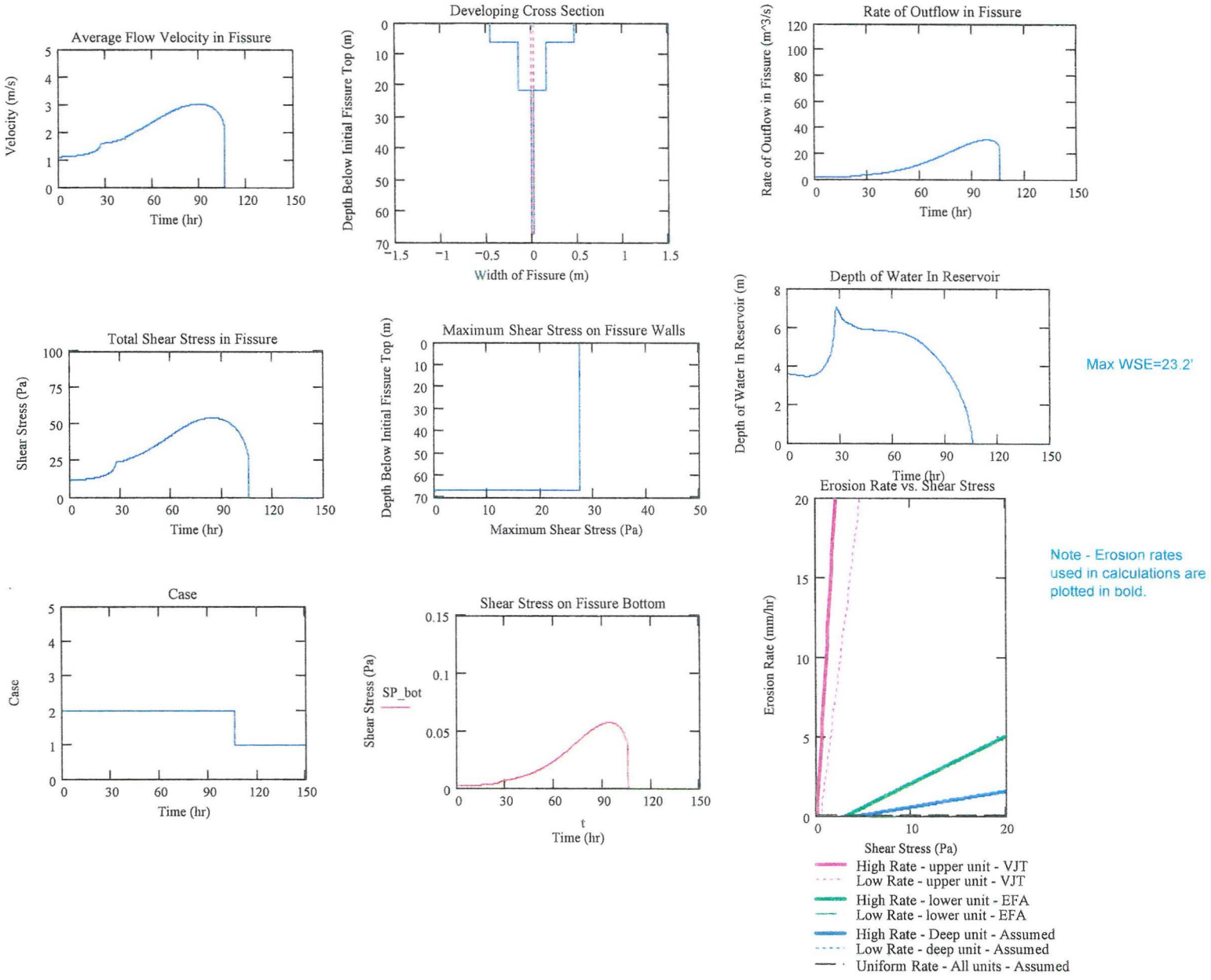


Figure C-12. Test D101 (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of one inches, cutoff wall length of 30 ft, no ten foot fill layer).

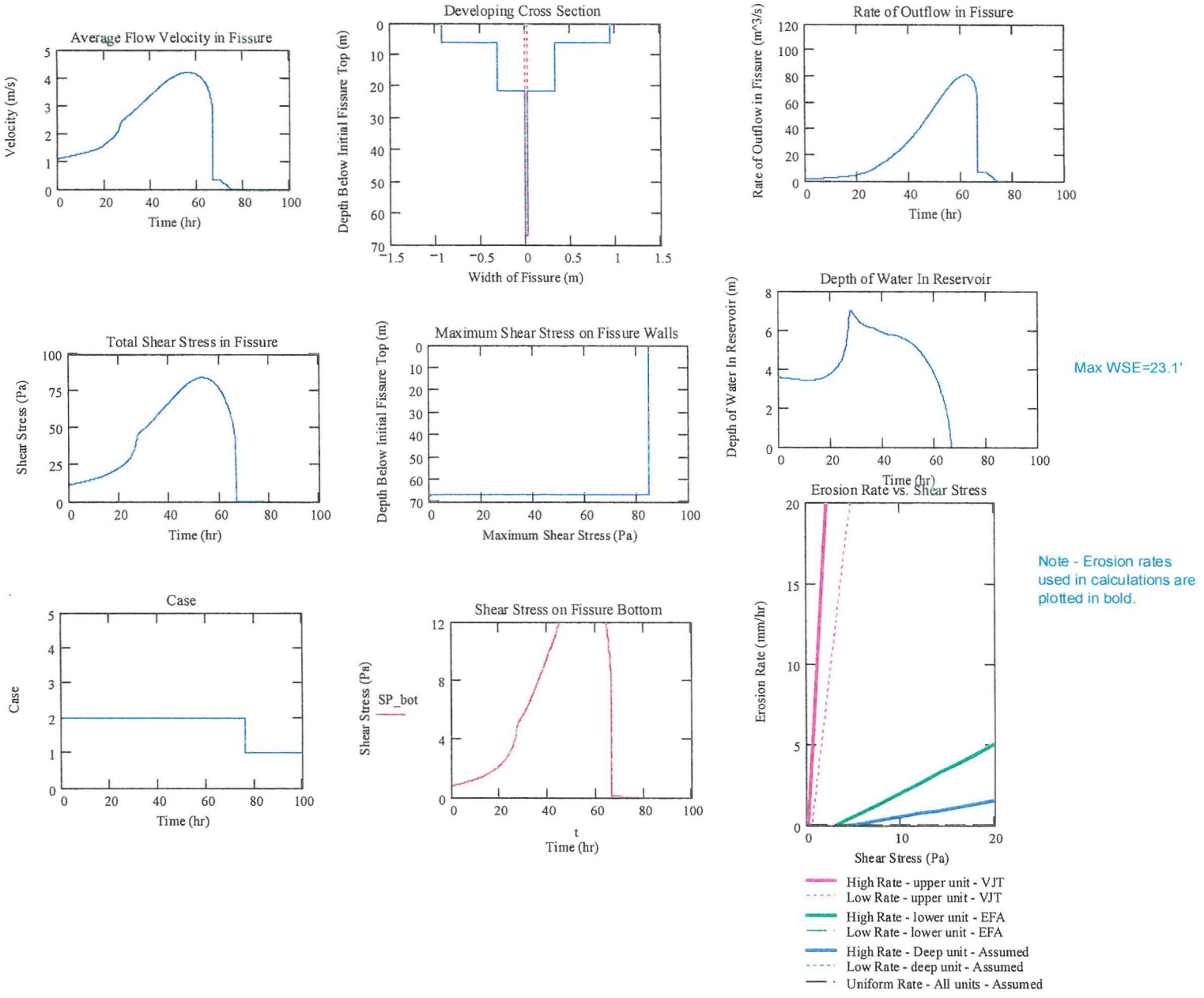


Figure C-13. Test D101a (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of one inches, cutoff wall length of 30 ft, no ten foot fill layer).

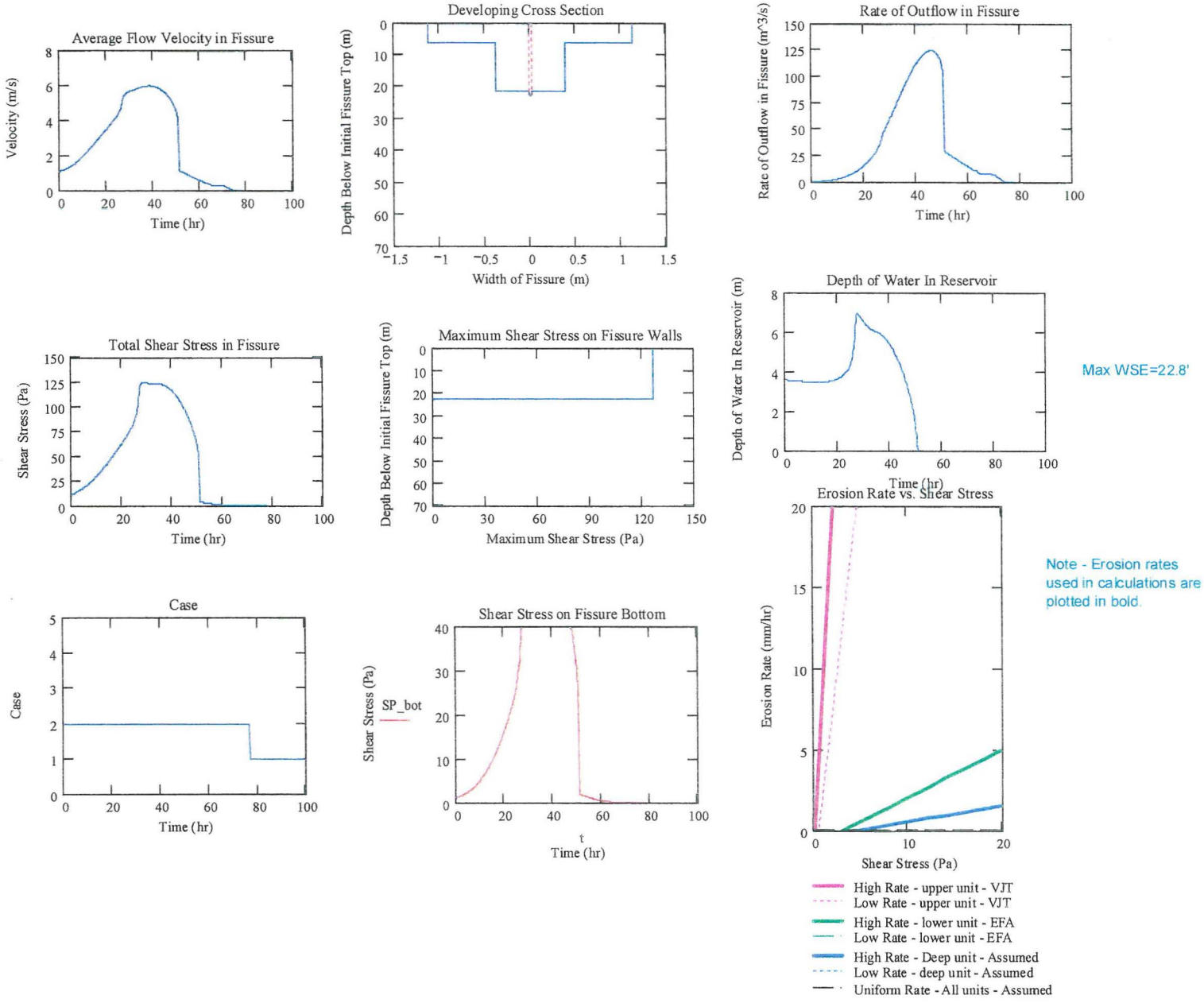


Figure C-14. Test D101b (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 5 ft non-erodible depth, initial fissure width of one inches, cutoff wall length of 30 ft, no ten foot fill layer).

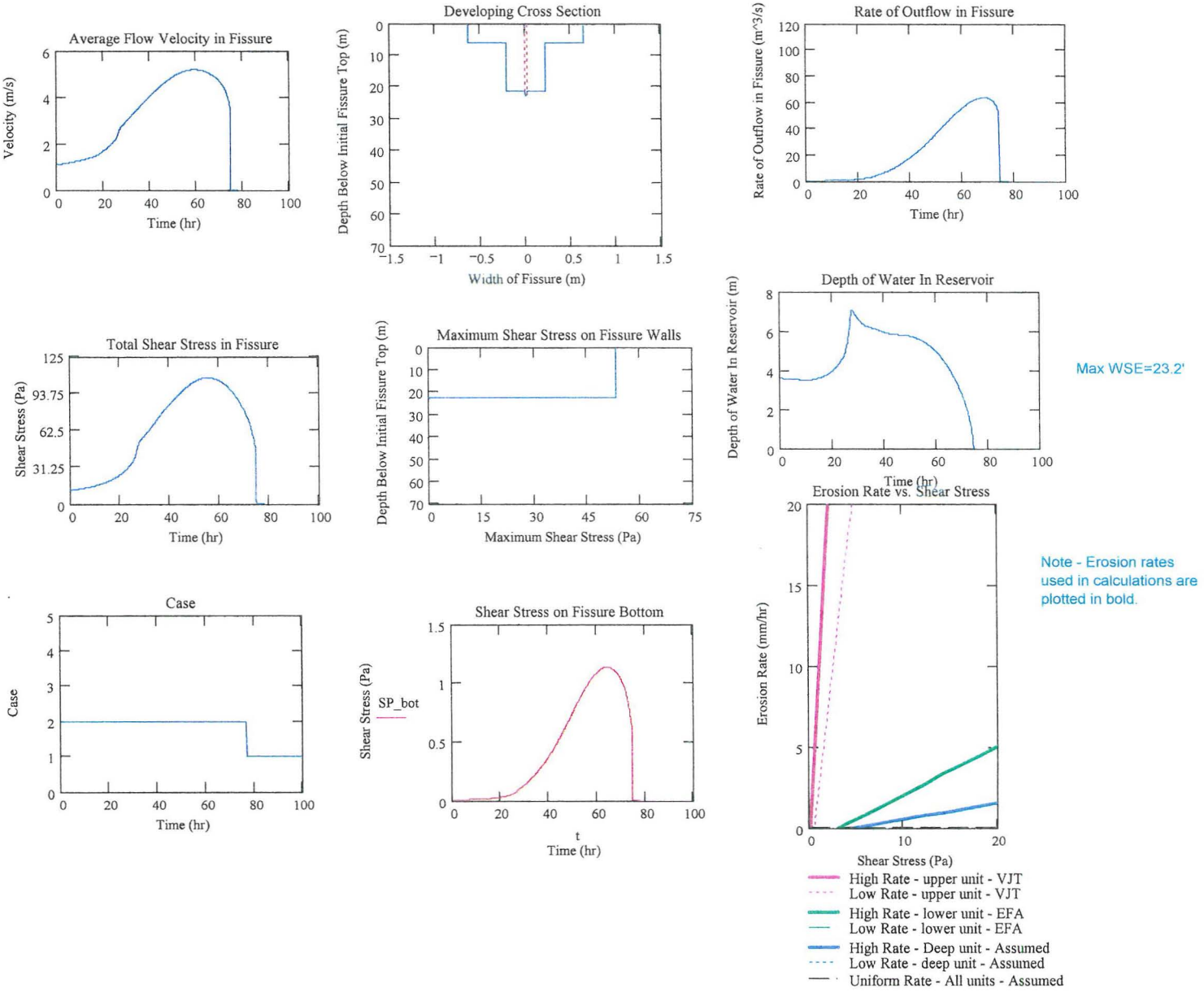


Figure C-15. Test D101c (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 5 ft non-erodible depth, initial fissure width of one inches, cutoff wall length of 30 ft, no ten foot fill layer).

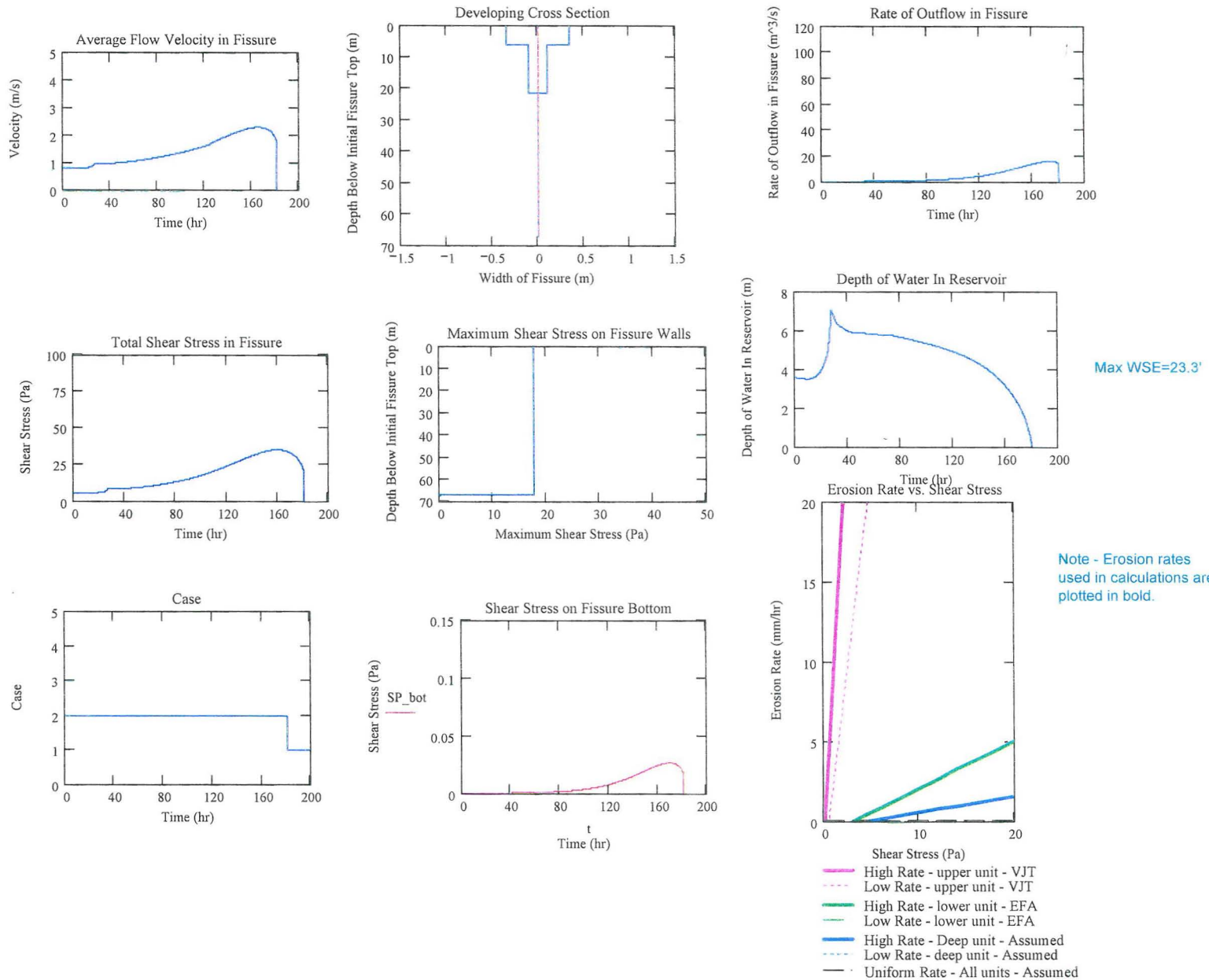


Figure C-16. Test D102 (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

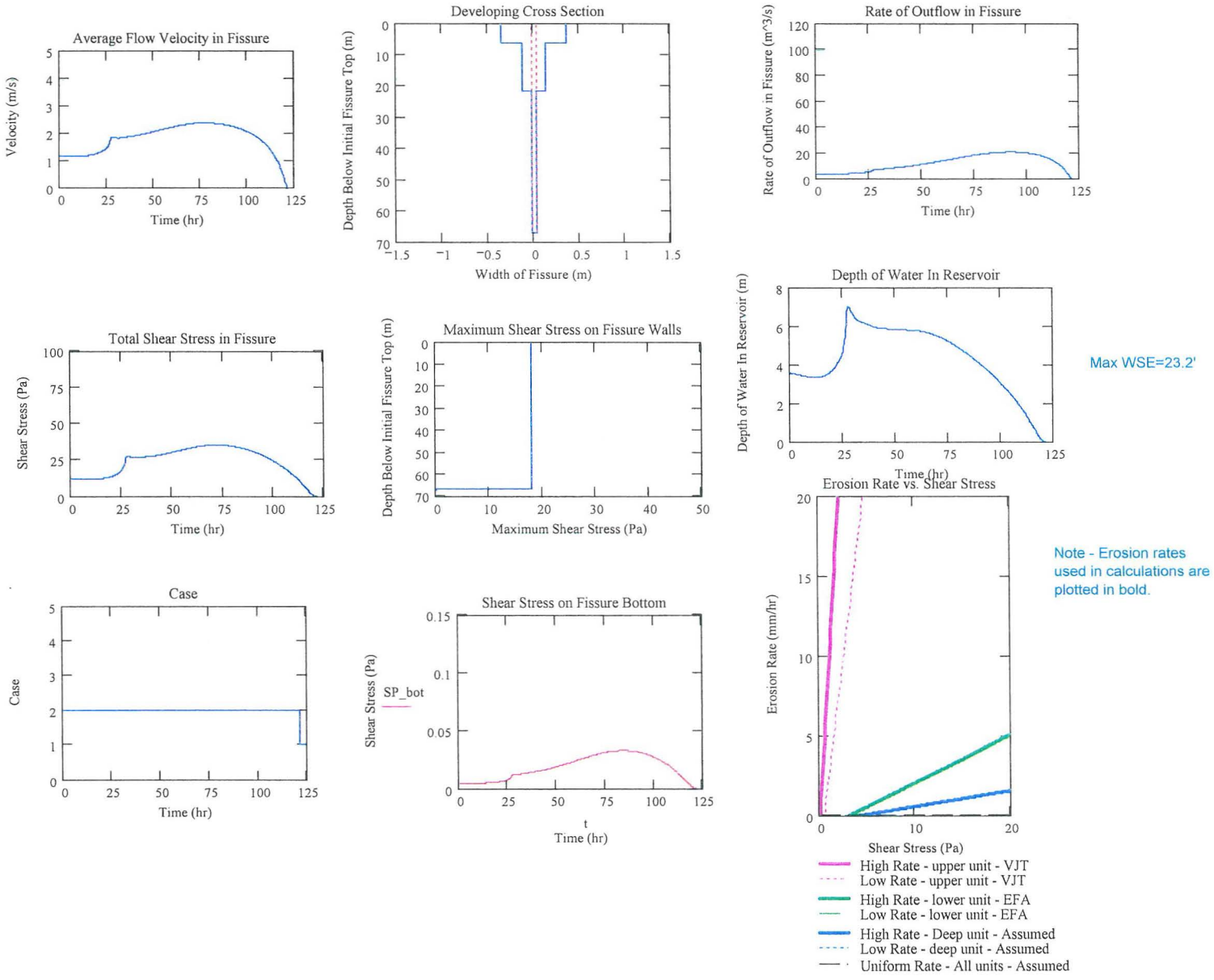


Figure C-17. Test D103 (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, ten foot fill layer).

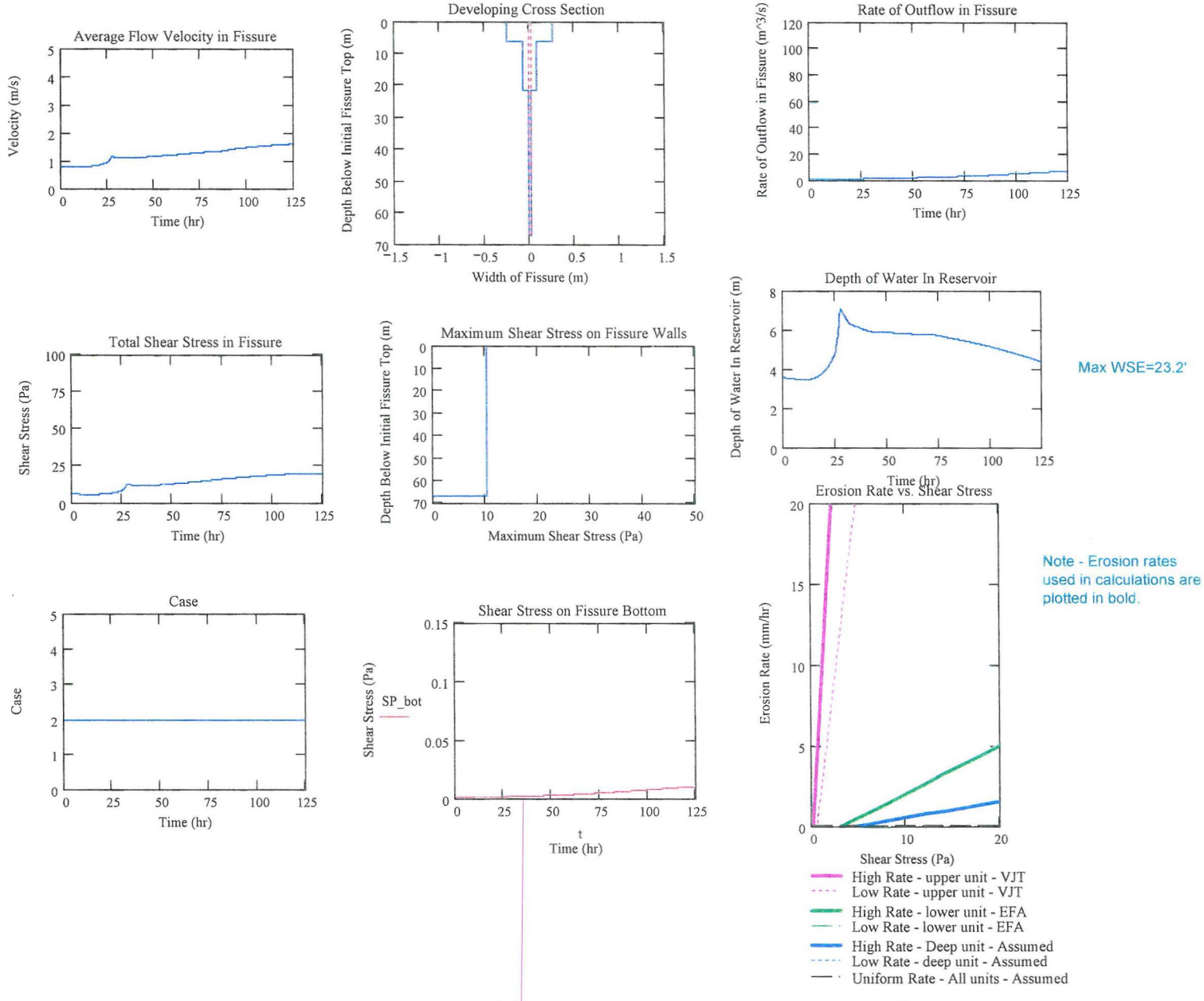


Figure C-18. Test D104 (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, ten foot fill layer).

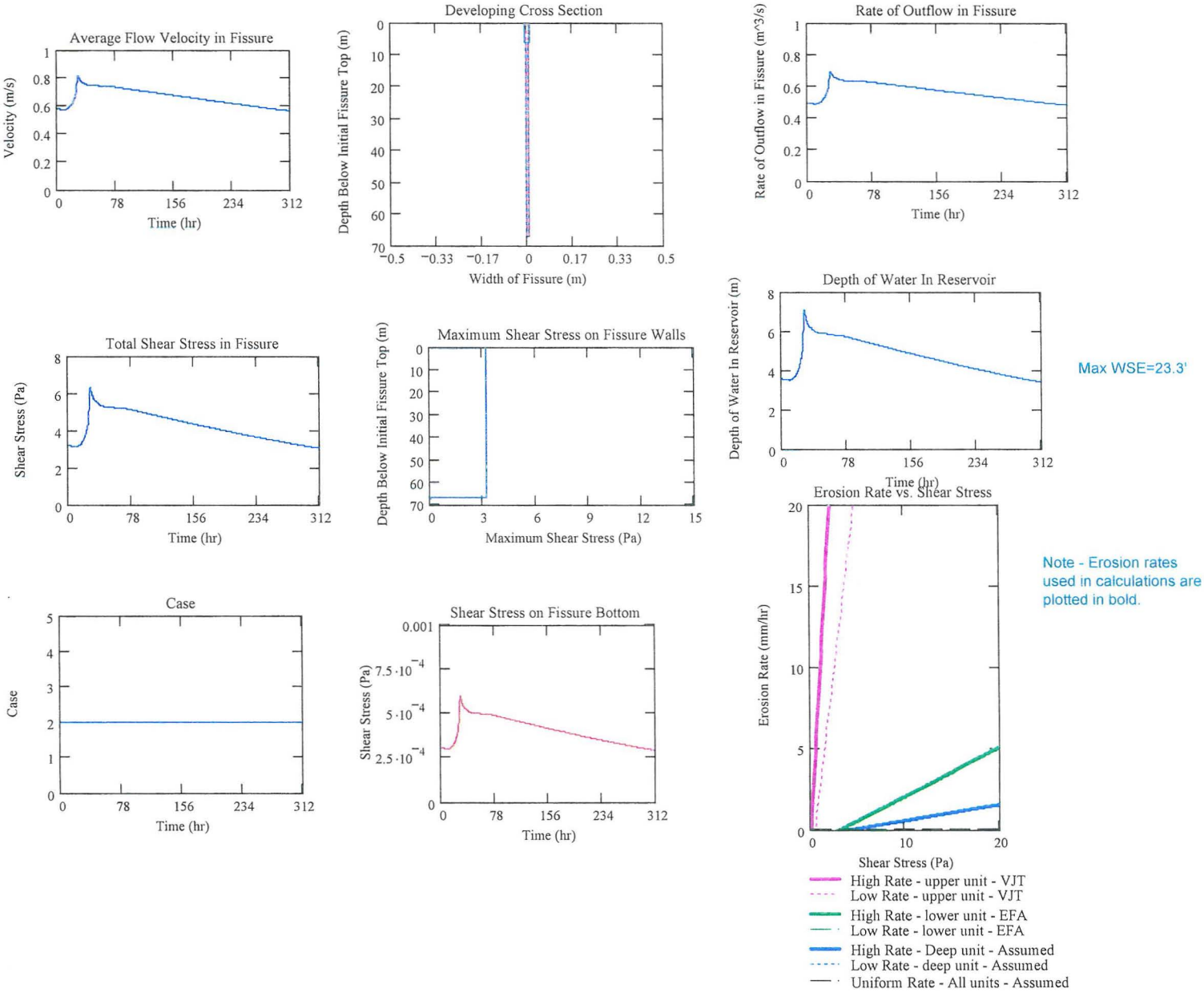


Figure C-19. Test D105 (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, ten foot fill layer).

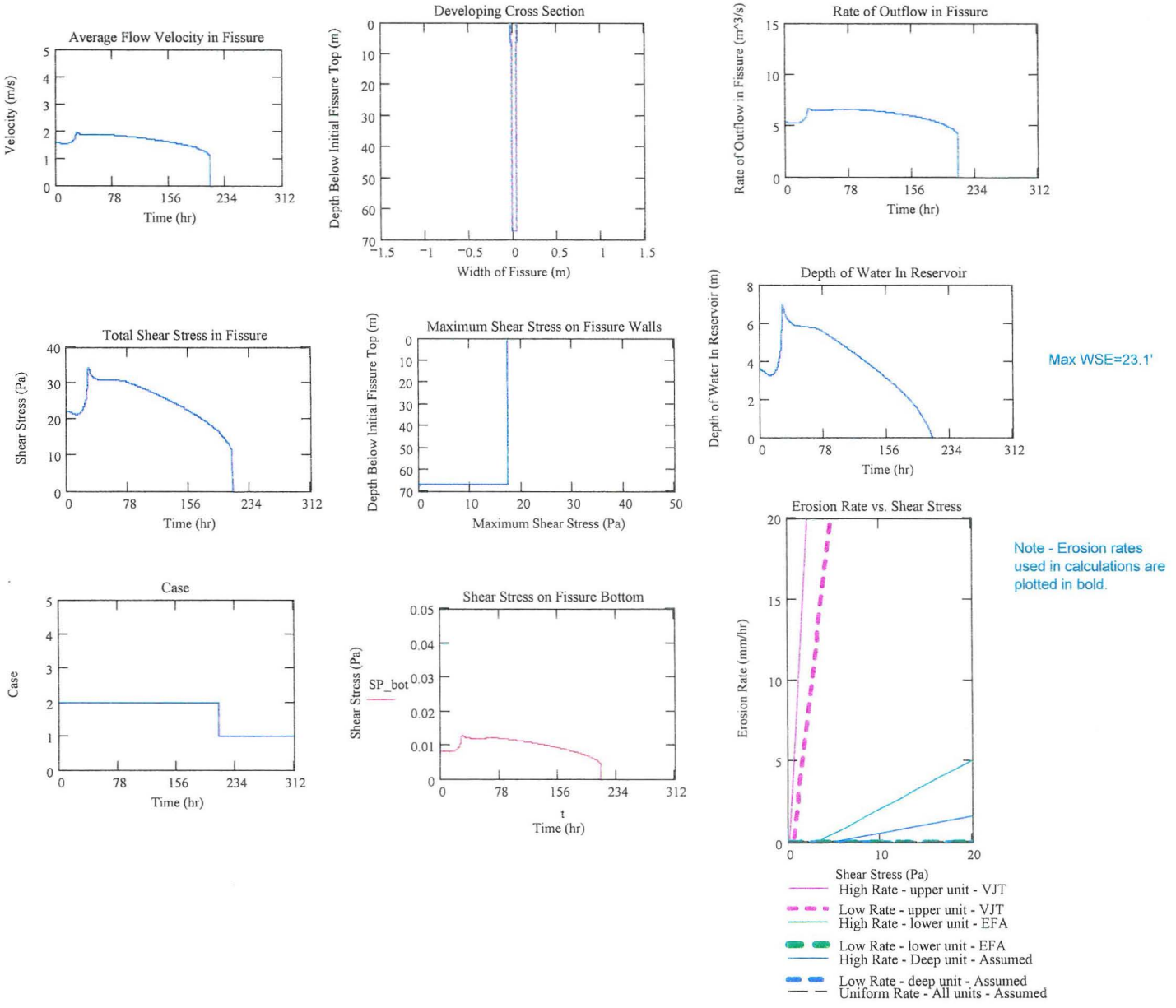


Figure C-20. Test D106 (Low erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

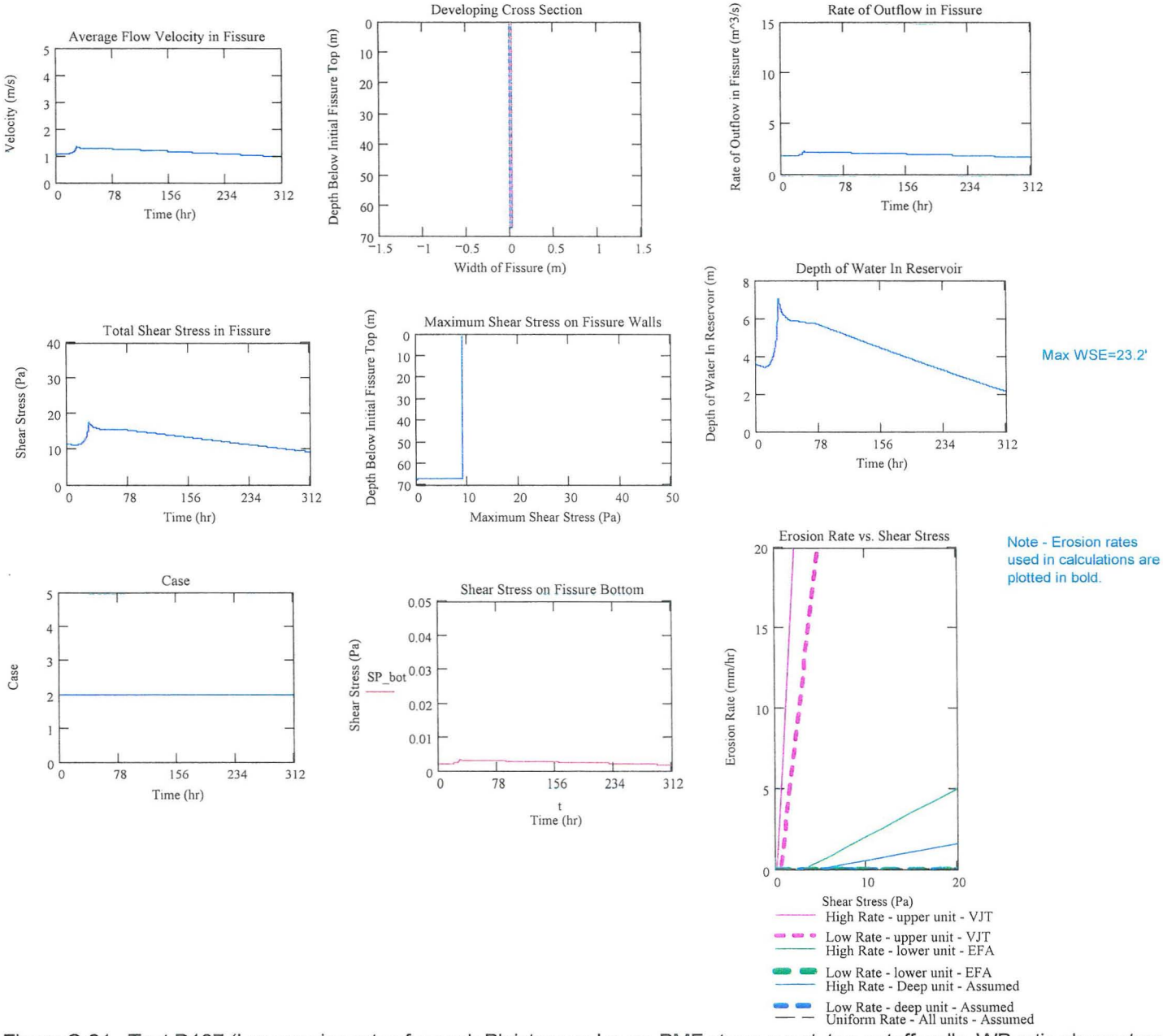


Figure C-21. Test D107 (Low erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

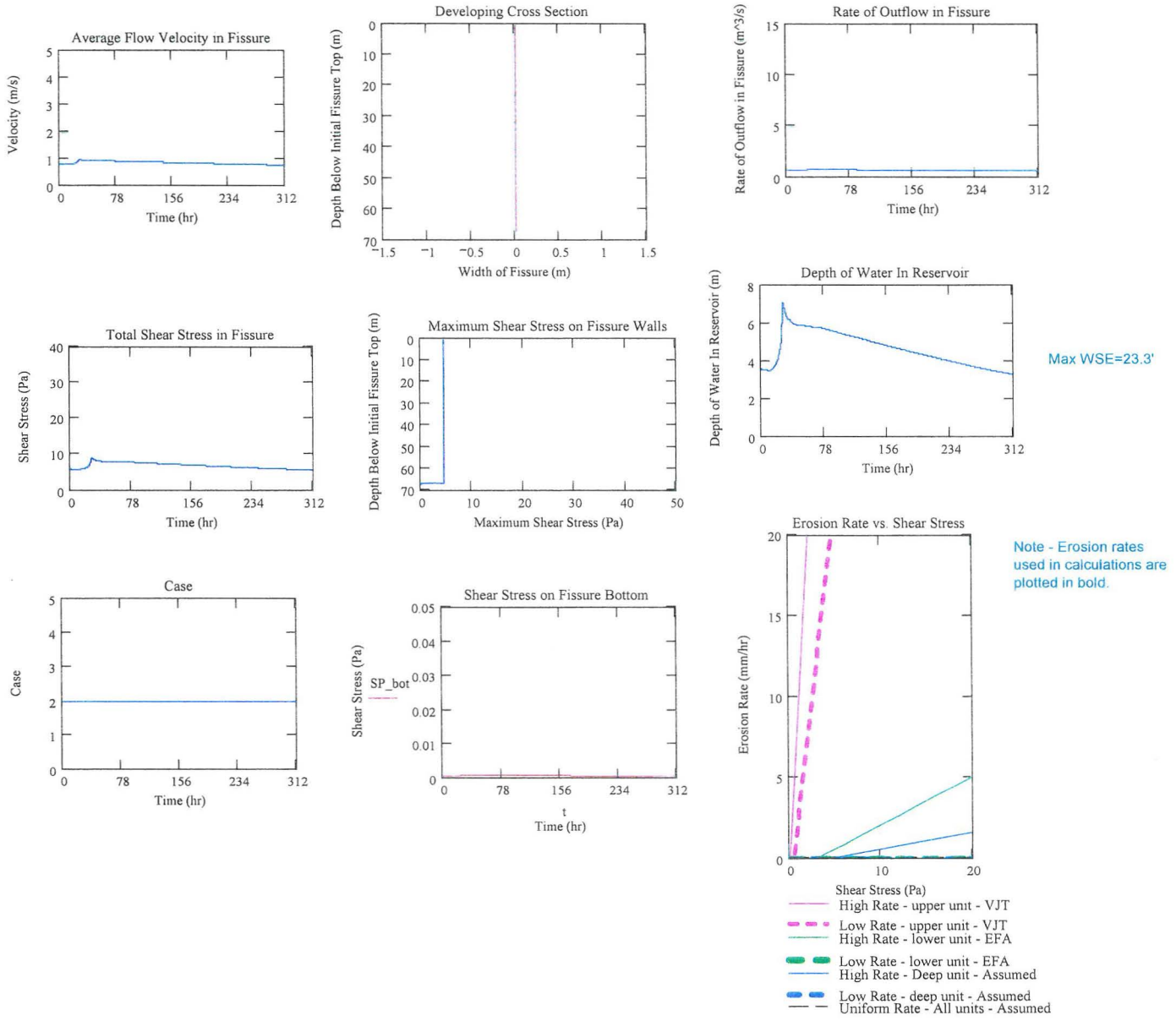


Figure C-22. Test D108 (Low erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

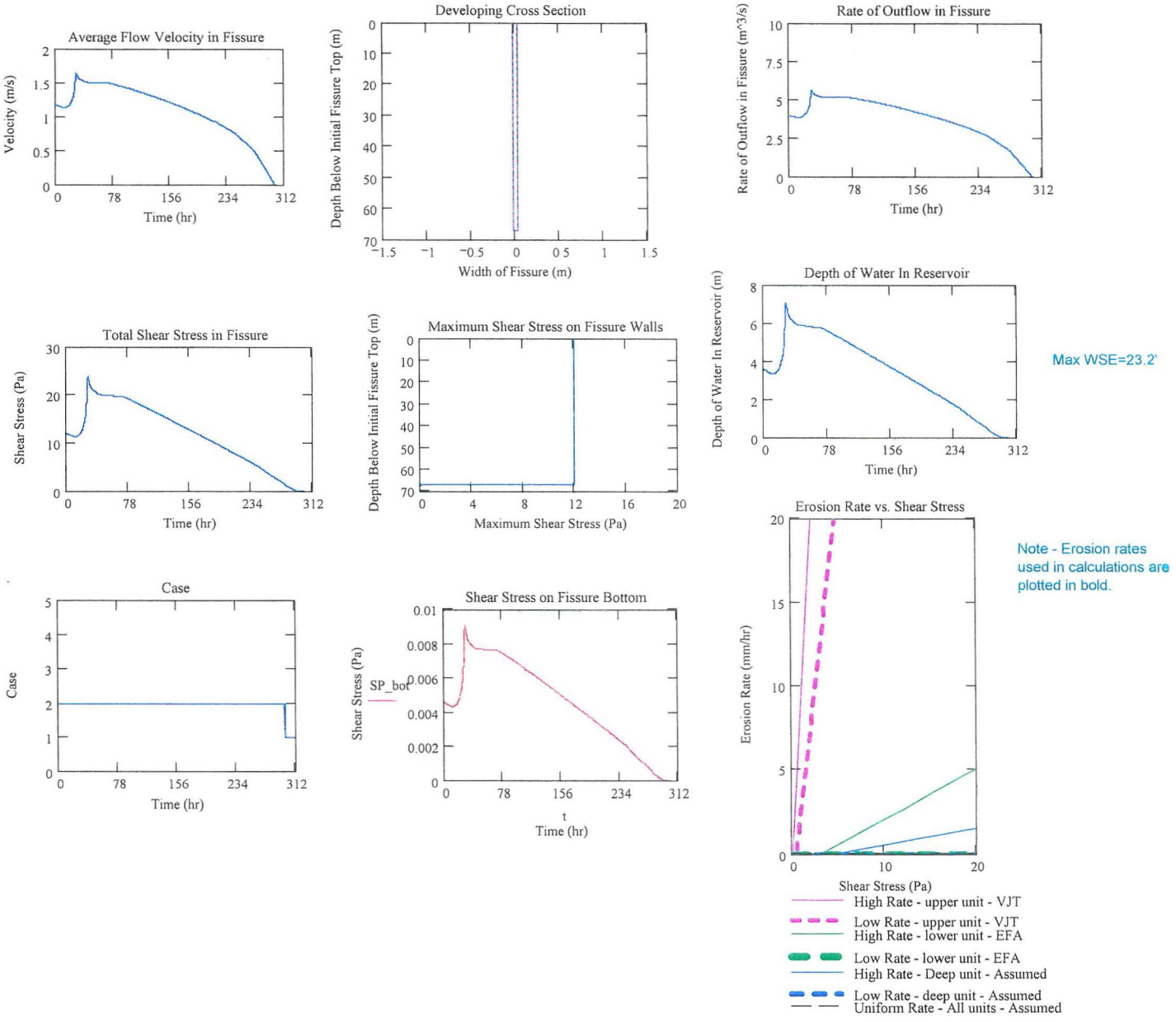


Figure C-23. Test D109 (Low erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, ten foot fill layer).

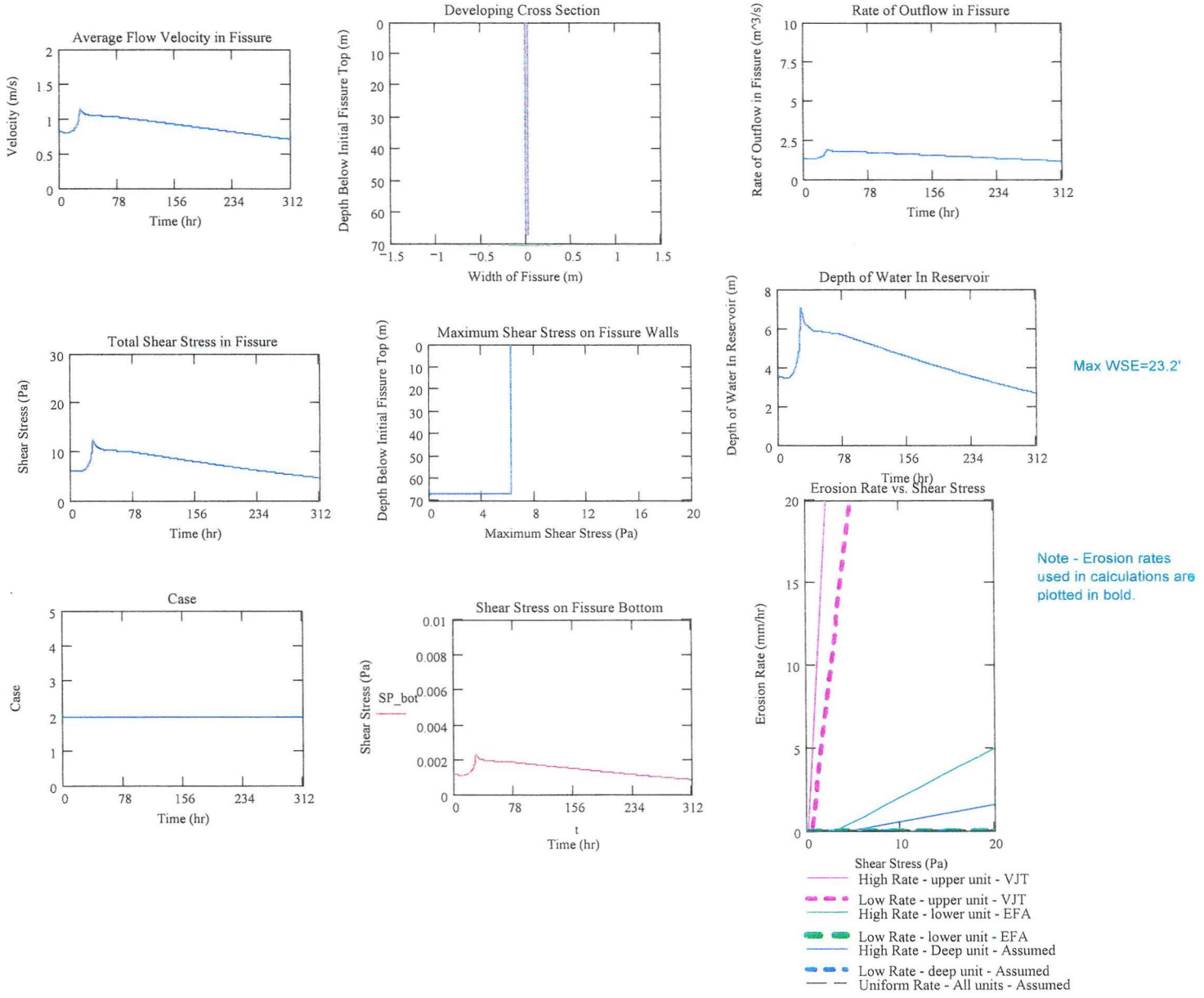


Figure C-24. Test D110 (Low erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, ten foot fill layer).

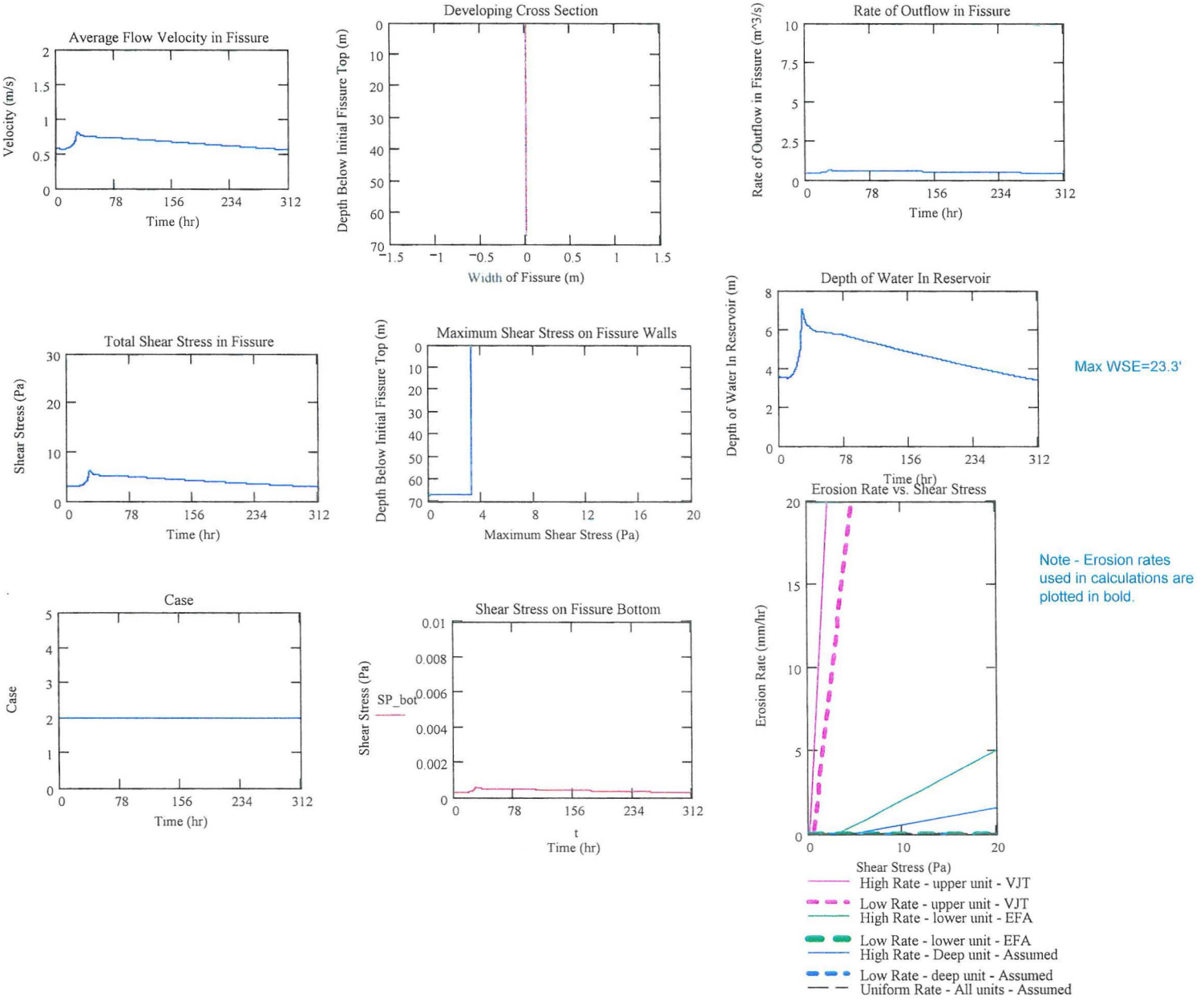


Figure C-25. Test D111 (Low erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, ten foot fill layer).

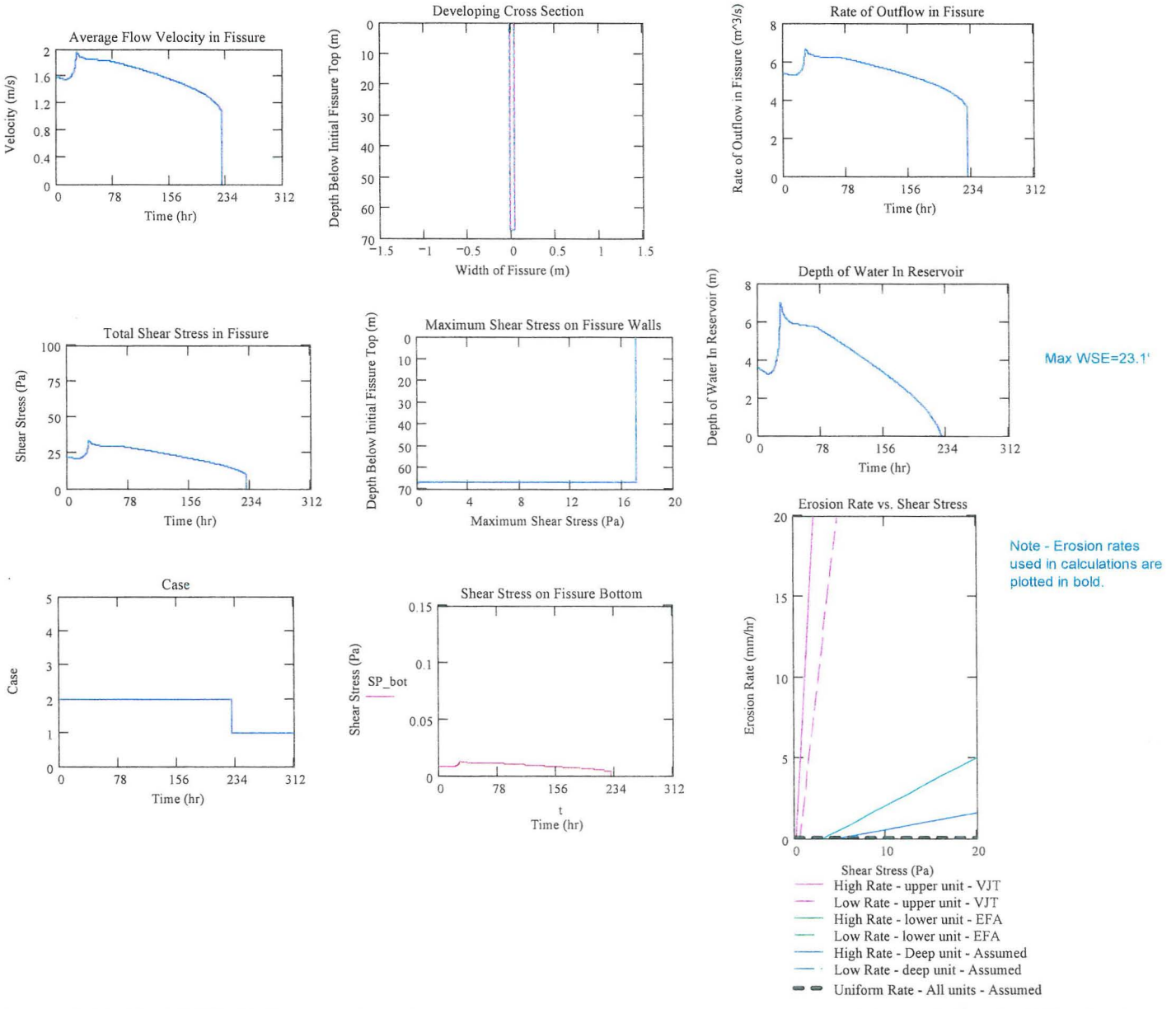


Figure C-26. Test D112 (Uniform erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

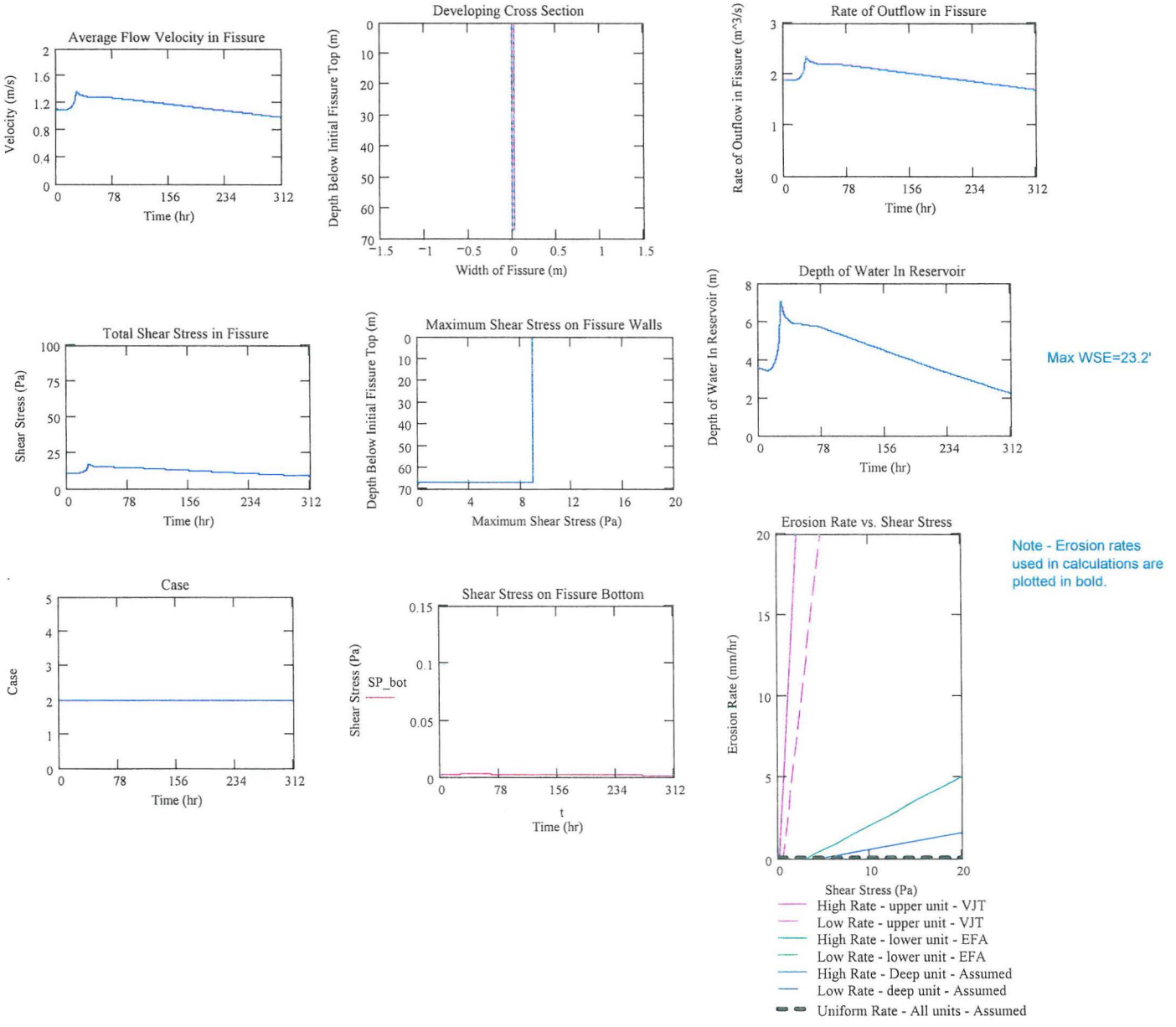


Figure C-27. Test D113 (Uniform erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

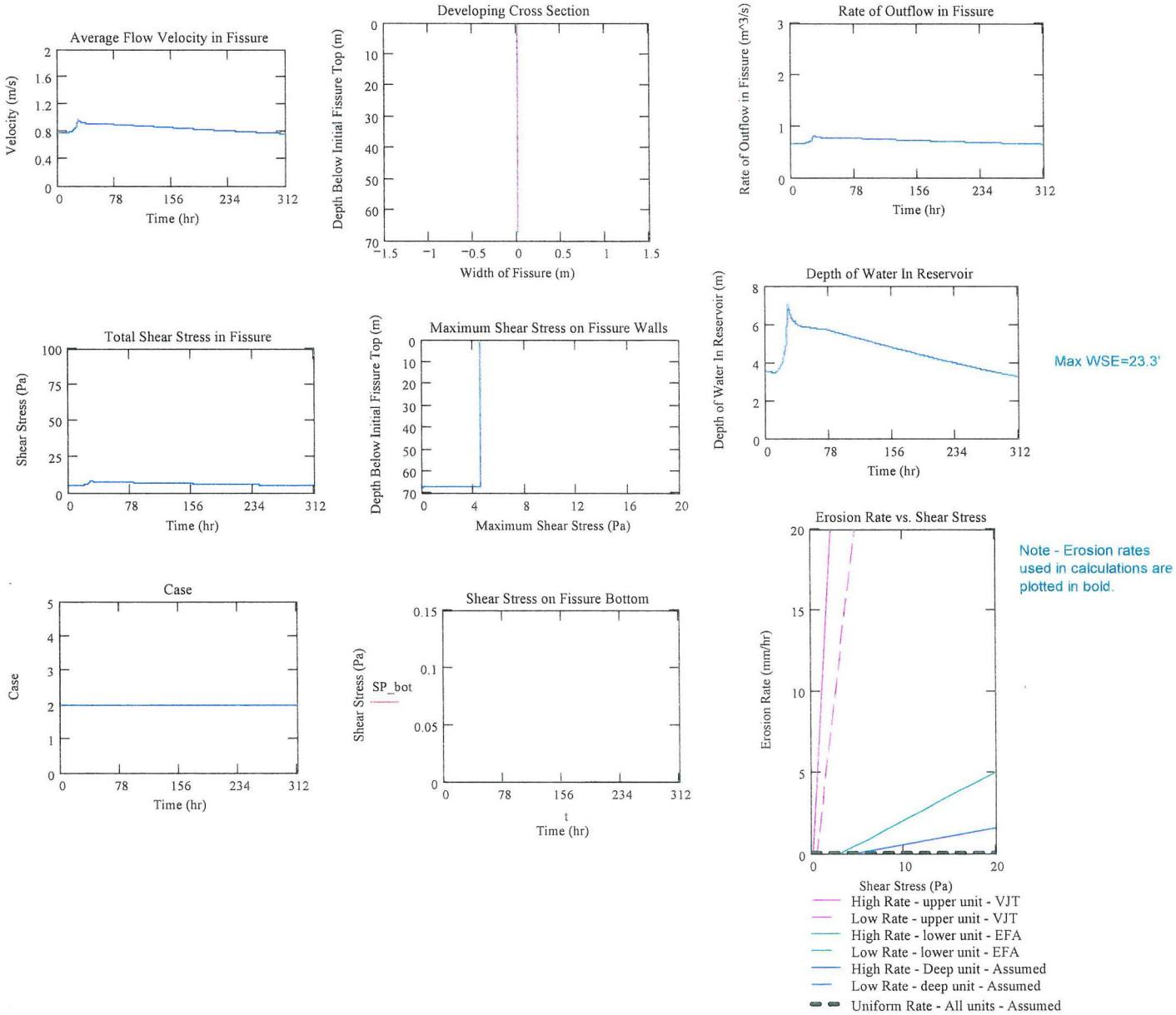


Figure C-28. Test D114 (Uniform erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, WP ratio shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

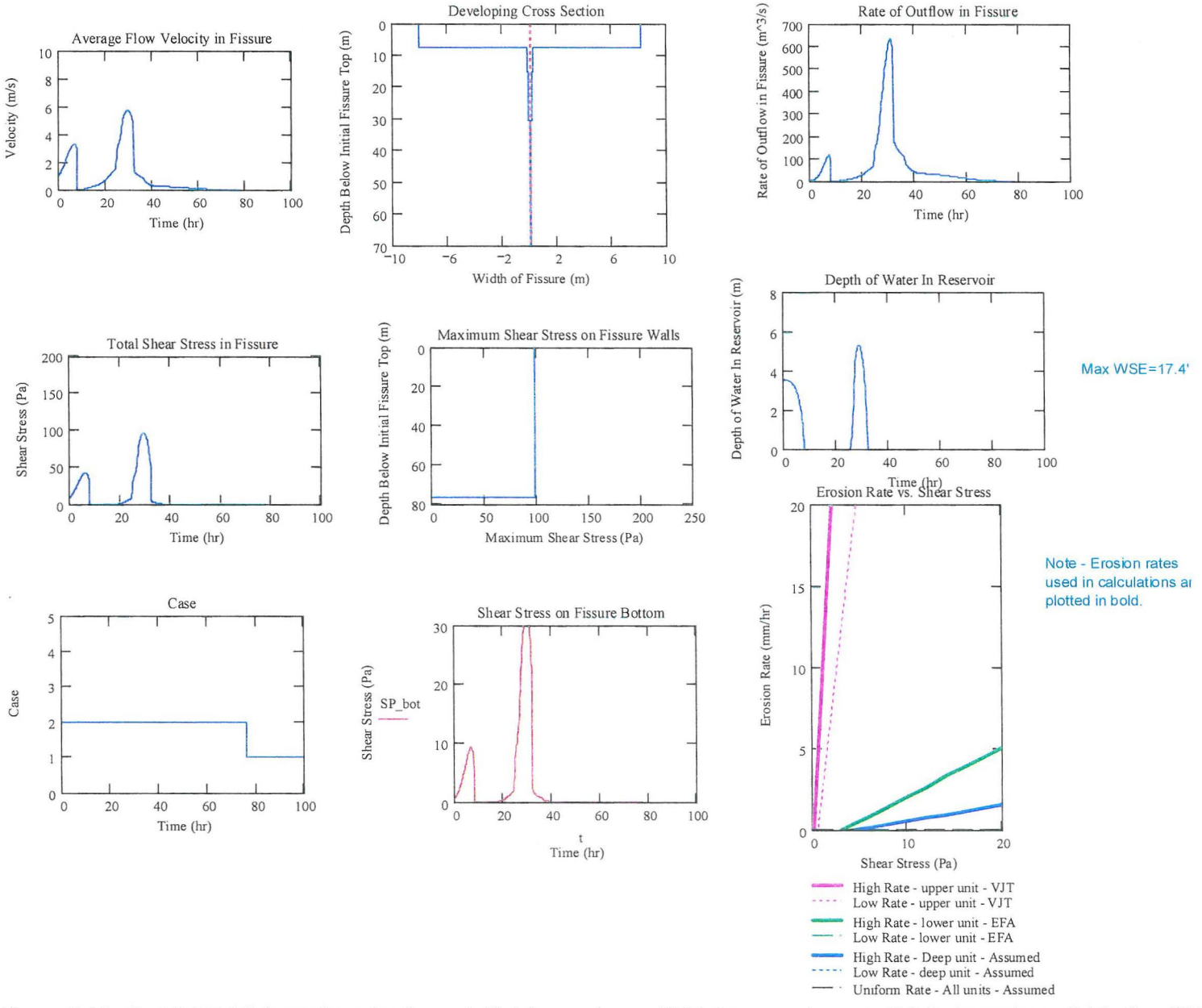


Figure C-29. Test D115 (High erosion rates for each Pleistocene Layer, PMF storm event, apron, K & P shear stress distribution, 252 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 200 ft, no ten foot fill layer).

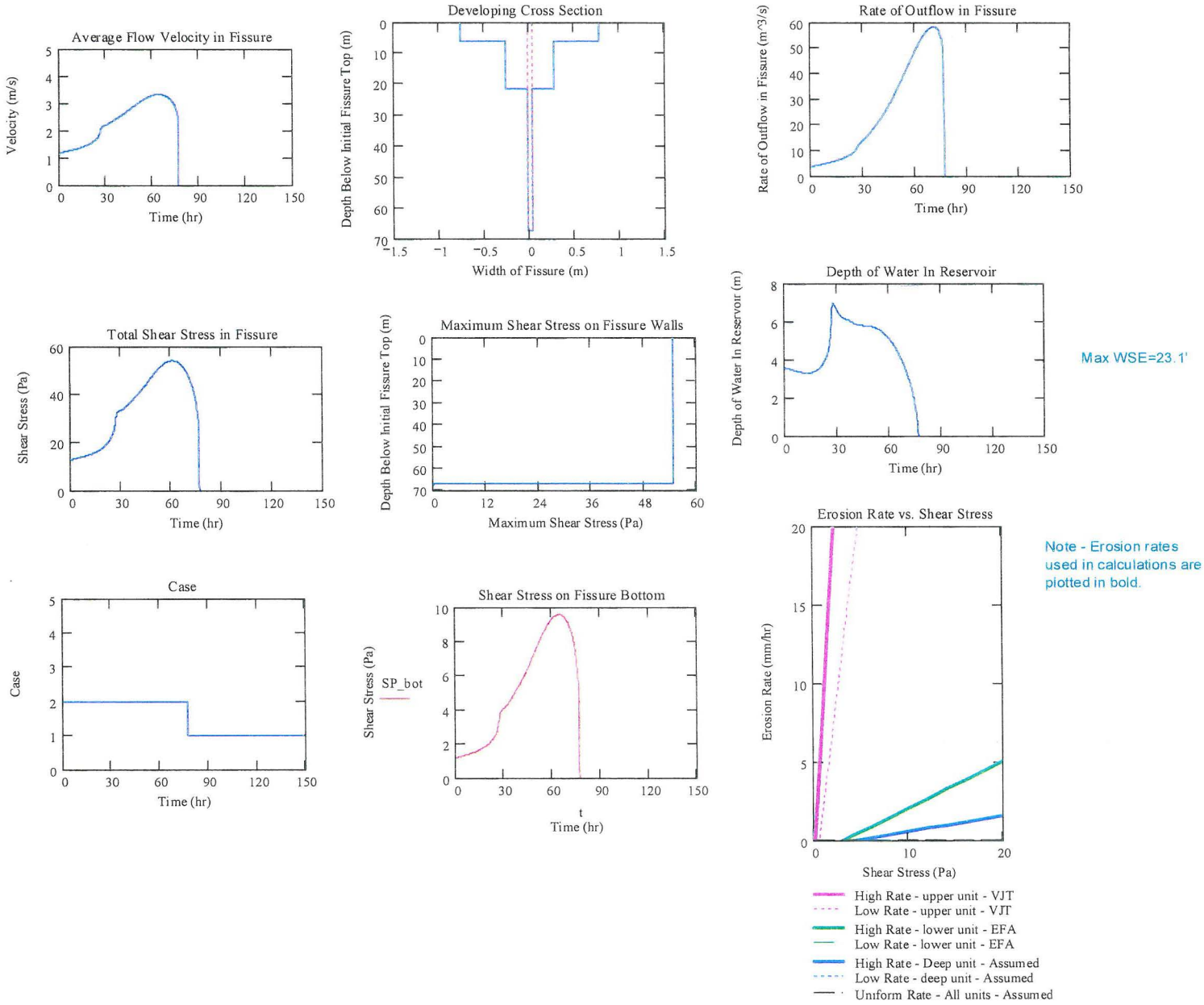


Figure C-30. Test D116 (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 201 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

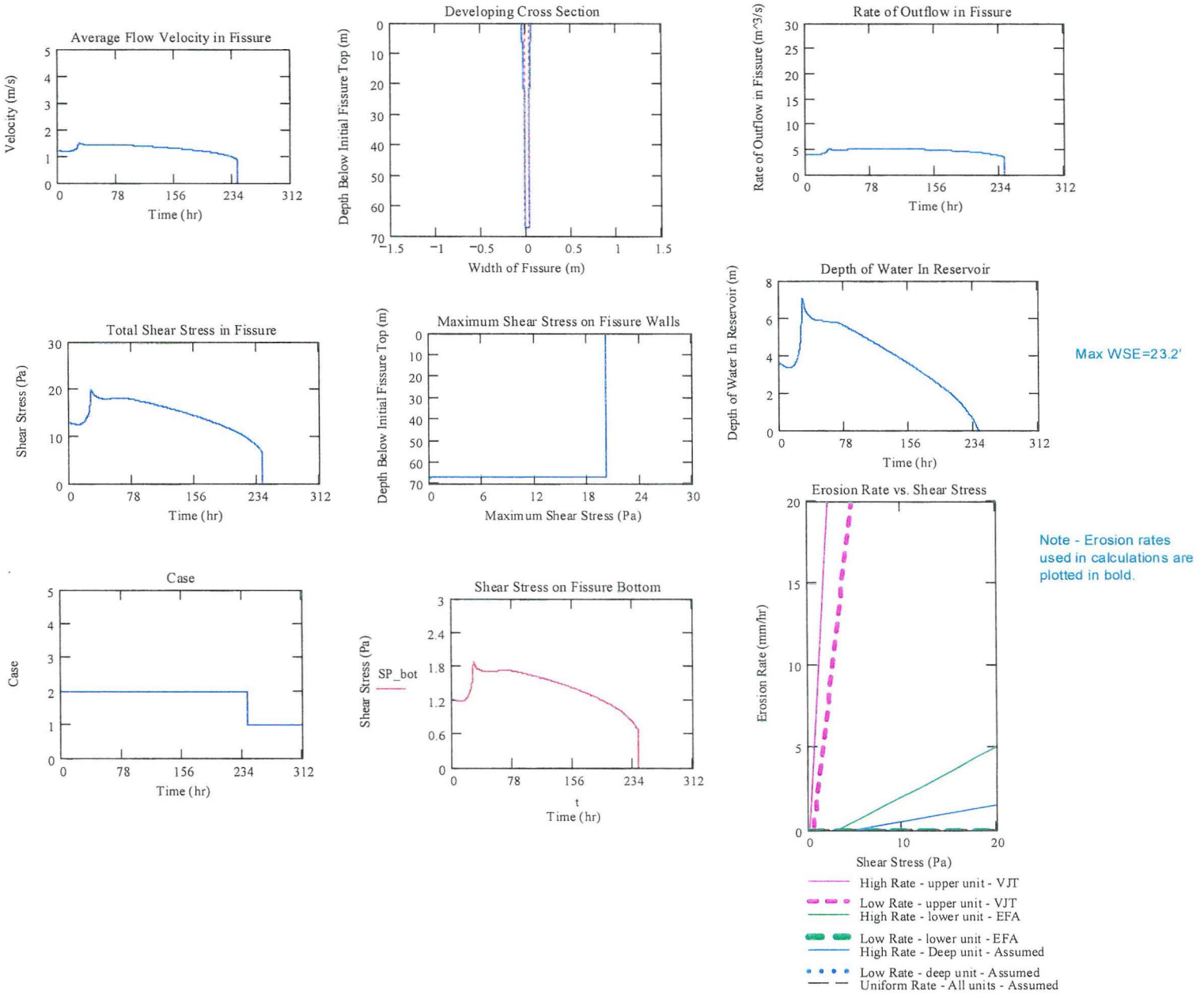


Figure C-31. Test D117 (Low erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 201 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

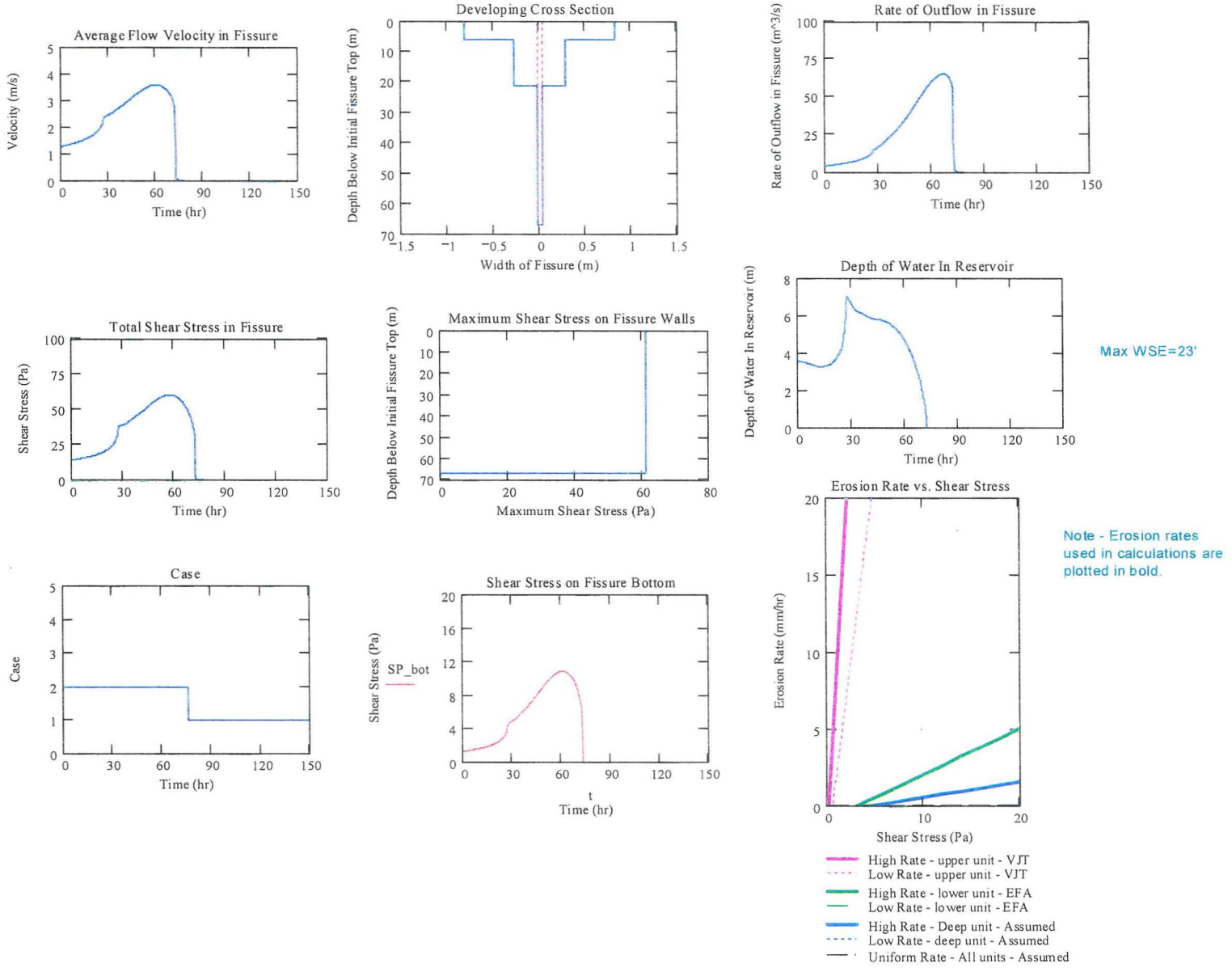


Figure C-32. Test D118 (High erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 181 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

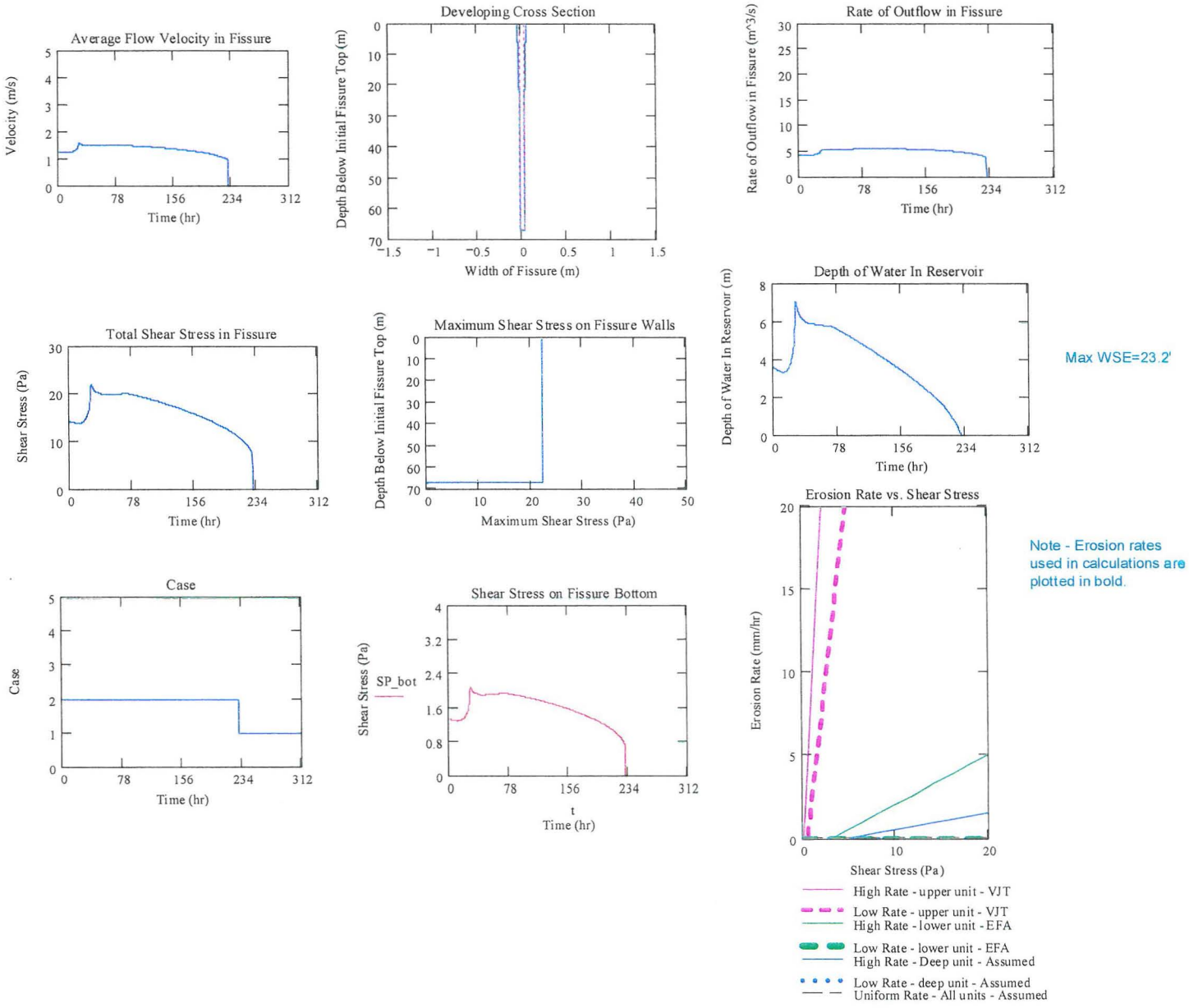


Figure C-33. Test D119 (Low erosion rates for each Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 181 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

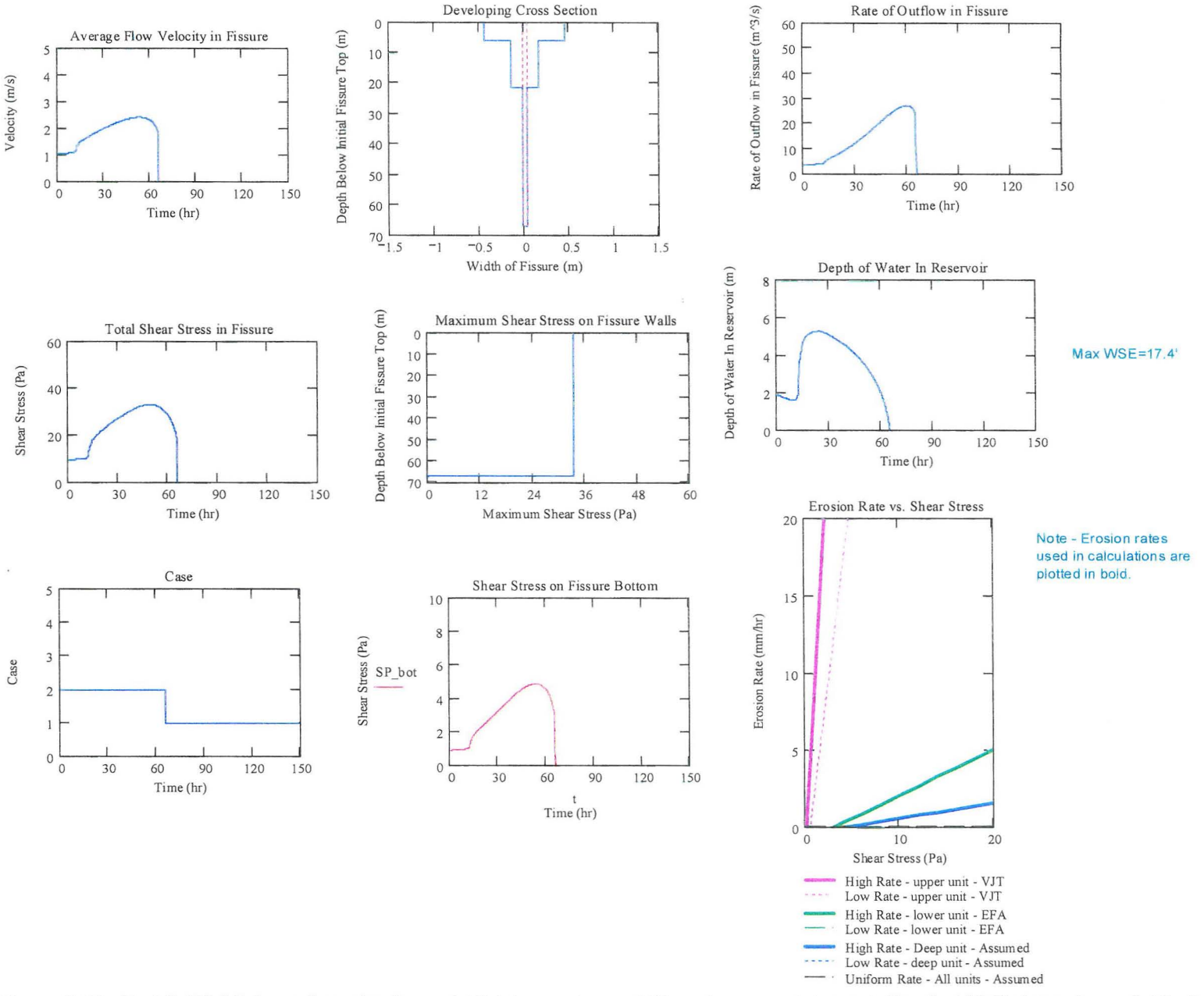


Figure C-34. Test D120 (High erosion rates for each Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 201 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

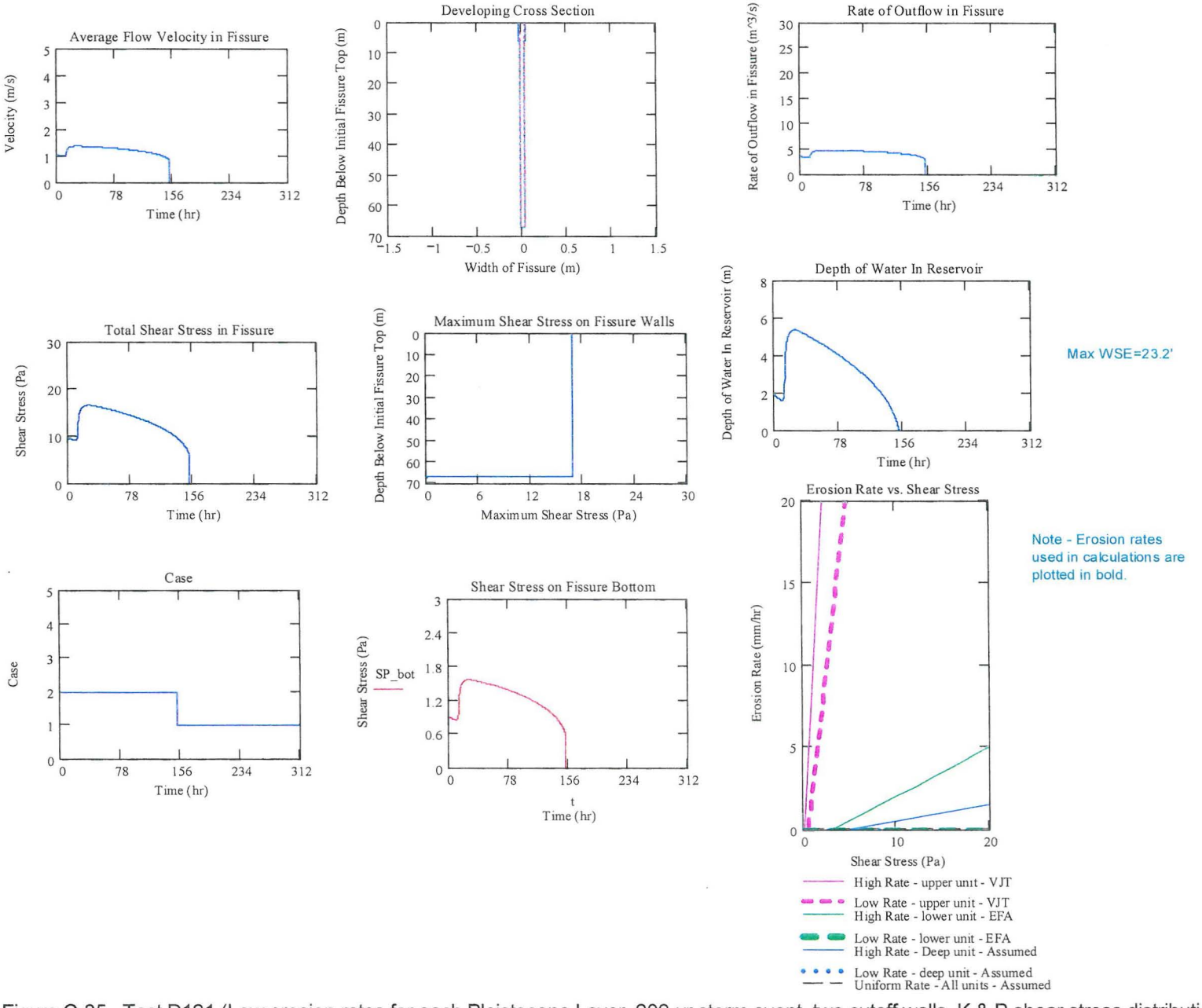


Figure C-35. Test D121 (Low erosion rates for each Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 201 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

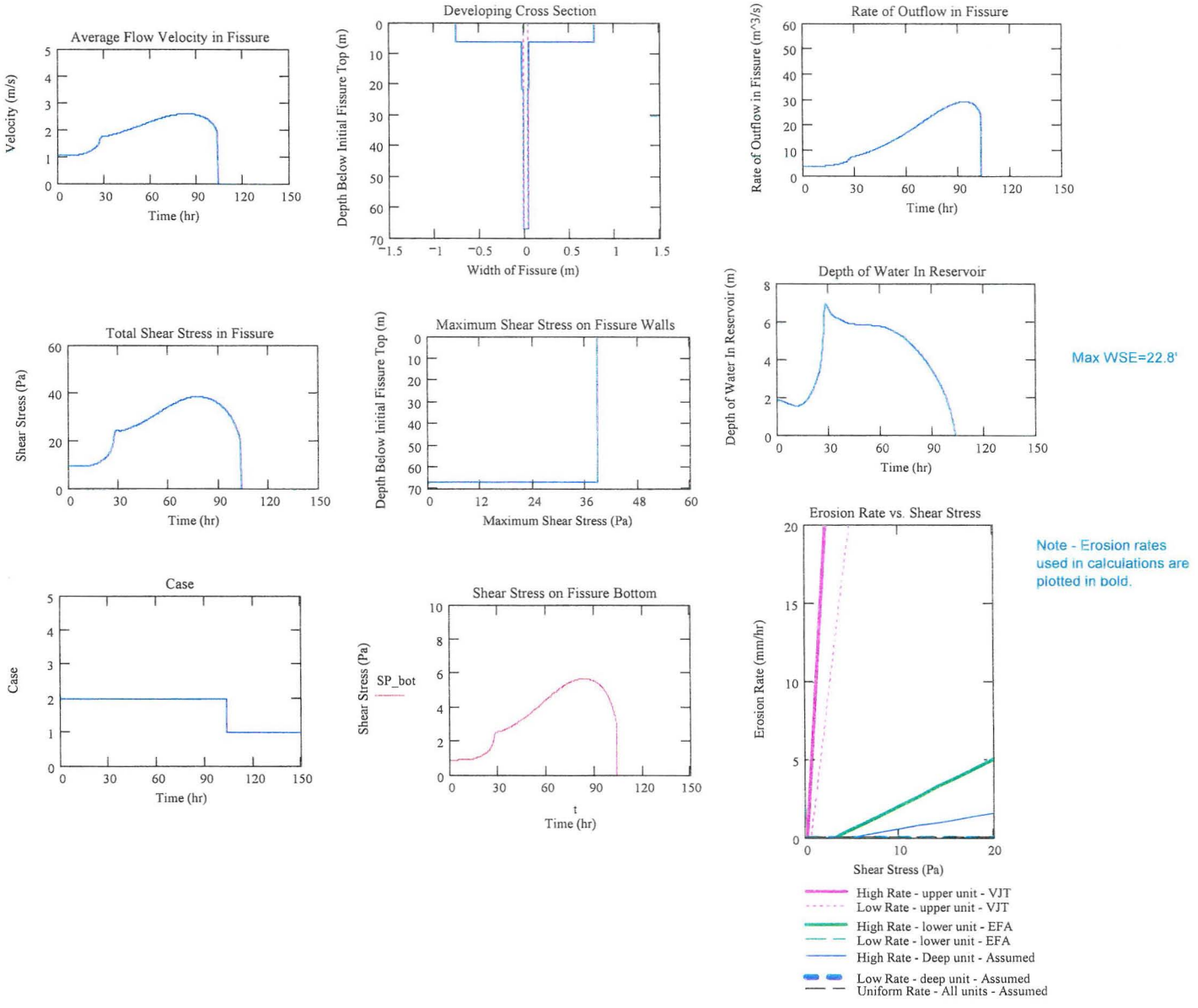


Figure C-36. Test D122 (High erosion rates for Upper and Lower Pleistocene Layer, low erosion rates for deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 201 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

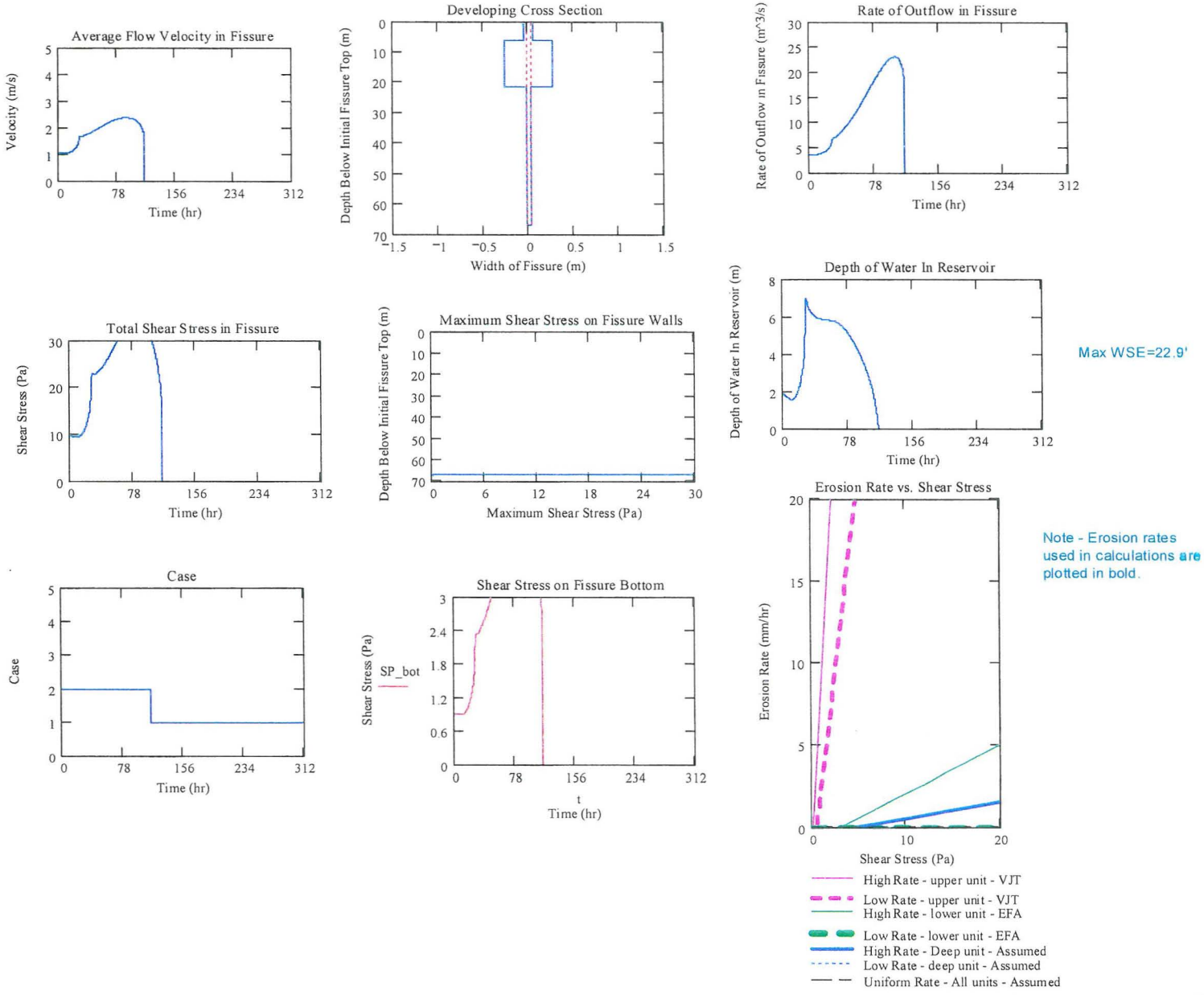


Figure C-37. Test D123 (Low erosion rates for Upper and Lower Pleistocene Layer, high erosion rates for deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 201 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

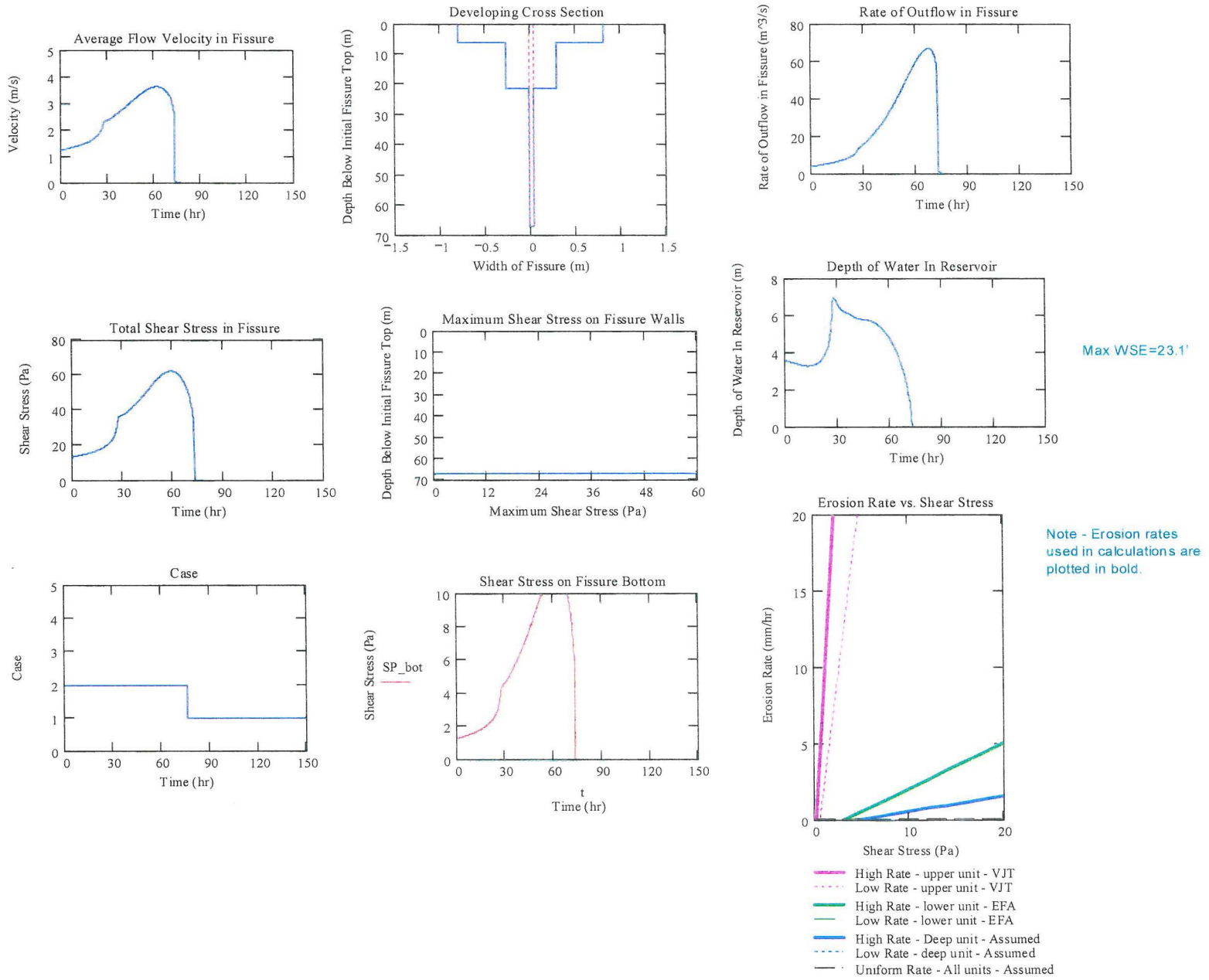


Figure C-38. Test D124 (High erosion rates for all Pleistocene Layer, PMF storm event, one cutoff walls, K & P shear stress distribution, 192 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

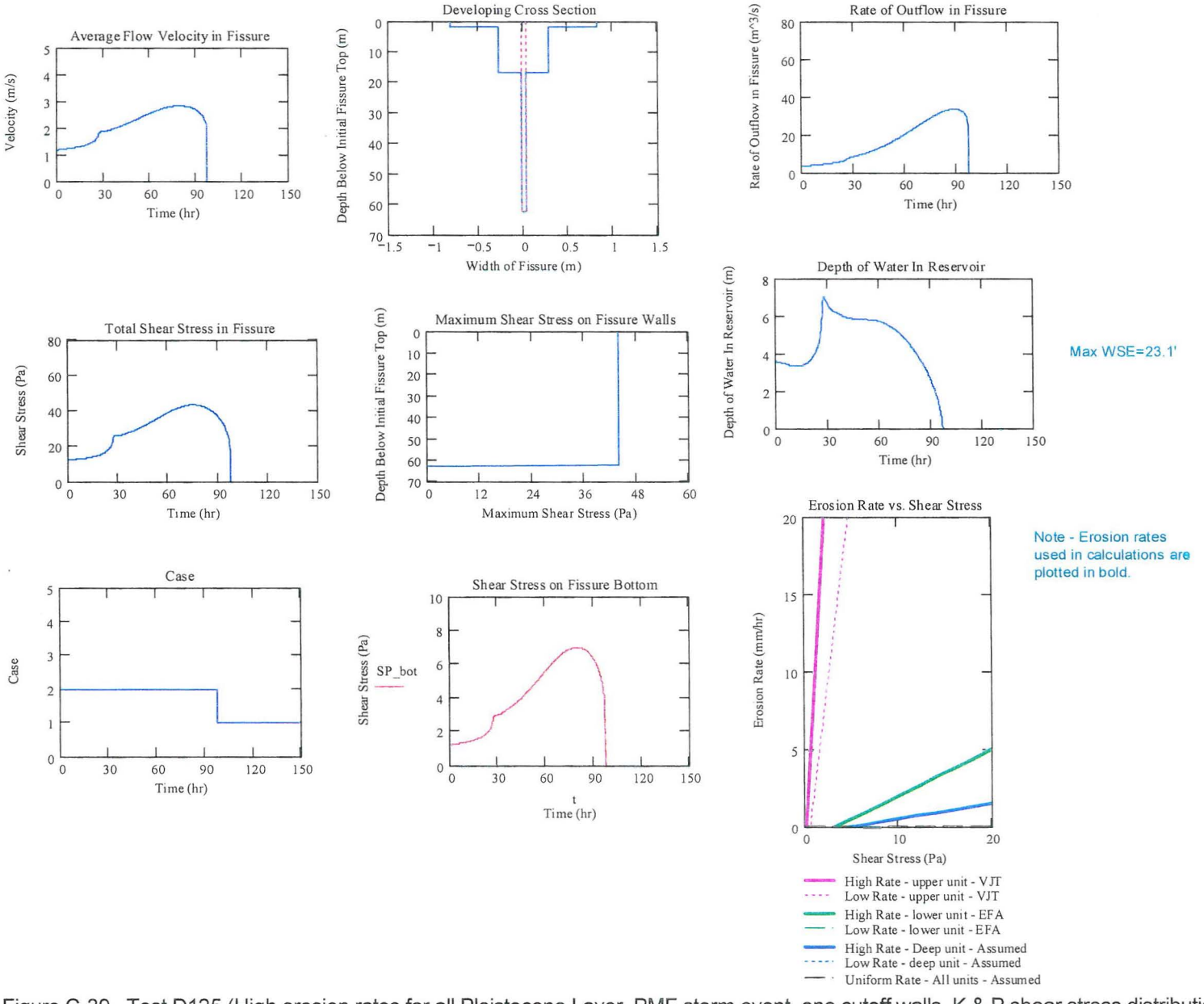


Figure C-39. Test D125 (High erosion rates for all Pleistocene Layer, PMF storm event, one cutoff walls, K & P shear stress distribution, 207 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 45 ft, no ten foot fill layer).

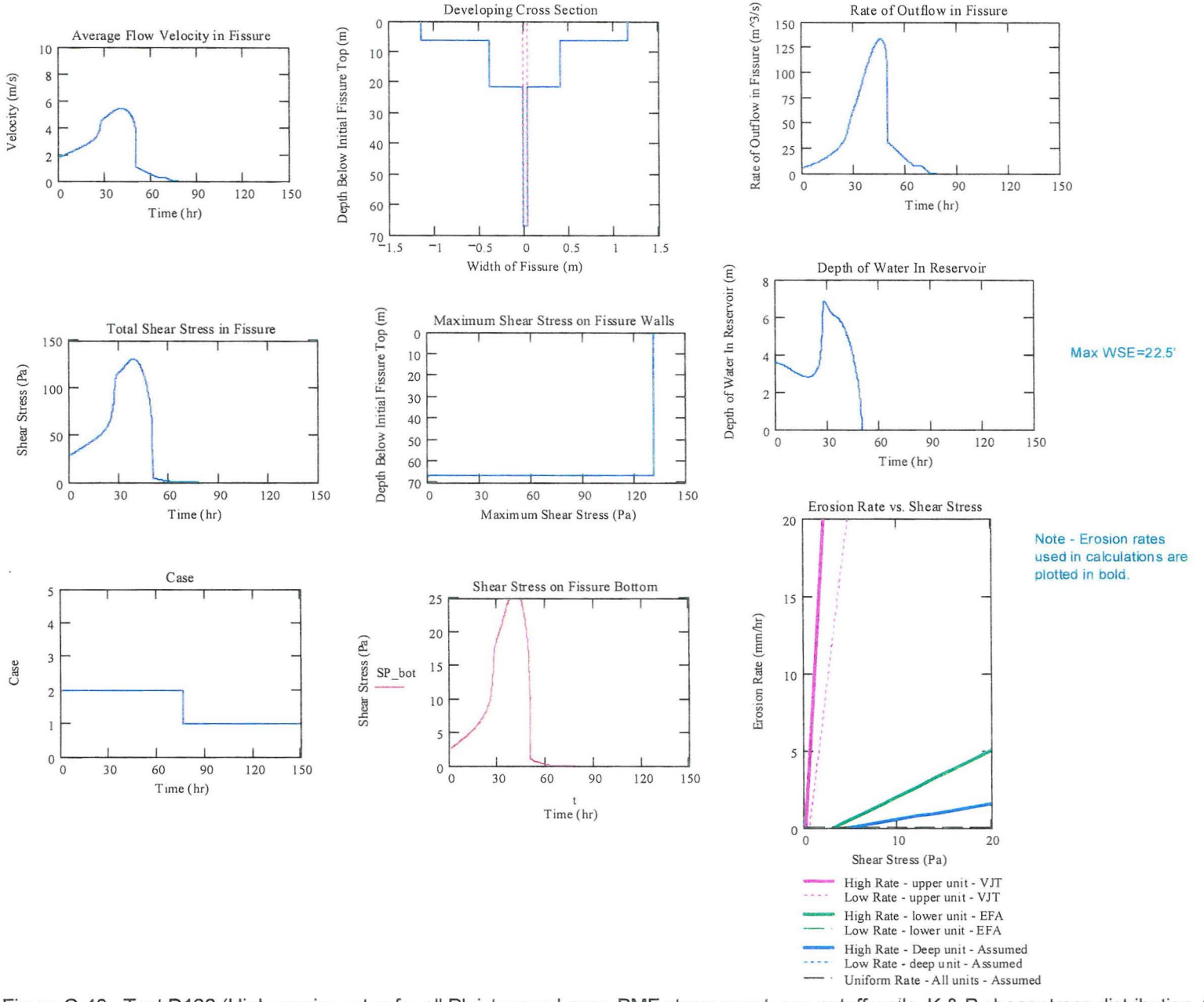


Figure C-40. Test D126 (High erosion rates for all Pleistocene Layer, PMF storm event, one cutoff walls, K & P shear stress distribution, 90 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

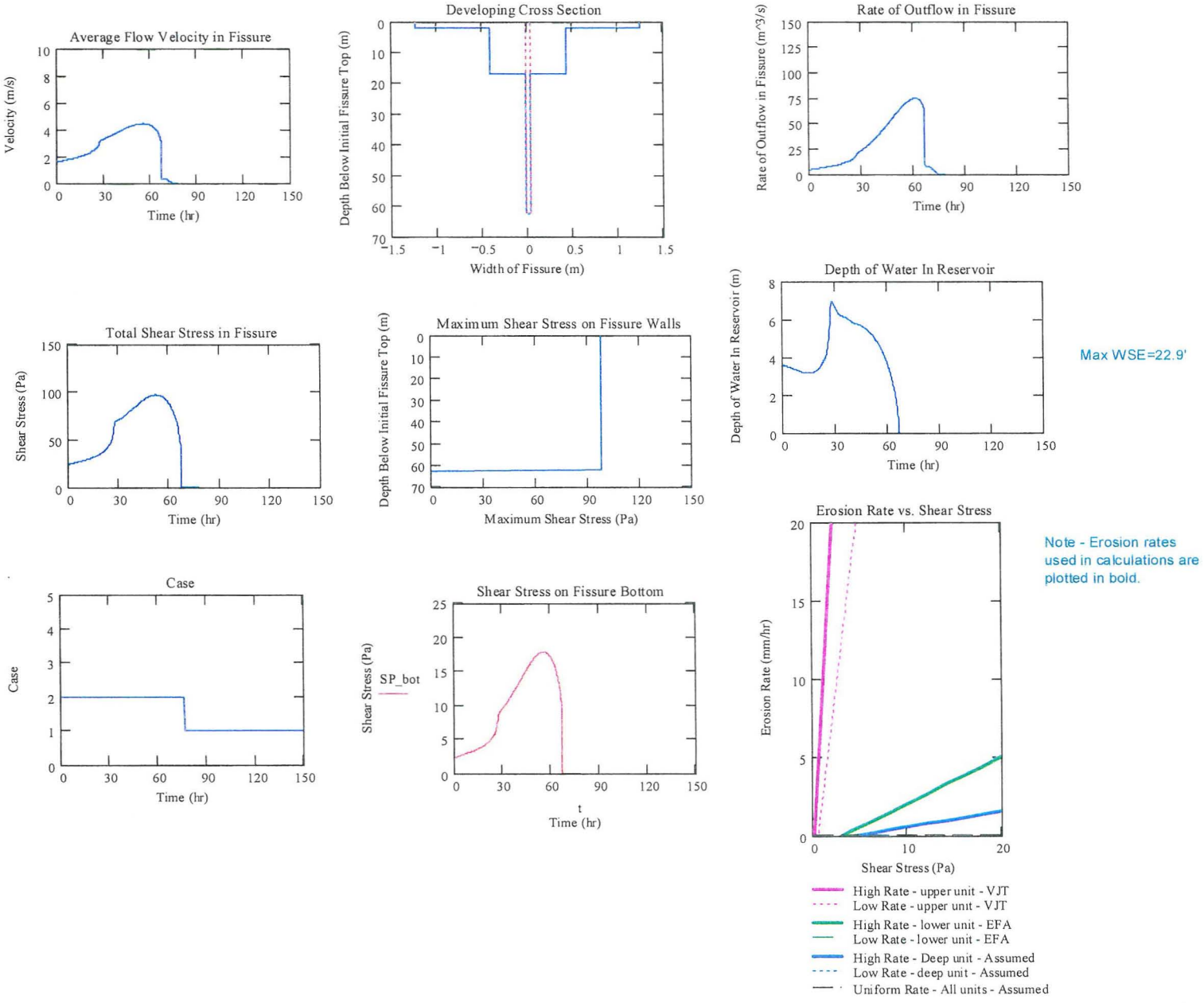


Figure C-41. Test D127 (High erosion rates for all Pleistocene Layer, PMF storm event, one cutoff walls, K & P shear stress distribution, 105 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 45 ft, no ten foot fill layer).

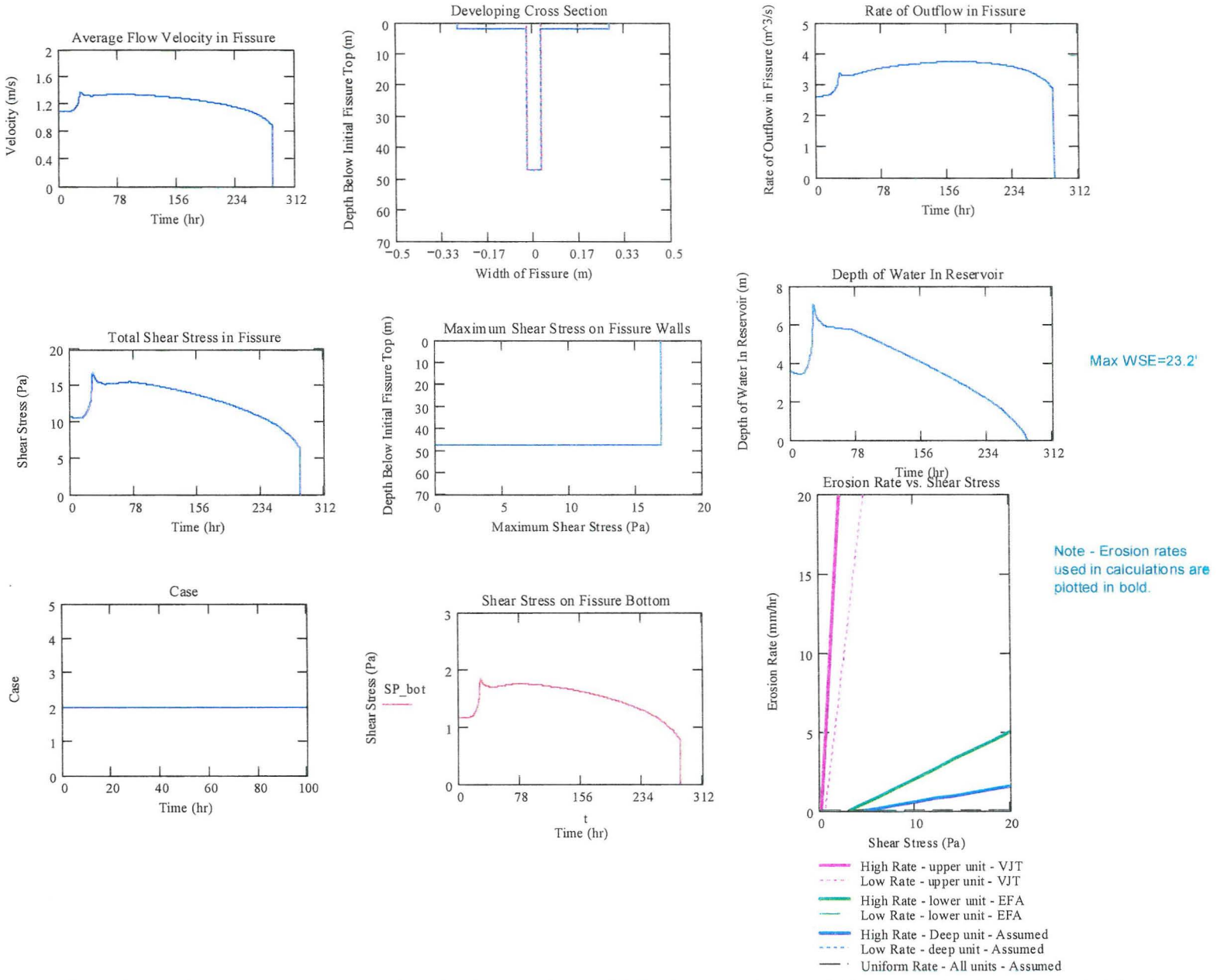


Figure C-42. Test D128 (High erosion rates for all Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 95 ft, no ten foot fill layer).

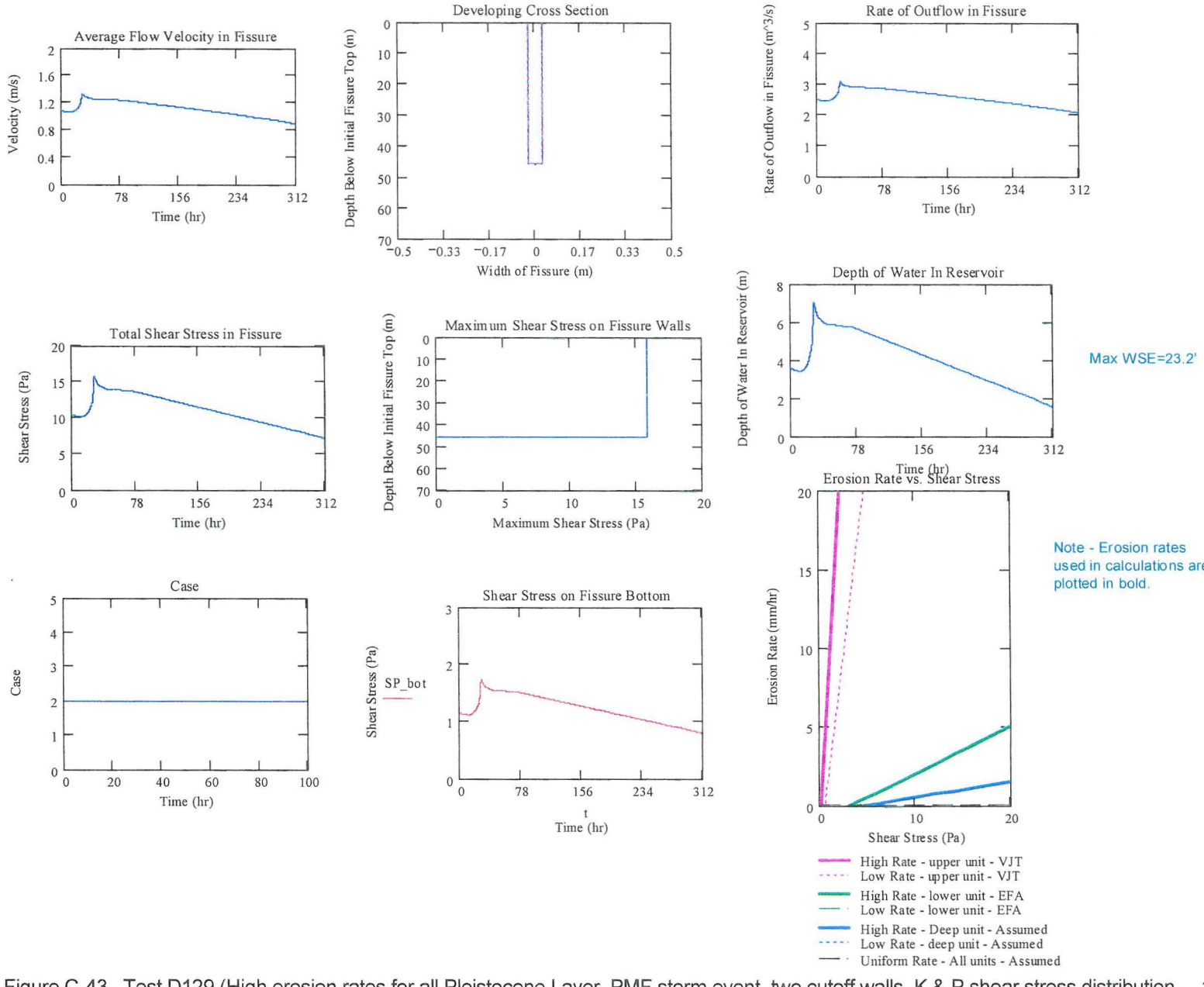


Figure C-43. Test D129 (High erosion rates for all Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 100 ft, no ten foot fill layer)

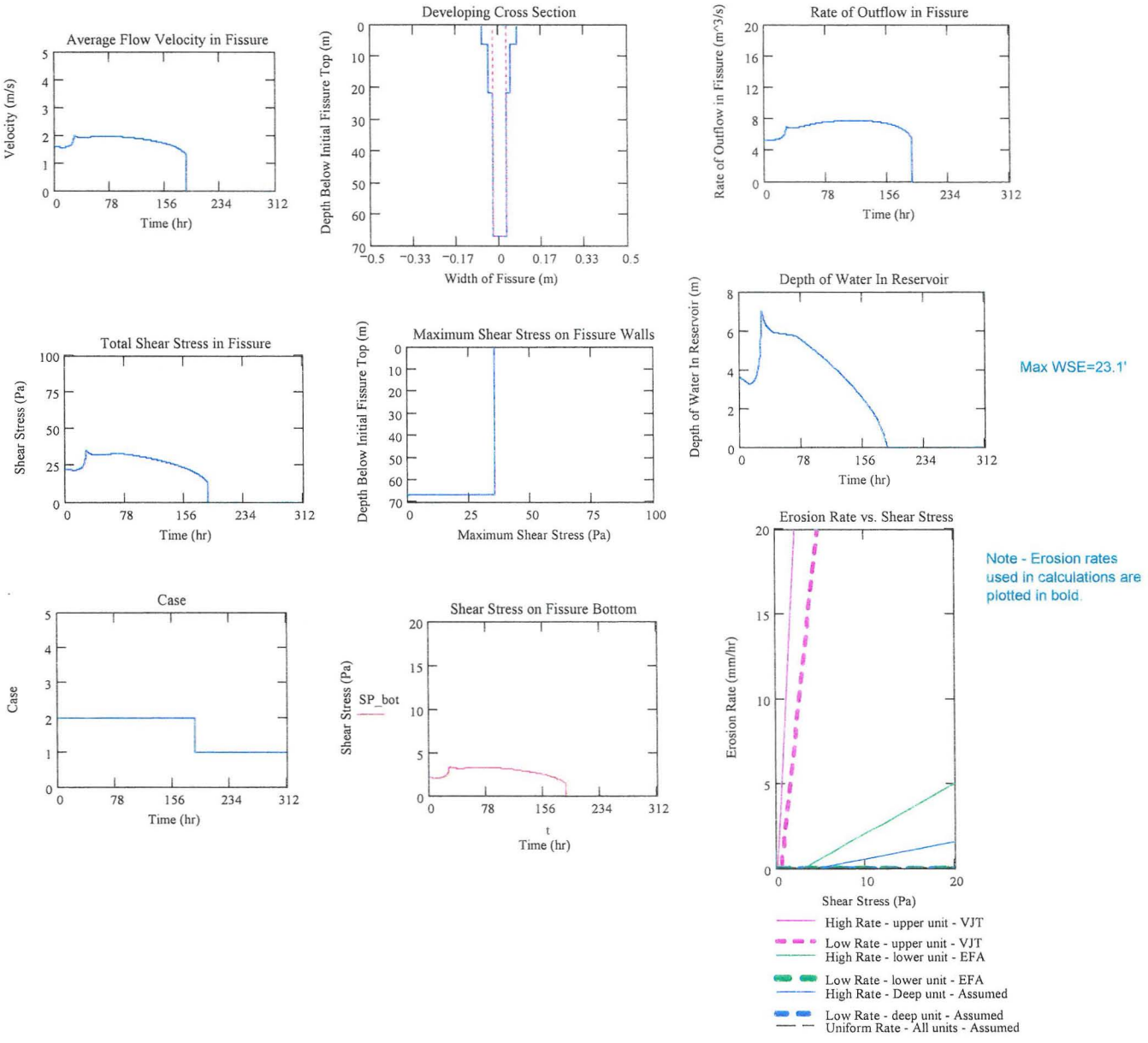


Figure C-44. Test D130 (Low erosion rates for all Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

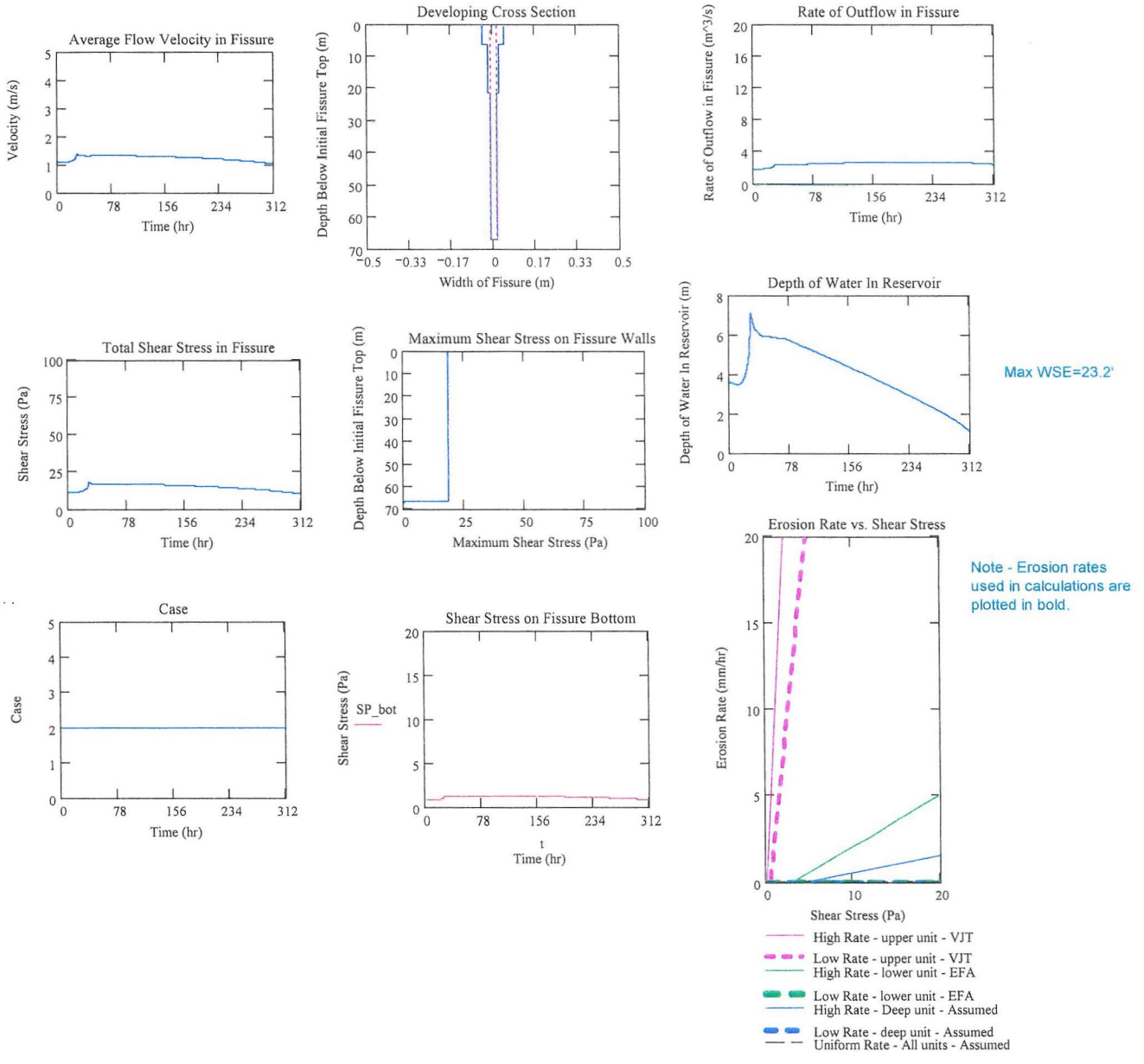


Figure C-45. Test D131 (Low erosion rates for all Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

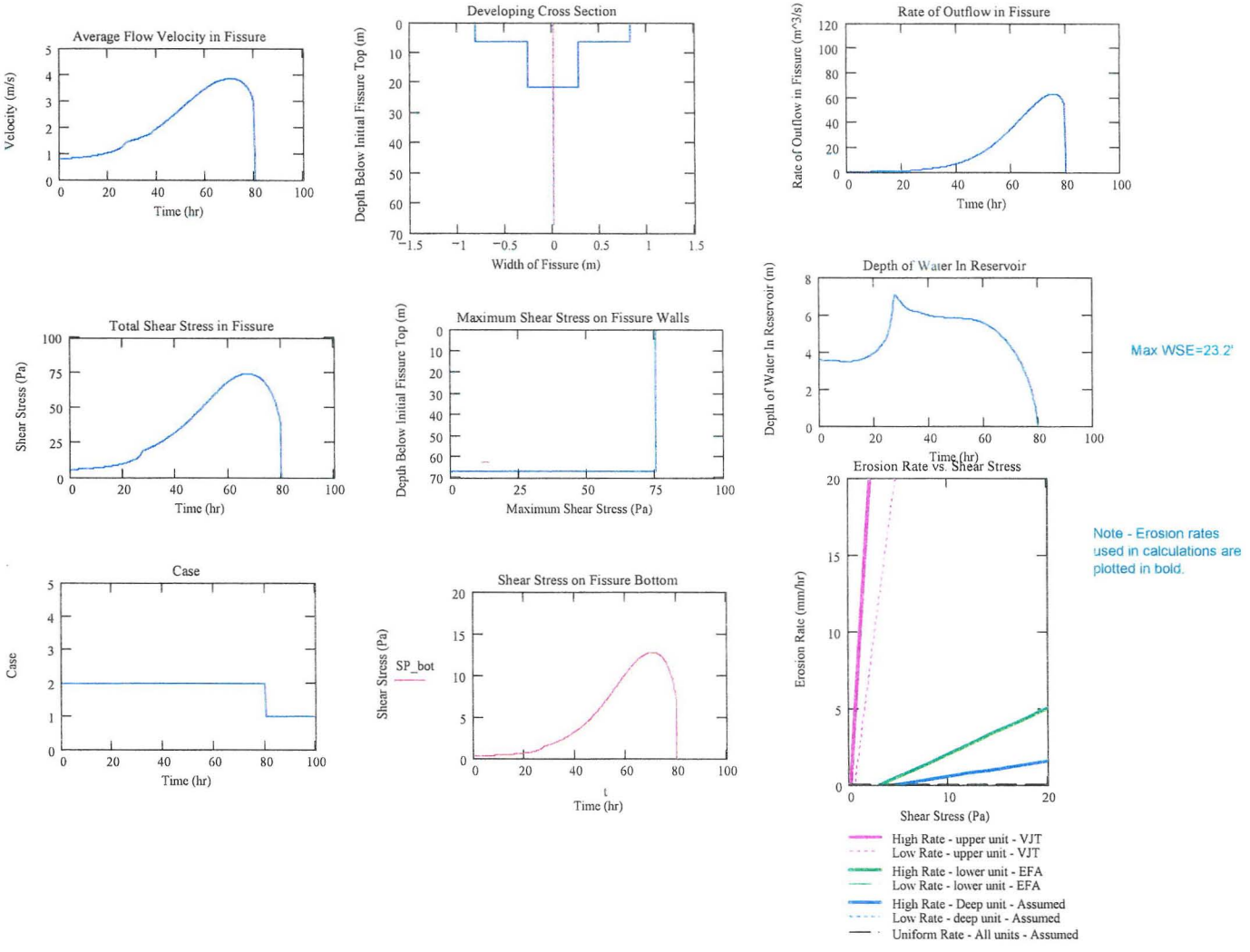


Figure C-46. Test D132 (High erosion rates for all Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

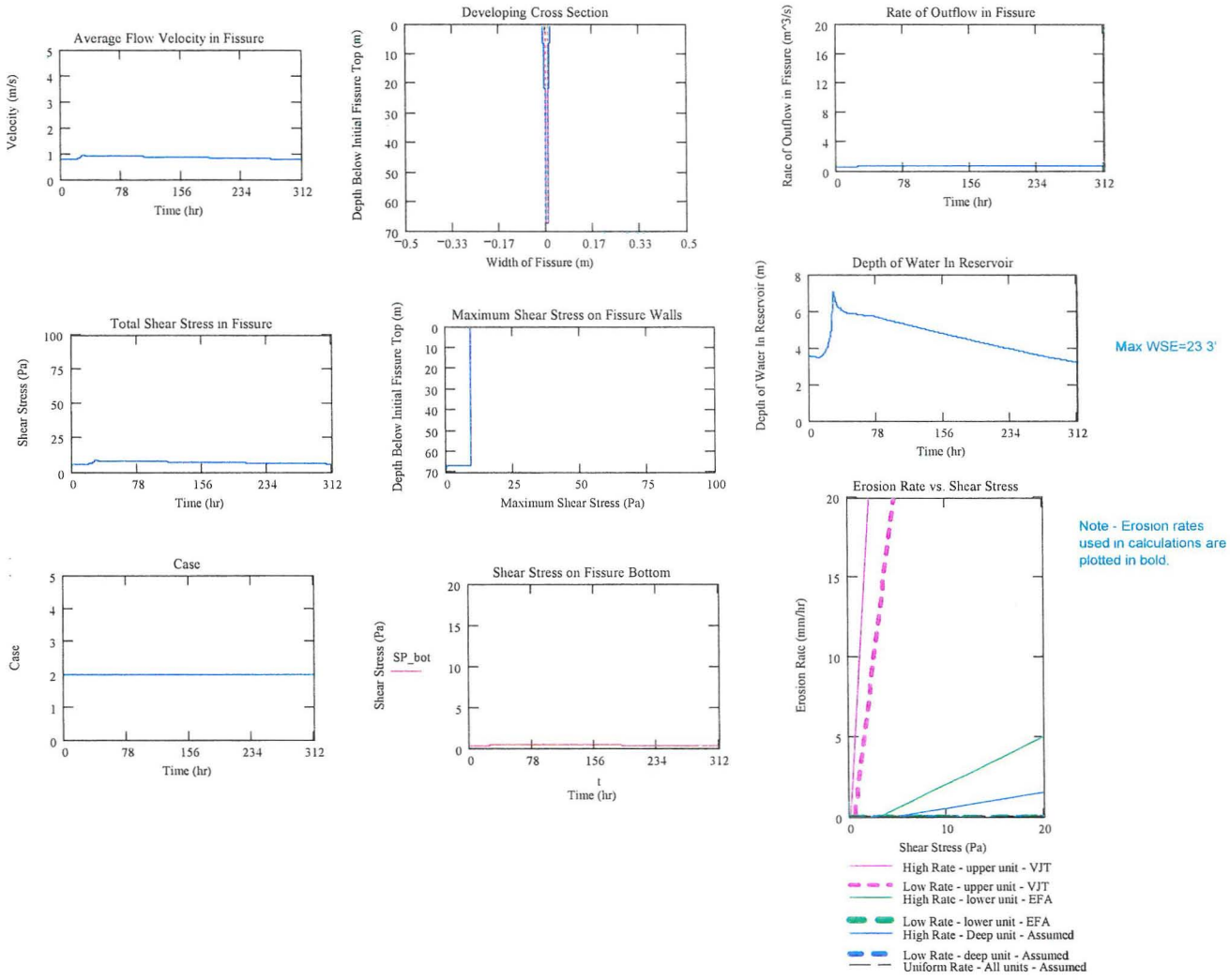


Figure C-47. Test D133 (Low erosion rates for all Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

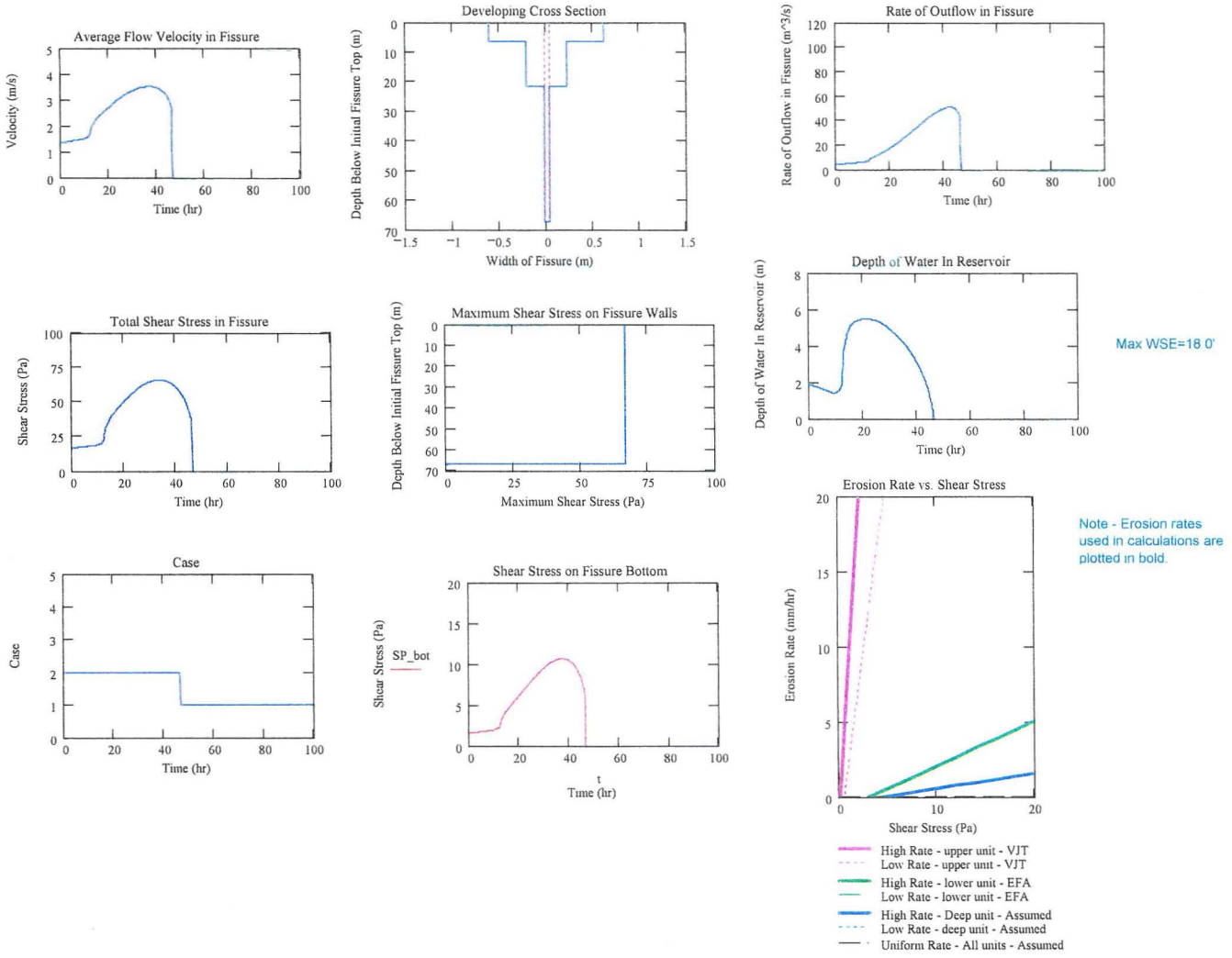


Figure C-48. Test D134 (High erosion rates for all Pleistocene Layer, 500-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

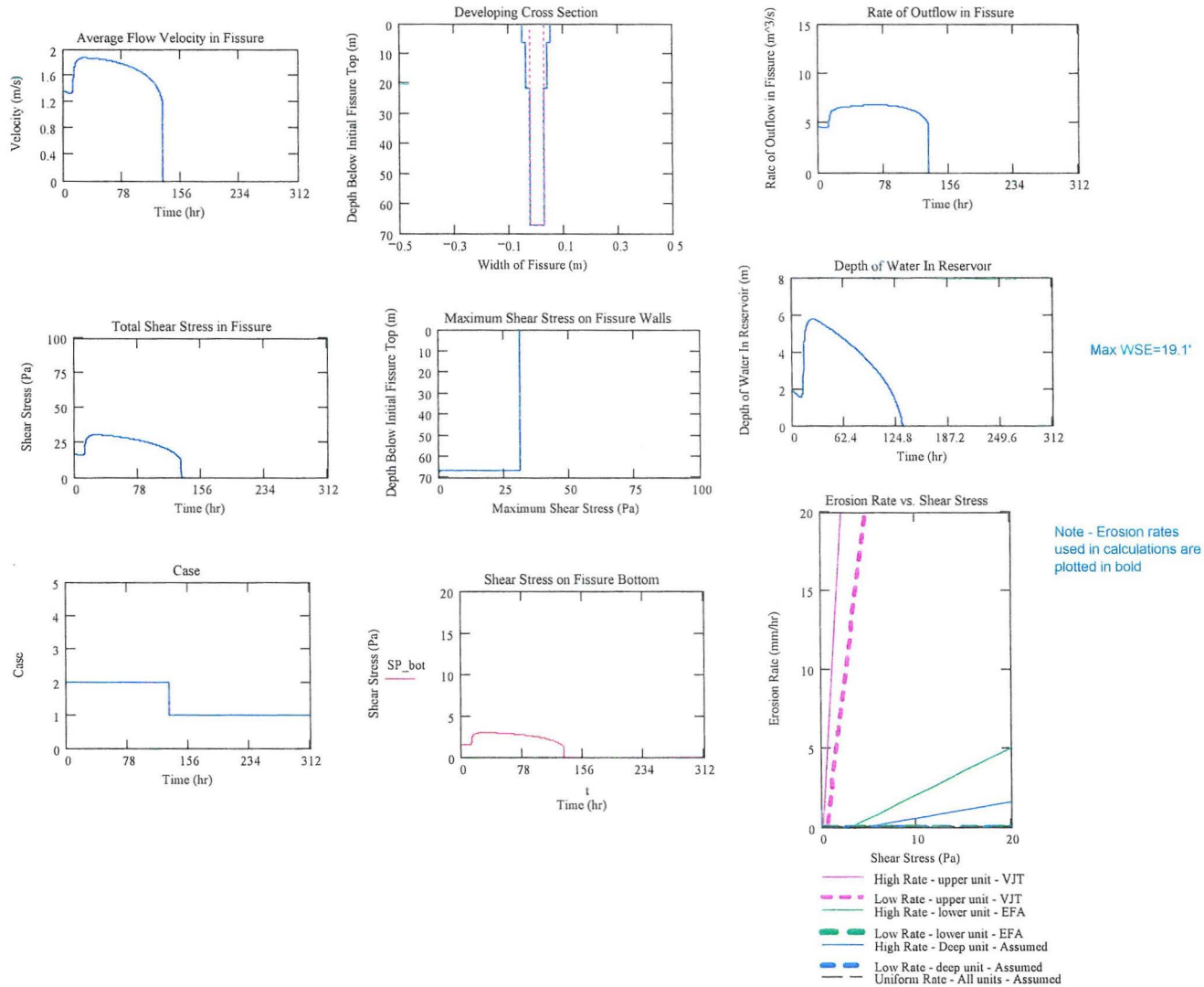


Figure C-49. Test D135 (Low erosion rates for all Pleistocene Layer, 500-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

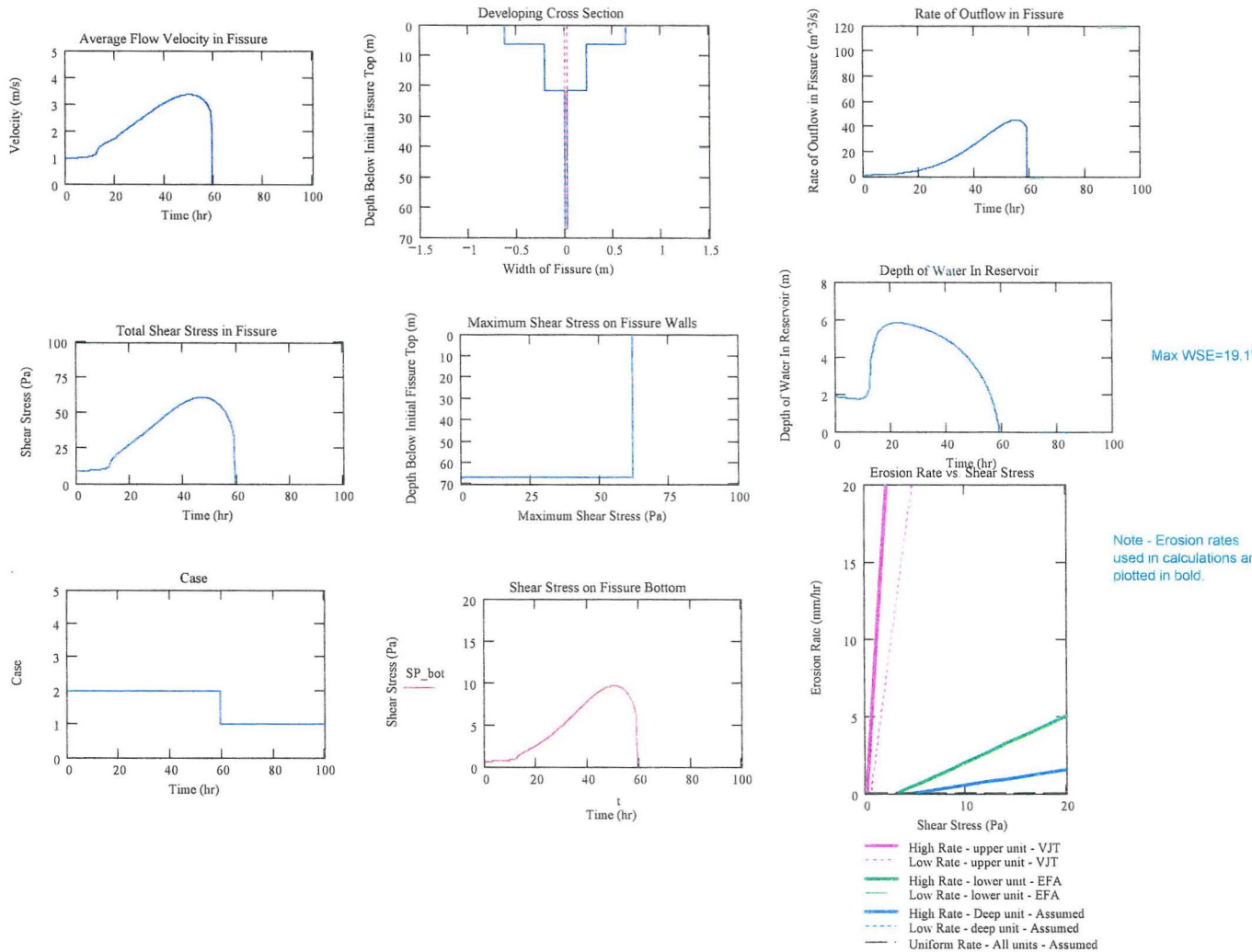


Figure C-50. Test D136 (High erosion rates for all Pleistocene Layer, 500-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

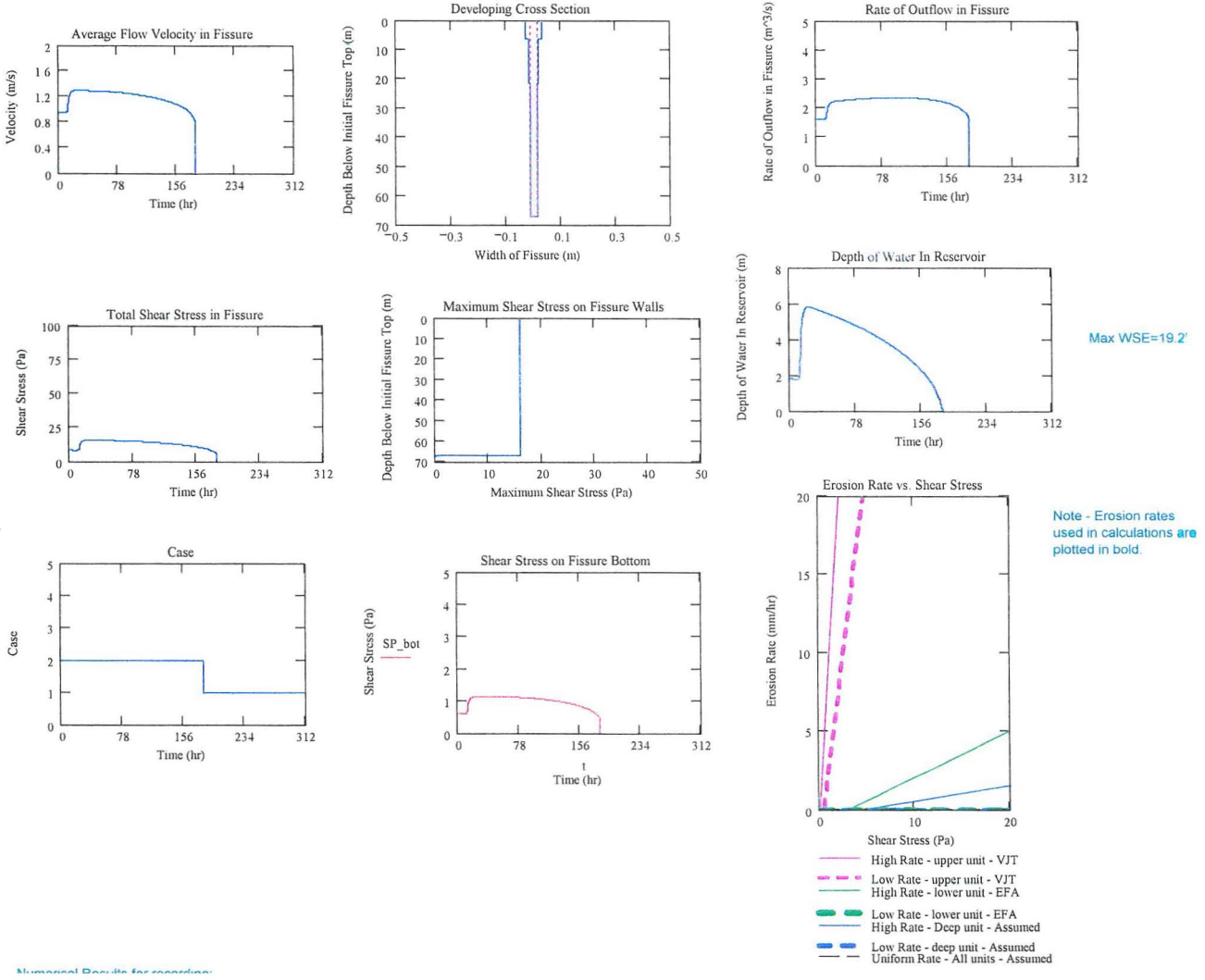


Figure C-51. Test D137 (Low erosion rates for all Pleistocene Layer, 500-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

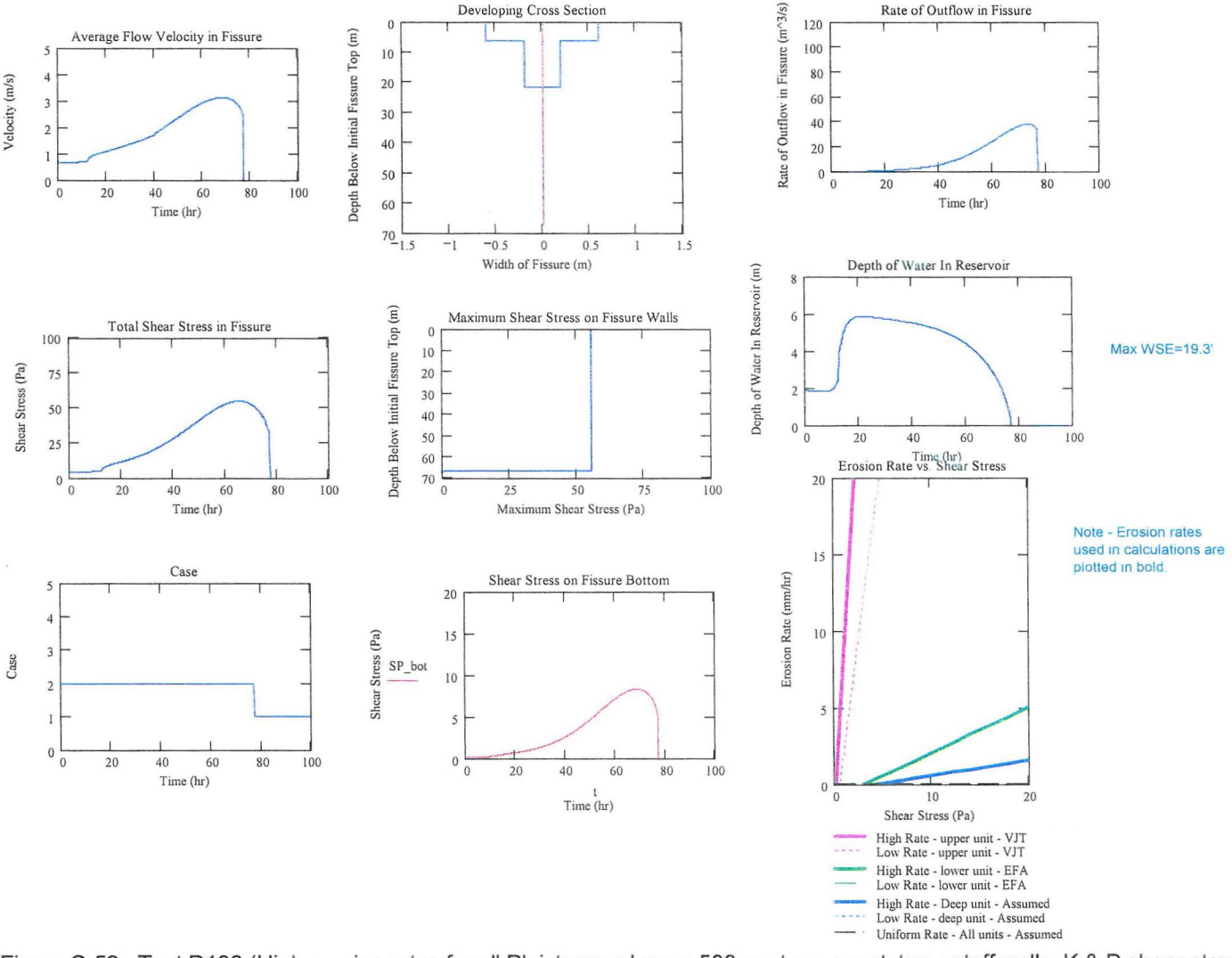


Figure C-52. Test D138 (High erosion rates for all Pleistocene Layer, 500-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

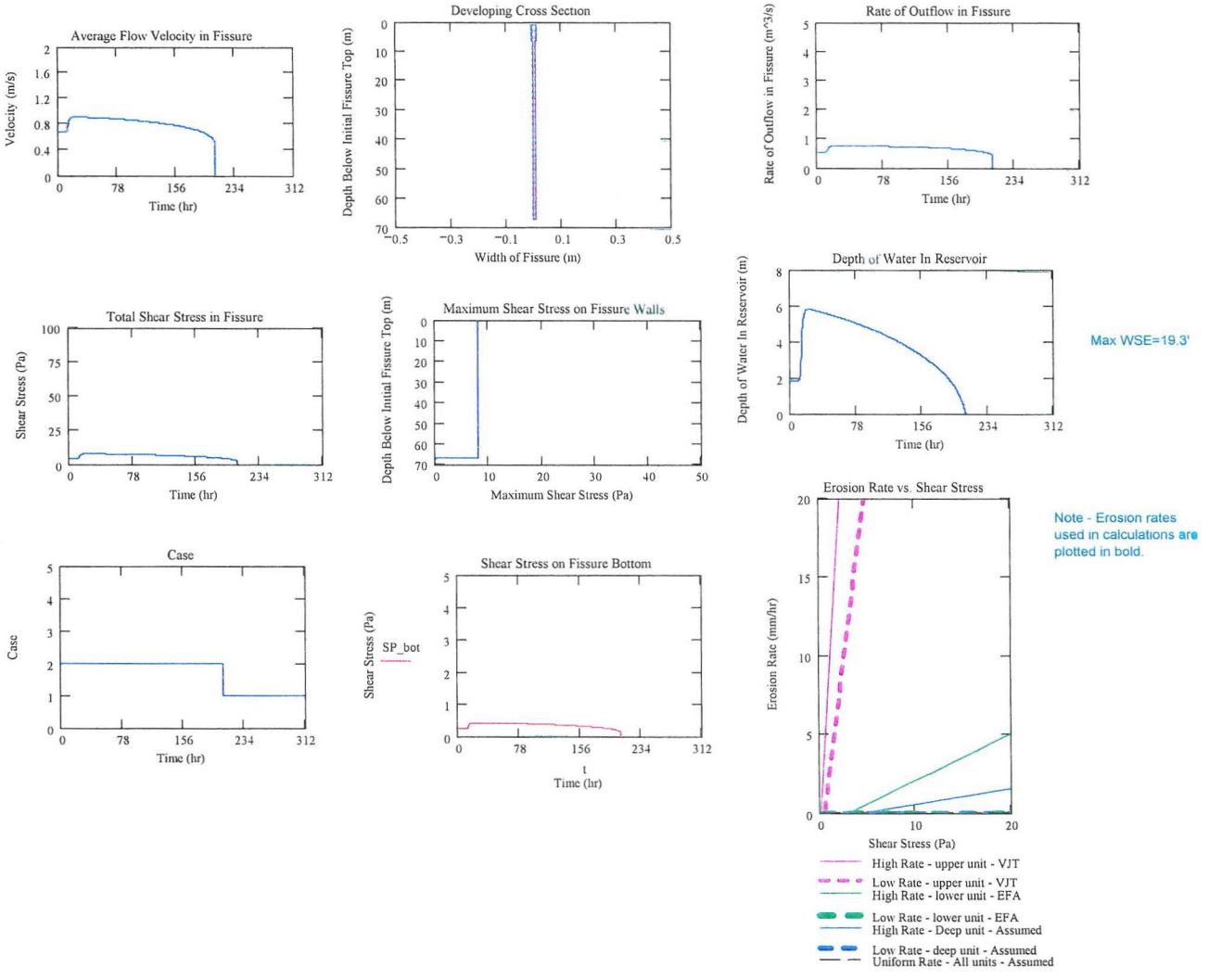


Figure C-53. Test D139 (Low erosion rates for all Pleistocene Layer, 500-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

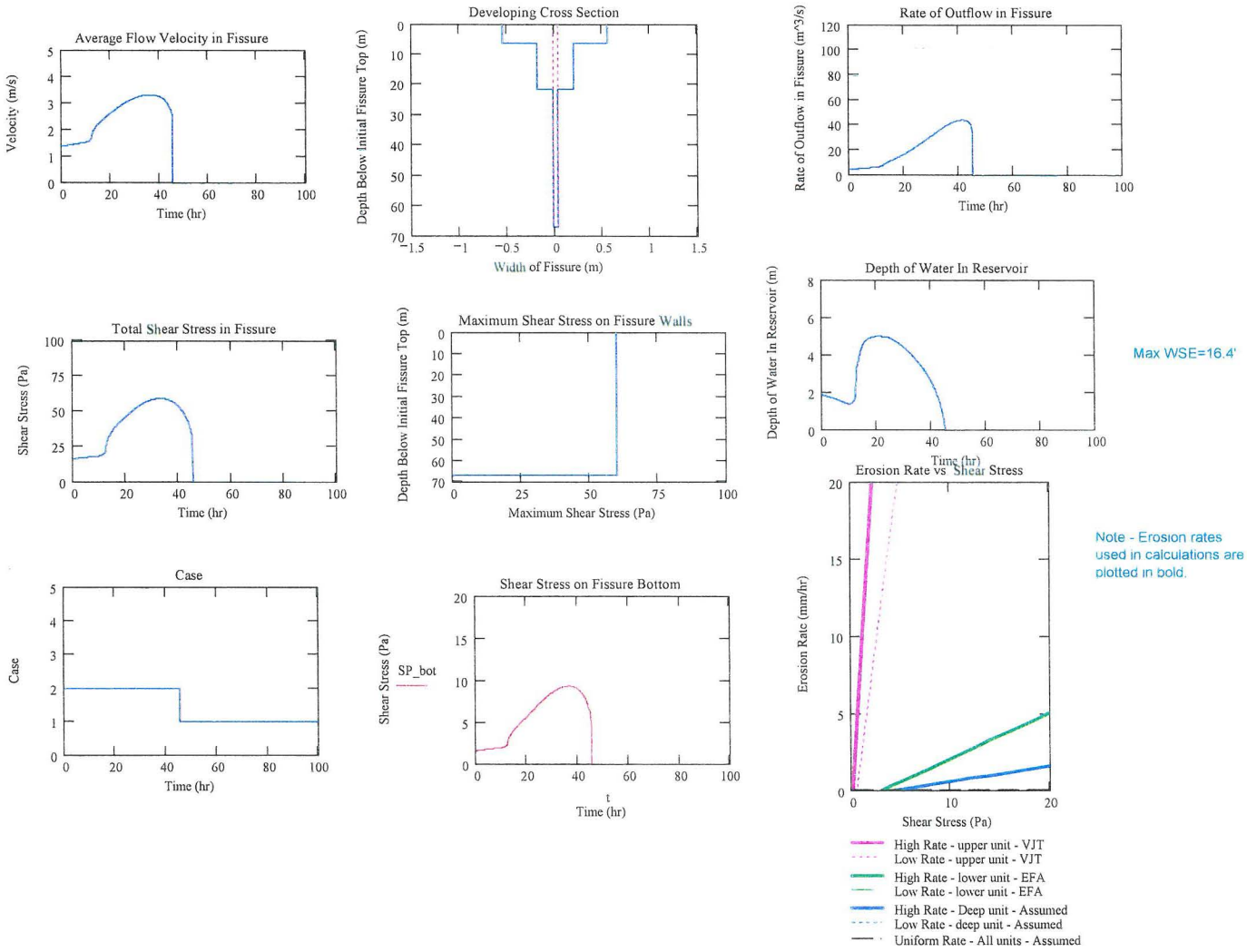


Figure C-54. Test D140 (High erosion rates for all Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

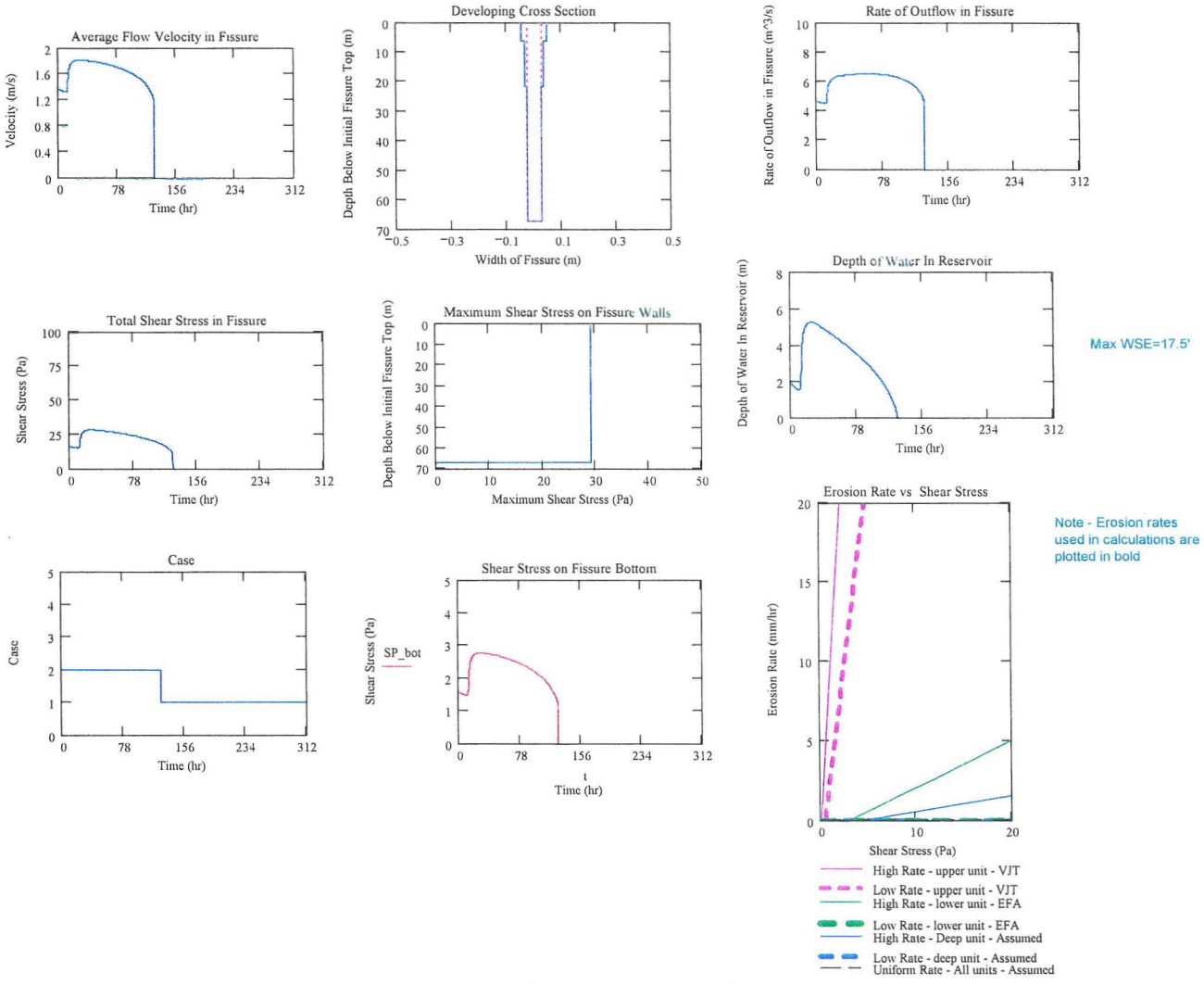


Figure C-55. Test D141 (Low erosion rates for all Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

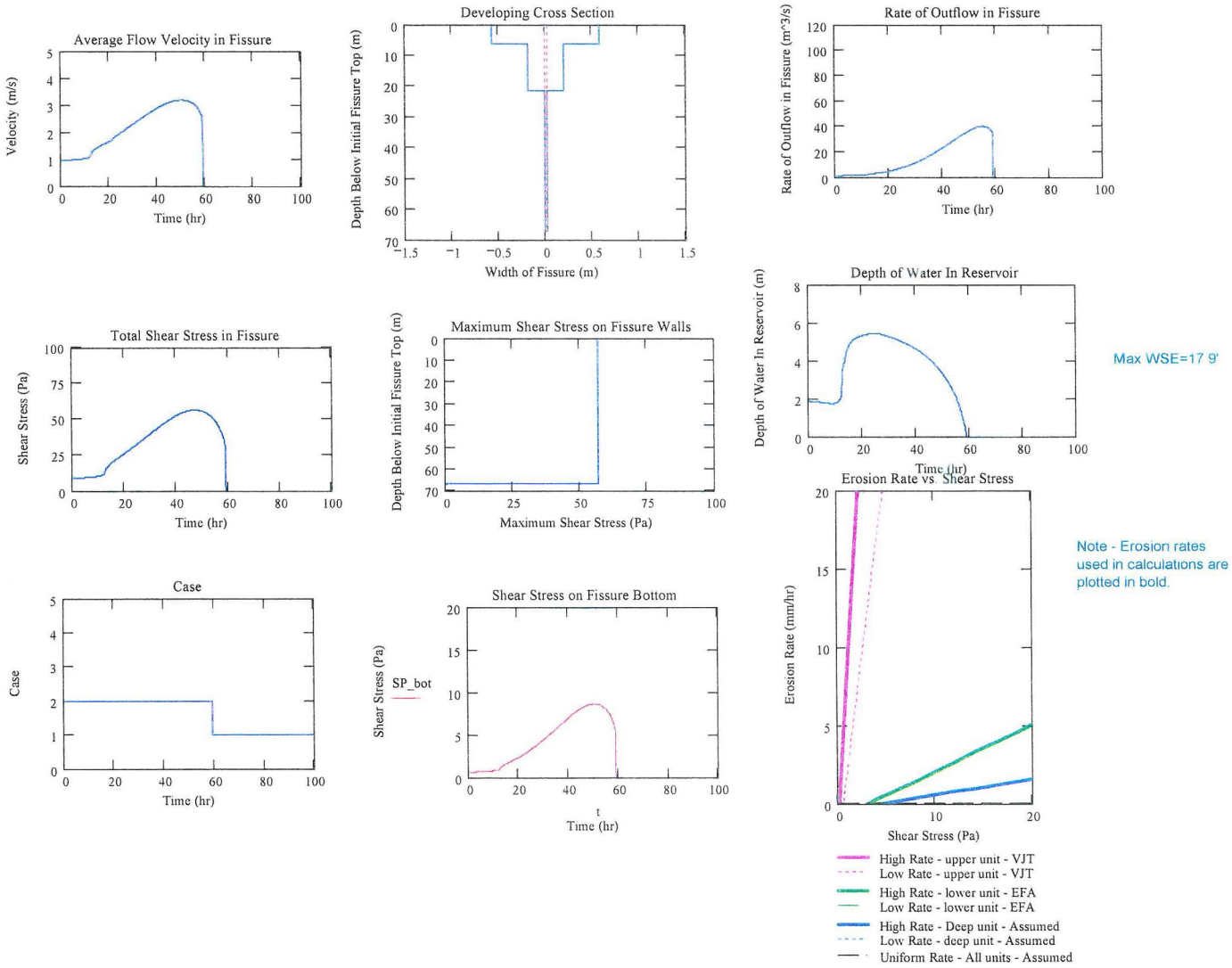


Figure C-56. Test D142 (High erosion rates for all Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

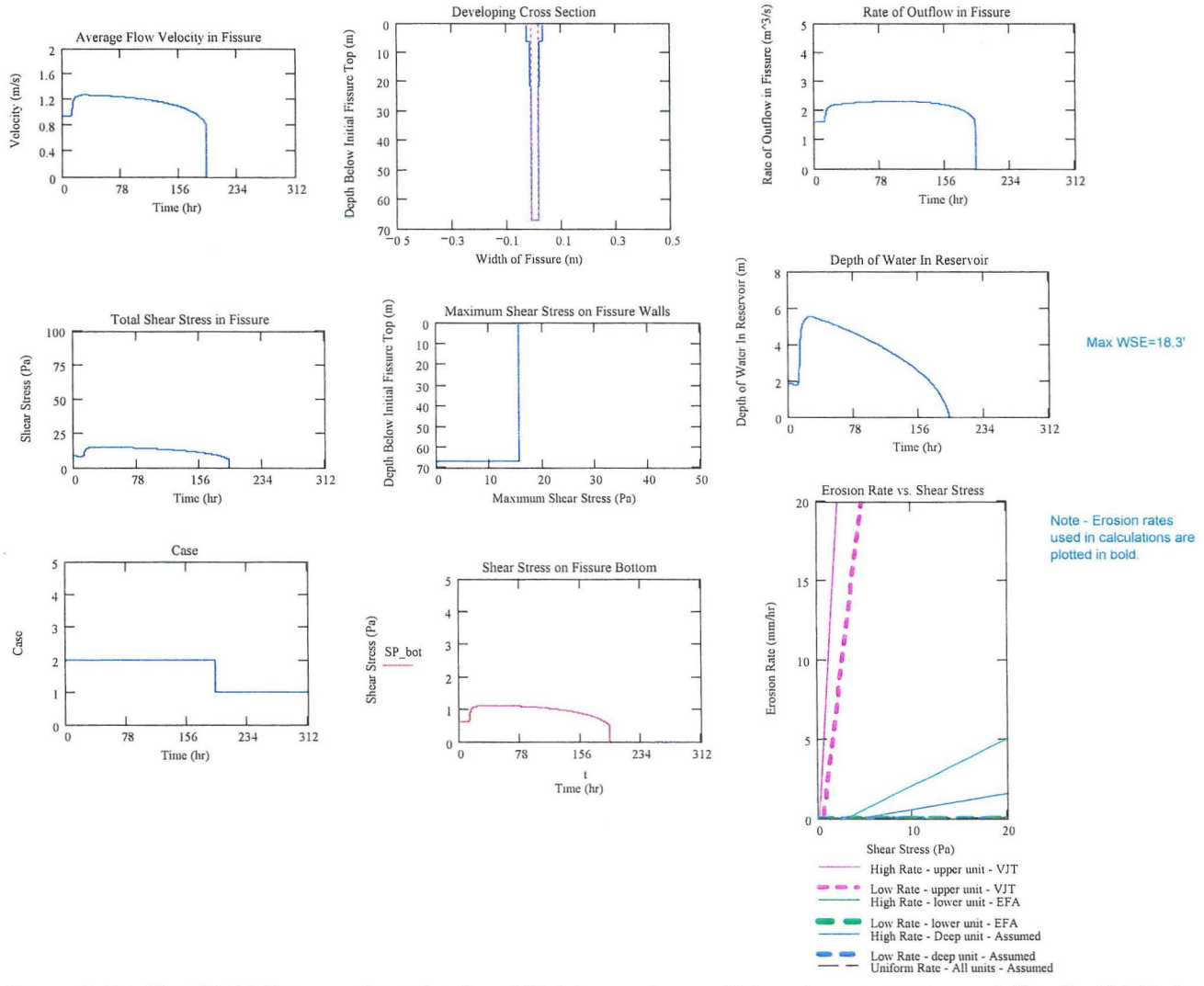


Figure C-57. Test D143 (Low erosion rates for all Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

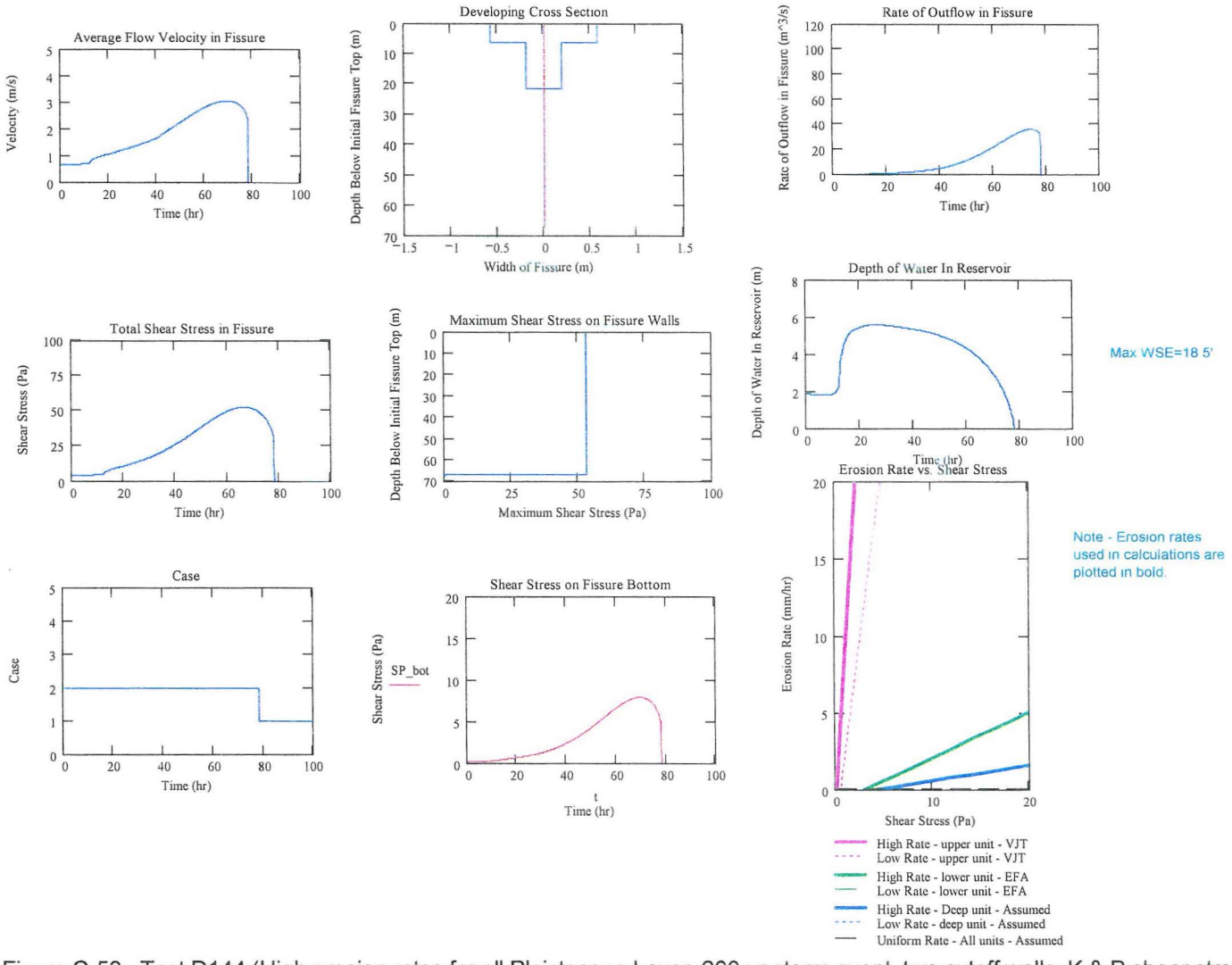


Figure C-58. Test D144 (High erosion rates for all Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

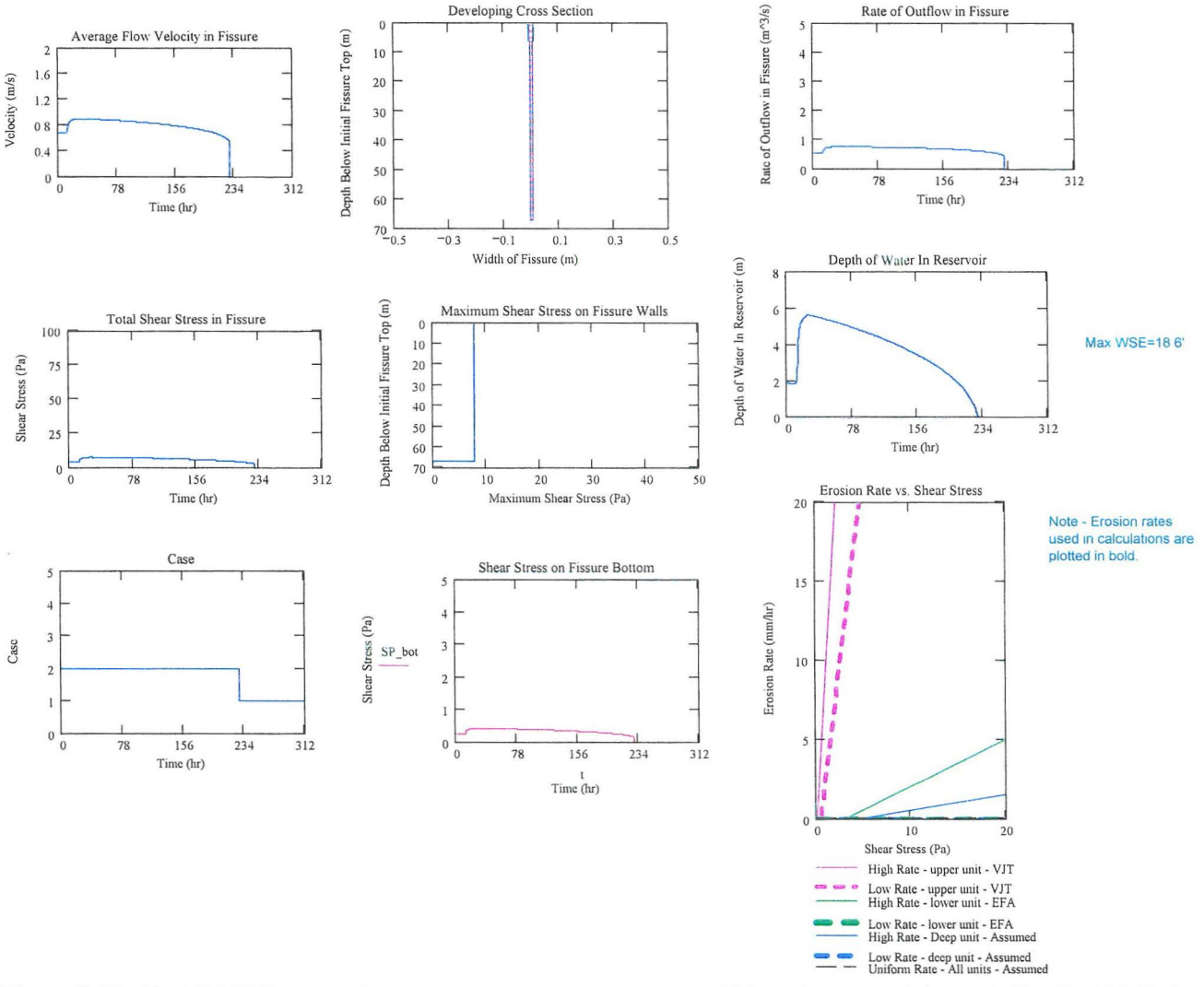


Figure C-59. Test D145 (Low erosion rates for all Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 112 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

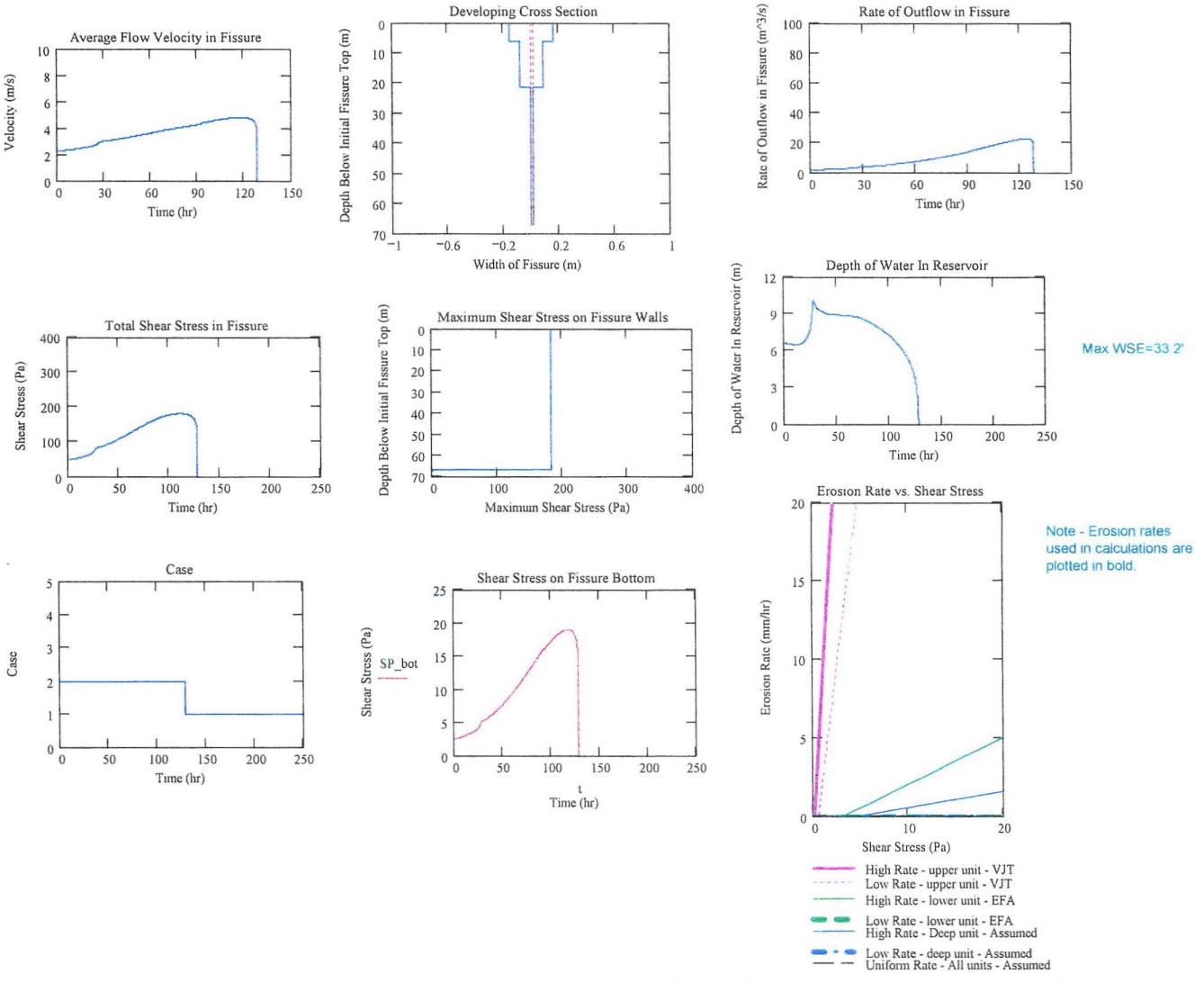


Figure C-60. Test D146 (High erosion rates for Upper Pleistocene Layer, low erosion rates for Lower and deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 31.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

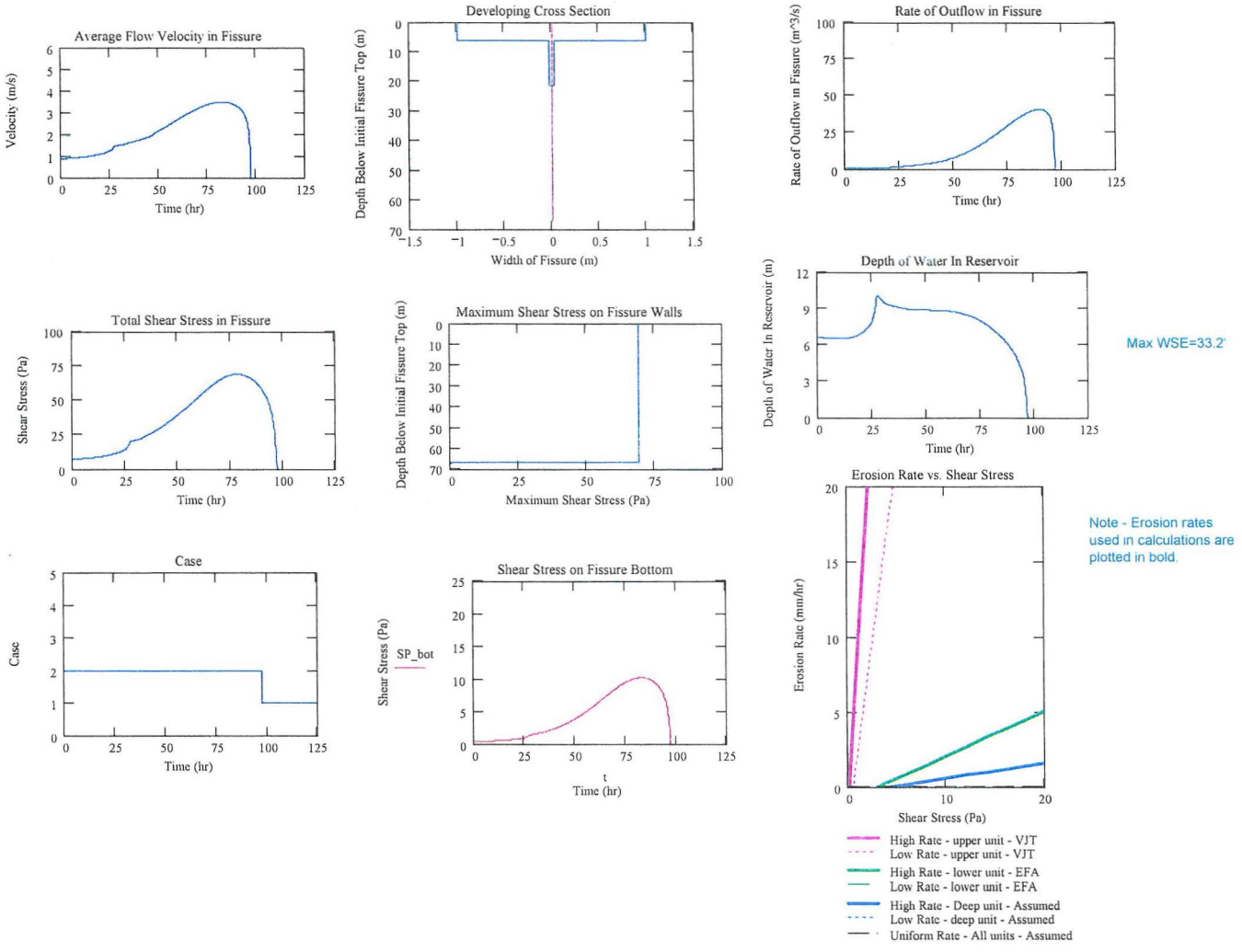


Figure C-61. Test D148 (High erosion rates for Upper and Lower Pleistocene Layer, low erosion rates for deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

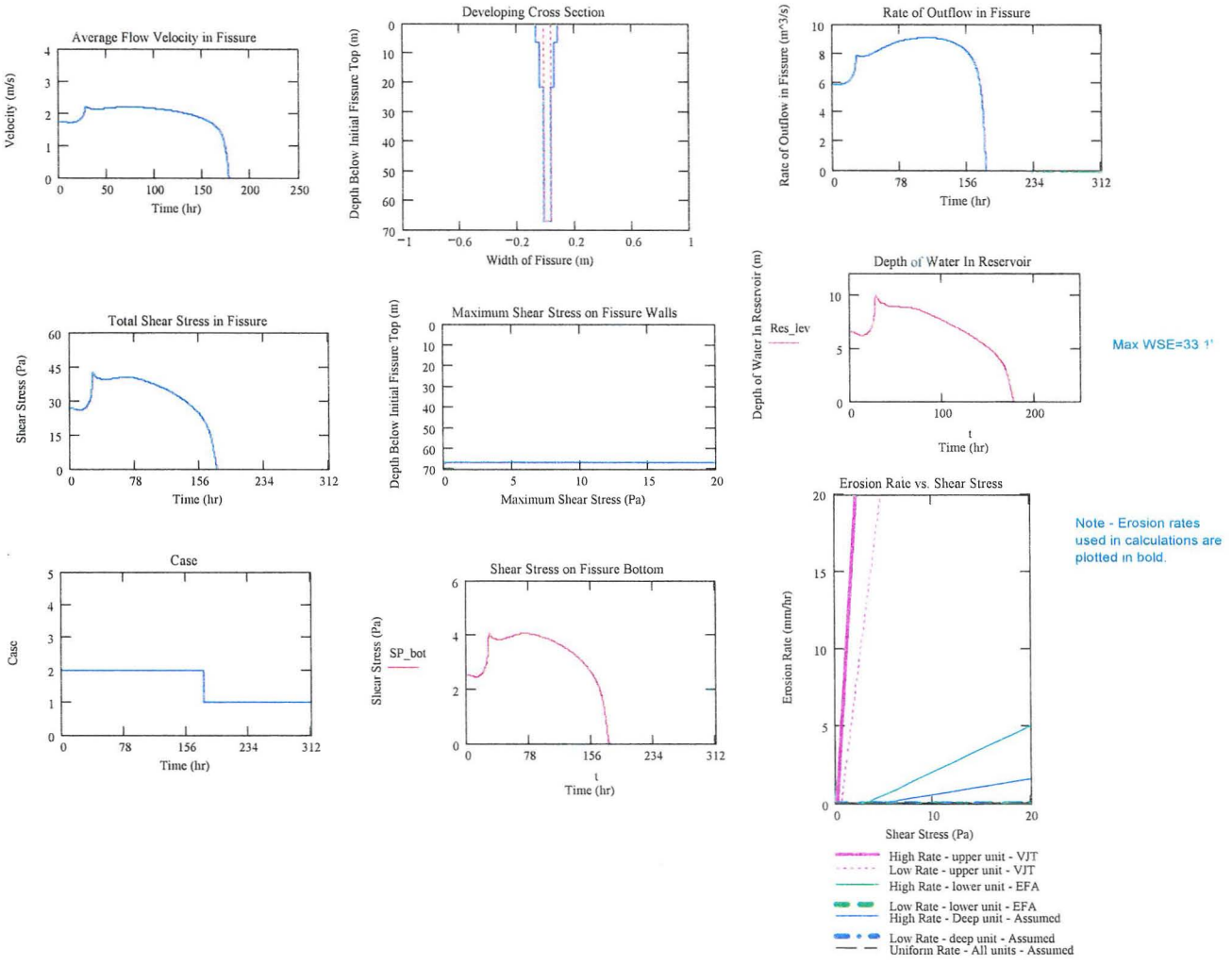


Figure C-62. Test D149 (High erosion rates for Upper Pleistocene Layer, low erosion rates for deep and Lower Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

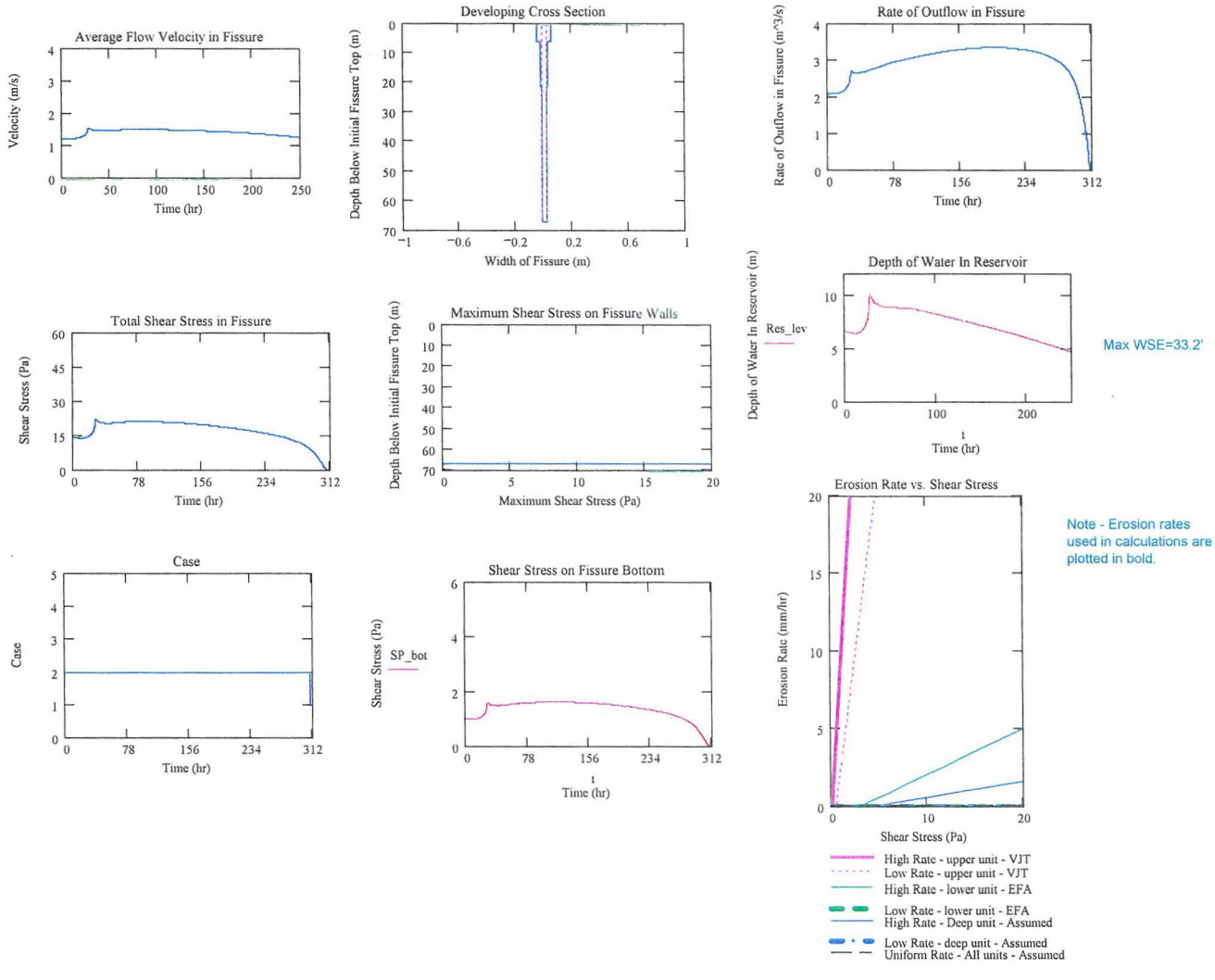


Figure C-63. Test D150 (High erosion rates for Upper Pleistocene Layer, low erosion rates for deep and Lower Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

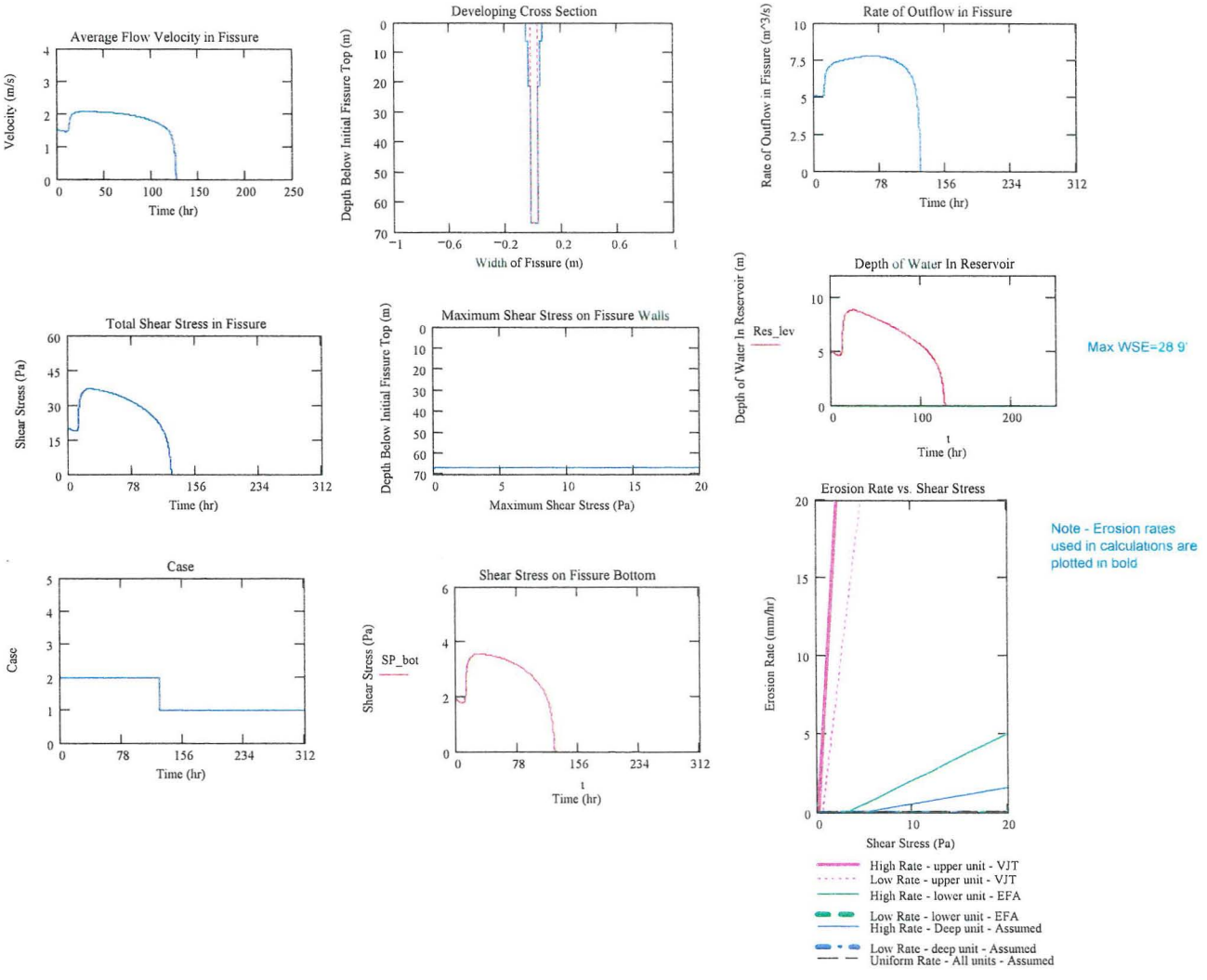


Figure C-64. Test D151 (High erosion rates for Upper Pleistocene Layer, low erosion rates for deep and Lower Pleistocene two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, no ten foot fill layer).

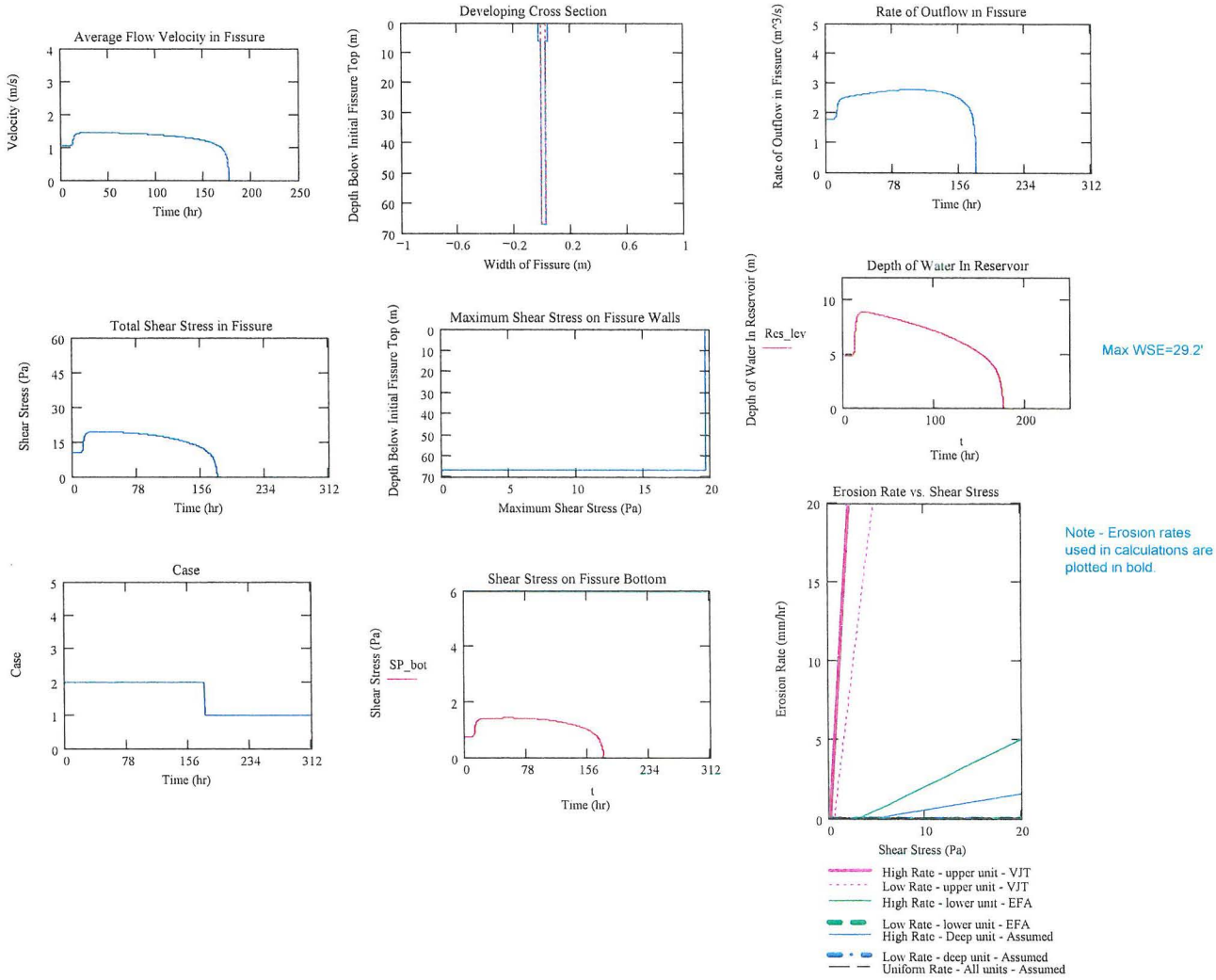


Figure C-65. Test D152 (High erosion rates for Upper Pleistocene Layer, low erosion rates for deep and Lower Pleistocene Layer, 500-yr storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

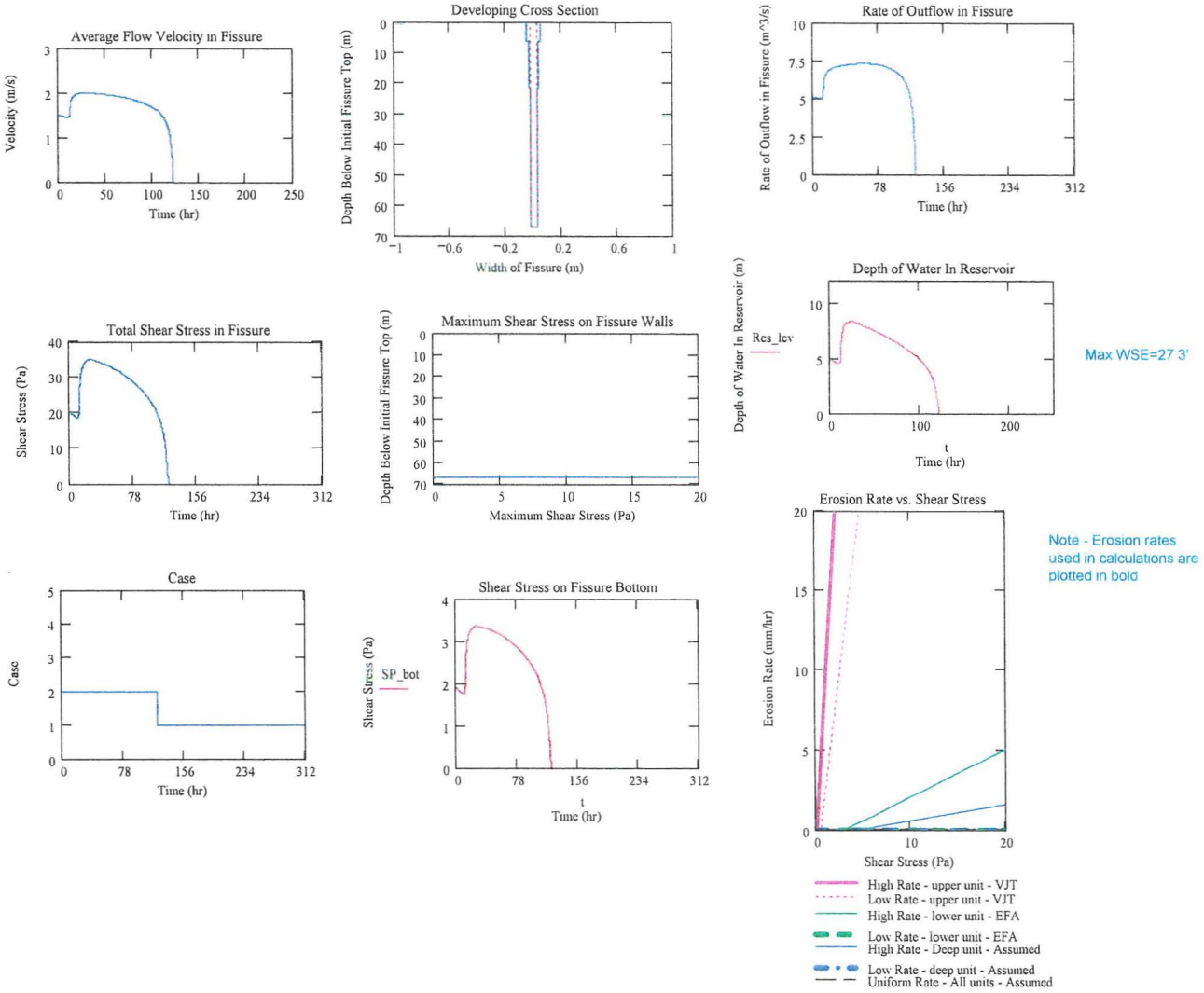


Figure C-66. Test D154 (High erosion rates for Upper Pleistocene Layer, low erosion rates for deep and Lower Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 2 inches, cutoff wall length of 30 ft, no ten foot fill layer).

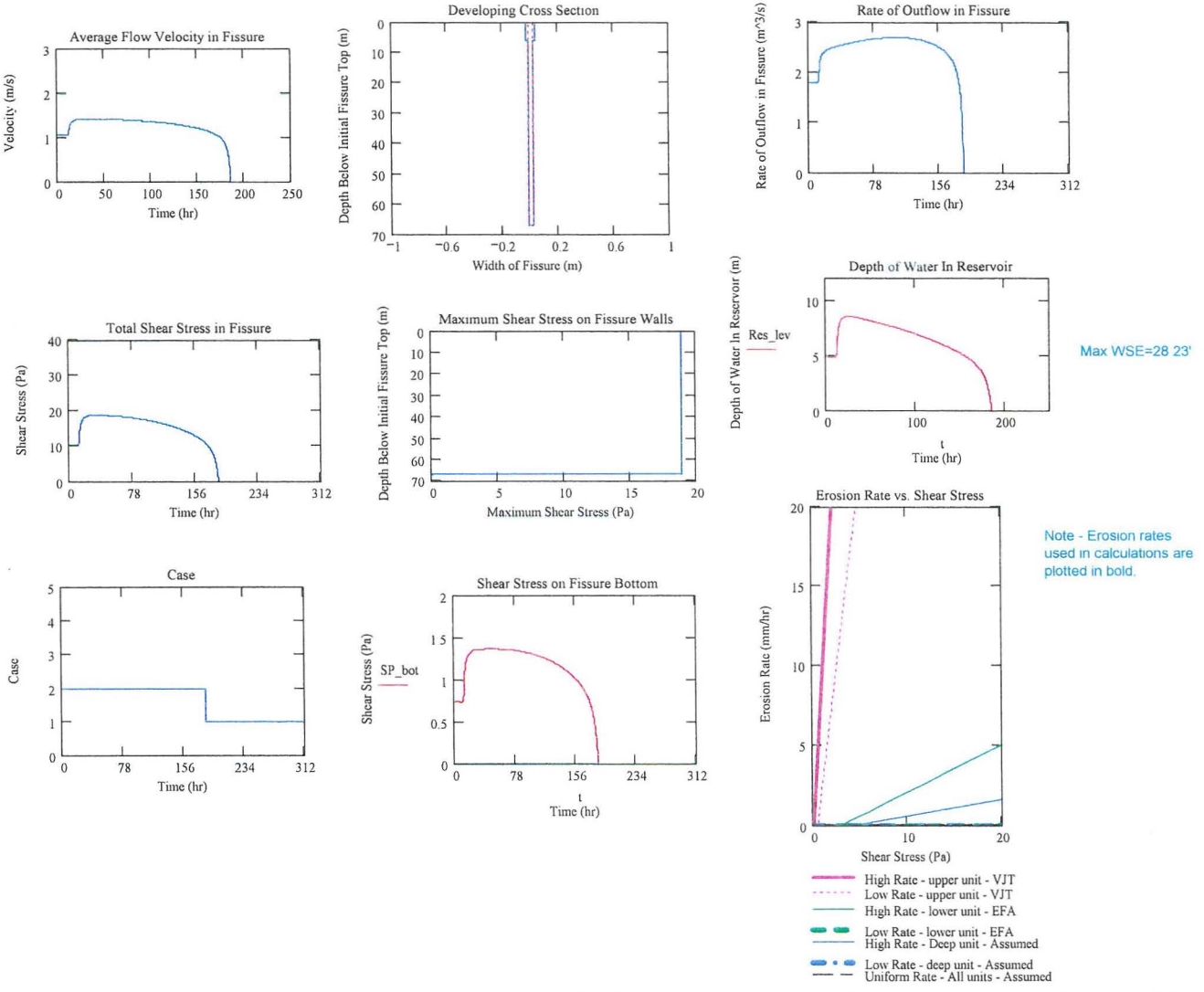


Figure C-67. Test D155 (High erosion rates for Upper Pleistocene Layer, low erosion rates for deep and Lower Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 1 inches, cutoff wall length of 30 ft, no ten foot fill layer).

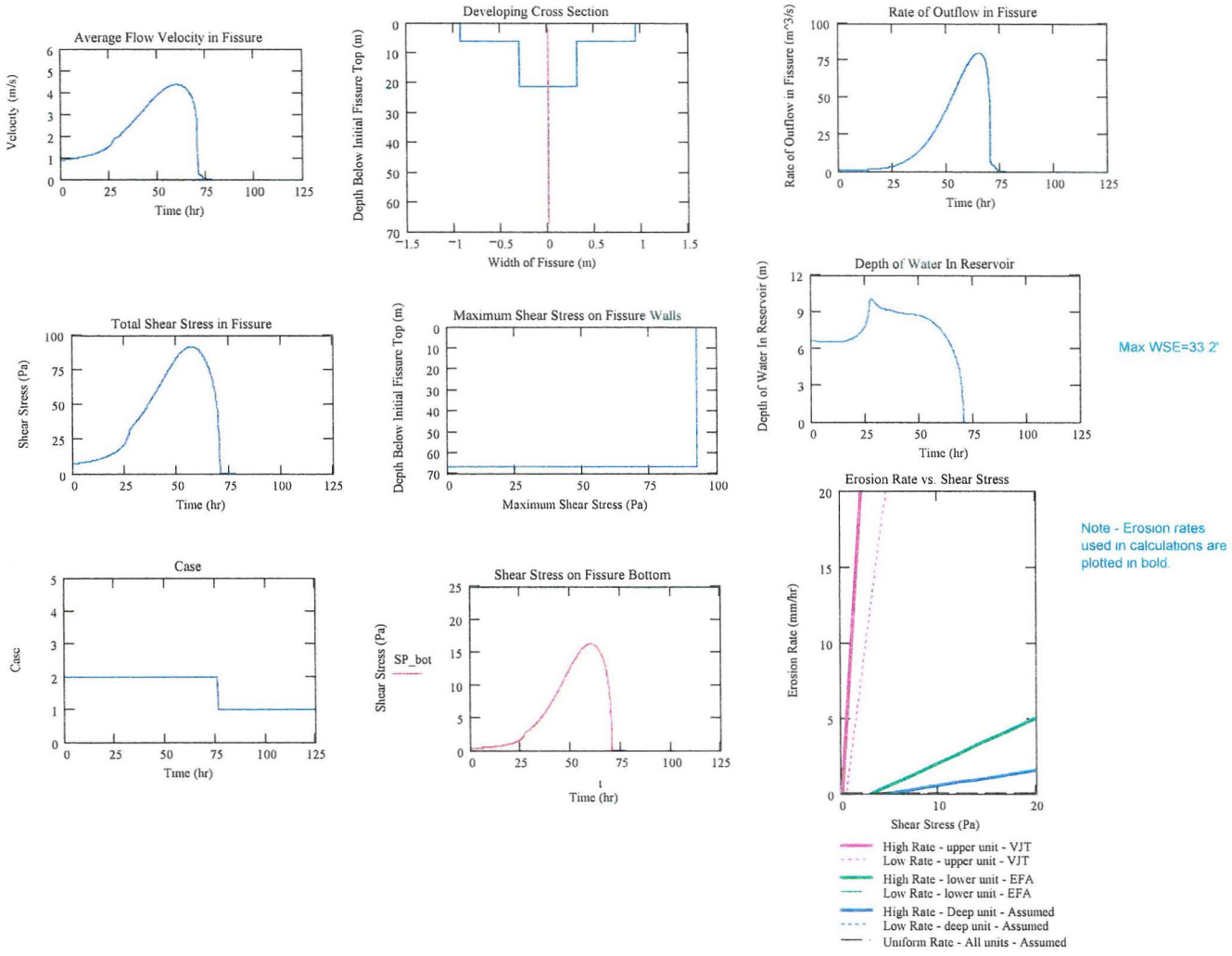


Figure C-68. Test D157 (High erosion rates for all Pleistocene Layers, PMF storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

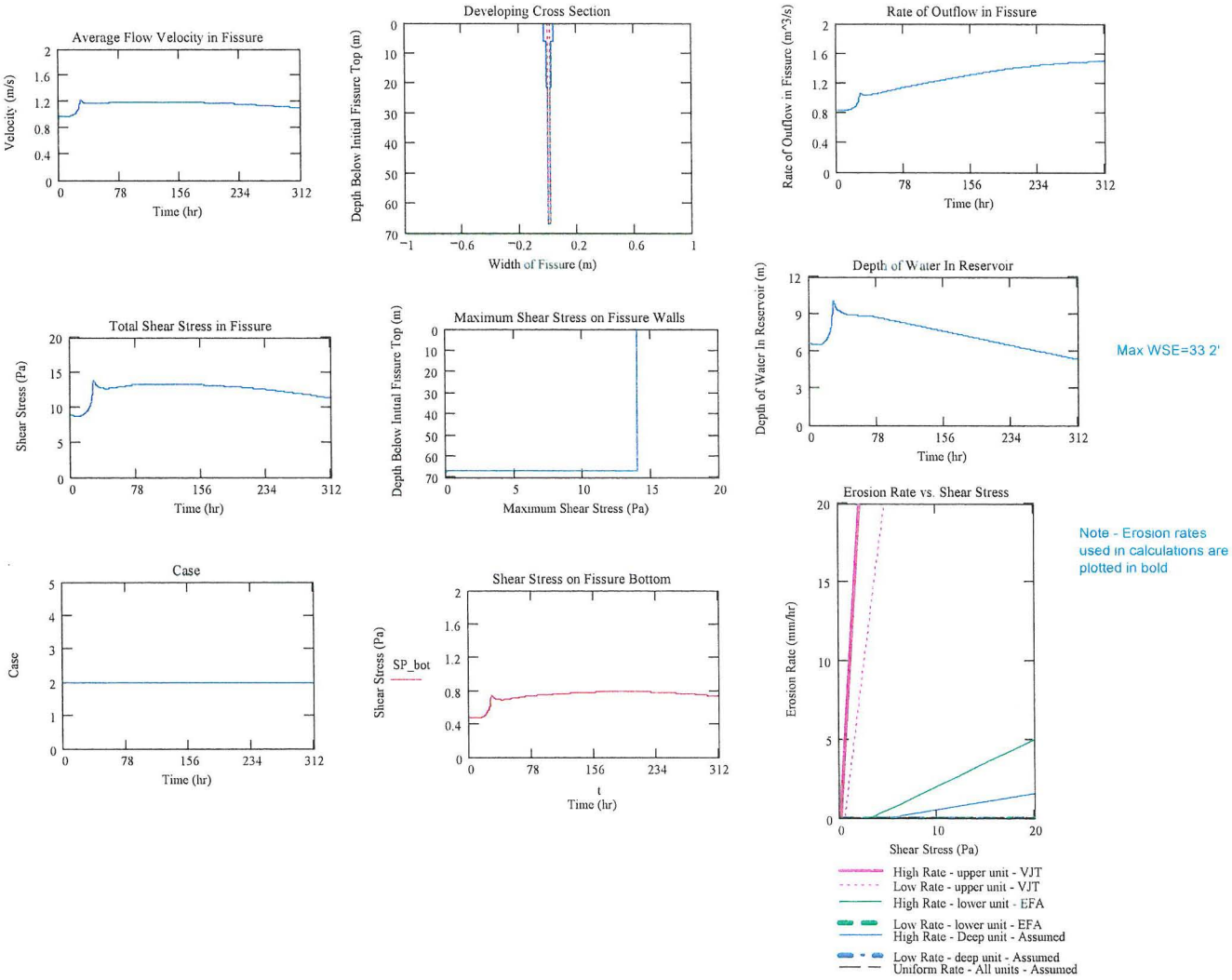


Figure C-69. Test D158 (High erosion rates for Upper Pleistocene Layer, low erosion rates for Lower and deep Pleistocene Layers, PMF storm event, one cutoff wall, K & P shear stress distribution, 74.3 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

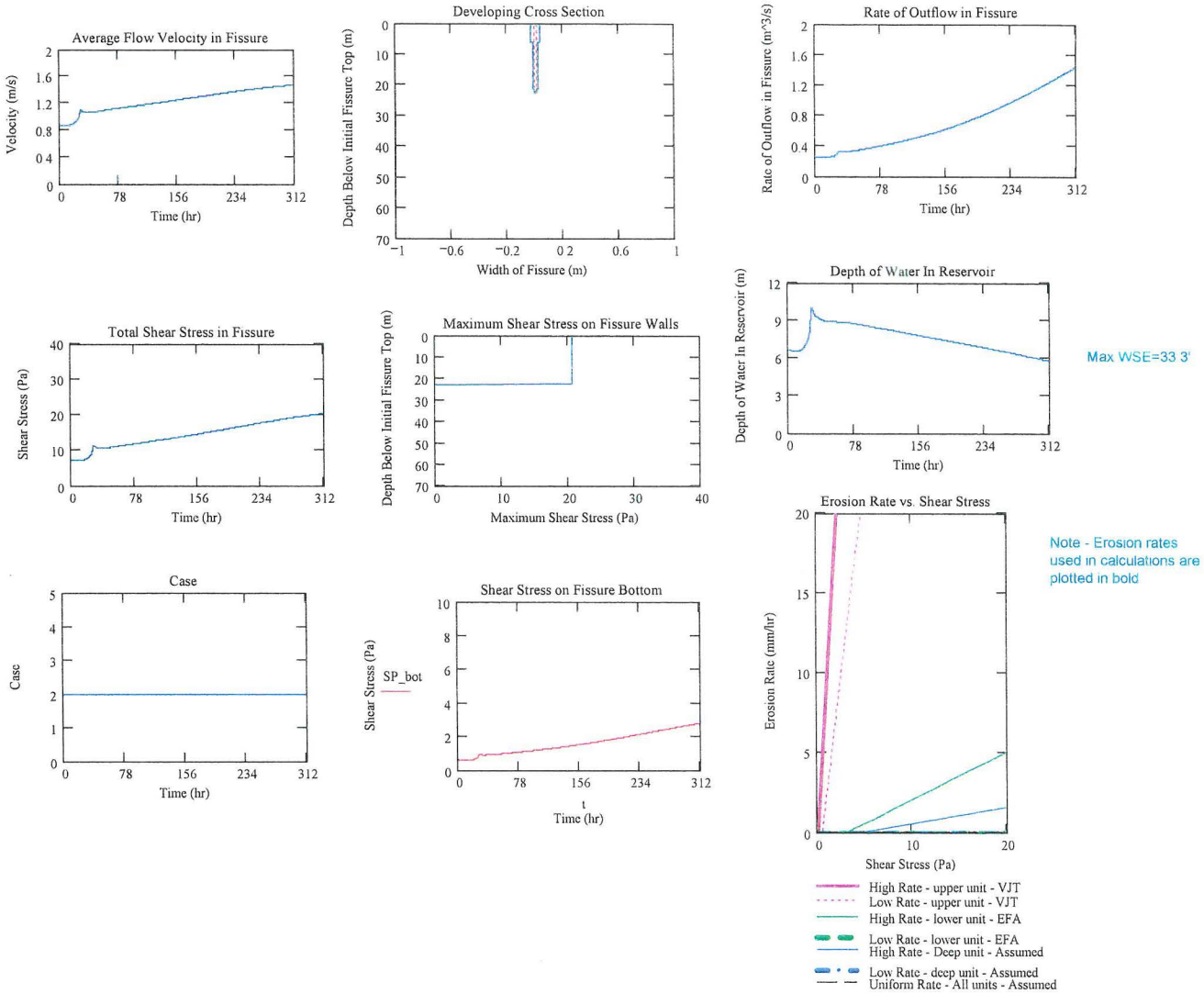


Figure C-70. Test D159 (High erosion rates for Upper Pleistocene Layer, low erosion rates for Lower and deep Pleistocene Layers, PMF storm event, one cutoff wall, K & P shear stress distribution, 91.45 ft flow path, 5 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

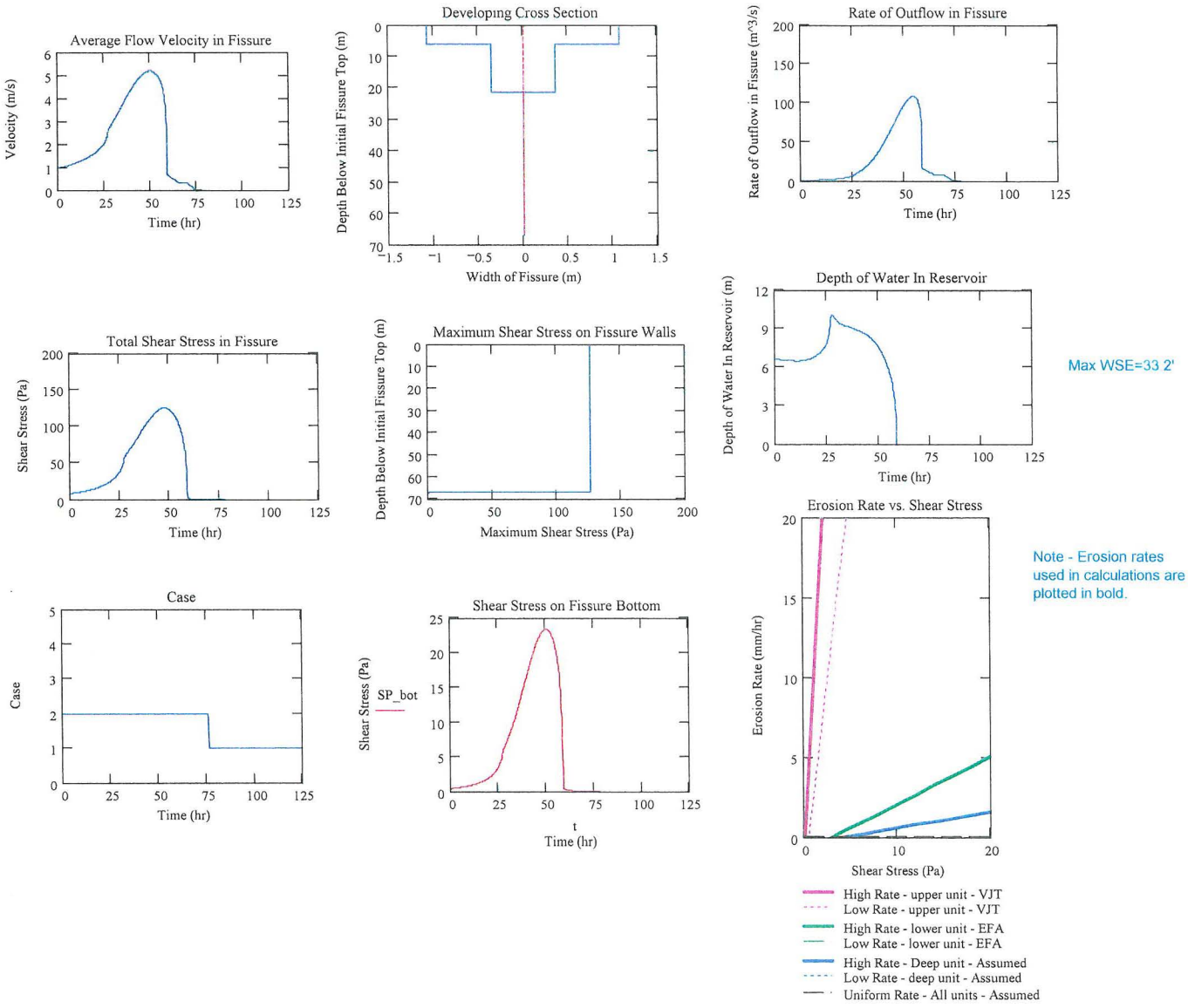


Figure C-71. Test D160 (High erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and deep Pleistocene Layer, PMF storm event, one cutoff wall, K & P shear stress distribution, 74.3 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

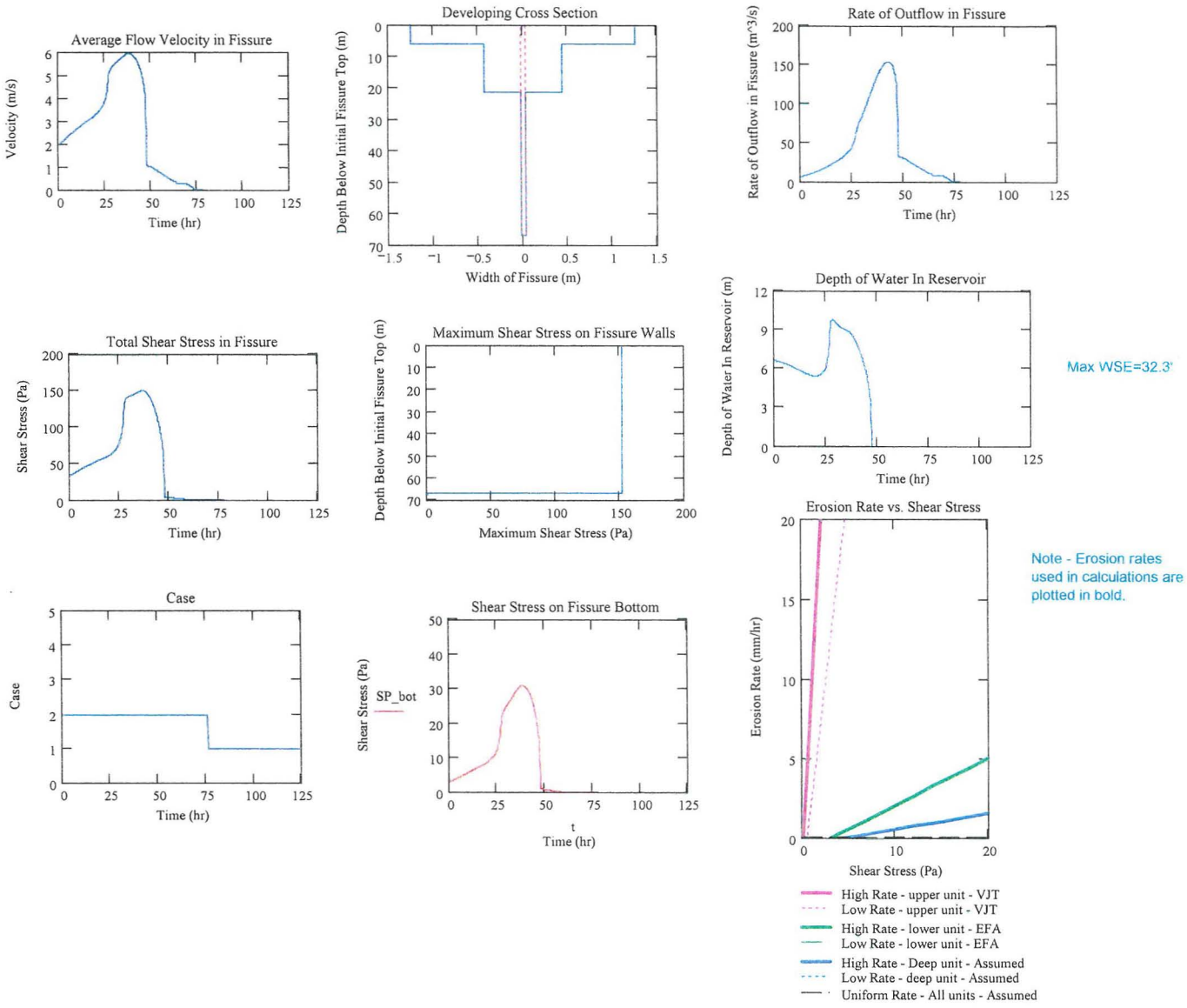


Figure C-72. Test D161 (High erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and deep Pleistocene Layer, PMF storm event, one cutoff wall, K & P shear stress distribution, 74.3 ft flow path, 150 ft non-erodible depth, initial fissure width of 2.0 inches, cutoff wall length of 30 ft, no ten foot fill layer).

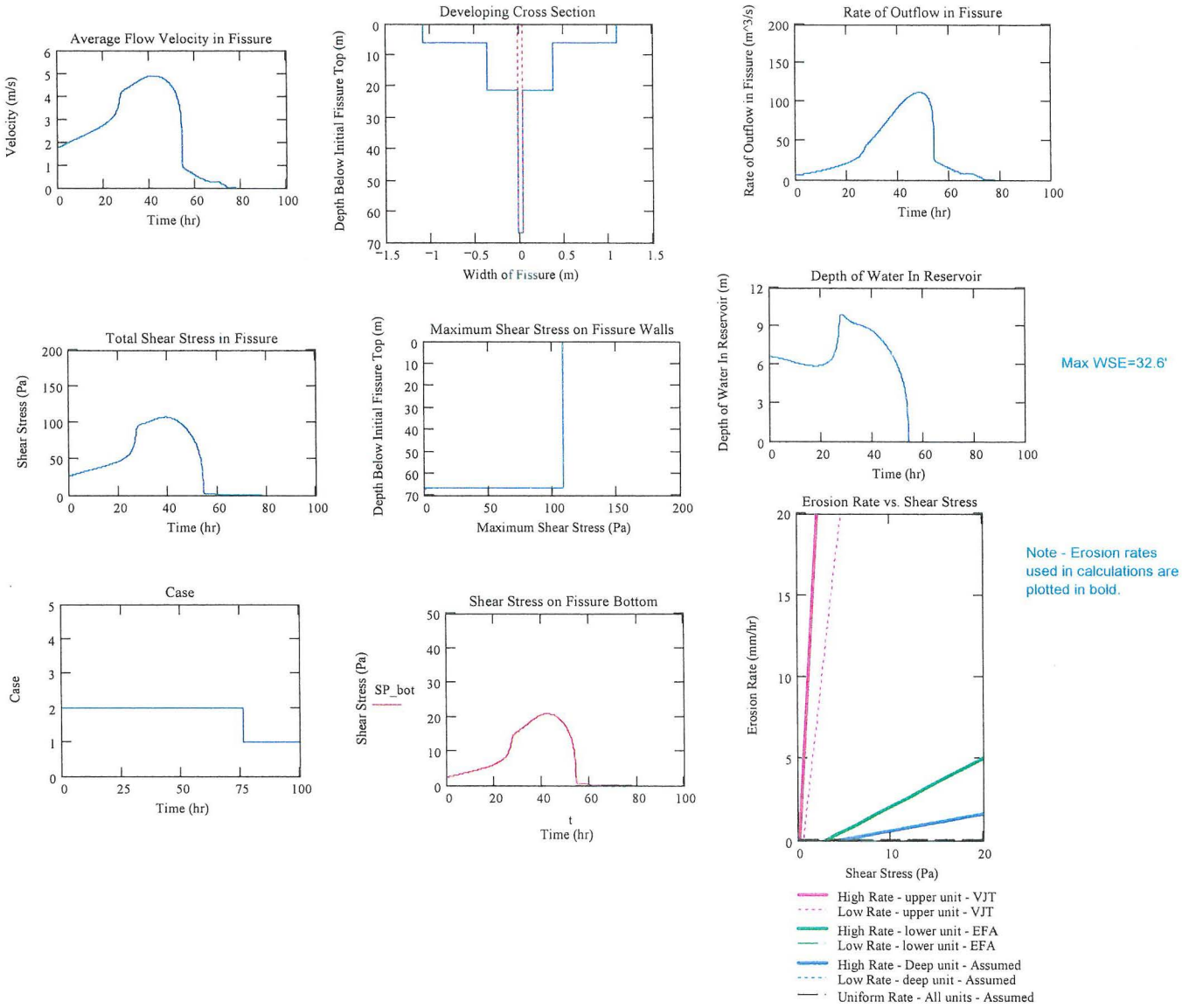


Figure C-73. Test D162 (High erosion rates for Upper Pleistocene Layer, Low erosion rates for Lower and deep Pleistocene Layers, PMF storm event, one cutoff wall, K & P shear stress distribution, 74.3 ft flow path, 150 ft non-erodible depth, initial fissure width of 2.0 inches, cutoff wall length of 30 ft, no ten foot fill layer).

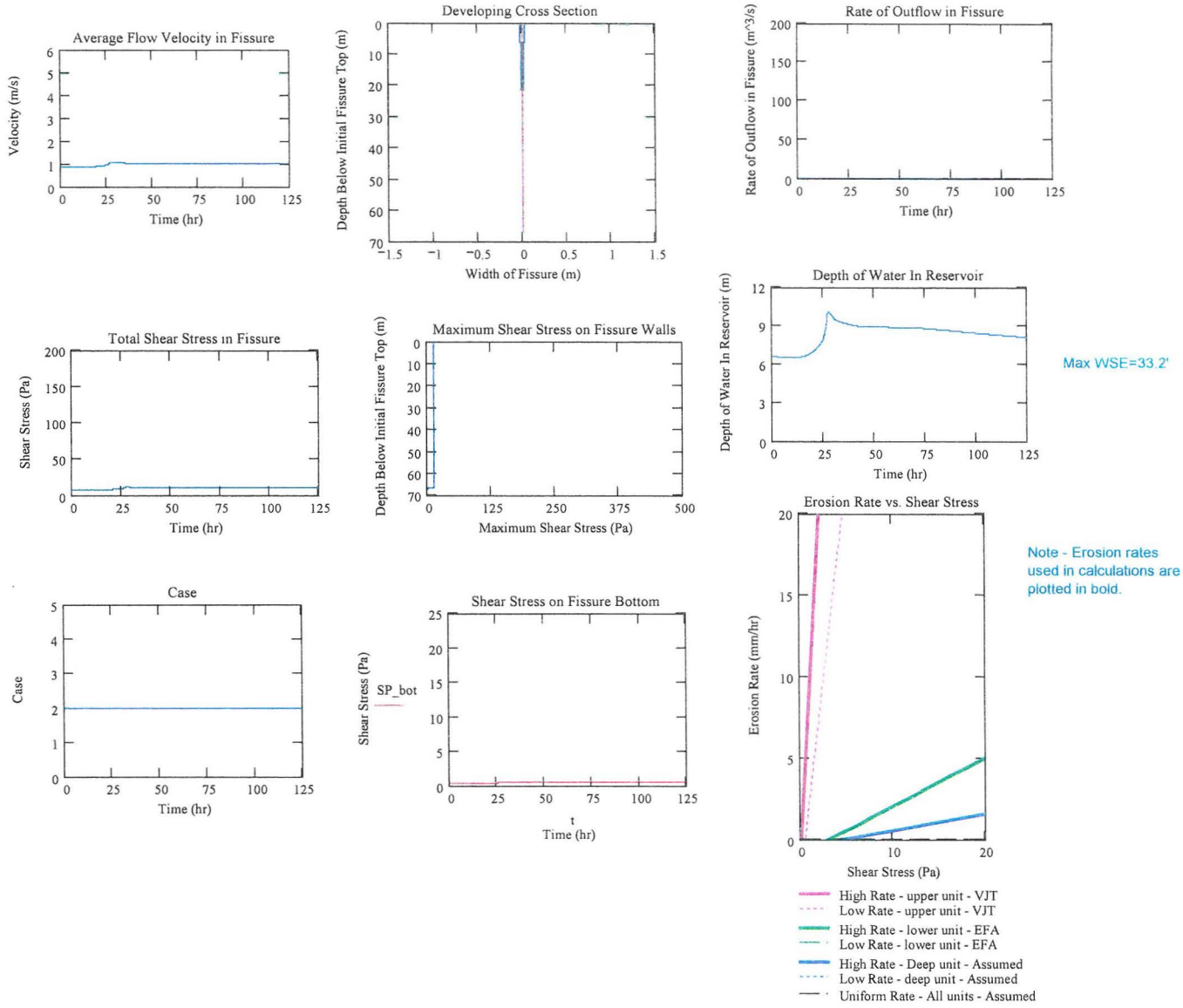


Figure C-74. Test D163 (High erosion rate for Upper Pleistocene Layer, Low erosion rates for Lower and deep Pleistocene Layers, PMF storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path,150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer, division height is 0.25 ft instead of usual 0.5 ft).

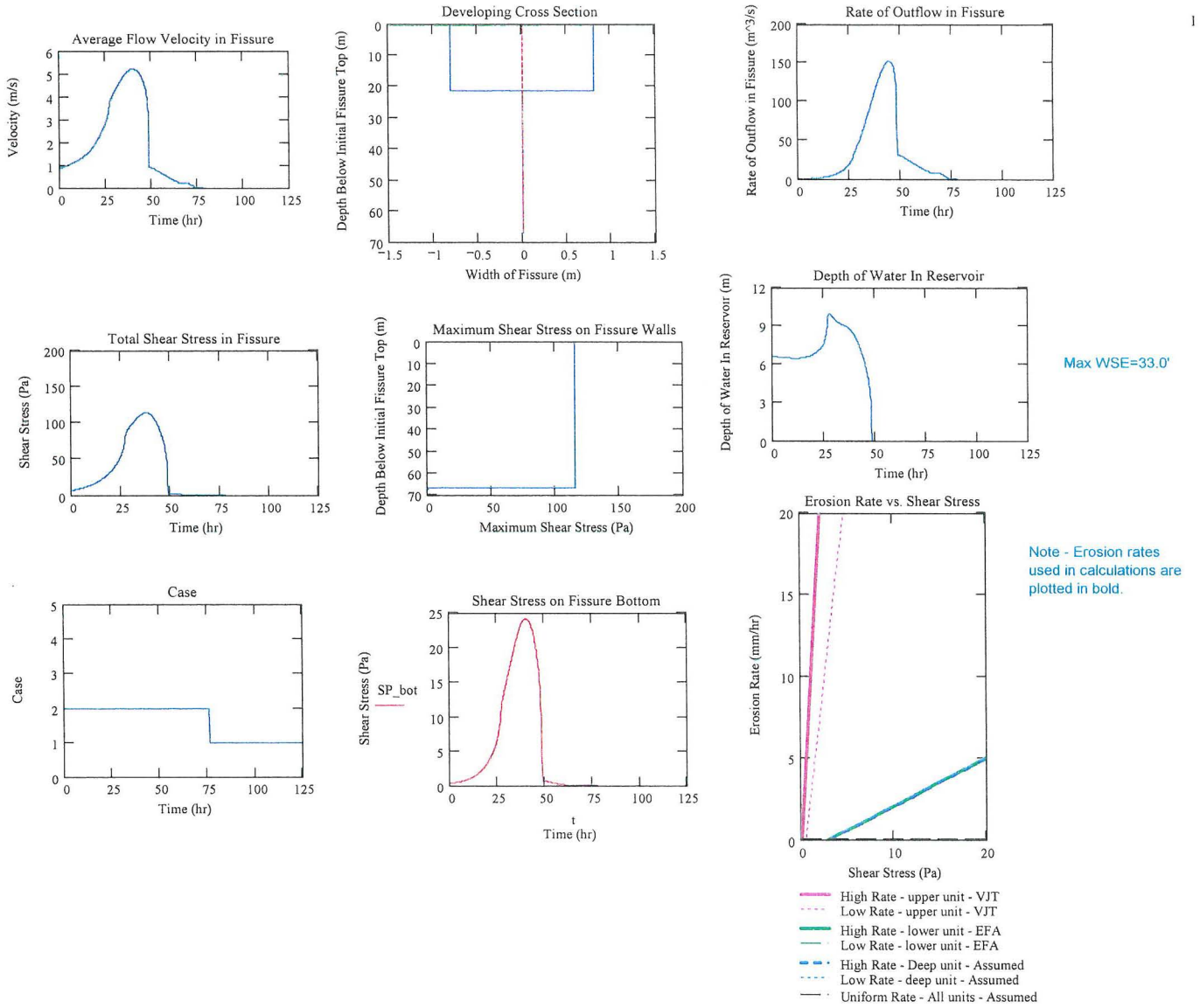


Figure C-75. Test D164 (High erosion rates for Upper Pleistocene Layer and Lower Pleistocene Layer, Deep Pleistocene Layer erosion rate set equal to Lower Pleistocene Layer High erosion rate, PMF storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

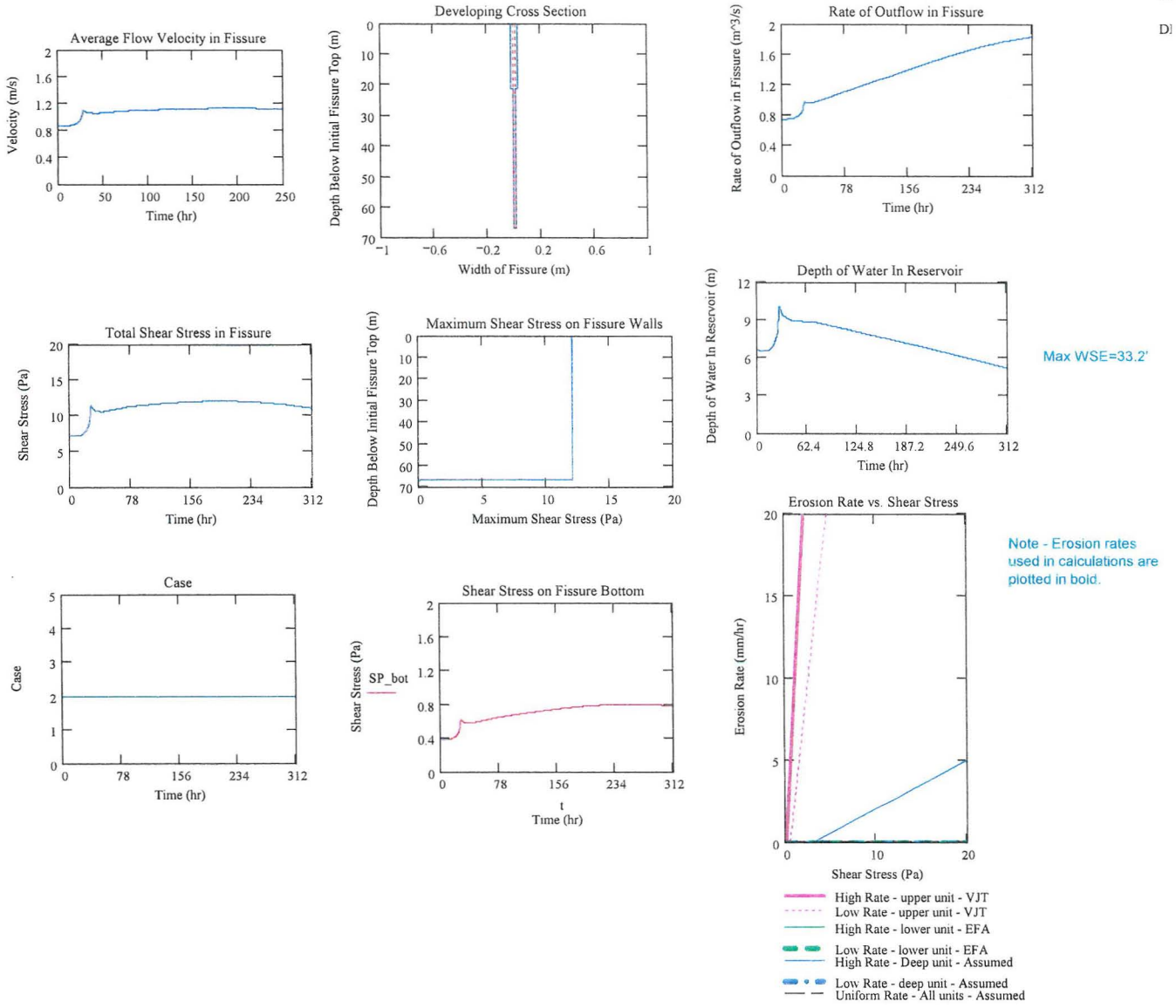


Figure C-76. Test D165 (High erosion rate for Upper Pleistocene Layer, Low erosion rates for Lower Pleistocene Layer and Deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 5 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer).

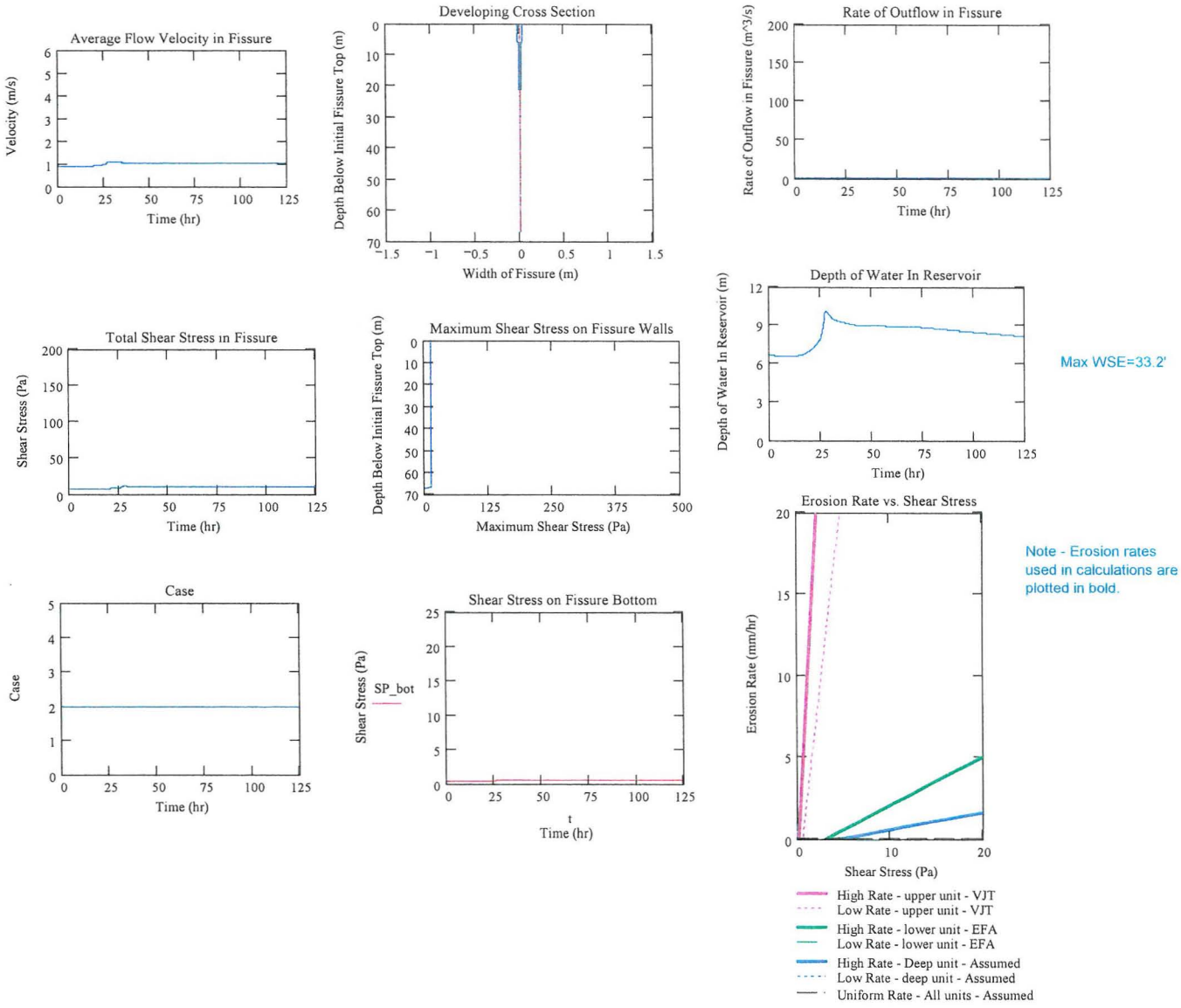


Figure C-77. Test D168 (High erosion rate for Upper Pleistocene Layer, Low erosion rates for Lower Pleistocene Layer and Deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 91.45 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, no ten foot fill layer, division height is 1.0 ft instead of usual 0.5 ft).

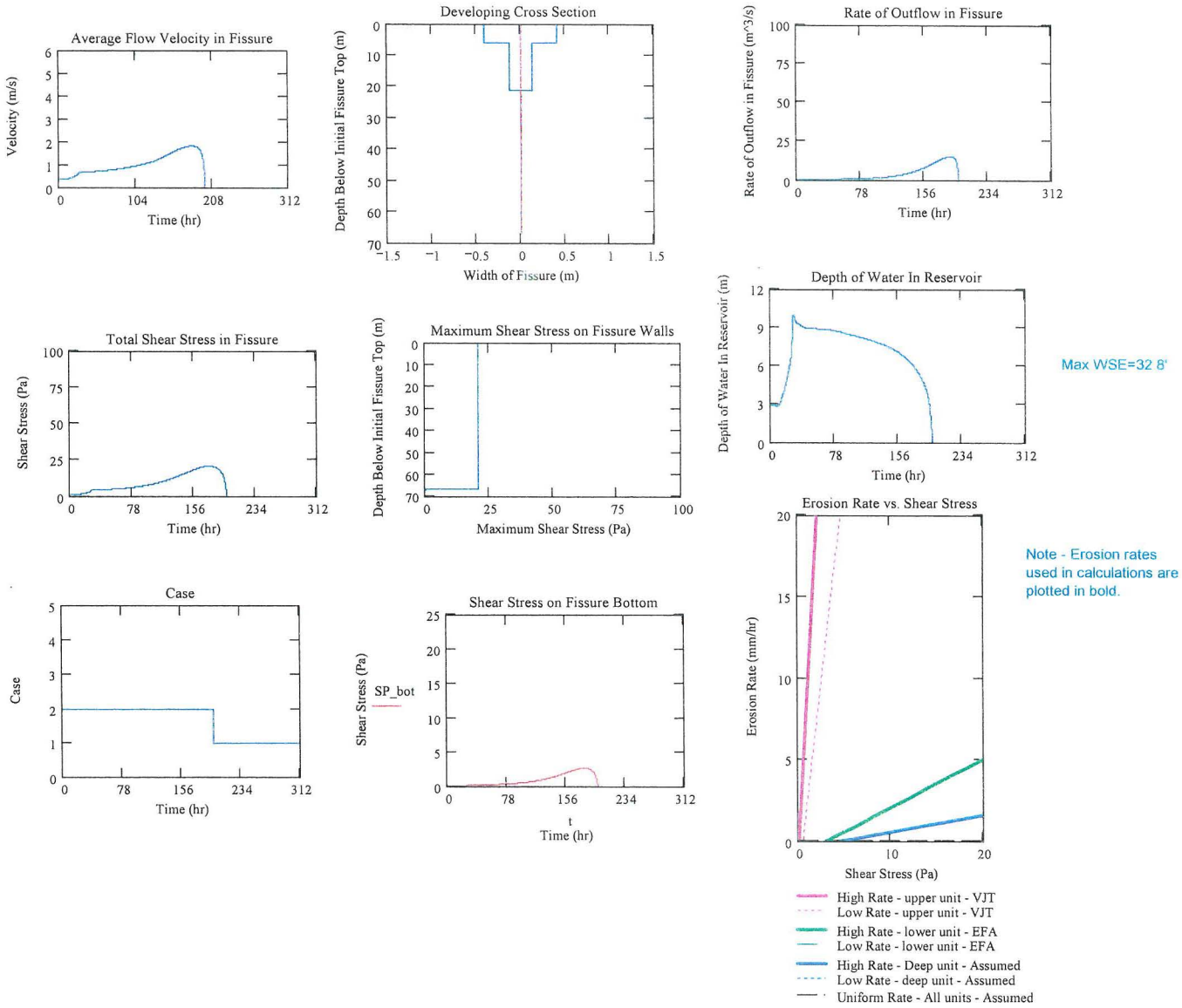


Figure C-78. Test D169 (High erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 230 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inches, cutoff wall length of 30 ft, 10 ft fill layer upstream and downstream of soil cement embankment).

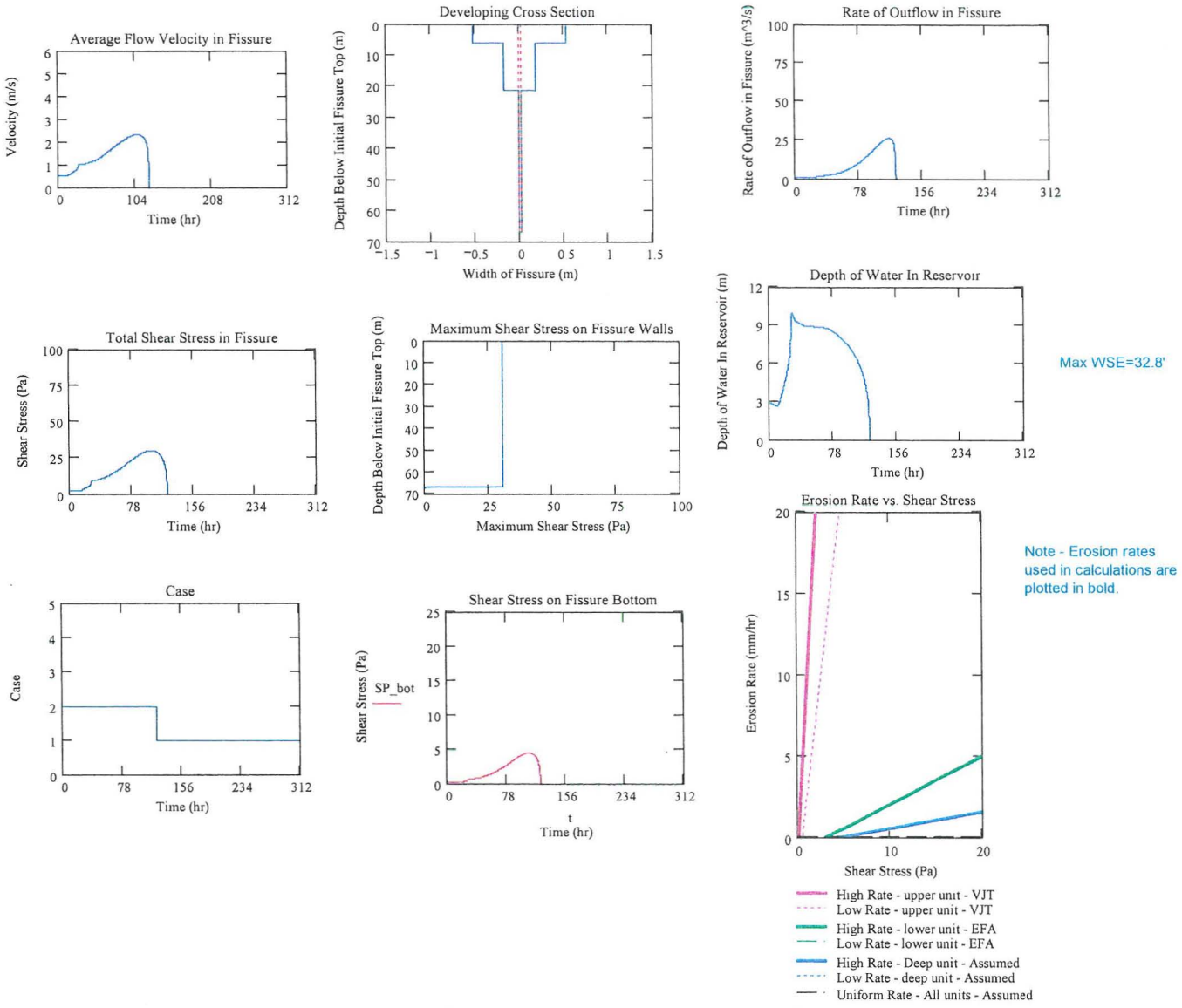


Figure C-79. Test D170 (High erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 230 ft flow path, 150 ft non-erodible depth, initial fissure width of 1.0 inch, cutoff wall length of 30 ft, 10 ft fill layer upstream and downstream of soil cement embankment).

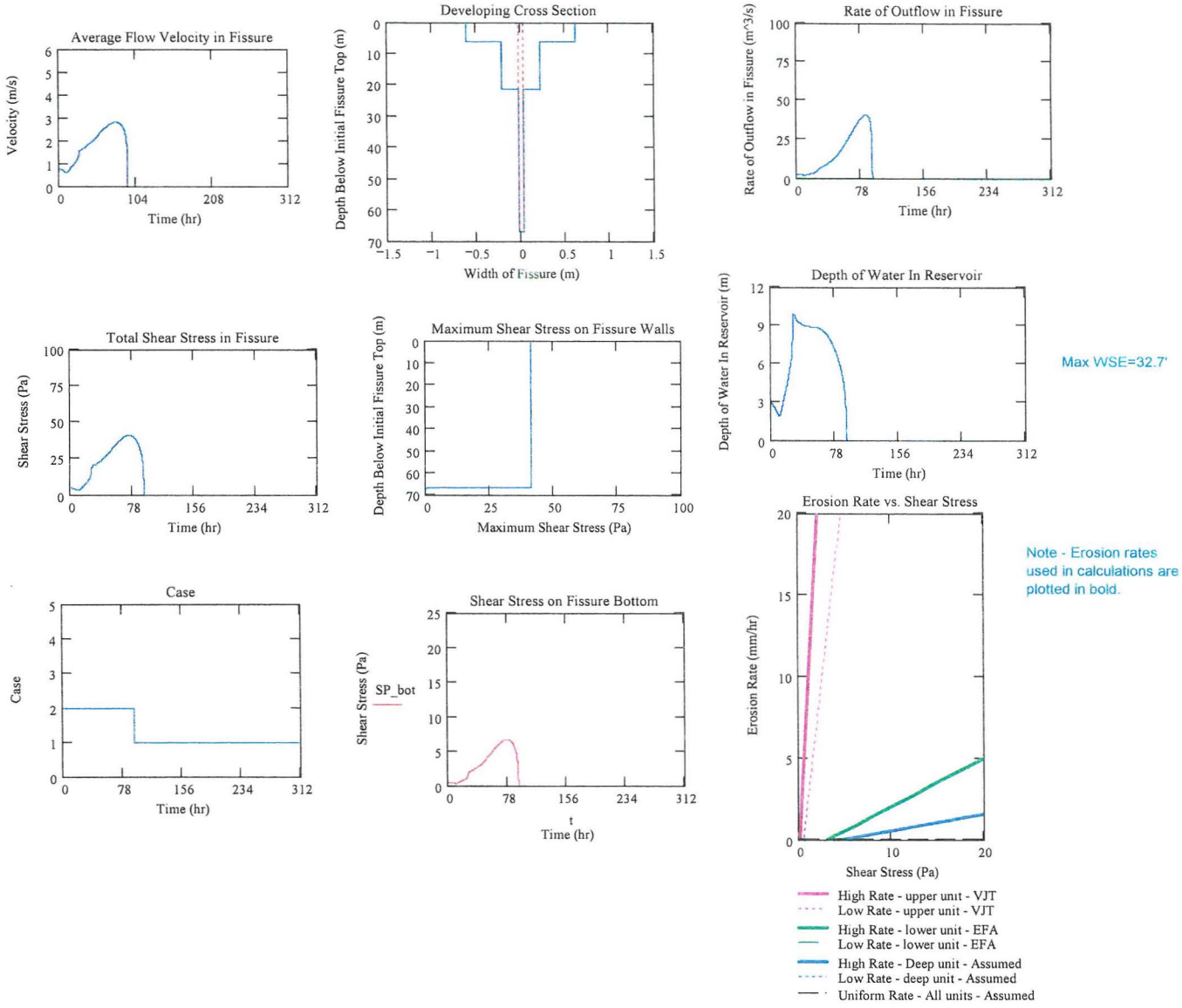


Figure C-80. Test D171 (High erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 230 ft flow path, 150 ft non-erodible depth, initial fissure width of 2.0 inch, cutoff wall length of 30 ft, 10 ft fill layer upstream and downstream of soil cement embankment).

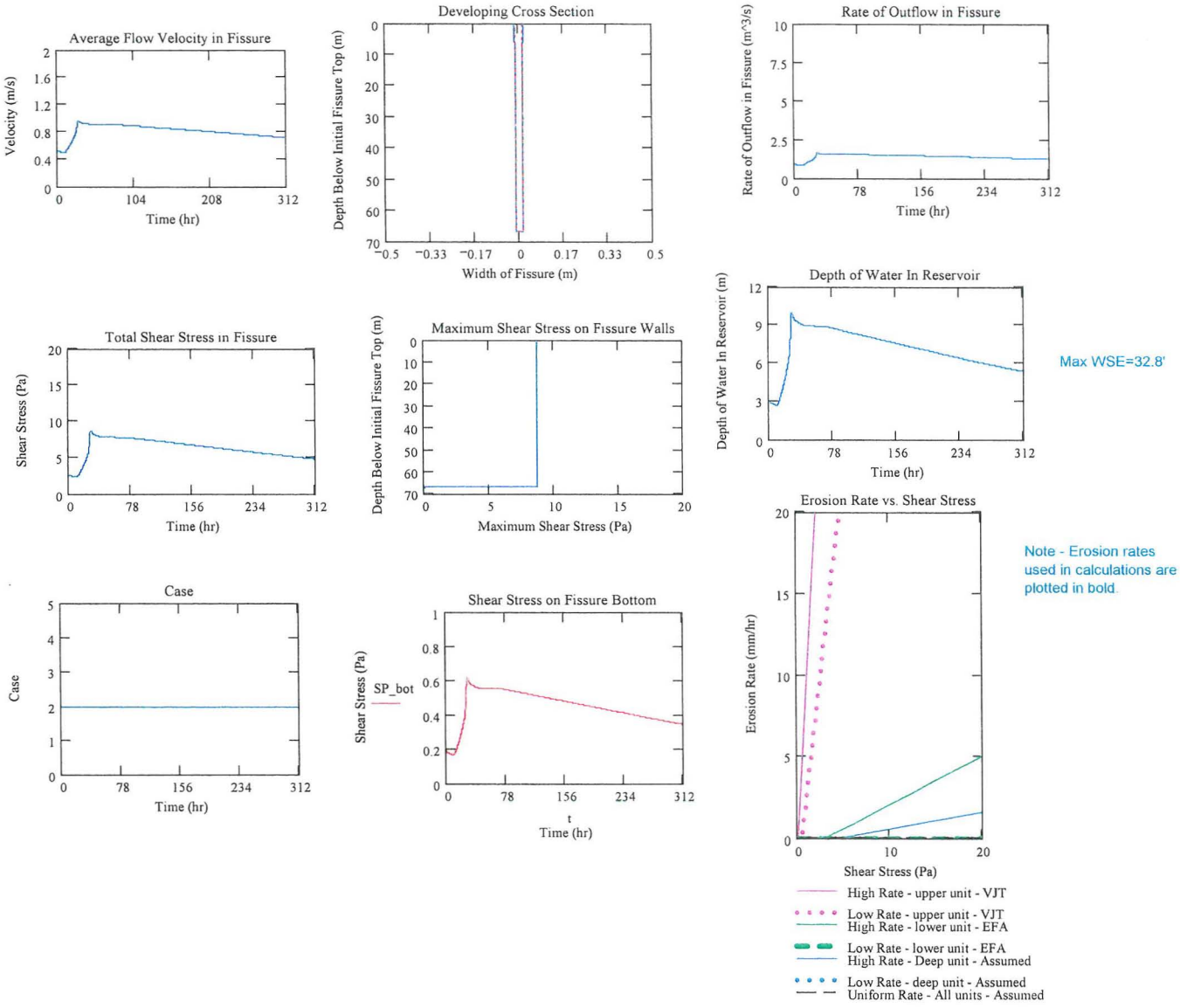


Figure C-81. Test D173 (Low erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 230 ft flow path, 150 ft non-erodible depth, initial fissure width of 1.0 inch, cutoff wall length of 30 ft, 10 ft fill layer upstream and downstream of soil cement embankment).

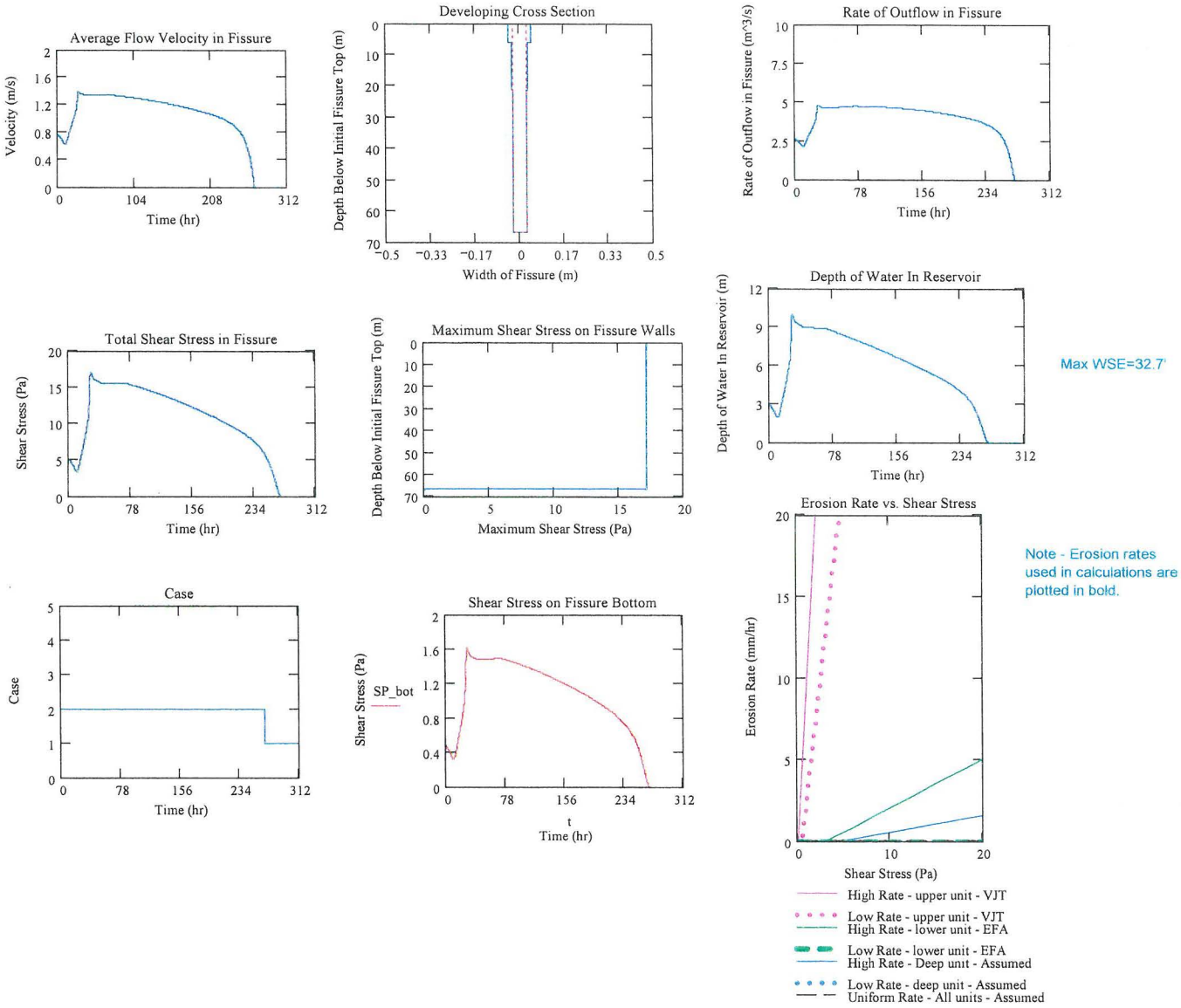


Figure C-82. Test D174 (Low erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and deep Pleistocene Layer, PMF storm event, two cutoff walls, K & P shear stress distribution, 230 ft flow path, 150 ft non-erodible depth, initial fissure width of 2.0 inch, cutoff wall length of 30 ft, 10 ft fill layer upstream and downstream of soil cement embankment).

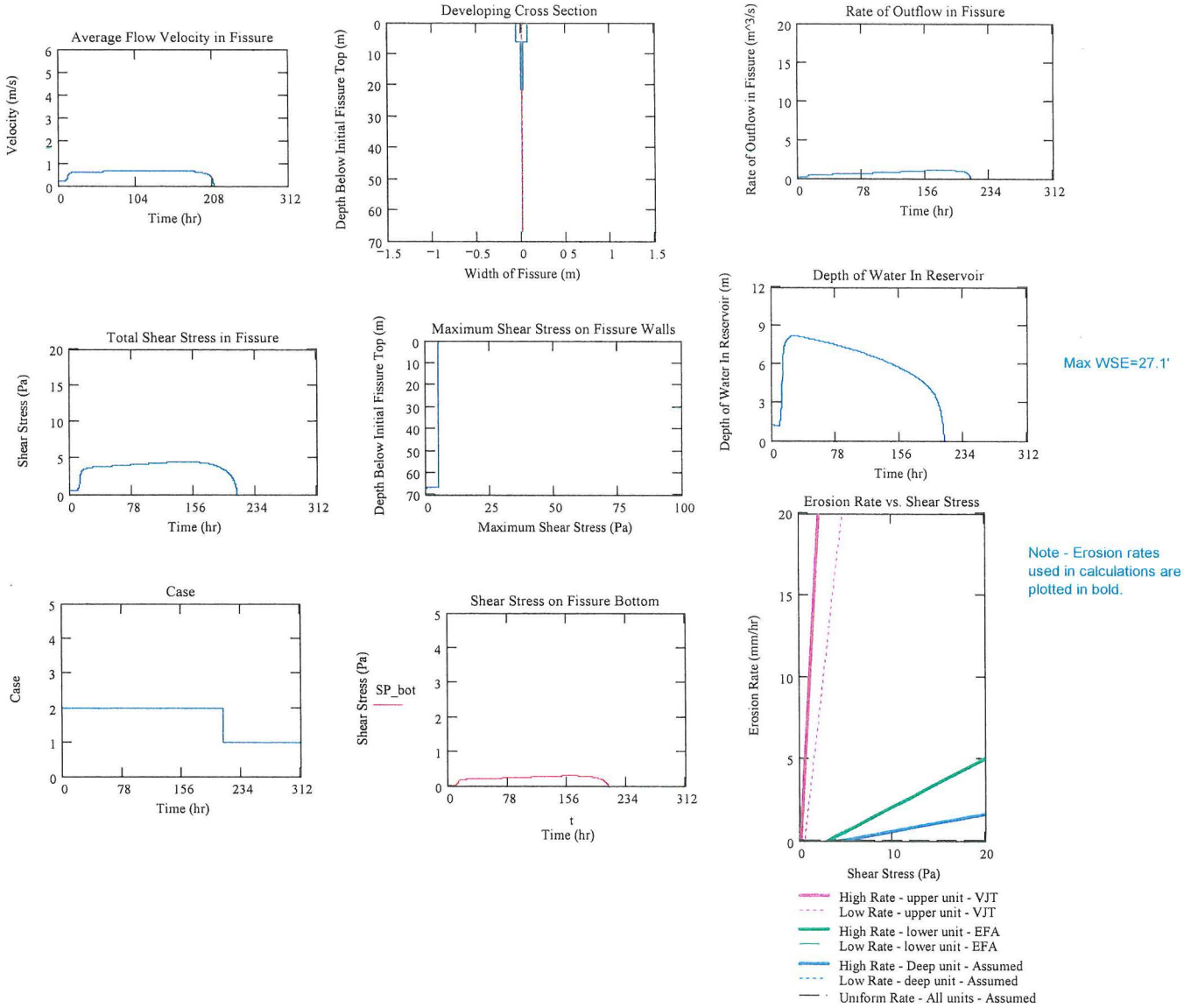


Figure C-83. Test D175 (High erosion rates for Upper Pleistocene Layer, Lower Pleistocene Layer, and deep Pleistocene Layer, 200-yr storm event, two cutoff walls, K & P shear stress distribution, 230 ft flow path, 150 ft non-erodible depth, initial fissure width of 0.5 inch, cutoff wall length of 30 ft, 10 ft fill layer upstream and downstream of soil cement embankment)

APPENDIX D – CUTOFF WALL CRACK CALCULATIONS

OBJECTIVE:

To develop a model using MathCAD that will simulate fissure growth (width) if a vertical fracture were to form within the cutoff wall.

ASSUMPTIONS:

- The length of the fracture extends the entire length of the cutoff wall.
- Cutoff wall is non-erodible meaning the fracture will not grow, making the amount of flow into the fissure constant.
- Lower Pleistocene unit is non-erodible. Therefore, all erosion will occur in the upper Pleistocene unit causing the fissure only to widen behind the cutoff wall and not deepen because the base of the cutoff wall is placed at the top of the lower Pleistocene unit.

CALCULATIONS:

Essentially, the model is setup to compare the shear stress applied to the fissure walls as a function of fissure width to the critical shear stress of the upper Pleistocene unit. While the shear stress from the flowing water is greater than the critical shear stress of the material, erosion will occur. As the applied shear stress is decreasing due to the widening of the fissure, a width will be reached where the critical shear strength of the upper Pleistocene unit will be greater than the applied shear stress and erosion will cease. That width will be the final eroded width of the fissure behind the fractured cutoff wall based on the initial input parameters.

OVERVIEW OF MODEL PARAMETERS

Input Variables

- $h_{fissure}$ is the height of the fractured cutoff wall.
- w_{cutoff} is the crack in the cutoff wall.
- $w_{fissure}$ is the crack in width in the fissure in the Pleistocene layer.
- $h_{reservoir}$ is the height of the water in reservoir behind the dam.
- $h_{reservoir\_low}$ is the height of the water in reservoir for low conditions (to compare with $h_{reservoir}$).
- $\tau_{critical}$ is the critical shear stress of the upper Pleistocene unit.

Friction Coefficient

The friction coefficient (c_f) function, which will be used in calculating the applied shear stress, is exactly the same as the function from the morphological time-loop model previously created for this project. The friction coefficient is a function of the hydraulic diameter and roughness (ε). The hydraulic diameter is a function of the fissure width and will change accordingly. The roughness is a constant which may be adjusted at the beginning of the model with the other input parameters.

Total Applied Shear Stress

The total amount of shear stress associated with water flowing through the fissure was calculated using, $\tau = 1/2 c_f \rho v^2$, where c_f is the friction coefficient, ρ is the density of water, and v is the water velocity behind the fractured cutoff wall. The velocity was determined by applying the Bernoulli energy equation between the top of the reservoir and the front face of the cutoff wall and then applying the conservation of mass equation between the front and back faces of the cutoff wall (see Appendix A). By using these two equations the

velocity behind the cutoff wall can be determined. For the Bernoulli equation, it was assumed that the pressure in the fracture at the front face of the cutoff wall is at atmospheric pressure because there air assumed to be the top of the fissure. The assumption that the pressure within the fissure is at atmospheric pressure is a conservative estimate because the actual pressure within the fissure is most likely higher than atmospheric pressure.

Percentage of Total Applied Shear Stress and the Shear Stress Applied to the Walls

Because the fissure is only suspected to widen, only the shear stress applied to the walls is of importance. The percentage of shear stress applied to the fissure walls can be calculated by the equation given by Knight and Patel (1985), which was used in the foundation Fissure Model. This percentage is a function of the fissure width and the height of the fractured cutoff wall. The percentage is then multiplied by the total applied shear stress to get the shear stress applied to the fissure walls.

X-Axis Scaling Parameter for the Graph

An x-axis scaling parameter was calculated so that no matter what the input parameters would be, the intersection of the critical shear stress line and the applied shear stress curve would be in the field of view. The scaling parameter has no effect on any other calculations.

Graph of Applied Shear Stress and Critical Shear Stress vs. Fissure Width

The graph shows the applied shear stress curves for both reservoir levels ($h_{reservoir}$ and $h_{reservoir\_low}$) in addition to the line for the critical shear strength of the upper Pleistocene unit versus the width of the fissure. Where the applied shear stress curves intersect the critical shear strength line, erosion will stop and the corresponding width is the final width of the fissure behind the cutoff wall.

CONCLUSIONS/RESULTS:

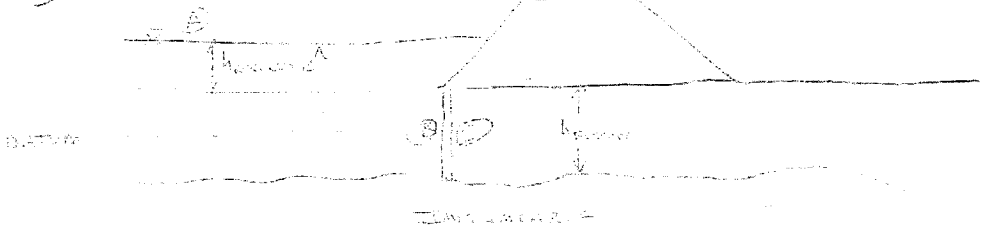
The fractured cutoff wall model provides a conservative estimate for the final fissure width given an initial fracture width in the cutoff wall. To provide a more accurate alternative to the current model it is suggested to recalculate the shear stress within the fissure taking into account the pressure inside the fissure or by different means all together. Also, if it is determined that the lower Pleistocene unit is susceptible to erosion, a simple modification may be made to account for scouring in the vertical direction.

REFERENCES:

White, Frank M., Fluid Mechanics; WCB/McGraw-Hill, 4th Edition, 1999.

APPENDIX A:

Determination of Shear Stress



APPENDIX B:

Input Parameters and Constants

$\rho_w := 998.23\frac{kg}{m^3}$ $g = 9.807\frac{m}{s^2}$ $\varepsilon := 0.005m$ $Pa = 1\,Pa$ $N = 1\,N$

$h_{fissure} := 30ft$ Height of fractured cutoff wall

$h_{reservoir} := 35ft$ Height of water in reservoir

$h_{reservoir\_low} := 0.1ft$

$w_{cutoff} := 1in$ cutoff wall crack width

$\tau_{critical} := 0.4Pa$ Critical shear stress of Upper Pleistocene unit for Low Erosion Rate.

$w_{fissure} := 1in, 2in .. 10000in$ width of fissure

Friction Coefficient Calculation

$$D_h(w) := \frac{4w \cdot h_{fissure}}{2\left(w + h_{fissure}\right)}$$ Hydraulic Diameter

$$f\left(w_{fissure}\right) := \begin{cases} \left[0.01368\exp\left[\frac{\left[\left(\ln\left(\frac{\varepsilon}{D_h\left(w_{fissure}\right)}\right) + 10.53\right)^2\right]}{34.48}\right]\right] & \text{if } \frac{\varepsilon}{D_h\left(w_{fissure}\right)} \le .05 \wedge \frac{\varepsilon}{D_h\left(w_{fissure}\right)} \ge 0.0004 \\ 0.017 \text{ if } \frac{\varepsilon}{D_h\left(w_{fissure}\right)} < 0.0004 \\ 0.075 \text{ if } \frac{\varepsilon}{D_h\left(w_{fissure}\right)} > 0.05 \end{cases}$$

$$c_f\left(w_{fissure}\right) := \frac{f\left(w_{fissure}\right)}{4}$$

Total Shear Stress Applied to Fissure

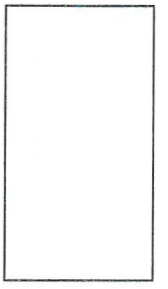
Reservoir Water Level At $h_{reservoir}$ $\tau_{total}\left(w_{fissure}\right) := \frac{1}{2} c_f\left(w_{fissure}\right) \cdot \rho_w \cdot \left[\frac{\sqrt{2 \cdot g \cdot \left(\frac{1}{2} \cdot h_{fissure} + h_{reservoir}\right)} \cdot w_{cutoff}}{w_{fissure}}\right]^2$

Reservoir Water Level Near Empty $\tau_{total\_low}\left(w_{fissure}\right) := \frac{1}{2} c_f\left(w_{fissure}\right) \cdot \rho_w \cdot \left[\frac{\sqrt{2 \cdot g \cdot \left(\frac{1}{2} \cdot h_{fissure} + h_{reservoir\_low}\right)} \cdot w_{cutoff}}{w_{fissure}}\right]$

Percentage of Total Shear Stress Applied to Fissure Bottom

Equation from Knight & Patel, 1983

$$\%SF\_KP_w(w) := 100 - \exp\left(-3.253 \log\left(2 \cdot \frac{h_{fissure}}{w} + 3\right) + 6.189\right)$$



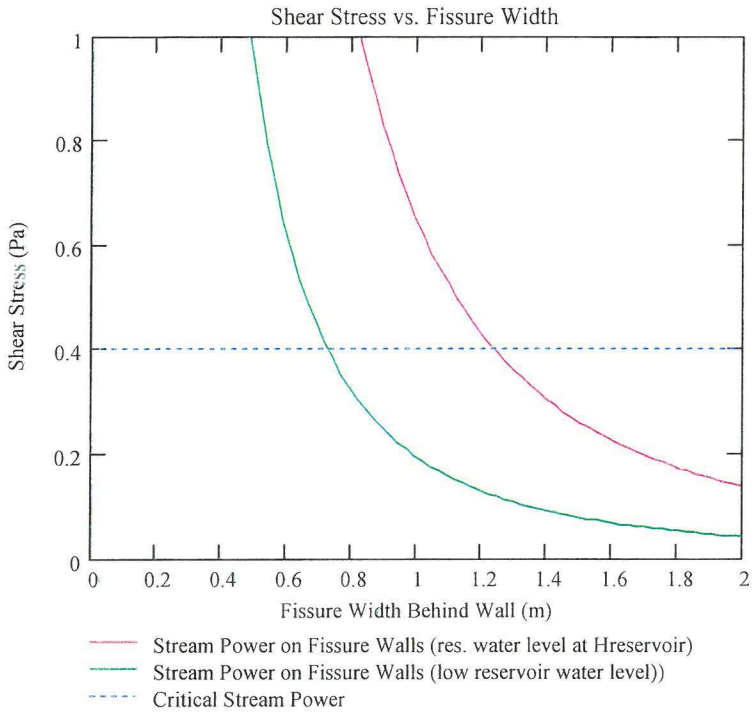
2H = Fissure Model wall

2w = fissure width

Shear Stress on Fissure Walls--distributed according to Knight & Patel's Shear Stress Distribution

$$\tau_{walls}(w_{fissure}) := \tau_{total}(w_{fissure}) \cdot (0.01\%SF\_KP_w(w_{fissure})) \cdot \left(1 + \frac{w_{fissure}}{h_{fissure}}\right)$$

$$\tau_{walls\_low}(w_{fissure}) := \tau_{total\_low}(w_{fissure}) \cdot (0.01\%SF\_KP_w(w_{fissure})) \cdot \left(1 + \frac{w_{fissure}}{h_{fissure}}\right)$$



Intersection of wall shear stress and critical shear stress curves yield fissure width.

$$Q(w_{fissure}) := \left[\frac{\sqrt{2 \cdot g \cdot \left(\frac{1}{2} \cdot h_{fissure} + h_{reservoir\_low} \right)} \cdot w_{cutoff}}{w_{fissure}} \right] \cdot \left(w_{cutoff} \cdot h_{fissure} \right)$$

$w_{fissure}$ =	$\tau_{walls}(w_{fissure})$ =	$Q(w_{fissure})$ =
1.219 m	0.411 Pa	0.046 $\frac{m^3}{s}$
1.245	0.392	0.045

APPENDIX E – EMBANKMENT CRACK CALCULATIONS

Stream Power Calculation for Crack in Embankment

Assumptions (Proofs of assumptions below calculations)

1. The critical specific energy through the fissure equals H_w.
2. The maximum water depth at the upstream end of fissure is H_w and the flow depth at the downstream end is critical, so the effective depth is 5/6* H_w.

$a := 0.5 \cdot in$	$a = 0.013m$	Fissure width
$H_w := 1218 ft - 1183 ft$	$H_w = 10.668m$	Fissure depth and flow depth at the upstream end of fissure.
$g = 9.807 \frac{m}{s^2}$		Gravity
$Q := a \cdot \sqrt{g \cdot \left(\frac{2}{3} \cdot H_w\right)^3}$	$Q = 0.754 \frac{m^3}{s}$	Discharge through the fissure assuming that critical specific energy is equal to Hw
$U := \frac{Q}{a \cdot \frac{5}{6} \cdot H_w}$	$U = 6.681 \frac{m}{s}$	Effective velocity through the fissure assuming that the effective depth is 5/6Hw
$A := a \cdot \frac{5}{6} \cdot H_w$	$A = 0.113m^2$	Effective flow area
$P := a + 2 \cdot \frac{5}{6} \cdot H_w$	$P = 17.793m$	Effective wetter perimeter
$R_h := \frac{A}{P}$	$R_h = 6.345 \times 10^{-3} m$	Effective hydraulic radius through the fissure
$k_s := 5 \cdot mm$		
$\left(\frac{k_s}{R_h}\right) = 0.788$	$f := 0.075$	Friction factor Ratio is >0.05 so use f = 0.075
$\rho := 998.2 \frac{kg}{m^3}$		Density of water
$\gamma := g \cdot \rho$	$\gamma = 9.789 \times 10^3 \frac{N}{m^3}$	Specific weight of water
$\tau := 0.5 \cdot \rho \cdot U^2 \cdot \frac{f}{4}$	$\tau = 417.716Pa$	Shear stress
$SP := \tau \cdot U$	$SP = 2.791 \frac{kW}{m^2}$	Stream power

$EI := 95 \cdot \frac{kW}{m^2}$ Erodibility Index (Calculations follow)

Stream power is less than the erodibility index so erosion will not occur in the fissure.

Assumption 1) The critical specific energy through the fissure equals H_w.

Specific Energy Equation	$E = y + V^2/2g$
Critical Specific Energy Equation	$E_c = y_c + V_c^2/2g$
Assumption 1	$E_c = H_w$

If H_w is the depth of flow at the upstream end of the fissure and we assume critical depth at the outlet of the fissure, the energy equation shows:

$$Z_1 + H_w + V_1^2/2g = Z_2 + y_c + V_c^2/2g + h_L$$

where

Z_1 = the distance from the datum to the bottom of the fissure at the upstream end

Z_2 = the distance from the datum to the bottom of the fissure at the downstream end

H_w = flow depth at upstream end of fissure

y_c = flow depth at downstream end of fissure

V_1 = flow velocity at upstream end of fissure

V_c = flow velocity at downstream end of fissure

g = gravity

h_L = energy loss between upstream and downstream end of fissure

The energy equation can be simplified by assuming:

$Z_1 = Z_2$	The fissure bed at the upstream and downstream end of the fissure are the same elevation.
$h_L = 0$	There is no energy losses through the fissure
$V_1 = 0$	The velocity at the upstream end of the fissure is equal to zero

Simplified Energy equation

$$H_w = y_c + V_c^2/2g$$

$$H_w = E_c$$

Assumption 2) The maximum water depth at the upstream end of fissure is H_w and the flow depth at the downstream end is critical, so the effective depth is $5/6*H_w$.

$$y_{eff} = 5/6 * H_w$$

$$y_{eff} = 5/6 * (y_c + V_c^2/2g)$$ Substitute in Ec for Hw, shown valid in assumption 1

$$y_{eff} = 5/6 * (y_c + y_c/2)$$ The Froude number for critical flow is equal to 1, so $V_c = (y_c*g)^2$ can be substituted into the equation and simplification made.

$$y_{eff} = 5/4 * y_c$$

The effective depth is the average depth for the channel. Assuming a linear profile between the upstream end and the downstream end of the fissure the average flow depth through the channel can be found as:

$$y_{eff} = (H_w + y_c)/2$$

$$y_{eff} = ((y_c + V_c^2/2g) + y_c)/2$$

$$y_{eff} = (y_c + y_c/2 + y_c)/2$$ The Froude number for critical flow is equal to 1, so $V_c = (y_c*g)^2$ can be substituted into the equation and simplification made.

$$y_{eff} = 5/4 * y_c$$

So it can be shown that $y_{eff} = 5/6 * H_w$

Material Parameters for Erodibility Index

Material	UCS (psi)	UCS (MPa)	Density (pcf)	Density (kg/m3)	Ms	Kb	Kd	Js	Erodibility Index	Resisting Power (kW/m2)
Soil Cement Embankment	1000	6.89	125	2002.1	4.310	100	1	1	431	95
Plastic Concrete Cutoff Wall	200	1.38	125	2002.1	0.797	100	1	1	80	27

APPENDIX F – EFFECT OF NON-ERODIBLE LAYER WITH CRACK

White Tanks FRS. No. 3 Embankment

Technical Memorandum

Effect of Erosion-Resistant Layer with Crack

Engineering & Hydrosystems Inc

Re: Effect of Erosion-Resistant Layer and Cutoff Walls with Narrow Crack on Fissure Formation
To: URS Corporation and Flood Control District of Maricopa County
Prepared by: George W. Annandale and Tamara Butler Johndrow
Reviewed by: George W. Annandale
Date: March 21, 2005

INTRODUCTION

This memorandum is included in Appendix F of the fissure modeling report by Engineering and Hydrosystems Inc. (E&H 2005). The E&H fissure modeling report is included in the URS Corporation Design Report (URS 2005). The URS Design Report has been submitted to the Flood Control District of Maricopa County (District). The E&H fissure modeling report assessed the erodibility of the foundation soils and assessed the anticipated performance of a proposed design for preventing failure and excessive erosion of possible fissures at White Tanks FRS. No. 3.

Since the development of the original concept of the fissure modeling report, URS has developed an enhanced model of the possible erosion of fissures. This model is discussed in the URS Supplemental Design Report in which this memorandum is also included as an appendix.

URS has determined that numerous erosion-resistant continuous to semi-continuous layers exist within the Pleistocene material at the area of concern at White Tanks. If a fissure occurs in the foundation under White Tanks FRS. No. 3, it is possible that a crack could also form in the erosion-resistant layers and possibly also in the vertical cutoff walls. URS asked E&H to consider the case that assumes these cracks line up perfectly with the foundation fissure in the direction of flow at the start of a flood event. URS requested that a single 4' thick erosion-resistant layer be used to model the multiple erosion-resistant layers that they have noted. The erosion-resistant layer is to be modeled near the bottom of the cutoff walls. URS requested that E&H consider the case where the horizontal erosion-resistant layer extends horizontally 100', 200', and 500' upstream and 100', 200', and 500' downstream of the embankment, respectively.

OBJECTIVE

The objective of this supplementary memorandum is to determine the effect of a narrow crack in the vertical cutoff walls and in the erosion-resistant horizontal layer on potential fissure erosion beneath White Tanks FRS. No. 3.

APPROACH

The approach that was followed was to consider the flow conditions through a fissure with a crack in an erosion-resistant confining layer, and to derive mathematical equations that represent the situation. The erosion-resistant layer is assumed to be of finite extent upstream and downstream of the embankment. The mathematical equations were solved to estimate the magnitudes of flow through the cracks and fissure. The equations used produce flows through the fissure that minimize stream power. The results are compared to the flowrate estimated by the fissure model for a similar scenario without cutoff wall cracks.

Stream power is used to define the erosive capacity of water acting on the foundation soils in a narrow existing fissure. The total stream power through a fissure or through an opening can be expressed as,

$$P = \gamma Q h_f \tag{0.1}$$

Where γ = unit weight of water; Q = total discharge; h_f = total head loss.

The same expression can also be written as,

$$P = \gamma h_f^{'} \tag{0.2}$$

Where $h_f^{'} = Q h_f$ = energy loss flux.

The latter expression is particularly useful in situations where interpretation of flow presents difficulties in understanding a particular flow situation when viewed from an energy head point of view, as is the case in the problem under consideration.

The derivations that follow therefore focus on developing expressions for energy loss flux, which are converted to head loss equations prior to finalizing the assessment. These expressions are solved for total system flowrate that minimizes stream power.

Crack in Erosion-Resistant Layer which may Act as Confining Layer

The fissure is assumed to extend from upstream of the erosion-resistant layer, through the erosion-resistant layer upstream of the embankment, across through the foundation under the embankment and the S.C.B. walls, through the erosion-resistant layer downstream of the embankment, and downstream of the erosion-resistant layer. This analysis was developed for the case where the foundation fissure is slightly wider than the erosion-resistant layer crack, so that the erosion-resistant layer acts as a confining layer to downward flow. The water surface elevation is at a depth H above the toe of the embankment. Water may flow down through the foundation fissure and erosion-resistant layer crack and it may discharge into the fissure from upstream of the erosion-resistant layer. The water may flow down through the erosion-resistant layer crack into the fissure because of energy losses introduced by the foundation fissure flow from upstream. This means that the available energy just below the erosion-resistant layer may be less than the energy just above the erosion-resistant layer (due to the friction losses of the water already flowing in the fissure), which leads to water flowing from above the erosion-resistant layer into the fissure through the crack in the erosion-resistant layer.

It is assumed that the water discharging down through the fissure and erosion-resistant layer of total length L_a does so at a constant unit discharge rate q_a along the fissure, which means that the water flowing into the crack does so at a uniform rate. The amount of water flowing into the fissure from upstream of the erosion-resistant layer is $Q_b^{'}$. Thus, the total outflow from the fissure, at the downstream end of the system, is equal to $Q_a + Q_b^{'}$, where $Q_a = q_a L_a$. The magnitude of the maximum amount of water that can discharge through the fissure at the downstream end of the erosion-resistant layer (downstream of the embankment) is determined by the available head. This means that the stream power in the fissure changes as a function of x, increasing in the direction of flow under the erosion-resistant layer, but remaining roughly constant underneath the embankment.

Starting with the Darcy equation,

$$h_f = \frac{\lambda L}{R_h}\frac{v^2}{2g}$$

where $R_h = \frac{4A}{P}$ = hydraulic radius of an enclosed conduit; $A = Dw_f$ = cross sectional area of the fissure; $P = \left(2D + 2w_f\right)$ = wetted perimeter of the fissure.

One can rewrite this equation to express the energy slope over a short distance dx as follows,

$$\frac{dh_f}{dx} = \frac{\lambda}{R_h}\frac{v^2}{2g} \tag{0.3}$$

The velocity in the fissure can be expressed as a function of x, i.e.

$$v = \frac{Q_b^{'} + q_a x}{w_f D}$$

From which follows,

$$dh_f = \frac{\lambda}{2gR_h w_f^2 D^2}\cdot\left(Q_b^{'} + q_a x\right)^2 dx \tag{0.4}$$

Due to the fact that the inflow through the fissure results in varying flow conditions underneath the erosion-resistant layer over the length of the crack, i.e. in the fissure, it is convenient to express the energy loss through the crack and along the fissure in terms of an energy flux. (The use of energy head, i.e. energy per unit weight of water, is often convenient in civil engineering when considering one-dimensional flow situations (purely from an interpretation point of view), but provides some difficulties in interpretation in this case. Using the flux of energy loss offers a more convenient approach to consider the energy loss).

By multiplying equation (0.4) with discharge, the energy head loss can be expressed in terms of the flux of energy loss through the fissure underneath the erosion-resistant layer, i.e.

$$dh_f^{'} = \frac{\lambda}{2gR_h w_f^2 D^2}\cdot\left(Q_b^{'} + q_a x\right)^3 dx \tag{0.5}$$

where $h_f^{'}$ = flux of energy loss.

The total energy loss flux in the fissure underneath the erosion-resistant layer (excluding the losses through the crack at this stage) can therefore be expressed as,

$$h_f^{'} = \int_0^{L_a} \frac{\lambda}{2gR_h w_f^2 D^2}\cdot\left(Q_b^{'} + q_a x\right)^3 dx \tag{0.6}$$

Solving for the integral results in,

$$h_f' = \frac{\lambda\left(2D+2w_f\right)}{8gw_f^3D^3}\left(Q_b'^3L_a + \frac{3}{2}Q_b'^2q_aL_a^2 + Q_b'q_a^2L_a^3 + \frac{1}{4}q_a^3L_a^4\right) \quad (0.7)$$

However, this is not the total energy loss flux over the distance L_a. The energy loss flux of the water flowing through the crack in the erosion-resistant layer needs to be added to this. If the crack width is w_c then the velocity through the crack can be expressed as,

$$v_c = \frac{q_a}{w_c} \quad (0.8)$$

The energy head loss per unit length of crack can then be expressed as,

$$h_{fc} = K\frac{v_c^2}{2g} = K\frac{q_a^2}{2gw_c^2} \quad (0.9)$$

where K = energy loss coefficient for entrance and exit of erosion-resistant (confining) layer crack.

And the flux of energy loss per unit length of crack is,

$$h_{fc}' = K\frac{v_c^2}{2g}\cdot q_a = K\frac{q_a^3}{2gw_c^2} \quad (0.10)$$

From which follows that the total loss along the crack can be expressed as,

$$h_{fc}' = K\frac{q_a^3}{2gw_c^2}\cdot L_a \quad (0.11)$$

Therefore, the total flux of energy loss through the crack and in the fissure underneath the erosion-resistant layer is the sum of the flux of energy loss under the erosion-resistant layer, h_f', plus the flux of energy loss through the crack in the erosion-resistant layer, h_{fc}'.

The total flux of energy loss determined by the above equations must be greater than the total system energy loss at the upstream toe of the embankment if there were no crack in the erosion-resistant layer but less than the total energy loss at the downstream toe of the embankment (used as a minimum).

Graphical methods were used in MathCAD as shown in Appendix A of this memorandum to solve these equations for estimating the flow through the foundation fissure underneath the erosion-resistant layer and through the erosion-resistant layer crack.

FLOW THROUGH CRACK IN CUTOFF WALLS

The flow through the crack in the cutoff walls is estimated assuming orifice flow as:

$$Q_{cutoff\_crack} = k_{cutoff}\cdot\sqrt{2\cdot g\cdot(H_{avg\_cutoff})}\cdot w_c \quad (0.12)$$

where H_{avg_cutoff} is the average head acting on the cutoff walls and k_{cutoff} is the orifice coefficient of velocity for sharp tube with no separation (Lindeburg 2002).

The total flow through the system is then the flow through the cutoff walls' crack plus the flow through the erosion-resistant layer crack plus the flow that enters the fissure upstream of the erosion-resistant layer.

RESULTS

URS asked E&H to consider the specific case where both cracks and the fissure are assumed to have a width of ½" when the 200-year event peak reservoir stage occurs. Three lengths of the erosion-resistant layer extent were considered in the analysis herein: 100', 200', and 500' upstream and downstream of the embankment. The total flow predicted to occur through the entire system is less than 56 cfs for all three lengths with approximately 40 cfs of the total discharge occurring through the crack in the cutoff walls. A similar case was modeled by the E&H fissure model except that the cutoff walls in the E&H fissure model were assumed intact (test D176). The E&H fissure model resulting peak flowrate was approximately 19 cfs. The sum of the E&H fissure model discharge and the cutoff wall crack discharge calculated herein is approximately 59 cfs. Thus, the total estimated flow from the E&H fissure model and a ½" crack in the cutoff walls is similar in magnitude to what is predicted in this separate analysis.

CONCLUSIONS AND RECOMMENDATION

Because flows predicted by this analysis and the similar scenario in the fissure model are of similar magnitude, E&H feels that the flow estimates given are reasonable. The flows are less than the determined failure criteria of 500 cfs.

E&H expects that some erosion is likely to occur in the erodible foundation materials. However, with the presence of the erosion-resistant layer this erosion is expected to be less than was predicted by the original fissure model. The erosion-resistant layer would act to constrict flow through its ½" crack, thus reducing the overall erosive capacity of the system.

We view it as prudent for the District to monitor the foundation for potential formation of fissures. Should fissures be identified, it is recommended that they should be mitigated prior to becoming larger.

References

Lindeburg, Michael R. 2002. Civil Engineering Reference Manual, 8th Edition. Belmont, CA.

United States Bureau of Reclamation (USBR). 1987. Design of Small Dams, 3rd Edition. Denver, Colorado.

Appendix A

White Tanks FRS No. 3

Calculation of Discharge through a fissure with a confining layer from 1156' to 1160' elevation.

Input Data

$H := 17ft$ 1212'-1195' =Change in head between upstream and downstream of dam.

$K := 1.5$ Loss coefficient for flow through crack in confining layer [Entrance loss 0.5 (Bureau of Reclamation 1977); Exit loss assumed to be 1.0 (Daugherty, Franzini, and Finnemore 1985)]

$k_{cutoff} := 0.82$ Loss coefficient for flow through crack in cutoff walls [orifice coefficient of velocity for sharp tube (no separation) (Lindeburg 2002)]

$L_a := 200ft$ Length of confining layer in the streamwise direction upstream and downstream of dam.--Use 100', 200', and 500' upstream and downstream

$w_c := 0.5in$ Width of crack in the confining layer--Because w_c is set equal to w_f, then this is not actually acting as a confining layer

$w_f := 0.5in$ Width of fissure above and below confining layer

$\lambda := 0.075$ Darcy-Weisbach friction factor

$L_{horiz} := (32.75 + 75.2 + 107.5)ft$ Horizontal length under dam assuming flow path is rectangular around common fill and down to confining layer

$L_{vert} := (1195 - 1156)ft$ Vertical length from toe of embankment to bottom of confining layer.

$L := L_{horiz} + L_{vert}$ Length of flowpath experiencing losses due to friction for total flow

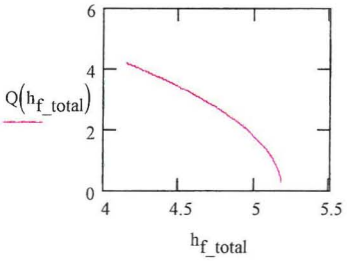
$L = 254.45ft$

$D := 239ft$ Depth of fissure below bottom of confining layer (below 1156' EL)

$\rho := 62.4\frac{lb}{ft^3}$ Density of Water

$h_{f\_total} := 0.8H, 0.801H .. 0.99999H$ Set possible range for total headloss

$Q(h_{f\_total}) := \sqrt{2 \cdot g \cdot (H - h_{f\_total})} \cdot w_f D$ Total flow based on range of total headloss



$Q_{a\_max} := Q(0.99H)$ $Q_{a\_max} = 0.93 \frac{m^3}{s}$ $Q_a := 0, 0.01 \cdot Q_{a\_max} .. Q_{a\_max}$ Set possible range for vertical downward flow through layer crack

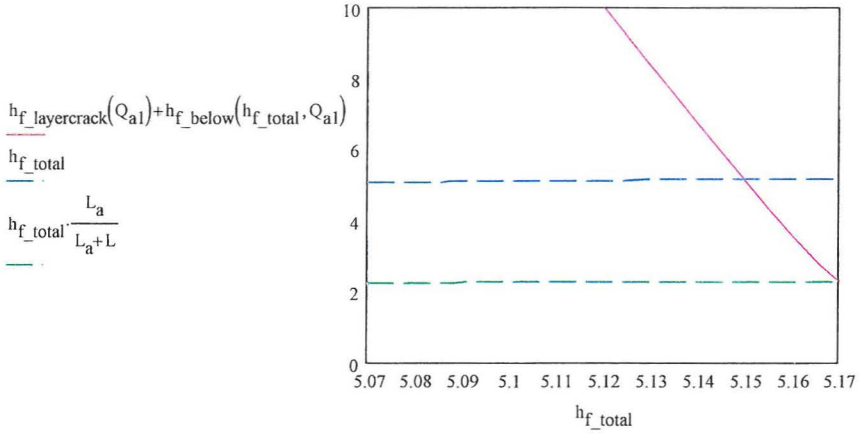
$Q'_b(h_{f\_total}, Q_a) := Q(h_{f\_total}) - Q_a$ Thus, flow horizontally under the layer

$h_{f\_layercrack}(Q_a) := K \cdot \frac{Q_a^2}{2g \cdot L_a^2 \cdot w_c^2}$ Headloss for downward flow through crack in layer

Headloss for horizontal flow under layer

$$h_{f\_below}(h_{f\_total}, Q_a) := \frac{\lambda \cdot (2 \cdot D + 2 \cdot w_f)}{8 \cdot g \cdot w_f^3 \cdot D^3} \cdot \frac{Q'_b(h_{f\_total}, Q_a)^3 \cdot L_a + \frac{3}{2} \cdot Q'_b(h_{f\_total}, Q_a)^2 \cdot Q_a \cdot L_a + Q'_b(h_{f\_total}, Q_a) \cdot Q_a^2 \cdot L_a + \frac{1}{4} \cdot Q_a^3 \cdot L_a}{Q'_b(h_{f\_total}, Q_a)}$$

$Q_{a1} := 10.241 \frac{ft^3}{s}$ Downward flow through layer crack adjusted until h_{f_apron} is equal to $h_{f\_total} * L_a/(L_a+L)$ to provide minimum stream power



Thus, to minimize stream power:

Flow vertically down through crack in layer:

$Q_{a1} = 10.24 \frac{ft^3}{s}$

Flow horozontally under layer:

$Q'_b(5.17m, Q_{a1}) = 5.34 \frac{ft^3}{s}$

Total Flow Below Cutoff Walls:

$Q_{a1} + Q'_b(5.17m, Q_{a1}) = 15.58 \frac{ft^3}{s}$

Total flow through fissure also includes flow through cutoff wall crack:

$H_{top\_cutoff} := 1212ft - 1183ft$ $H_{bottom\_cutoff} := 1212ft - 1160ft$

$H_{avg\_cutoff} := \frac{H_{top\_cutoff} + H_{bottom\_cutoff}}{2}$ $H_{avg\_cutoff} = 40.5ft$

Note: MathCAD can use Metric and English units and it converts units autocmatically as necessary.

$Q_{cutoff\_crack} := k_{cutoff} \cdot \sqrt{2 \cdot g \cdot H_{avg\_cutoff}} \cdot (1183ft - 1160ft) \cdot w_c$ $Q_{cutoff\_crack} = 40.12 \frac{ft^3}{s}$

Total Flow through Fissure is Then: $Q_{total} := Q_{cutoff\_crack} + Q_{a1} + Q'_b(5.17m, Q_{a1})$ $Q_{total} = 56 \frac{ft^3}{s}$

URS

Memorandum

Date: 1 November 2004

To: Dick Davidson, Lois Boxill

From: Mark Foster

Subject: White Tanks FRS No. 3 – Independent Assessment of Crack Erosion

This memo describes an independent assessment of the estimated rate of erosion due to seepage in a vertical crack below the proposed cutoff for White Tanks FRS No 3. The results of this assessment are compared to the crack erosion assessment by Engineering & Hydrosystems Inc.

Methodology

The method adopted is described in Fell, Wan and Foster (2003)[1]. In summary, the method involves:

- Estimating the shear stress applied by the flow on the walls of the vertical crack;
- Estimating the rate of erosion along the walls of the crack and hence increase in crack width.

The following equation is used to estimate the **hydraulic shear stress** on the surface of a parallel sided transverse crack in an embankment:

$$\tau = \frac{\rho_w g H_f^{\,2} W}{2(H_f + W)L}$$

where τ = Hydraulic shear stress in N/m^2

ρ_w = Density of water in kg/m^3

g = Acceleration due to gravity = $9.8 m/s^2$

H_f = Head loss in crack due to friction in metres

L = Length of crack base in metres

[1] Fell, Wan and Foster (2003) "Progress Report on Methods for Estimating the Probability of Failure of Embankment Dams by Internal Erosion and Piping", The University of New South Wales.

URS Australia Pty Ltd (ABN 46 000 691 690)
Level 3, 116 Miller Street
North Sydney, NSW 2060 Australia
Tel: 61 2 8925 5500
Fax: 61 2 8925 5555

W = Width of crack in metres.

Normally the crack width is much smaller than the head loss and hence the equation simplifies to

$$\tau = \frac{\rho_w g H_f W}{2L}$$

The assumptions are:

- Linear head loss from upstream to downstream
- Steady uniform flow along the crack
- Zero pressure head at the downstream end
- Uniform frictional resistance along the surface of the crack
- Driving force = frictional resistance.

The **rate of erosion** is estimated using the following equation:

$$\dot{\varepsilon} = C_e(\tau - \tau_c)$$

where τ = applied shear stress;

τ_c = critical shear stress; and

C_e = Coefficient of Soil Erosion which is equal to $10^{-I_{HET}}$, where I_{HET} is the Erosion Rate Index obtained from the Hole Erosion Test.

For the purposes of this assessment, the critical shear stress τ_{cr} is assumed to be 0. This is a conservative assumption. The HET tests gave values between 112 N/m^2 to 460 N/m^2 (note 1 N/m^2 = Pa). Estimates of τ_{cr} from HET tests are not reliable, and if the values from the tests are used you would not get any erosion (as initial shear stress in a 12mm crack < critical shear stress).

Comparison of HET Erosion Rate to EFA

The I_{HET} values for the samples from the Lower Pleistocene Unit ranged from 4.6 to 5.15 with an average of 4.9. These values correspond to erosion rates in a crack, E in mm/hr, of between 0.014τ to 0.05τ, with an average value of 0.025τ, where τ = shear stress in Pa (assumes soil density of 1800 kg/m^3). These values fall towards the lower end of the range of the EFA tests for the Lower Unit (the shaded area labelled "B" in Figure 2a of E&H Technical Memo dated July 19, 2004).

Estimate of Crack Erosion

The seepage path length = 112 feet (i.e. ignoring the earthfill) to be consistent with E&H analyses and used the PMF 72 hr general hydrograph. Please note that the full PMF hydrograph as provided is not complete and the crack will continue to enlarge as the hydrograph continues to recede stops at EL1211.8 at t=86hrs.

The analyses are provided in the attached Excel file "Crack Erosion.xls".

The estimated final fissure widths for the case of a 30 foot deep cutoff, PMF and initial fissure width of 12mm are:

- 30 mm, for the lower bound rate of erosion (I_{HET}=5.15);
- 60 mm, for the average rate of erosion (I_{HET}=4.9); and
- 300 mm, for the upper bound rate of erosion (I_{HET}=4.6).

The relevant cases from the E&H analyses appear to be D102 and D108 in Table 1 of E&H Technical Memo dated Sept 28, 2004 (assuming no 10' Fill Layer). Those runs yielded final fissure widths of between 0.04 feet to 2.27 feet (12 – 690 mm) for low and high erosion rates respectively. The lower fissure widths estimated in the current analyses reflect the lower rates of erosion predicted from the HET tests.

Erosion of Vertical Crack

Formulae:

Shear stress:

Shear stress (Pa) = density water x g x crack width x hydraulic head / (2 x seepage path length)

where:
- density water = 1000 kg/m^3
- g = 9.81 m/s2
- crack width (m)
- hydraulic head (m)
- seepage path length (m)

Rate of erosion:

Rate of erosion (kg/s/m^2) = 10^-Ihet x shear stress
NB: Assumes critical shear stress = 0

where
- Ihet = Hole Erosion Test Index
- shear stress (Pa)

Rate of Crack Widening:

Crack Widening (m/s) = Rate of erosion/soil density

where
- Rate of erosion (kg/s/m^2)
- Soil density (kg/m^3)

White Tanks - Crack Erosion
PMF, Lower Bound Rate of Erosion from HET

Input Parameters:

Initial Crack Width (m)	12.5	mm
I Het Value	5.15	
Soil Density (kg/cum)	1800	kg/m3
Seepage path length (m)	34	m
Storage floor elevation at FRZ	1193	ft

Note: Lower bound I HET value = 5.15, corresponds to Erosion Rate = 0.014 x shear stress (mm/hr)

Time (hours)	Elevation (ft)	Hydraulic Head (m)	Shear Stress (Pa)	Rate of Erosion (kg/s/m2)	Incremental Crack Widening (mm)	Crack Width (mm)
6.4	1204.80	3.60	6.49	0.00005		12.5
6.6	1204.80	3.60	6.49	0.00005	0.02	12.5
6.8	1204.79	3.60	6.50	0.00005	0.02	12.5
7	1204.79	3.60	6.51	0.00005	0.02	12.6
7.2	1204.79	3.60	6.51	0.00005	0.02	12.6
7.4	1204.79	3.60	6.52	0.00005	0.02	12.6
7.6	1204.78	3.59	6.53	0.00005	0.02	12.6
7.8	1204.78	3.59	6.54	0.00005	0.02	12.6
8	1204.78	3.59	6.55	0.00005	0.02	12.6
8.2	1204.78	3.59	6.55	0.00005	0.02	12.7
8.4	1204.77	3.59	6.56	0.00005	0.02	12.7
8.6	1204.77	3.59	6.57	0.00005	0.02	12.7
8.8	1204.77	3.59	6.58	0.00005	0.02	12.7
9	1204.77	3.59	6.59	0.00005	0.02	12.7
9.2	1204.77	3.59	6.60	0.00005	0.02	12.8
9.4	1204.77	3.59	6.61	0.00005	0.02	12.8
9.6	1204.77	3.59	6.62	0.00005	0.02	12.8
9.8	1204.78	3.59	6.63	0.00005	0.02	12.8
10	1204.78	3.59	6.64	0.00005	0.02	12.8
10.2	1204.78	3.59	6.65	0.00005	0.02	12.9
10.4	1204.79	3.60	6.67	0.00005	0.02	12.9
10.6	1204.79	3.60	6.68	0.00005	0.02	12.9
10.8	1204.80	3.60	6.70	0.00005	0.02	12.9
11	1204.81	3.60	6.71	0.00005	0.02	12.9
11.2	1204.82	3.61	6.73	0.00005	0.02	12.9
11.4	1204.83	3.61	6.74	0.00005	0.02	13.0
11.6	1204.85	3.61	6.76	0.00005	0.02	13.0
11.8	1204.86	3.62	6.78	0.00005	0.02	13.0
12	1204.88	3.62	6.80	0.00005	0.02	13.0
12.2	1204.89	3.63	6.82	0.00005	0.02	13.0
12.4	1204.91	3.63	6.84	0.00005	0.02	13.1
12.6	1204.93	3.64	6.86	0.00005	0.02	13.1
12.8	1204.95	3.65	6.88	0.00005	0.02	13.1
13	1204.97	3.65	6.90	0.00005	0.02	13.1
13.2	1205.00	3.66	6.93	0.00005	0.02	13.1
13.4	1205.02	3.67	6.95	0.00005	0.02	13.2
13.6	1205.05	3.67	6.98	0.00005	0.02	13.2
13.8	1205.07	3.68	7.00	0.00005	0.02	13.2
14	1205.10	3.69	7.03	0.00005	0.02	13.2
14.2	1205.13	3.70	7.06	0.00005	0.02	13.2
14.4	1205.16	3.71	7.08	0.00005	0.02	13.3
14.6	1205.19	3.72	7.11	0.00005	0.02	13.3

14.8	1205.22	3.73	7.14	0.00005	0.02	13.3
15	1205.26	3.74	7.17	0.00005	0.02	13.3
15.2	1205.29	3.75	7.20	0.00005	0.02	13.3
15.4	1205.33	3.76	7.24	0.00005	0.02	13.4
15.6	1205.37	3.77	7.27	0.00005	0.02	13.4
15.8	1205.41	3.78	7.31	0.00005	0.02	13.4
16	1205.45	3.80	7.34	0.00005	0.02	13.4
16.2	1205.49	3.81	7.38	0.00005	0.02	13.4
16.4	1205.53	3.82	7.41	0.00005	0.02	13.5
16.6	1205.57	3.83	7.45	0.00005	0.02	13.5
16.8	1205.62	3.85	7.49	0.00005	0.02	13.5
17	1205.66	3.86	7.53	0.00005	0.02	13.5
17.2	1205.71	3.88	7.56	0.00005	0.02	13.6
17.4	1205.76	3.89	7.61	0.00005	0.02	13.6
17.6	1205.81	3.91	7.65	0.00005	0.02	13.6
17.8	1205.86	3.92	7.69	0.00005	0.02	13.6
18	1205.91	3.94	7.74	0.00005	0.02	13.6
18.2	1205.97	3.96	7.78	0.00006	0.02	13.7
18.4	1206.03	3.97	7.83	0.00006	0.02	13.7
18.6	1206.08	3.99	7.88	0.00006	0.02	13.7
18.8	1206.14	4.01	7.92	0.00006	0.02	13.7
19	1206.20	4.02	7.97	0.00006	0.02	13.7
19.2	1206.26	4.04	8.02	0.00006	0.02	13.8
19.4	1206.32	4.06	8.07	0.00006	0.02	13.8
19.6	1206.39	4.08	8.13	0.00006	0.02	13.8
19.8	1206.46	4.11	8.18	0.00006	0.02	13.8
20	1206.53	4.13	8.24	0.00006	0.02	13.9
20.2	1206.61	4.15	8.30	0.00006	0.02	13.9
20.4	1206.69	4.18	8.37	0.00006	0.02	13.9
20.6	1206.77	4.20	8.43	0.00006	0.02	13.9
20.8	1206.86	4.23	8.50	0.00006	0.02	14.0
21	1206.95	4.26	8.57	0.00006	0.02	14.0
21.2	1207.04	4.28	8.64	0.00006	0.02	14.0
21.4	1207.14	4.31	8.72	0.00006	0.02	14.0
21.6	1207.25	4.34	8.80	0.00006	0.02	14.1
21.8	1207.36	4.38	8.88	0.00006	0.03	14.1
22	1207.47	4.41	8.97	0.00006	0.03	14.1
22.2	1207.59	4.45	9.06	0.00006	0.03	14.1
22.4	1207.71	4.49	9.15	0.00006	0.03	14.2
22.6	1207.84	4.53	9.25	0.00007	0.03	14.2
22.8	1207.98	4.57	9.35	0.00007	0.03	14.2
23	1208.10	4.61	9.44	0.00007	0.03	14.2
23.2	1208.22	4.64	9.54	0.00007	0.03	14.3
23.4	1208.34	4.68	9.63	0.00007	0.03	14.3
23.6	1208.48	4.72	9.73	0.00007	0.03	14.3
23.8	1208.61	4.76	9.84	0.00007	0.03	14.3
24	1208.75	4.80	9.94	0.00007	0.03	14.4
24.2	1208.90	4.85	10.06	0.00007	0.03	14.4
24.4	1209.07	4.90	10.19	0.00007	0.03	14.4
24.6	1209.30	4.97	10.35	0.00007	0.03	14.5
24.8	1209.58	5.06	10.55	0.00007	0.03	14.5
25	1209.89	5.15	10.77	0.00008	0.03	14.5
25.2	1210.20	5.25	10.99	0.00008	0.03	14.6
25.4	1210.54	5.35	11.24	0.00008	0.03	14.6
25.6	1211.00	5.49	11.55	0.00008	0.03	14.6
25.8	1211.40	5.61	11.84	0.00008	0.03	14.7
26	1212.00	5.80	12.25	0.00009	0.03	14.7
26.2	1212.45	5.93	12.57	0.00009	0.04	14.7
26.4	1213.09	6.13	13.02	0.00009	0.04	14.8

26.6	1213.84	6.36	13.53	0.00010	0.04	14.8
26.8	1214.60	6.59	14.06	0.00010	0.04	14.8
27	1215.27	6.79	14.54	0.00010	0.04	14.9
27.2	1215.78	6.95	14.92	0.00011	0.04	14.9
27.4	1216.09	7.04	15.16	0.00011	0.04	15.0
27.6	1216.18	7.07	15.26	0.00011	0.04	15.0
27.8	1216.12	7.05	15.27	0.00011	0.04	15.1
28	1216.01	7.02	15.24	0.00011	0.04	15.1
28.2	1215.89	6.98	15.20	0.00011	0.04	15.1
28.4	1215.77	6.95	15.17	0.00011	0.04	15.2
28.6	1215.65	6.91	15.13	0.00011	0.04	15.2
28.8	1215.52	6.87	15.08	0.00011	0.04	15.3
29	1215.39	6.83	15.04	0.00011	0.04	15.3
29.2	1215.28	6.80	15.01	0.00011	0.04	15.4
29.4	1215.17	6.76	14.98	0.00011	0.04	15.4
29.6	1215.06	6.73	14.94	0.00011	0.04	15.4
29.8	1214.94	6.69	14.90	0.00011	0.04	15.5
30	1214.82	6.66	14.86	0.00011	0.04	15.5
30.2	1214.71	6.62	14.83	0.00010	0.04	15.6
30.4	1214.60	6.59	14.79	0.00010	0.04	15.6
30.6	1214.49	6.55	14.75	0.00010	0.04	15.6
30.8	1214.37	6.52	14.71	0.00010	0.04	15.7
31	1214.27	6.49	14.68	0.00010	0.04	15.7
31.2	1214.18	6.46	14.66	0.00010	0.04	15.8
31.4	1214.10	6.43	14.64	0.00010	0.04	15.8
31.6	1214.03	6.41	14.63	0.00010	0.04	15.9
31.8	1213.96	6.39	14.62	0.00010	0.04	15.9
32	1213.90	6.37	14.62	0.00010	0.04	15.9
32.2	1213.84	6.36	14.62	0.00010	0.04	16.0
32.4	1213.79	6.34	14.62	0.00010	0.04	16.0
32.6	1213.74	6.33	14.62	0.00010	0.04	16.1
32.8	1213.70	6.31	14.63	0.00010	0.04	16.1
33	1213.66	6.30	14.64	0.00010	0.04	16.1
33.2	1213.62	6.29	14.65	0.00010	0.04	16.2
33.4	1213.59	6.28	14.66	0.00010	0.04	16.2
33.6	1213.55	6.27	14.68	0.00010	0.04	16.3
33.8	1213.52	6.26	14.69	0.00010	0.04	16.3
34	1213.50	6.25	14.71	0.00010	0.04	16.4
34.2	1213.47	6.24	14.73	0.00010	0.04	16.4
34.4	1213.45	6.24	14.75	0.00010	0.04	16.4
34.6	1213.43	6.23	14.78	0.00010	0.04	16.5
34.8	1213.41	6.23	14.80	0.00010	0.04	16.5
35	1213.39	6.22	14.82	0.00010	0.04	16.6
35.2	1213.37	6.21	14.85	0.00011	0.04	16.6
35.4	1213.36	6.21	14.87	0.00011	0.04	16.6
35.6	1213.34	6.20	14.90	0.00011	0.04	16.7
35.8	1213.32	6.20	14.92	0.00011	0.04	16.7
36	1213.30	6.19	14.94	0.00011	0.04	16.8
36.2	1213.28	6.19	14.97	0.00011	0.04	16.8
36.4	1213.26	6.18	14.99	0.00011	0.04	16.9
36.6	1213.23	6.17	15.00	0.00011	0.04	16.9
36.8	1213.18	6.16	15.01	0.00011	0.04	16.9
37	1213.14	6.14	15.02	0.00011	0.04	17.0
37.2	1213.11	6.13	15.03	0.00011	0.04	17.0
37.4	1213.07	6.12	15.04	0.00011	0.04	17.1
37.6	1213.04	6.11	15.05	0.00011	0.04	17.1
37.8	1213.01	6.10	15.07	0.00011	0.04	17.2
38	1212.99	6.10	15.09	0.00011	0.04	17.2
38.2	1212.96	6.09	15.10	0.00011	0.04	17.2

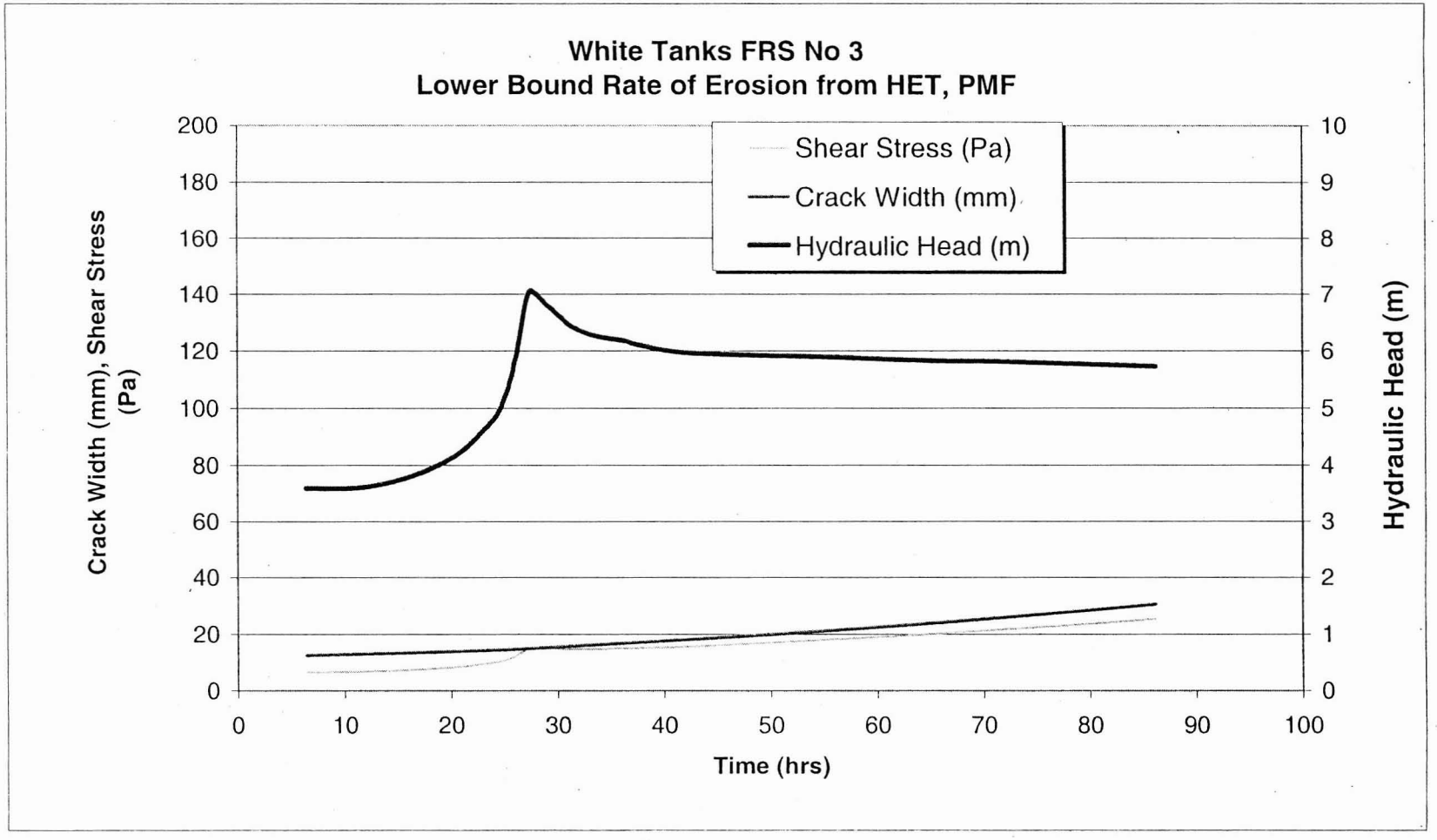
38.4	1212.93	6.08	15.12	0.00011	0.04	17.3
38.6	1212.91	6.07	15.14	0.00011	0.04	17.3
38.8	1212.88	6.06	15.15	0.00011	0.04	17.4
39	1212.85	6.05	15.17	0.00011	0.04	17.4
39.2	1212.83	6.05	15.19	0.00011	0.04	17.5
39.4	1212.80	6.04	15.21	0.00011	0.04	17.5
39.6	1212.78	6.03	15.23	0.00011	0.04	17.5
39.8	1212.76	6.03	15.25	0.00011	0.04	17.6
40	1212.73	6.02	15.27	0.00011	0.04	17.6
40.2	1212.71	6.01	15.29	0.00011	0.04	17.7
40.4	1212.69	6.01	15.31	0.00011	0.04	17.7
40.6	1212.68	6.00	15.34	0.00011	0.04	17.8
40.8	1212.66	6.00	15.36	0.00011	0.04	17.8
41	1212.64	5.99	15.38	0.00011	0.04	17.8
41.2	1212.63	5.99	15.41	0.00011	0.04	17.9
41.4	1212.61	5.98	15.44	0.00011	0.04	17.9
41.6	1212.60	5.98	15.46	0.00011	0.04	18.0
41.8	1212.59	5.97	15.49	0.00011	0.04	18.0
42	1212.57	5.97	15.52	0.00011	0.04	18.1
42.2	1212.56	5.97	15.55	0.00011	0.04	18.1
42.4	1212.55	5.96	15.58	0.00011	0.04	18.2
42.6	1212.55	5.96	15.61	0.00011	0.04	18.2
42.8	1212.54	5.96	15.64	0.00011	0.04	18.2
43	1212.53	5.96	15.68	0.00011	0.04	18.3
43.2	1212.53	5.96	15.71	0.00011	0.04	18.3
43.4	1212.52	5.95	15.74	0.00011	0.04	18.4
43.6	1212.52	5.95	15.78	0.00011	0.04	18.4
43.8	1212.51	5.95	15.81	0.00011	0.04	18.5
44	1212.51	5.95	15.85	0.00011	0.04	18.5
44.2	1212.50	5.95	15.88	0.00011	0.04	18.6
44.4	1212.50	5.95	15.92	0.00011	0.05	18.6
44.6	1212.50	5.95	15.95	0.00011	0.05	18.6
44.8	1212.49	5.94	15.99	0.00011	0.05	18.7
45	1212.49	5.94	16.02	0.00011	0.05	18.7
45.2	1212.48	5.94	16.06	0.00011	0.05	18.8
45.4	1212.48	5.94	16.09	0.00011	0.05	18.8
45.6	1212.47	5.94	16.13	0.00011	0.05	18.9
45.8	1212.47	5.94	16.16	0.00011	0.05	18.9
46	1212.46	5.94	16.20	0.00011	0.05	19.0
46.2	1212.46	5.94	16.24	0.00011	0.05	19.0
46.4	1212.46	5.93	16.27	0.00012	0.05	19.1
46.6	1212.45	5.93	16.31	0.00012	0.05	19.1
46.8	1212.45	5.93	16.35	0.00012	0.05	19.1
47	1212.45	5.93	16.39	0.00012	0.05	19.2
47.2	1212.45	5.93	16.42	0.00012	0.05	19.2
47.4	1212.44	5.93	16.46	0.00012	0.05	19.3
47.6	1212.44	5.93	16.50	0.00012	0.05	19.3
47.8	1212.44	5.93	16.53	0.00012	0.05	19.4
48	1212.43	5.93	16.57	0.00012	0.05	19.4
48.2	1212.43	5.93	16.61	0.00012	0.05	19.5
48.4	1212.42	5.92	16.64	0.00012	0.05	19.5
48.6	1212.42	5.92	16.68	0.00012	0.05	19.6
48.8	1212.42	5.92	16.72	0.00012	0.05	19.6
49	1212.41	5.92	16.75	0.00012	0.05	19.7
49.2	1212.41	5.92	16.79	0.00012	0.05	19.7
49.4	1212.41	5.92	16.83	0.00012	0.05	19.8
49.6	1212.40	5.92	16.87	0.00012	0.05	19.8
49.8	1212.40	5.92	16.91	0.00012	0.05	19.9
50	1212.40	5.92	16.95	0.00012	0.05	19.9

50.2	1212.40	5.92	16.98	0.00012	0.05	19.9
50.4	1212.39	5.92	17.02	0.00012	0.05	20.0
50.6	1212.39	5.91	17.06	0.00012	0.05	20.0
50.8	1212.39	5.91	17.10	0.00012	0.05	20.1
51	1212.39	5.91	17.14	0.00012	0.05	20.1
51.2	1212.39	5.91	17.18	0.00012	0.05	20.2
51.4	1212.39	5.91	17.22	0.00012	0.05	20.2
51.6	1212.38	5.91	17.26	0.00012	0.05	20.3
51.8	1212.38	5.91	17.30	0.00012	0.05	20.3
52	1212.37	5.91	17.34	0.00012	0.05	20.4
52.2	1212.37	5.91	17.38	0.00012	0.05	20.4
52.4	1212.37	5.91	17.42	0.00012	0.05	20.5
52.6	1212.36	5.91	17.45	0.00012	0.05	20.5
52.8	1212.36	5.91	17.49	0.00012	0.05	20.6
53	1212.36	5.90	17.53	0.00012	0.05	20.6
53.2	1212.36	5.90	17.57	0.00012	0.05	20.7
53.4	1212.35	5.90	17.61	0.00012	0.05	20.7
53.6	1212.35	5.90	17.65	0.00012	0.05	20.8
53.8	1212.35	5.90	17.69	0.00013	0.05	20.8
54	1212.35	5.90	17.74	0.00013	0.05	20.9
54.2	1212.34	5.90	17.78	0.00013	0.05	20.9
54.4	1212.34	5.90	17.82	0.00013	0.05	21.0
54.6	1212.34	5.90	17.86	0.00013	0.05	21.0
54.8	1212.33	5.90	17.89	0.00013	0.05	21.1
55	1212.33	5.90	17.93	0.00013	0.05	21.1
55.2	1212.32	5.89	17.97	0.00013	0.05	21.2
55.4	1212.32	5.89	18.01	0.00013	0.05	21.2
55.6	1212.32	5.89	18.05	0.00013	0.05	21.3
55.8	1212.31	5.89	18.09	0.00013	0.05	21.3
56	1212.31	5.89	18.13	0.00013	0.05	21.4
56.2	1212.31	5.89	18.17	0.00013	0.05	21.4
56.4	1212.30	5.89	18.21	0.00013	0.05	21.5
56.6	1212.30	5.89	18.25	0.00013	0.05	21.5
56.8	1212.29	5.88	18.29	0.00013	0.05	21.6
57	1212.29	5.88	18.33	0.00013	0.05	21.7
57.2	1212.28	5.88	18.37	0.00013	0.05	21.7
57.4	1212.28	5.88	18.41	0.00013	0.05	21.8
57.6	1212.27	5.88	18.45	0.00013	0.05	21.8
57.8	1212.27	5.88	18.49	0.00013	0.05	21.9
58	1212.26	5.88	18.53	0.00013	0.05	21.9
58.2	1212.26	5.87	18.57	0.00013	0.05	22.0
58.4	1212.26	5.87	18.61	0.00013	0.05	22.0
58.6	1212.25	5.87	18.65	0.00013	0.05	22.1
58.8	1212.25	5.87	18.69	0.00013	0.05	22.1
59	1212.24	5.87	18.73	0.00013	0.05	22.2
59.2	1212.23	5.87	18.77	0.00013	0.05	22.2
59.4	1212.23	5.87	18.81	0.00013	0.05	22.3
59.6	1212.22	5.86	18.85	0.00013	0.05	22.3
59.8	1212.22	5.86	18.89	0.00013	0.05	22.4
60	1212.22	5.86	18.93	0.00013	0.05	22.4
60.2	1212.21	5.86	18.97	0.00013	0.05	22.5
60.4	1212.21	5.86	19.01	0.00013	0.05	22.6
60.6	1212.20	5.86	19.05	0.00013	0.05	22.6
60.8	1212.20	5.86	19.09	0.00014	0.05	22.7
61	1212.19	5.85	19.13	0.00014	0.05	22.7
61.2	1212.19	5.85	19.17	0.00014	0.05	22.8
61.4	1212.18	5.85	19.21	0.00014	0.05	22.8
61.6	1212.18	5.85	19.26	0.00014	0.05	22.9
61.8	1212.17	5.85	19.30	0.00014	0.05	22.9

62	1212.17	5.85	19.34	0.00014	0.05	23.0
62.2	1212.16	5.84	19.38	0.00014	0.05	23.0
62.4	1212.16	5.84	19.42	0.00014	0.06	23.1
62.6	1212.15	5.84	19.47	0.00014	0.06	23.2
62.8	1212.15	5.84	19.51	0.00014	0.06	23.2
63	1212.15	5.84	19.55	0.00014	0.06	23.3
63.2	1212.15	5.84	19.60	0.00014	0.06	23.3
63.4	1212.14	5.84	19.64	0.00014	0.06	23.4
63.6	1212.14	5.84	19.68	0.00014	0.06	23.4
63.8	1212.13	5.84	19.73	0.00014	0.06	23.5
64	1212.13	5.83	19.77	0.00014	0.06	23.5
64.2	1212.12	5.83	19.81	0.00014	0.06	23.6
64.4	1212.12	5.83	19.85	0.00014	0.06	23.7
64.6	1212.12	5.83	19.90	0.00014	0.06	23.7
64.8	1212.11	5.83	19.94	0.00014	0.06	23.8
65	1212.11	5.83	19.98	0.00014	0.06	23.8
65.2	1212.11	5.83	20.03	0.00014	0.06	23.9
65.4	1212.10	5.83	20.07	0.00014	0.06	23.9
65.6	1212.10	5.83	20.12	0.00014	0.06	24.0
65.8	1212.10	5.82	20.16	0.00014	0.06	24.0
66	1212.09	5.82	20.21	0.00014	0.06	24.1
66.2	1212.09	5.82	20.25	0.00014	0.06	24.2
66.4	1212.09	5.82	20.30	0.00014	0.06	24.2
66.6	1212.09	5.82	20.34	0.00014	0.06	24.3
66.8	1212.09	5.82	20.39	0.00014	0.06	24.3
67	1212.09	5.82	20.44	0.00014	0.06	24.4
67.2	1212.08	5.82	20.48	0.00015	0.06	24.5
67.4	1212.08	5.82	20.53	0.00015	0.06	24.5
67.6	1212.08	5.82	20.58	0.00015	0.06	24.6
67.8	1212.08	5.82	20.63	0.00015	0.06	24.6
68	1212.08	5.82	20.68	0.00015	0.06	24.7
68.2	1212.08	5.82	20.72	0.00015	0.06	24.7
68.4	1212.08	5.82	20.77	0.00015	0.06	24.8
68.6	1212.08	5.82	20.82	0.00015	0.06	24.9
68.8	1212.08	5.82	20.87	0.00015	0.06	24.9
69	1212.08	5.82	20.92	0.00015	0.06	25.0
69.2	1212.08	5.82	20.97	0.00015	0.06	25.0
69.4	1212.08	5.82	21.02	0.00015	0.06	25.1
69.6	1212.08	5.82	21.07	0.00015	0.06	25.2
69.8	1212.08	5.82	21.12	0.00015	0.06	25.2
70	1212.08	5.82	21.17	0.00015	0.06	25.3
70.2	1212.07	5.82	21.22	0.00015	0.06	25.3
70.4	1212.07	5.82	21.27	0.00015	0.06	25.4
70.6	1212.07	5.82	21.31	0.00015	0.06	25.5
70.8	1212.07	5.82	21.36	0.00015	0.06	25.5
71	1212.07	5.82	21.41	0.00015	0.06	25.6
71.2	1212.06	5.81	21.46	0.00015	0.06	25.6
71.4	1212.06	5.81	21.50	0.00015	0.06	25.7
71.6	1212.06	5.81	21.55	0.00015	0.06	25.8
71.8	1212.05	5.81	21.60	0.00015	0.06	25.8
72	1212.05	5.81	21.65	0.00015	0.06	25.9
72.2	1212.05	5.81	21.70	0.00015	0.06	25.9
72.4	1212.05	5.81	21.74	0.00015	0.06	26.0
72.6	1212.04	5.81	21.79	0.00015	0.06	26.1
72.8	1212.04	5.81	21.84	0.00015	0.06	26.1
73	1212.03	5.80	21.88	0.00015	0.06	26.2
73.2	1212.03	5.80	21.93	0.00016	0.06	26.3
73.4	1212.02	5.80	21.98	0.00016	0.06	26.3
73.6	1212.02	5.80	22.02	0.00016	0.06	26.4

73.8	1212.01	5.80	22.07	0.00016	0.06	26.4
74	1212.01	5.80	22.12	0.00016	0.06	26.5
74.2	1212.01	5.80	22.17	0.00016	0.06	26.6
74.4	1212.00	5.80	22.22	0.00016	0.06	26.6
74.6	1212.00	5.80	22.27	0.00016	0.06	26.7
74.8	1212.00	5.80	22.32	0.00016	0.06	26.8
75	1212.00	5.80	22.37	0.00016	0.06	26.8
75.2	1211.99	5.79	22.41	0.00016	0.06	26.9
75.4	1211.99	5.79	22.46	0.00016	0.06	26.9
75.6	1211.98	5.79	22.51	0.00016	0.06	27.0
75.8	1211.98	5.79	22.56	0.00016	0.06	27.1
76	1211.98	5.79	22.61	0.00016	0.06	27.1
76.2	1211.97	5.79	22.66	0.00016	0.06	27.2
76.4	1211.97	5.79	22.71	0.00016	0.06	27.3
76.6	1211.96	5.78	22.75	0.00016	0.06	27.3
76.8	1211.96	5.78	22.80	0.00016	0.06	27.4
77	1211.96	5.78	22.85	0.00016	0.06	27.5
77.2	1211.95	5.78	22.90	0.00016	0.06	27.5
77.4	1211.95	5.78	22.95	0.00016	0.06	27.6
77.6	1211.94	5.78	23.00	0.00016	0.07	27.7
77.8	1211.94	5.78	23.05	0.00016	0.07	27.7
78	1211.94	5.78	23.10	0.00016	0.07	27.8
78.2	1211.93	5.77	23.15	0.00016	0.07	27.9
78.4	1211.93	5.77	23.20	0.00016	0.07	27.9
78.6	1211.93	5.77	23.25	0.00016	0.07	28.0
78.8	1211.92	5.77	23.30	0.00016	0.07	28.1
79	1211.92	5.77	23.35	0.00017	0.07	28.1
79.2	1211.91	5.77	23.40	0.00017	0.07	28.2
79.4	1211.91	5.77	23.45	0.00017	0.07	28.3
79.6	1211.91	5.77	23.50	0.00017	0.07	28.3
79.8	1211.90	5.77	23.55	0.00017	0.07	28.4
80	1211.90	5.76	23.60	0.00017	0.07	28.5
80.2	1211.90	5.76	23.65	0.00017	0.07	28.5
80.4	1211.89	5.76	23.71	0.00017	0.07	28.6
80.6	1211.89	5.76	23.76	0.00017	0.07	28.7
80.8	1211.88	5.76	23.81	0.00017	0.07	28.7
81	1211.88	5.76	23.86	0.00017	0.07	28.8
81.2	1211.88	5.76	23.91	0.00017	0.07	28.9
81.4	1211.87	5.76	23.96	0.00017	0.07	28.9
81.6	1211.87	5.75	24.01	0.00017	0.07	29.0
81.8	1211.86	5.75	24.06	0.00017	0.07	29.1
82	1211.86	5.75	24.11	0.00017	0.07	29.1
82.2	1211.86	5.75	24.17	0.00017	0.07	29.2
82.4	1211.85	5.75	24.22	0.00017	0.07	29.3
82.6	1211.85	5.75	24.27	0.00017	0.07	29.3
82.8	1211.85	5.75	24.32	0.00017	0.07	29.4
83	1211.84	5.75	24.38	0.00017	0.07	29.5
83.2	1211.84	5.75	24.43	0.00017	0.07	29.5
83.4	1211.83	5.74	24.48	0.00017	0.07	29.6
83.6	1211.83	5.74	24.53	0.00017	0.07	29.7
83.8	1211.83	5.74	24.58	0.00017	0.07	29.7
84	1211.82	5.74	24.64	0.00017	0.07	29.8
84.2	1211.82	5.74	24.69	0.00017	0.07	29.9
84.4	1211.81	5.74	24.74	0.00018	0.07	30.0
84.6	1211.81	5.74	24.79	0.00018	0.07	30.0
84.8	1211.81	5.74	24.85	0.00018	0.07	30.1
85	1211.80	5.74	24.90	0.00018	0.07	30.2
85.2	1211.80	5.73	24.96	0.00018	0.07	30.2
85.4	1211.80	5.73	25.01	0.00018	0.07	30.3

85.6	1211.79	5.73	25.06	0.00018	0.07	30.4
85.8	1211.79	5.73	25.12	0.00018	0.07	30.5
86	1211.78	5.73	25.17	0.00018	0.07	30.5
86.2	1211.78	5.73	25.22	0.00018	0.07	30.6


White Tanks FRS No 3
Lower Bound Rate of Erosion from HET, PMF
Shear Stress (Pa)
Crack Width (mm)
Hydraulic Head (m)
Crack Width (mm), Shear Stress (Pa)
Hydraulic Head (m)
Time (hrs)
0
20
40
60
80
100
120
140
160
180
200
0
1
2
3
4
5
6
7
8
9
10
0
10
20
30
40
50
60
70
80
90
100

White Tanks - Crack Erosion
PMF, Average Rate of Erosion from HET

Input Parameters:

Initial Crack Width (m)	12.5	mm
I Het Value	4.9	
Soil Density (kg/cum)	1800	kg/m3
Seepage path length (m)	34	m
Storage floor elevation at FRZ	1193	ft

Note: Average I HET value = 4.9, corresponds to Erosion Rate = 0.025 x shear stress (mm/hr)

Time (hours)	Elevation (ft)	Hydraulic Head (m)	Shear Stress (Pa)	Rate of Erosion (kg/s/m2)	Incremental Crack Widening (mm)	Crack Width (mm)
6.4	1204.80	3.60	6.49	0.00008		12.5
6.6	1204.80	3.60	6.49	0.00008	0.03	12.5
6.8	1204.79	3.60	6.50	0.00008	0.03	12.6
7	1204.79	3.60	6.52	0.00008	0.03	12.6
7.2	1204.79	3.60	6.54	0.00008	0.03	12.6
7.4	1204.79	3.60	6.55	0.00008	0.03	12.7
7.6	1204.78	3.59	6.57	0.00008	0.03	12.7
7.8	1204.78	3.59	6.58	0.00008	0.03	12.7
8	1204.78	3.59	6.60	0.00008	0.03	12.8
8.2	1204.78	3.59	6.61	0.00008	0.03	12.8
8.4	1204.77	3.59	6.63	0.00008	0.03	12.8
8.6	1204.77	3.59	6.65	0.00008	0.03	12.9
8.8	1204.77	3.59	6.66	0.00008	0.03	12.9
9	1204.77	3.59	6.68	0.00008	0.03	12.9
9.2	1204.77	3.59	6.70	0.00008	0.03	13.0
9.4	1204.77	3.59	6.72	0.00008	0.03	13.0
9.6	1204.77	3.59	6.73	0.00008	0.03	13.0
9.8	1204.78	3.59	6.75	0.00009	0.03	13.1
10	1204.78	3.59	6.77	0.00009	0.03	13.1
10.2	1204.78	3.59	6.79	0.00009	0.03	13.1
10.4	1204.79	3.60	6.81	0.00009	0.03	13.2
10.6	1204.79	3.60	6.83	0.00009	0.03	13.2
10.8	1204.80	3.60	6.86	0.00009	0.03	13.2
11	1204.81	3.60	6.88	0.00009	0.03	13.3
11.2	1204.82	3.61	6.90	0.00009	0.03	13.3
11.4	1204.83	3.61	6.93	0.00009	0.03	13.3
11.6	1204.85	3.61	6.96	0.00009	0.04	13.4
11.8	1204.86	3.62	6.98	0.00009	0.04	13.4
12	1204.88	3.62	7.01	0.00009	0.04	13.4
12.2	1204.89	3.63	7.04	0.00009	0.04	13.5
12.4	1204.91	3.63	7.07	0.00009	0.04	13.5
12.6	1204.93	3.64	7.10	0.00009	0.04	13.6
12.8	1204.95	3.65	7.13	0.00009	0.04	13.6
13	1204.97	3.65	7.16	0.00009	0.04	13.6
13.2	1205.00	3.66	7.19	0.00009	0.04	13.7
13.4	1205.02	3.67	7.23	0.00009	0.04	13.7
13.6	1205.05	3.67	7.26	0.00009	0.04	13.7
13.8	1205.07	3.68	7.30	0.00009	0.04	13.8
14	1205.10	3.69	7.33	0.00009	0.04	13.8
14.2	1205.13	3.70	7.37	0.00009	0.04	13.8
14.4	1205.16	3.71	7.41	0.00009	0.04	13.9
14.6	1205.19	3.72	7.45	0.00009	0.04	13.9

14.8	1205.22	3.73	7.49	0.00009	0.04	14.0
15	1205.26	3.74	7.53	0.00009	0.04	14.0
15.2	1205.29	3.75	7.57	0.00010	0.04	14.0
15.4	1205.33	3.76	7.61	0.00010	0.04	14.1
15.6	1205.37	3.77	7.66	0.00010	0.04	14.1
15.8	1205.41	3.78	7.70	0.00010	0.04	14.2
16	1205.45	3.80	7.75	0.00010	0.04	14.2
16.2	1205.49	3.81	7.80	0.00010	0.04	14.2
16.4	1205.53	3.82	7.84	0.00010	0.04	14.3
16.6	1205.57	3.83	7.89	0.00010	0.04	14.3
16.8	1205.62	3.85	7.94	0.00010	0.04	14.3
17	1205.66	3.86	7.99	0.00010	0.04	14.4
17.2	1205.71	3.88	8.05	0.00010	0.04	14.4
17.4	1205.76	3.89	8.10	0.00010	0.04	14.5
17.6	1205.81	3.91	8.15	0.00010	0.04	14.5
17.8	1205.86	3.92	8.21	0.00010	0.04	14.6
18	1205.91	3.94	8.27	0.00010	0.04	14.6
18.2	1205.97	3.96	8.33	0.00010	0.04	14.6
18.4	1206.03	3.97	8.39	0.00011	0.04	14.7
18.6	1206.08	3.99	8.45	0.00011	0.04	14.7
18.8	1206.14	4.01	8.51	0.00011	0.04	14.8
19	1206.20	4.02	8.57	0.00011	0.04	14.8
19.2	1206.26	4.04	8.64	0.00011	0.04	14.9
19.4	1206.32	4.06	8.70	0.00011	0.04	14.9
19.6	1206.39	4.08	8.77	0.00011	0.04	14.9
19.8	1206.46	4.11	8.85	0.00011	0.04	15.0
20	1206.53	4.13	8.92	0.00011	0.04	15.0
20.2	1206.61	4.15	9.00	0.00011	0.05	15.1
20.4	1206.69	4.18	9.08	0.00011	0.05	15.1
20.6	1206.77	4.20	9.16	0.00012	0.05	15.2
20.8	1206.86	4.23	9.25	0.00012	0.05	15.2
21	1206.95	4.26	9.34	0.00012	0.05	15.3
21.2	1207.04	4.28	9.43	0.00012	0.05	15.3
21.4	1207.14	4.31	9.52	0.00012	0.05	15.4
21.6	1207.25	4.34	9.62	0.00012	0.05	15.4
21.8	1207.36	4.38	9.73	0.00012	0.05	15.5
22	1207.47	4.41	9.84	0.00012	0.05	15.5
22.2	1207.59	4.45	9.95	0.00013	0.05	15.6
22.4	1207.71	4.49	10.07	0.00013	0.05	15.6
22.6	1207.84	4.53	10.19	0.00013	0.05	15.7
22.8	1207.98	4.57	10.31	0.00013	0.05	15.7
23	1208.10	4.61	10.43	0.00013	0.05	15.8
23.2	1208.22	4.64	10.55	0.00013	0.05	15.8
23.4	1208.34	4.68	10.67	0.00013	0.05	15.9
23.6	1208.48	4.72	10.80	0.00014	0.05	15.9
23.8	1208.61	4.76	10.93	0.00014	0.06	16.0
24	1208.75	4.80	11.07	0.00014	0.06	16.0
24.2	1208.90	4.85	11.21	0.00014	0.06	16.1
24.4	1209.07	4.90	11.38	0.00014	0.06	16.1
24.6	1209.30	4.97	11.58	0.00015	0.06	16.2
24.8	1209.58	5.06	11.82	0.00015	0.06	16.3
25	1209.89	5.15	12.08	0.00015	0.06	16.3
25.2	1210.20	5.25	12.35	0.00016	0.06	16.4
25.4	1210.54	5.35	12.65	0.00016	0.06	16.4
25.6	1211.00	5.49	13.03	0.00016	0.07	16.5
25.8	1211.40	5.61	13.37	0.00017	0.07	16.6
26	1212.00	5.80	13.86	0.00017	0.07	16.7
26.2	1212.45	5.93	14.25	0.00018	0.07	16.7
26.4	1213.09	6.13	14.78	0.00019	0.07	16.8

26.6	1213.84	6.36	15.40	0.00019	0.08	16.9
26.8	1214.60	6.59	16.04	0.00020	0.08	17.0
27	1215.27	6.79	16.61	0.00021	0.08	17.0
27.2	1215.78	6.95	17.08	0.00022	0.09	17.1
27.4	1216.09	7.04	17.40	0.00022	0.09	17.2
27.6	1216.18	7.07	17.56	0.00022	0.09	17.3
27.8	1216.12	7.05	17.60	0.00022	0.09	17.4
28	1216.01	7.02	17.61	0.00022	0.09	17.5
28.2	1215.89	6.98	17.60	0.00022	0.09	17.6
28.4	1215.77	6.95	17.60	0.00022	0.09	17.7
28.6	1215.65	6.91	17.59	0.00022	0.09	17.7
28.8	1215.52	6.87	17.58	0.00022	0.09	17.8
29	1215.39	6.83	17.57	0.00022	0.09	17.9
29.2	1215.28	6.80	17.57	0.00022	0.09	18.0
29.4	1215.17	6.76	17.57	0.00022	0.09	18.1
29.6	1215.06	6.73	17.56	0.00022	0.09	18.2
29.8	1214.94	6.69	17.56	0.00022	0.09	18.3
30	1214.82	6.66	17.55	0.00022	0.09	18.4
30.2	1214.71	6.62	17.54	0.00022	0.09	18.5
30.4	1214.60	6.59	17.54	0.00022	0.09	18.5
30.6	1214.49	6.55	17.53	0.00022	0.09	18.6
30.8	1214.37	6.52	17.52	0.00022	0.09	18.7
31	1214.27	6.49	17.51	0.00022	0.09	18.8
31.2	1214.18	6.46	17.52	0.00022	0.09	18.9
31.4	1214.10	6.43	17.54	0.00022	0.09	19.0
31.6	1214.03	6.41	17.56	0.00022	0.09	19.1
31.8	1213.96	6.39	17.59	0.00022	0.09	19.2
32	1213.90	6.37	17.62	0.00022	0.09	19.2
32.2	1213.84	6.36	17.65	0.00022	0.09	19.3
32.4	1213.79	6.34	17.69	0.00022	0.09	19.4
32.6	1213.74	6.33	17.73	0.00022	0.09	19.5
32.8	1213.70	6.31	17.77	0.00022	0.09	19.6
33	1213.66	6.30	17.82	0.00022	0.09	19.7
33.2	1213.62	6.29	17.87	0.00022	0.09	19.8
33.4	1213.59	6.28	17.92	0.00023	0.09	19.9
33.6	1213.55	6.27	17.97	0.00023	0.09	20.0
33.8	1213.52	6.26	18.03	0.00023	0.09	20.1
34	1213.50	6.25	18.09	0.00023	0.09	20.1
34.2	1213.47	6.24	18.15	0.00023	0.09	20.2
34.4	1213.45	6.24	18.21	0.00023	0.09	20.3
34.6	1213.43	6.23	18.28	0.00023	0.09	20.4
34.8	1213.41	6.23	18.34	0.00023	0.09	20.5
35	1213.39	6.22	18.41	0.00023	0.09	20.6
35.2	1213.37	6.21	18.47	0.00023	0.09	20.7
35.4	1213.36	6.21	18.54	0.00023	0.09	20.8
35.6	1213.34	6.20	18.61	0.00023	0.09	20.9
35.8	1213.32	6.20	18.67	0.00024	0.09	21.0
36	1213.30	6.19	18.74	0.00024	0.09	21.1
36.2	1213.28	6.19	18.81	0.00024	0.09	21.2
36.4	1213.26	6.18	18.87	0.00024	0.10	21.3
36.6	1213.23	6.17	18.92	0.00024	0.10	21.4
36.8	1213.18	6.16	18.97	0.00024	0.10	21.5
37	1213.14	6.14	19.02	0.00024	0.10	21.6
37.2	1213.11	6.13	19.07	0.00024	0.10	21.6
37.4	1213.07	6.12	19.12	0.00024	0.10	21.7
37.6	1213.04	6.11	19.18	0.00024	0.10	21.8
37.8	1213.01	6.10	19.23	0.00024	0.10	21.9
38	1212.99	6.10	19.29	0.00024	0.10	22.0
38.2	1212.96	6.09	19.35	0.00024	0.10	22.1

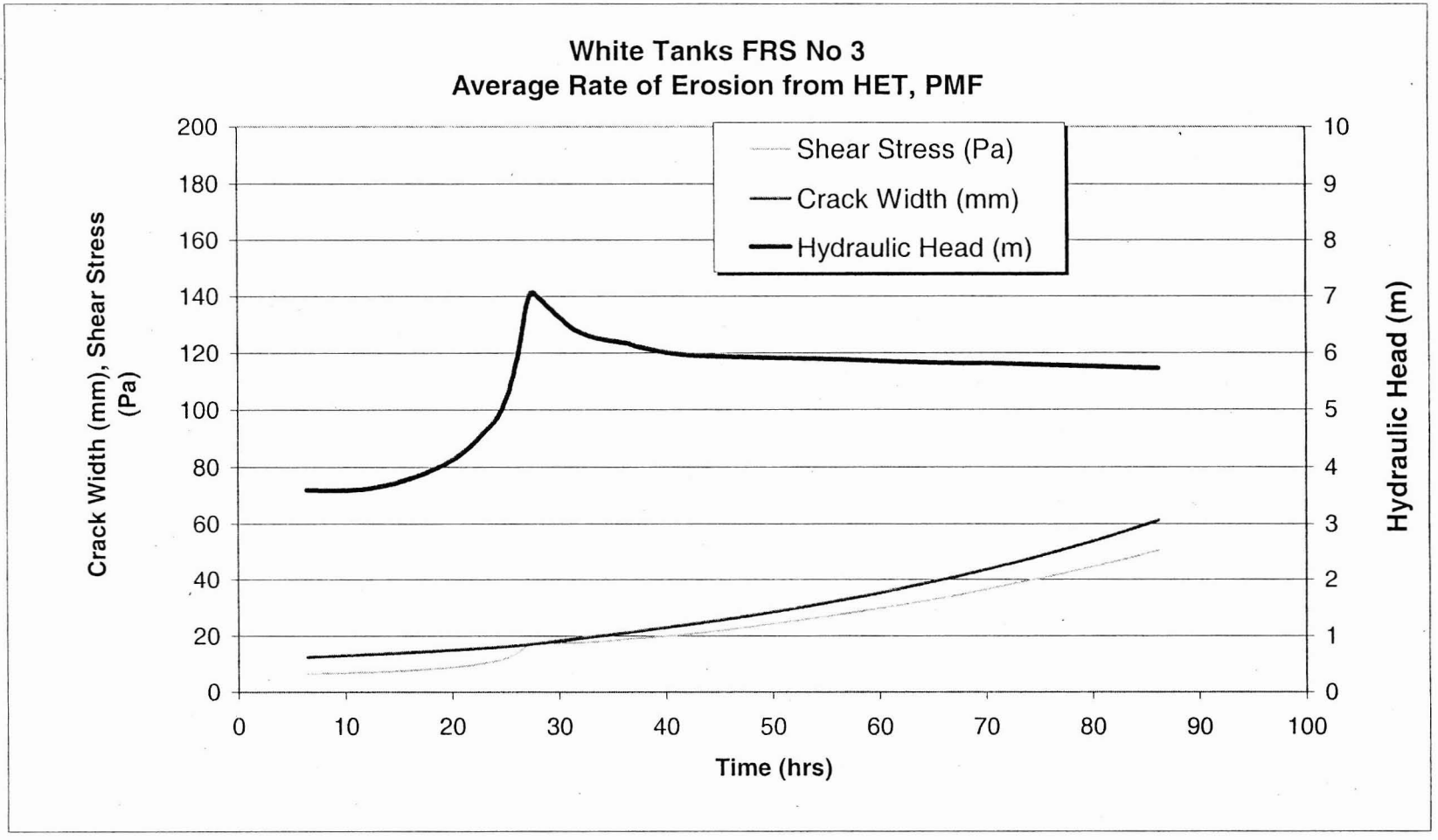
38.4	1212.93	6.08	19.41	0.00024	0.10	22.2
38.6	1212.91	6.07	19.47	0.00025	0.10	22.3
38.8	1212.88	6.06	19.53	0.00025	0.10	22.4
39	1212.85	6.05	19.59	0.00025	0.10	22.5
39.2	1212.83	6.05	19.65	0.00025	0.10	22.6
39.4	1212.80	6.04	19.71	0.00025	0.10	22.7
39.6	1212.78	6.03	19.77	0.00025	0.10	22.8
39.8	1212.76	6.03	19.84	0.00025	0.10	22.9
40	1212.73	6.02	19.90	0.00025	0.10	23.0
40.2	1212.71	6.01	19.97	0.00025	0.10	23.1
40.4	1212.69	6.01	20.04	0.00025	0.10	23.2
40.6	1212.68	6.00	20.10	0.00025	0.10	23.3
40.8	1212.66	6.00	20.17	0.00025	0.10	23.4
41	1212.64	5.99	20.24	0.00025	0.10	23.5
41.2	1212.63	5.99	20.32	0.00026	0.10	23.6
41.4	1212.61	5.98	20.39	0.00026	0.10	23.7
41.6	1212.60	5.98	20.47	0.00026	0.10	23.8
41.8	1212.59	5.97	20.54	0.00026	0.10	23.9
42	1212.57	5.97	20.62	0.00026	0.10	24.0
42.2	1212.56	5.97	20.70	0.00026	0.10	24.1
42.4	1212.55	5.96	20.78	0.00026	0.10	24.3
42.6	1212.55	5.96	20.86	0.00026	0.11	24.4
42.8	1212.54	5.96	20.94	0.00026	0.11	24.5
43	1212.53	5.96	21.02	0.00026	0.11	24.6
43.2	1212.53	5.96	21.11	0.00027	0.11	24.7
43.4	1212.52	5.95	21.19	0.00027	0.11	24.8
43.6	1212.52	5.95	21.28	0.00027	0.11	24.9
43.8	1212.51	5.95	21.37	0.00027	0.11	25.0
44	1212.51	5.95	21.46	0.00027	0.11	25.1
44.2	1212.50	5.95	21.55	0.00027	0.11	25.2
44.4	1212.50	5.95	21.63	0.00027	0.11	25.3
44.6	1212.50	5.95	21.72	0.00027	0.11	25.4
44.8	1212.49	5.94	21.81	0.00027	0.11	25.5
45	1212.49	5.94	21.90	0.00028	0.11	25.7
45.2	1212.48	5.94	21.99	0.00028	0.11	25.8
45.4	1212.48	5.94	22.08	0.00028	0.11	25.9
45.6	1212.47	5.94	22.17	0.00028	0.11	26.0
45.8	1212.47	5.94	22.26	0.00028	0.11	26.1
46	1212.46	5.94	22.35	0.00028	0.11	26.2
46.2	1212.46	5.94	22.44	0.00028	0.11	26.3
46.4	1212.46	5.93	22.53	0.00028	0.11	26.4
46.6	1212.45	5.93	22.63	0.00028	0.11	26.5
46.8	1212.45	5.93	22.72	0.00029	0.11	26.7
47	1212.45	5.93	22.82	0.00029	0.11	26.8
47.2	1212.45	5.93	22.91	0.00029	0.12	26.9
47.4	1212.44	5.93	23.01	0.00029	0.12	27.0
47.6	1212.44	5.93	23.10	0.00029	0.12	27.1
47.8	1212.44	5.93	23.20	0.00029	0.12	27.2
48	1212.43	5.93	23.29	0.00029	0.12	27.4
48.2	1212.43	5.93	23.39	0.00029	0.12	27.5
48.4	1212.42	5.92	23.48	0.00030	0.12	27.6
48.6	1212.42	5.92	23.58	0.00030	0.12	27.7
48.8	1212.42	5.92	23.68	0.00030	0.12	27.8
49	1212.41	5.92	23.77	0.00030	0.12	28.0
49.2	1212.41	5.92	23.87	0.00030	0.12	28.1
49.4	1212.41	5.92	23.97	0.00030	0.12	28.2
49.6	1212.40	5.92	24.07	0.00030	0.12	28.3
49.8	1212.40	5.92	24.17	0.00030	0.12	28.4
50	1212.40	5.92	24.27	0.00031	0.12	28.6

50.2	1212.40	5.92	24.37	0.00031	0.12	28.7
50.4	1212.39	5.92	24.48	0.00031	0.12	28.8
50.6	1212.39	5.91	24.58	0.00031	0.12	28.9
50.8	1212.39	5.91	24.68	0.00031	0.12	29.1
51	1212.39	5.91	24.79	0.00031	0.12	29.2
51.2	1212.39	5.91	24.89	0.00031	0.13	29.3
51.4	1212.39	5.91	25.00	0.00031	0.13	29.4
51.6	1212.38	5.91	25.10	0.00032	0.13	29.6
51.8	1212.38	5.91	25.20	0.00032	0.13	29.7
52	1212.37	5.91	25.31	0.00032	0.13	29.8
52.2	1212.37	5.91	25.41	0.00032	0.13	29.9
52.4	1212.37	5.91	25.51	0.00032	0.13	30.1
52.6	1212.36	5.91	25.62	0.00032	0.13	30.2
52.8	1212.36	5.91	25.72	0.00032	0.13	30.3
53	1212.36	5.90	25.83	0.00033	0.13	30.5
53.2	1212.36	5.90	25.94	0.00033	0.13	30.6
53.4	1212.35	5.90	26.05	0.00033	0.13	30.7
53.6	1212.35	5.90	26.16	0.00033	0.13	30.9
53.8	1212.35	5.90	26.26	0.00033	0.13	31.0
54	1212.35	5.90	26.37	0.00033	0.13	31.1
54.2	1212.34	5.90	26.48	0.00033	0.13	31.2
54.4	1212.34	5.90	26.59	0.00033	0.13	31.4
54.6	1212.34	5.90	26.70	0.00034	0.13	31.5
54.8	1212.33	5.90	26.81	0.00034	0.14	31.7
55	1212.33	5.90	26.92	0.00034	0.14	31.8
55.2	1212.32	5.89	27.03	0.00034	0.14	31.9
55.4	1212.32	5.89	27.14	0.00034	0.14	32.1
55.6	1212.32	5.89	27.25	0.00034	0.14	32.2
55.8	1212.31	5.89	27.36	0.00034	0.14	32.3
56	1212.31	5.89	27.47	0.00035	0.14	32.5
56.2	1212.31	5.89	27.59	0.00035	0.14	32.6
56.4	1212.30	5.89	27.70	0.00035	0.14	32.8
56.6	1212.30	5.89	27.81	0.00035	0.14	32.9
56.8	1212.29	5.88	27.92	0.00035	0.14	33.0
57	1212.29	5.88	28.04	0.00035	0.14	33.2
57.2	1212.28	5.88	28.15	0.00035	0.14	33.3
57.4	1212.28	5.88	28.26	0.00036	0.14	33.5
57.6	1212.27	5.88	28.37	0.00036	0.14	33.6
57.8	1212.27	5.88	28.49	0.00036	0.14	33.7
58	1212.26	5.88	28.60	0.00036	0.14	33.9
58.2	1212.26	5.87	28.72	0.00036	0.14	34.0
58.4	1212.26	5.87	28.84	0.00036	0.15	34.2
58.6	1212.25	5.87	28.95	0.00036	0.15	34.3
58.8	1212.25	5.87	29.07	0.00037	0.15	34.5
59	1212.24	5.87	29.18	0.00037	0.15	34.6
59.2	1212.23	5.87	29.30	0.00037	0.15	34.8
59.4	1212.23	5.87	29.42	0.00037	0.15	34.9
59.6	1212.22	5.86	29.53	0.00037	0.15	35.1
59.8	1212.22	5.86	29.65	0.00037	0.15	35.2
60	1212.22	5.86	29.77	0.00037	0.15	35.4
60.2	1212.21	5.86	29.89	0.00038	0.15	35.5
60.4	1212.21	5.86	30.01	0.00038	0.15	35.7
60.6	1212.20	5.86	30.13	0.00038	0.15	35.8
60.8	1212.20	5.86	30.25	0.00038	0.15	36.0
61	1212.19	5.85	30.37	0.00038	0.15	36.1
61.2	1212.19	5.85	30.49	0.00038	0.15	36.3
61.4	1212.18	5.85	30.61	0.00039	0.15	36.4
61.6	1212.18	5.85	30.74	0.00039	0.15	36.6
61.8	1212.17	5.85	30.86	0.00039	0.16	36.7

62	1212.17	5.85	30.98	0.00039	0.16	36.9
62.2	1212.16	5.84	31.11	0.00039	0.16	37.1
62.4	1212.16	5.84	31.23	0.00039	0.16	37.2
62.6	1212.15	5.84	31.36	0.00039	0.16	37.4
62.8	1212.15	5.84	31.49	0.00040	0.16	37.5
63	1212.15	5.84	31.62	0.00040	0.16	37.7
63.2	1212.15	5.84	31.75	0.00040	0.16	37.8
63.4	1212.14	5.84	31.88	0.00040	0.16	38.0
63.6	1212.14	5.84	32.00	0.00040	0.16	38.2
63.8	1212.13	5.84	32.13	0.00040	0.16	38.3
64	1212.13	5.83	32.26	0.00041	0.16	38.5
64.2	1212.12	5.83	32.39	0.00041	0.16	38.7
64.4	1212.12	5.83	32.52	0.00041	0.16	38.8
64.6	1212.12	5.83	32.65	0.00041	0.16	39.0
64.8	1212.11	5.83	32.78	0.00041	0.17	39.1
65	1212.11	5.83	32.91	0.00041	0.17	39.3
65.2	1212.11	5.83	33.05	0.00042	0.17	39.5
65.4	1212.10	5.83	33.18	0.00042	0.17	39.6
65.6	1212.10	5.83	33.32	0.00042	0.17	39.8
65.8	1212.10	5.82	33.45	0.00042	0.17	40.0
66	1212.09	5.82	33.59	0.00042	0.17	40.1
66.2	1212.09	5.82	33.73	0.00042	0.17	40.3
66.4	1212.09	5.82	33.87	0.00043	0.17	40.5
66.6	1212.09	5.82	34.01	0.00043	0.17	40.7
66.8	1212.09	5.82	34.15	0.00043	0.17	40.8
67	1212.09	5.82	34.29	0.00043	0.17	41.0
67.2	1212.08	5.82	34.43	0.00043	0.17	41.2
67.4	1212.08	5.82	34.58	0.00044	0.17	41.4
67.6	1212.08	5.82	34.72	0.00044	0.17	41.5
67.8	1212.08	5.82	34.87	0.00044	0.18	41.7
68	1212.08	5.82	35.01	0.00044	0.18	41.9
68.2	1212.08	5.82	35.16	0.00044	0.18	42.1
68.4	1212.08	5.82	35.31	0.00044	0.18	42.2
68.6	1212.08	5.82	35.45	0.00045	0.18	42.4
68.8	1212.08	5.82	35.60	0.00045	0.18	42.6
69	1212.08	5.82	35.75	0.00045	0.18	42.8
69.2	1212.08	5.82	35.90	0.00045	0.18	43.0
69.4	1212.08	5.82	36.06	0.00045	0.18	43.1
69.6	1212.08	5.82	36.21	0.00046	0.18	43.3
69.8	1212.08	5.82	36.36	0.00046	0.18	43.5
70	1212.08	5.82	36.51	0.00046	0.18	43.7
70.2	1212.07	5.82	36.66	0.00046	0.18	43.9
70.4	1212.07	5.82	36.82	0.00046	0.19	44.1
70.6	1212.07	5.82	36.97	0.00047	0.19	44.2
70.8	1212.07	5.82	37.12	0.00047	0.19	44.4
71	1212.07	5.82	37.27	0.00047	0.19	44.6
71.2	1212.06	5.81	37.42	0.00047	0.19	44.8
71.4	1212.06	5.81	37.58	0.00047	0.19	45.0
71.6	1212.06	5.81	37.73	0.00047	0.19	45.2
71.8	1212.05	5.81	37.88	0.00048	0.19	45.4
72	1212.05	5.81	38.04	0.00048	0.19	45.6
72.2	1212.05	5.81	38.19	0.00048	0.19	45.8
72.4	1212.05	5.81	38.34	0.00048	0.19	46.0
72.6	1212.04	5.81	38.50	0.00048	0.19	46.1
72.8	1212.04	5.81	38.65	0.00049	0.19	46.3
73	1212.03	5.80	38.80	0.00049	0.20	46.5
73.2	1212.03	5.80	38.96	0.00049	0.20	46.7
73.4	1212.02	5.80	39.11	0.00049	0.20	46.9
73.6	1212.02	5.80	39.27	0.00049	0.20	47.1

73.8	1212.01	5.80	39.43	0.00050	0.20	47.3
74	1212.01	5.80	39.58	0.00050	0.20	47.5
74.2	1212.01	5.80	39.74	0.00050	0.20	47.7
74.4	1212.00	5.80	39.90	0.00050	0.20	47.9
74.6	1212.00	5.80	40.07	0.00050	0.20	48.1
74.8	1212.00	5.80	40.23	0.00051	0.20	48.3
75	1212.00	5.80	40.40	0.00051	0.20	48.5
75.2	1211.99	5.79	40.55	0.00051	0.20	48.7
75.4	1211.99	5.79	40.71	0.00051	0.21	48.9
75.6	1211.98	5.79	40.88	0.00051	0.21	49.1
75.8	1211.98	5.79	41.04	0.00052	0.21	49.4
76	1211.98	5.79	41.21	0.00052	0.21	49.6
76.2	1211.97	5.79	41.37	0.00052	0.21	49.8
76.4	1211.97	5.79	41.54	0.00052	0.21	50.0
76.6	1211.96	5.78	41.70	0.00053	0.21	50.2
76.8	1211.96	5.78	41.87	0.00053	0.21	50.4
77	1211.96	5.78	42.04	0.00053	0.21	50.6
77.2	1211.95	5.78	42.21	0.00053	0.21	50.8
77.4	1211.95	5.78	42.37	0.00053	0.21	51.0
77.6	1211.94	5.78	42.54	0.00054	0.21	51.3
77.8	1211.94	5.78	42.72	0.00054	0.22	51.5
78	1211.94	5.78	42.89	0.00054	0.22	51.7
78.2	1211.93	5.77	43.06	0.00054	0.22	51.9
78.4	1211.93	5.77	43.23	0.00054	0.22	52.1
78.6	1211.93	5.77	43.40	0.00055	0.22	52.3
78.8	1211.92	5.77	43.57	0.00055	0.22	52.6
79	1211.92	5.77	43.75	0.00055	0.22	52.8
79.2	1211.91	5.77	43.92	0.00055	0.22	53.0
79.4	1211.91	5.77	44.10	0.00056	0.22	53.2
79.6	1211.91	5.77	44.27	0.00056	0.22	53.4
79.8	1211.90	5.77	44.45	0.00056	0.22	53.7
80	1211.90	5.76	44.62	0.00056	0.22	53.9
80.2	1211.90	5.76	44.81	0.00056	0.23	54.1
80.4	1211.89	5.76	44.98	0.00057	0.23	54.3
80.6	1211.89	5.76	45.16	0.00057	0.23	54.6
80.8	1211.88	5.76	45.34	0.00057	0.23	54.8
81	1211.88	5.76	45.52	0.00057	0.23	55.0
81.2	1211.88	5.76	45.70	0.00058	0.23	55.3
81.4	1211.87	5.76	45.89	0.00058	0.23	55.5
81.6	1211.87	5.75	46.07	0.00058	0.23	55.7
81.8	1211.86	5.75	46.25	0.00058	0.23	56.0
82	1211.86	5.75	46.43	0.00058	0.23	56.2
82.2	1211.86	5.75	46.62	0.00059	0.23	56.4
82.4	1211.85	5.75	46.80	0.00059	0.24	56.7
82.6	1211.85	5.75	46.99	0.00059	0.24	56.9
82.8	1211.85	5.75	47.18	0.00059	0.24	57.1
83	1211.84	5.75	47.37	0.00060	0.24	57.4
83.2	1211.84	5.75	47.55	0.00060	0.24	57.6
83.4	1211.83	5.74	47.74	0.00060	0.24	57.9
83.6	1211.83	5.74	47.93	0.00060	0.24	58.1
83.8	1211.83	5.74	48.12	0.00061	0.24	58.3
84	1211.82	5.74	48.31	0.00061	0.24	58.6
84.2	1211.82	5.74	48.50	0.00061	0.24	58.8
84.4	1211.81	5.74	48.69	0.00061	0.25	59.1
84.6	1211.81	5.74	48.89	0.00062	0.25	59.3
84.8	1211.81	5.74	49.09	0.00062	0.25	59.6
85	1211.80	5.74	49.28	0.00062	0.25	59.8
85.2	1211.80	5.73	49.47	0.00062	0.25	60.1
85.4	1211.80	5.73	49.67	0.00063	0.25	60.3

85.6	1211.79	5.73	49.87	0.00063	0.25	60.6
85.8	1211.79	5.73	50.06	0.00063	0.25	60.8
86	1211.78	5.73	50.26	0.00063	0.25	61.1
86.2	1211.78	5.73	50.46	0.00064	0.25	61.3


White Tanks FRS No 3
Average Rate of Erosion from HET, PMF
Shear Stress (Pa)
Crack Width (mm)
Hydraulic Head (m)
Crack Width (mm), Shear Stress (Pa)
Hydraulic Head (m)
Time (hrs)
0
20
40
60
80
100
120
140
160
180
200
0
1
2
3
4
5
6
7
8
9
10
0
10
20
30
40
50
60
70
80
90
100

White Tanks - Crack Erosion
PMF, Upper Bound Rate of Erosion from HET

Input Parameters:

Initial Crack Width (m)	12.5	mm
I Het Value	4.6	
Soil Density (kg/cum)	1800	kg/m3
Seepage path length (m)	34	m
Storage floor elevation at FRZ	1193	ft

Note: Upper bound I HET value = 4.6, corresponds to Erosion Rate = 0.05 x shear stress (mm/hr)

Time (hours)	Elevation (ft)	Hydraulic Head (m)	Shear Stress (Pa)	Rate of Erosion (kg/s/m2)	Incremental Crack Widening (mm)	Crack Width (mm)
6.4	1204.80	3.60	6.49	0.00016		12.5
6.6	1204.80	3.60	6.49	0.00016	0.07	12.6
6.8	1204.79	3.60	6.52	0.00016	0.07	12.6
7	1204.79	3.60	6.55	0.00016	0.07	12.7
7.2	1204.79	3.60	6.59	0.00017	0.07	12.8
7.4	1204.79	3.60	6.62	0.00017	0.07	12.8
7.6	1204.78	3.59	6.65	0.00017	0.07	12.9
7.8	1204.78	3.59	6.69	0.00017	0.07	13.0
8	1204.78	3.59	6.72	0.00017	0.07	13.0
8.2	1204.78	3.59	6.75	0.00017	0.07	13.1
8.4	1204.77	3.59	6.79	0.00017	0.07	13.2
8.6	1204.77	3.59	6.82	0.00017	0.07	13.2
8.8	1204.77	3.59	6.86	0.00017	0.07	13.3
9	1204.77	3.59	6.89	0.00017	0.07	13.4
9.2	1204.77	3.59	6.93	0.00017	0.07	13.4
9.4	1204.77	3.59	6.96	0.00017	0.07	13.5
9.6	1204.77	3.59	7.00	0.00018	0.07	13.6
9.8	1204.78	3.59	7.04	0.00018	0.07	13.7
10	1204.78	3.59	7.08	0.00018	0.07	13.7
10.2	1204.78	3.59	7.12	0.00018	0.07	13.8
10.4	1204.79	3.60	7.16	0.00018	0.07	13.9
10.6	1204.79	3.60	7.20	0.00018	0.07	13.9
10.8	1204.80	3.60	7.24	0.00018	0.07	14.0
11	1204.81	3.60	7.28	0.00018	0.07	14.1
11.2	1204.82	3.61	7.33	0.00018	0.07	14.2
11.4	1204.83	3.61	7.37	0.00019	0.07	14.2
11.6	1204.85	3.61	7.42	0.00019	0.07	14.3
11.8	1204.86	3.62	7.47	0.00019	0.08	14.4
12	1204.88	3.62	7.52	0.00019	0.08	14.5
12.2	1204.89	3.63	7.57	0.00019	0.08	14.5
12.4	1204.91	3.63	7.62	0.00019	0.08	14.6
12.6	1204.93	3.64	7.67	0.00019	0.08	14.7
12.8	1204.95	3.65	7.73	0.00019	0.08	14.8
13	1204.97	3.65	7.78	0.00020	0.08	14.8
13.2	1205.00	3.66	7.84	0.00020	0.08	14.9
13.4	1205.02	3.67	7.89	0.00020	0.08	15.0
13.6	1205.05	3.67	7.95	0.00020	0.08	15.1
13.8	1205.07	3.68	8.01	0.00020	0.08	15.2
14	1205.10	3.69	8.07	0.00020	0.08	15.2
14.2	1205.13	3.70	8.14	0.00020	0.08	15.3
14.4	1205.16	3.71	8.20	0.00021	0.08	15.4
14.6	1205.19	3.72	8.26	0.00021	0.08	15.5

14.8	1205.22	3.73	8.33	0.00021	0.08	15.6
15	1205.26	3.74	8.40	0.00021	0.08	15.7
15.2	1205.29	3.75	8.47	0.00021	0.09	15.7
15.4	1205.33	3.76	8.54	0.00021	0.09	15.8
15.6	1205.37	3.77	8.61	0.00022	0.09	15.9
15.8	1205.41	3.78	8.69	0.00022	0.09	16.0
16	1205.45	3.80	8.76	0.00022	0.09	16.1
16.2	1205.49	3.81	8.84	0.00022	0.09	16.2
16.4	1205.53	3.82	8.92	0.00022	0.09	16.3
16.6	1205.57	3.83	9.00	0.00023	0.09	16.4
16.8	1205.62	3.85	9.08	0.00023	0.09	16.5
17	1205.66	3.86	9.17	0.00023	0.09	16.5
17.2	1205.71	3.88	9.25	0.00023	0.09	16.6
17.4	1205.76	3.89	9.34	0.00023	0.09	16.7
17.6	1205.81	3.91	9.43	0.00024	0.09	16.8
17.8	1205.86	3.92	9.52	0.00024	0.10	16.9
18	1205.91	3.94	9.62	0.00024	0.10	17.0
18.2	1205.97	3.96	9.71	0.00024	0.10	17.1
18.4	1206.03	3.97	9.81	0.00025	0.10	17.2
18.6	1206.08	3.99	9.91	0.00025	0.10	17.3
18.8	1206.14	4.01	10.01	0.00025	0.10	17.4
19	1206.20	4.02	10.11	0.00025	0.10	17.5
19.2	1206.26	4.04	10.22	0.00026	0.10	17.6
19.4	1206.32	4.06	10.33	0.00026	0.10	17.7
19.6	1206.39	4.08	10.44	0.00026	0.10	17.8
19.8	1206.46	4.11	10.56	0.00027	0.11	17.9
20	1206.53	4.13	10.68	0.00027	0.11	18.0
20.2	1206.61	4.15	10.80	0.00027	0.11	18.2
20.4	1206.69	4.18	10.93	0.00027	0.11	18.3
20.6	1206.77	4.20	11.07	0.00028	0.11	18.4
20.8	1206.86	4.23	11.20	0.00028	0.11	18.5
21	1206.95	4.26	11.35	0.00029	0.11	18.6
21.2	1207.04	4.28	11.49	0.00029	0.12	18.7
21.4	1207.14	4.31	11.64	0.00029	0.12	18.8
21.6	1207.25	4.34	11.80	0.00030	0.12	18.9
21.8	1207.36	4.38	11.97	0.00030	0.12	19.1
22	1207.47	4.41	12.14	0.00031	0.12	19.2
22.2	1207.59	4.45	12.32	0.00031	0.12	19.3
22.4	1207.71	4.49	12.51	0.00031	0.13	19.4
22.6	1207.84	4.53	12.70	0.00032	0.13	19.6
22.8	1207.98	4.57	12.89	0.00032	0.13	19.7
23	1208.10	4.61	13.09	0.00033	0.13	19.8
23.2	1208.22	4.64	13.28	0.00033	0.13	20.0
23.4	1208.34	4.68	13.48	0.00034	0.14	20.1
23.6	1208.48	4.72	13.69	0.00034	0.14	20.2
23.8	1208.61	4.76	13.90	0.00035	0.14	20.4
24	1208.75	4.80	14.12	0.00035	0.14	20.5
24.2	1208.90	4.85	14.35	0.00036	0.14	20.7
24.4	1209.07	4.90	14.61	0.00037	0.15	20.8
24.6	1209.30	4.97	14.92	0.00037	0.15	21.0
24.8	1209.58	5.06	15.29	0.00038	0.15	21.1
25	1209.89	5.15	15.69	0.00039	0.16	21.3
25.2	1210.20	5.25	16.10	0.00040	0.16	21.4
25.4	1210.54	5.35	16.54	0.00042	0.17	21.6
25.6	1211.00	5.49	17.11	0.00043	0.17	21.8
25.8	1211.40	5.61	17.62	0.00044	0.18	21.9
26	1212.00	5.80	18.35	0.00046	0.18	22.1
26.2	1212.45	5.93	18.94	0.00048	0.19	22.3
26.4	1213.09	6.13	19.73	0.00050	0.20	22.5

26.6	1213.84	6.36	20.65	0.00052	0.21	22.7
26.8	1214.60	6.59	21.60	0.00054	0.22	22.9
27	1215.27	6.79	22.48	0.00056	0.23	23.2
27.2	1215.78	6.95	23.22	0.00058	0.23	23.4
27.4	1216.09	7.04	23.77	0.00060	0.24	23.6
27.6	1216.18	7.07	24.11	0.00061	0.24	23.9
27.8	1216.12	7.05	24.30	0.00061	0.24	24.1
28	1216.01	7.02	24.43	0.00061	0.25	24.4
28.2	1215.89	6.98	24.55	0.00062	0.25	24.6
28.4	1215.77	6.95	24.67	0.00062	0.25	24.9
28.6	1215.65	6.91	24.78	0.00062	0.25	25.1
28.8	1215.52	6.87	24.89	0.00063	0.25	25.4
29	1215.39	6.83	25.00	0.00063	0.25	25.6
29.2	1215.28	6.80	25.12	0.00063	0.25	25.9
29.4	1215.17	6.76	25.24	0.00063	0.25	26.1
29.6	1215.06	6.73	25.35	0.00064	0.25	26.4
29.8	1214.94	6.69	25.46	0.00064	0.26	26.6
30	1214.82	6.66	25.57	0.00064	0.26	26.9
30.2	1214.71	6.62	25.69	0.00065	0.26	27.1
30.4	1214.60	6.59	25.81	0.00065	0.26	27.4
30.6	1214.49	6.55	25.92	0.00065	0.26	27.7
30.8	1214.37	6.52	26.02	0.00065	0.26	27.9
31	1214.27	6.49	26.14	0.00066	0.26	28.2
31.2	1214.18	6.46	26.27	0.00066	0.26	28.5
31.4	1214.10	6.43	26.42	0.00066	0.27	28.7
31.6	1214.03	6.41	26.57	0.00067	0.27	29.0
31.8	1213.96	6.39	26.74	0.00067	0.27	29.3
32	1213.90	6.37	26.91	0.00068	0.27	29.5
32.2	1213.84	6.36	27.08	0.00068	0.27	29.8
32.4	1213.79	6.34	27.26	0.00068	0.27	30.1
32.6	1213.74	6.33	27.45	0.00069	0.28	30.4
32.8	1213.70	6.31	27.64	0.00069	0.28	30.6
33	1213.66	6.30	27.84	0.00070	0.28	30.9
33.2	1213.62	6.29	28.04	0.00070	0.28	31.2
33.4	1213.59	6.28	28.25	0.00071	0.28	31.5
33.6	1213.55	6.27	28.47	0.00072	0.29	31.8
33.8	1213.52	6.26	28.68	0.00072	0.29	32.0
34	1213.50	6.25	28.91	0.00073	0.29	32.3
34.2	1213.47	6.24	29.13	0.00073	0.29	32.6
34.4	1213.45	6.24	29.37	0.00074	0.30	32.9
34.6	1213.43	6.23	29.60	0.00074	0.30	33.2
34.8	1213.41	6.23	29.84	0.00075	0.30	33.5
35	1213.39	6.22	30.08	0.00076	0.30	33.8
35.2	1213.37	6.21	30.32	0.00076	0.30	34.1
35.4	1213.36	6.21	30.57	0.00077	0.31	34.4
35.6	1213.34	6.20	30.82	0.00077	0.31	34.7
35.8	1213.32	6.20	31.07	0.00078	0.31	35.1
36	1213.30	6.19	31.32	0.00079	0.31	35.4
36.2	1213.28	6.19	31.57	0.00079	0.32	35.7
36.4	1213.26	6.18	31.82	0.00080	0.32	36.0
36.6	1213.23	6.17	32.05	0.00080	0.32	36.3
36.8	1213.18	6.16	32.27	0.00081	0.32	36.7
37	1213.14	6.14	32.49	0.00082	0.33	37.0
37.2	1213.11	6.13	32.72	0.00082	0.33	37.3
37.4	1213.07	6.12	32.96	0.00083	0.33	37.6
37.6	1213.04	6.11	33.20	0.00083	0.33	38.0
37.8	1213.01	6.10	33.44	0.00084	0.34	38.3
38	1212.99	6.10	33.70	0.00085	0.34	38.7
38.2	1212.96	6.09	33.95	0.00085	0.34	39.0

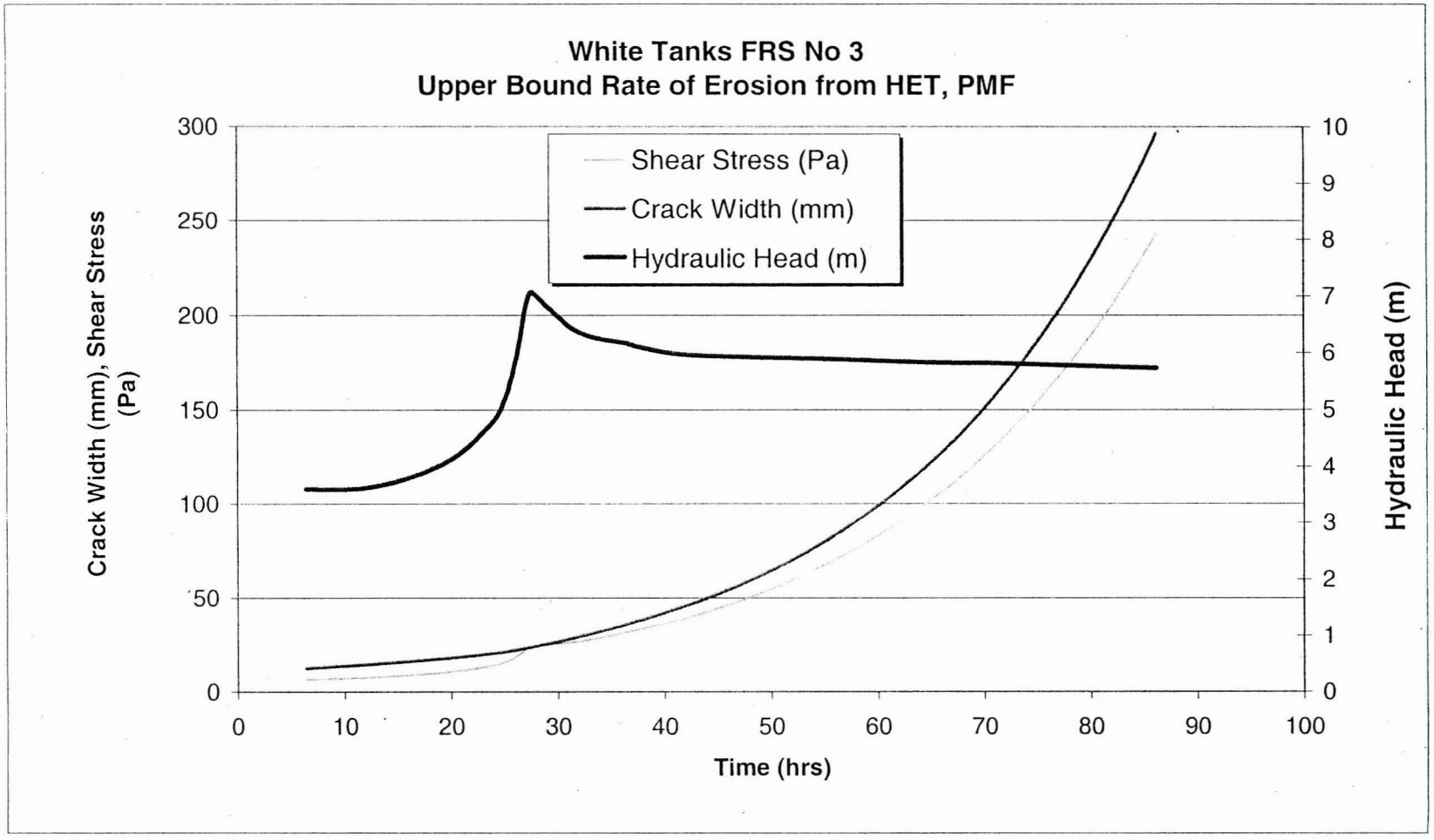
38.4	1212.93	6.08	34.20	0.00086	0.34	39.3
38.6	1212.91	6.07	34.45	0.00087	0.35	39.7
38.8	1212.88	6.06	34.71	0.00087	0.35	40.0
39	1212.85	6.05	34.97	0.00088	0.35	40.4
39.2	1212.83	6.05	35.23	0.00088	0.35	40.7
39.4	1212.80	6.04	35.49	0.00089	0.36	41.1
39.6	1212.78	6.03	35.76	0.00090	0.36	41.5
39.8	1212.76	6.03	36.03	0.00091	0.36	41.8
40	1212.73	6.02	36.31	0.00091	0.36	42.2
40.2	1212.71	6.01	36.59	0.00092	0.37	42.5
40.4	1212.69	6.01	36.87	0.00093	0.37	42.9
40.6	1212.68	6.00	37.15	0.00093	0.37	43.3
40.8	1212.66	6.00	37.44	0.00094	0.38	43.7
41	1212.64	5.99	37.74	0.00095	0.38	44.0
41.2	1212.63	5.99	38.03	0.00096	0.38	44.4
41.4	1212.61	5.98	38.34	0.00096	0.39	44.8
41.6	1212.60	5.98	38.64	0.00097	0.39	45.2
41.8	1212.59	5.97	38.95	0.00098	0.39	45.6
42	1212.57	5.97	39.27	0.00099	0.39	46.0
42.2	1212.56	5.97	39.59	0.00099	0.40	46.4
42.4	1212.55	5.96	39.91	0.00100	0.40	46.8
42.6	1212.55	5.96	40.24	0.00101	0.40	47.2
42.8	1212.54	5.96	40.57	0.00102	0.41	47.6
43	1212.53	5.96	40.91	0.00103	0.41	48.0
43.2	1212.53	5.96	41.25	0.00104	0.41	48.4
43.4	1212.52	5.95	41.59	0.00104	0.42	48.8
43.6	1212.52	5.95	41.94	0.00105	0.42	49.3
43.8	1212.51	5.95	42.29	0.00106	0.42	49.7
44	1212.51	5.95	42.65	0.00107	0.43	50.1
44.2	1212.50	5.95	43.01	0.00108	0.43	50.5
44.4	1212.50	5.95	43.37	0.00109	0.44	51.0
44.6	1212.50	5.95	43.74	0.00110	0.44	51.4
44.8	1212.49	5.94	44.10	0.00111	0.44	51.9
45	1212.49	5.94	44.47	0.00112	0.45	52.3
45.2	1212.48	5.94	44.84	0.00113	0.45	52.8
45.4	1212.48	5.94	45.22	0.00114	0.45	53.2
45.6	1212.47	5.94	45.60	0.00115	0.46	53.7
45.8	1212.47	5.94	45.98	0.00115	0.46	54.1
46	1212.46	5.94	46.37	0.00116	0.47	54.6
46.2	1212.46	5.94	46.76	0.00117	0.47	55.1
46.4	1212.46	5.93	47.15	0.00118	0.47	55.5
46.6	1212.45	5.93	47.55	0.00119	0.48	56.0
46.8	1212.45	5.93	47.95	0.00120	0.48	56.5
47	1212.45	5.93	48.36	0.00121	0.49	57.0
47.2	1212.45	5.93	48.77	0.00122	0.49	57.5
47.4	1212.44	5.93	49.18	0.00124	0.49	58.0
47.6	1212.44	5.93	49.59	0.00125	0.50	58.5
47.8	1212.44	5.93	50.01	0.00126	0.50	59.0
48	1212.43	5.93	50.42	0.00127	0.51	59.5
48.2	1212.43	5.93	50.85	0.00128	0.51	60.0
48.4	1212.42	5.92	51.27	0.00129	0.52	60.5
48.6	1212.42	5.92	51.70	0.00130	0.52	61.0
48.8	1212.42	5.92	52.14	0.00131	0.52	61.6
49	1212.41	5.92	52.58	0.00132	0.53	62.1
49.2	1212.41	5.92	53.02	0.00133	0.53	62.6
49.4	1212.41	5.92	53.46	0.00134	0.54	63.2
49.6	1212.40	5.92	53.92	0.00135	0.54	63.7
49.8	1212.40	5.92	54.37	0.00137	0.55	64.2
50	1212.40	5.92	54.83	0.00138	0.55	64.8

50.2	1212.40	5.92	55.30	0.00139	0.56	65.3
50.4	1212.39	5.92	55.76	0.00140	0.56	65.9
50.6	1212.39	5.91	56.24	0.00141	0.57	66.5
50.8	1212.39	5.91	56.71	0.00142	0.57	67.0
51	1212.39	5.91	57.20	0.00144	0.57	67.6
51.2	1212.39	5.91	57.68	0.00145	0.58	68.2
51.4	1212.39	5.91	58.17	0.00146	0.58	68.8
51.6	1212.38	5.91	58.66	0.00147	0.59	69.4
51.8	1212.38	5.91	59.15	0.00149	0.59	70.0
52	1212.37	5.91	59.65	0.00150	0.60	70.6
52.2	1212.37	5.91	60.14	0.00151	0.60	71.2
52.4	1212.37	5.91	60.65	0.00152	0.61	71.8
52.6	1212.36	5.91	61.16	0.00154	0.61	72.4
52.8	1212.36	5.91	61.67	0.00155	0.62	73.0
53	1212.36	5.90	62.19	0.00156	0.62	73.6
53.2	1212.36	5.90	62.71	0.00158	0.63	74.3
53.4	1212.35	5.90	63.24	0.00159	0.64	74.9
53.6	1212.35	5.90	63.78	0.00160	0.64	75.5
53.8	1212.35	5.90	64.31	0.00162	0.65	76.2
54	1212.35	5.90	64.86	0.00163	0.65	76.8
54.2	1212.34	5.90	65.40	0.00164	0.66	77.5
54.4	1212.34	5.90	65.95	0.00166	0.66	78.2
54.6	1212.34	5.90	66.50	0.00167	0.67	78.8
54.8	1212.33	5.90	67.06	0.00168	0.67	79.5
55	1212.33	5.90	67.61	0.00170	0.68	80.2
55.2	1212.32	5.89	68.18	0.00171	0.69	80.9
55.4	1212.32	5.89	68.75	0.00173	0.69	81.6
55.6	1212.32	5.89	69.32	0.00174	0.70	82.3
55.8	1212.31	5.89	69.90	0.00176	0.70	83.0
56	1212.31	5.89	70.48	0.00177	0.71	83.7
56.2	1212.31	5.89	71.07	0.00179	0.71	84.4
56.4	1212.30	5.89	71.67	0.00180	0.72	85.1
56.6	1212.30	5.89	72.26	0.00182	0.73	85.8
56.8	1212.29	5.88	72.86	0.00183	0.73	86.6
57	1212.29	5.88	73.46	0.00185	0.74	87.3
57.2	1212.28	5.88	74.07	0.00186	0.74	88.0
57.4	1212.28	5.88	74.68	0.00188	0.75	88.8
57.6	1212.27	5.88	75.30	0.00189	0.76	89.5
57.8	1212.27	5.88	75.92	0.00191	0.76	90.3
58	1212.26	5.88	76.55	0.00192	0.77	91.1
58.2	1212.26	5.87	77.19	0.00194	0.78	91.9
58.4	1212.26	5.87	77.83	0.00195	0.78	92.6
58.6	1212.25	5.87	78.47	0.00197	0.79	93.4
58.8	1212.25	5.87	79.11	0.00199	0.79	94.2
59	1212.24	5.87	79.77	0.00200	0.80	95.0
59.2	1212.23	5.87	80.42	0.00202	0.81	95.8
59.4	1212.23	5.87	81.08	0.00204	0.81	96.6
59.6	1212.22	5.86	81.75	0.00205	0.82	97.5
59.8	1212.22	5.86	82.43	0.00207	0.83	98.3
60	1212.22	5.86	83.11	0.00209	0.84	99.1
60.2	1212.21	5.86	83.80	0.00210	0.84	100.0
60.4	1212.21	5.86	84.49	0.00212	0.85	100.8
60.6	1212.20	5.86	85.19	0.00214	0.86	101.7
60.8	1212.20	5.86	85.88	0.00216	0.86	102.5
61	1212.19	5.85	86.58	0.00217	0.87	103.4
61.2	1212.19	5.85	87.29	0.00219	0.88	104.3
61.4	1212.18	5.85	88.01	0.00221	0.88	105.2
61.6	1212.18	5.85	88.74	0.00223	0.89	106.1
61.8	1212.17	5.85	89.46	0.00225	0.90	107.0

62	1212.17	5.85	90.20	0.00227	0.91	107.9
62.2	1212.16	5.84	90.95	0.00228	0.91	108.8
62.4	1212.16	5.84	91.70	0.00230	0.92	109.7
62.6	1212.15	5.84	92.46	0.00232	0.93	110.6
62.8	1212.15	5.84	93.22	0.00234	0.94	111.6
63	1212.15	5.84	94.00	0.00236	0.94	112.5
63.2	1212.15	5.84	94.78	0.00238	0.95	113.5
63.4	1212.14	5.84	95.57	0.00240	0.96	114.4
63.6	1212.14	5.84	96.36	0.00242	0.97	115.4
63.8	1212.13	5.84	97.15	0.00244	0.98	116.4
64	1212.13	5.83	97.95	0.00246	0.98	117.4
64.2	1212.12	5.83	98.75	0.00248	0.99	118.3
64.4	1212.12	5.83	99.56	0.00250	1.00	119.3
64.6	1212.12	5.83	100.39	0.00252	1.01	120.4
64.8	1212.11	5.83	101.22	0.00254	1.02	121.4
65	1212.11	5.83	102.05	0.00256	1.03	122.4
65.2	1212.11	5.83	102.90	0.00258	1.03	123.4
65.4	1212.10	5.83	103.75	0.00261	1.04	124.5
65.6	1212.10	5.83	104.60	0.00263	1.05	125.5
65.8	1212.10	5.82	105.47	0.00265	1.06	126.6
66	1212.09	5.82	106.35	0.00267	1.07	127.7
66.2	1212.09	5.82	107.24	0.00269	1.08	128.7
66.4	1212.09	5.82	108.14	0.00272	1.09	129.8
66.6	1212.09	5.82	109.03	0.00274	1.10	130.9
66.8	1212.09	5.82	109.94	0.00276	1.10	132.0
67	1212.09	5.82	110.86	0.00278	1.11	133.1
67.2	1212.08	5.82	111.79	0.00281	1.12	134.3
67.4	1212.08	5.82	112.72	0.00283	1.13	135.4
67.6	1212.08	5.82	113.67	0.00286	1.14	136.5
67.8	1212.08	5.82	114.63	0.00288	1.15	137.7
68	1212.08	5.82	115.59	0.00290	1.16	138.8
68.2	1212.08	5.82	116.56	0.00293	1.17	140.0
68.4	1212.08	5.82	117.53	0.00295	1.18	141.2
68.6	1212.08	5.82	118.52	0.00298	1.19	142.4
68.8	1212.08	5.82	119.52	0.00300	1.20	143.6
69	1212.08	5.82	120.52	0.00303	1.21	144.8
69.2	1212.08	5.82	121.54	0.00305	1.22	146.0
69.4	1212.08	5.82	122.57	0.00308	1.23	147.2
69.6	1212.08	5.82	123.59	0.00310	1.24	148.5
69.8	1212.08	5.82	124.63	0.00313	1.25	149.7
70	1212.08	5.82	125.68	0.00316	1.26	151.0
70.2	1212.07	5.82	126.73	0.00318	1.27	152.3
70.4	1212.07	5.82	127.80	0.00321	1.28	153.6
70.6	1212.07	5.82	128.86	0.00324	1.29	154.9
70.8	1212.07	5.82	129.93	0.00326	1.31	156.2
71	1212.07	5.82	131.01	0.00329	1.32	157.5
71.2	1212.06	5.81	132.09	0.00332	1.33	158.8
71.4	1212.06	5.81	133.18	0.00335	1.34	160.1
71.6	1212.06	5.81	134.28	0.00337	1.35	161.5
71.8	1212.05	5.81	135.39	0.00340	1.36	162.9
72	1212.05	5.81	136.51	0.00343	1.37	164.2
72.2	1212.05	5.81	137.64	0.00346	1.38	165.6
72.4	1212.05	5.81	138.78	0.00349	1.39	167.0
72.6	1212.04	5.81	139.92	0.00351	1.41	168.4
72.8	1212.04	5.81	141.06	0.00354	1.42	169.8
73	1212.03	5.80	142.21	0.00357	1.43	171.3
73.2	1212.03	5.80	143.37	0.00360	1.44	172.7
73.4	1212.02	5.80	144.54	0.00363	1.45	174.1
73.6	1212.02	5.80	145.73	0.00366	1.46	175.6

73.8	1212.01	5.80	146.92	0.00369	1.48	177.1
74	1212.01	5.80	148.13	0.00372	1.49	178.6
74.2	1212.01	5.80	149.34	0.00375	1.50	180.1
74.4	1212.00	5.80	150.57	0.00378	1.51	181.6
74.6	1212.00	5.80	151.81	0.00381	1.53	183.1
74.8	1212.00	5.80	153.09	0.00385	1.54	184.7
75	1212.00	5.80	154.37	0.00388	1.55	186.2
75.2	1211.99	5.79	155.59	0.00391	1.56	187.8
75.4	1211.99	5.79	156.86	0.00394	1.58	189.3
75.6	1211.98	5.79	158.14	0.00397	1.59	190.9
75.8	1211.98	5.79	159.45	0.00401	1.60	192.5
76	1211.98	5.79	160.76	0.00404	1.62	194.1
76.2	1211.97	5.79	162.07	0.00407	1.63	195.8
76.4	1211.97	5.79	163.40	0.00410	1.64	197.4
76.6	1211.96	5.78	164.73	0.00414	1.66	199.1
76.8	1211.96	5.78	166.08	0.00417	1.67	200.7
77	1211.96	5.78	167.44	0.00421	1.68	202.4
77.2	1211.95	5.78	168.80	0.00424	1.70	204.1
77.4	1211.95	5.78	170.18	0.00427	1.71	205.8
77.6	1211.94	5.78	171.57	0.00431	1.72	207.6
77.8	1211.94	5.78	172.99	0.00435	1.74	209.3
78	1211.94	5.78	174.40	0.00438	1.75	211.0
78.2	1211.93	5.77	175.82	0.00442	1.77	212.8
78.4	1211.93	5.77	177.26	0.00445	1.78	214.6
78.6	1211.93	5.77	178.70	0.00449	1.80	216.4
78.8	1211.92	5.77	180.16	0.00453	1.81	218.2
79	1211.92	5.77	181.63	0.00456	1.82	220.0
79.2	1211.91	5.77	183.11	0.00460	1.84	221.9
79.4	1211.91	5.77	184.60	0.00464	1.85	223.7
79.6	1211.91	5.77	186.11	0.00467	1.87	225.6
79.8	1211.90	5.77	187.62	0.00471	1.89	227.5
80	1211.90	5.76	189.15	0.00475	1.90	229.4
80.2	1211.90	5.76	190.71	0.00479	1.92	231.3
80.4	1211.89	5.76	192.26	0.00483	1.93	233.2
80.6	1211.89	5.76	193.83	0.00487	1.95	235.2
80.8	1211.88	5.76	195.40	0.00491	1.96	237.1
81	1211.88	5.76	196.99	0.00495	1.98	239.1
81.2	1211.88	5.76	198.60	0.00499	2.00	241.1
81.4	1211.87	5.76	200.21	0.00503	2.01	243.1
81.6	1211.87	5.75	201.84	0.00507	2.03	245.1
81.8	1211.86	5.75	203.48	0.00511	2.04	247.2
82	1211.86	5.75	205.13	0.00515	2.06	249.3
82.2	1211.86	5.75	206.80	0.00519	2.08	251.3
82.4	1211.85	5.75	208.48	0.00524	2.09	253.4
82.6	1211.85	5.75	210.19	0.00528	2.11	255.5
82.8	1211.85	5.75	211.90	0.00532	2.13	257.7
83	1211.84	5.75	213.62	0.00537	2.15	259.8
83.2	1211.84	5.75	215.36	0.00541	2.16	262.0
83.4	1211.83	5.74	217.10	0.00545	2.18	264.2
83.6	1211.83	5.74	218.86	0.00550	2.20	266.4
83.8	1211.83	5.74	220.64	0.00554	2.22	268.6
84	1211.82	5.74	222.43	0.00559	2.23	270.8
84.2	1211.82	5.74	224.23	0.00563	2.25	273.1
84.4	1211.81	5.74	226.05	0.00568	2.27	275.3
84.6	1211.81	5.74	227.88	0.00572	2.29	277.6
84.8	1211.81	5.74	229.75	0.00577	2.31	279.9
85	1211.80	5.74	231.61	0.00582	2.33	282.3
85.2	1211.80	5.73	233.49	0.00586	2.35	284.6
85.4	1211.80	5.73	235.38	0.00591	2.36	287.0

85.6	1211.79	5.73	237.28	0.00596	2.38	289.4
85.8	1211.79	5.73	239.20	0.00601	2.40	291.8
86	1211.78	5.73	241.14	0.00606	2.42	294.2
86.2	1211.78	5.73	243.09	0.00611	2.44	296.6


White Tanks FRS No 3
Upper Bound Rate of Erosion from HET, PMF
Shear Stress (Pa)
Crack Width (mm)
Hydraulic Head (m)
Crack Width (mm), Shear Stress (Pa)
Hydraulic Head (m)
Time (hrs)
0
50
100
150
200
250
300
0
1
2
3
4
5
6
7
8
9
10
0
10
20
30
40
50
60
70
80
90
100

White Tanks

Ref: Excel file "Latest 72 hr general.xls"
ELEVATION VS TIME
72-HR GENERAL Outflow Hydrograph

time (hrs)	Q (cfs)	E (ft)
6.4	32.40	1204.80
6.6	32.39	1204.80
6.8	32.37	1204.79
7	32.36	1204.79
7.2	32.34	1204.79
7.4	32.33	1204.79
7.6	32.31	1204.78
7.8	32.30	1204.78
8	32.29	1204.78
8.2	32.27	1204.78
8.4	32.26	1204.77
8.6	32.26	1204.77
8.8	32.25	1204.77
9	32.25	1204.77
9.2	32.25	1204.77
9.4	32.25	1204.77
9.6	32.26	1204.77
9.8	32.27	1204.78
10	32.29	1204.78
10.2	32.31	1204.78
10.4	32.34	1204.79
10.6	32.37	1204.79
10.8	32.42	1204.80
11	32.47	1204.81
11.2	32.52	1204.82
11.4	32.59	1204.83
11.6	32.66	1204.85
11.8	32.74	1204.86
12	32.82	1204.88
12.2	32.92	1204.89
12.4	33.02	1204.91
12.6	33.13	1204.93
12.8	33.24	1204.95
13	33.36	1204.97
13.2	33.49	1205.00
13.4	33.62	1205.02
13.6	33.76	1205.05
13.8	33.90	1205.07
14	34.05	1205.10
14.2	34.21	1205.13
14.4	34.37	1205.16
14.6	34.54	1205.19
14.8	34.72	1205.22
15	34.91	1205.26
15.2	35.10	1205.29
15.4	35.31	1205.33
15.6	35.52	1205.37
15.8	35.73	1205.41
16	35.95	1205.45
16.2	36.18	1205.49
16.4	36.41	1205.53

16.6	36.65	1205.57
16.8	36.89	1205.62
17	37.14	1205.66
17.2	37.39	1205.71
17.4	37.66	1205.76
17.6	37.93	1205.81
17.8	38.23	1205.86
18	38.53	1205.91
18.2	38.84	1205.97
18.4	39.15	1206.03
18.6	39.45	1206.08
18.8	39.76	1206.14
19	40.08	1206.20
19.2	40.42	1206.26
19.4	40.77	1206.32
19.6	41.14	1206.39
19.8	41.53	1206.46
20	41.94	1206.53
20.2	42.36	1206.61
20.4	42.79	1206.69
20.6	43.25	1206.77
20.8	43.73	1206.86
21	44.23	1206.95
21.2	44.74	1207.04
21.4	45.28	1207.14
21.6	45.85	1207.25
21.8	46.46	1207.36
22	47.10	1207.47
22.2	47.75	1207.59
22.4	48.43	1207.71
22.6	49.13	1207.84
22.8	49.87	1207.98
23	50.64	1208.10
23.2	51.43	1208.22
23.4	52.24	1208.34
23.6	53.09	1208.48
23.8	53.97	1208.61
24	54.87	1208.75
24.2	55.82	1208.90
24.4	56.97	1209.07
24.6	58.44	1209.30
24.8	60.25	1209.58
25	62.28	1209.89
25.2	64.01	1210.20
25.4	65.72	1210.54
25.6	68.00	1211.00
25.8	70.00	1211.40
26	73.00	1212.00
26.2	1255.00	1212.45
26.4	3171.00	1213.09
26.6	7311.00	1213.84
26.8	12583.00	1214.60
27	17897.00	1215.27
27.2	22347.00	1215.78
27.4	25135.00	1216.09
27.6	26045.00	1216.18
27.8	25467.00	1216.12
28	24348.00	1216.01
28.2	23297.00	1215.89

28.4	22268.00	1215.77
28.6	21179.00	1215.65
28.8	20055.00	1215.52
29	18980.00	1215.39
29.2	17995.00	1215.28
29.4	17036.00	1215.17
29.6	16036.00	1215.06
29.8	15085.00	1214.94
30	14232.00	1214.82
30.2	13431.00	1214.71
30.4	12634.00	1214.60
30.6	11797.00	1214.49
30.8	10953.00	1214.37
31	10180.00	1214.27
31.2	9509.00	1214.18
31.4	8928.00	1214.10
31.6	8412.00	1214.03
31.8	8001.00	1213.96
32	7662.00	1213.90
32.2	7354.00	1213.84
32.4	7067.00	1213.79
32.6	6793.00	1213.74
32.8	6537.00	1213.70
33	6309.00	1213.66
33.2	6109.00	1213.62
33.4	5925.00	1213.59
33.6	5749.00	1213.55
33.8	5582.00	1213.52
34	5435.00	1213.50
34.2	5306.00	1213.47
34.4	5186.00	1213.45
34.6	5067.00	1213.43
34.8	4949.00	1213.41
35	4842.00	1213.39
35.2	4747.00	1213.37
35.4	4653.00	1213.36
35.6	4550.00	1213.34
35.8	4440.00	1213.32
36	4338.00	1213.30
36.2	4239.00	1213.28
36.4	4108.00	1213.26
36.6	3920.00	1213.23
36.8	3690.00	1213.18
37	3462.00	1213.14
37.2	3259.00	1213.11
37.4	3078.00	1213.07
37.6	2910.00	1213.04
37.8	2754.00	1213.01
38	2640.00	1212.99
38.2	2570.00	1212.96
38.4	2499.00	1212.93
38.6	2428.00	1212.91
38.8	2356.00	1212.88
39	2287.00	1212.85
39.2	2222.00	1212.83
39.4	2158.00	1212.80
39.6	2097.00	1212.78
39.8	2037.00	1212.76
40	1981.00	1212.73

40.2	1928.00	1212.71
40.4	1877.00	1212.69
40.6	1828.00	1212.68
40.8	1782.00	1212.66
41	1738.00	1212.64
41.2	1698.00	1212.63
41.4	1661.00	1212.61
41.6	1627.00	1212.60
41.8	1594.00	1212.59
42	1564.00	1212.57
42.2	1537.00	1212.56
42.4	1514.00	1212.55
42.6	1494.00	1212.55
42.8	1474.00	1212.54
43	1456.00	1212.53
43.2	1439.00	1212.53
43.4	1424.00	1212.52
43.6	1412.00	1212.52
43.8	1402.00	1212.51
44	1393.00	1212.51
44.2	1385.00	1212.50
44.4	1375.00	1212.50
44.6	1363.00	1212.50
44.8	1349.00	1212.49
45	1334.00	1212.49
45.2	1322.00	1212.48
45.4	1311.00	1212.48
45.6	1301.00	1212.47
45.8	1290.00	1212.47
46	1279.00	1212.46
46.2	1269.00	1212.46
46.4	1260.00	1212.46
46.6	1253.00	1212.45
46.8	1247.00	1212.45
47	1240.00	1212.45
47.2	1233.00	1212.45
47.4	1225.00	1212.44
47.6	1216.00	1212.44
47.8	1205.00	1212.44
48	1193.00	1212.43
48.2	1182.00	1212.43
48.4	1171.00	1212.42
48.6	1162.00	1212.42
48.8	1152.00	1212.42
49	1143.00	1212.41
49.2	1135.00	1212.41
49.4	1127.00	1212.41
49.6	1120.00	1212.40
49.8	1113.00	1212.40
50	1107.00	1212.40
50.2	1102.00	1212.40
50.4	1096.00	1212.39
50.6	1092.00	1212.39
50.8	1088.00	1212.39
51	1084.00	1212.39
51.2	1080.00	1212.39
51.4	1075.00	1212.39
51.6	1067.00	1212.38
51.8	1058.00	1212.38

52	1047.00	1212.37
52.2	1037.00	1212.37
52.4	1028.00	1212.37
52.6	1019.00	1212.36
52.8	1011.00	1212.36
53	1004.00	1212.36
53.2	998.00	1212.36
53.4	992.00	1212.35
53.6	986.00	1212.35
53.8	979.00	1212.35
54	973.00	1212.35
54.2	967.00	1212.34
54.4	960.00	1212.34
54.6	950.00	1212.34
54.8	939.00	1212.33
55	927.00	1212.33
55.2	916.00	1212.32
55.4	906.00	1212.32
55.6	896.00	1212.32
55.8	887.00	1212.31
56	879.00	1212.31
56.2	870.00	1212.31
56.4	861.00	1212.30
56.6	850.00	1212.30
56.8	837.00	1212.29
57	823.00	1212.29
57.2	809.00	1212.28
57.4	795.00	1212.28
57.6	782.00	1212.27
57.8	770.00	1212.27
58	760.00	1212.26
58.2	750.00	1212.26
58.4	739.00	1212.26
58.6	726.00	1212.25
58.8	712.00	1212.25
59	698.00	1212.24
59.2	683.00	1212.23
59.4	670.00	1212.23
59.6	657.00	1212.22
59.8	646.00	1212.22
60	635.00	1212.22
60.2	624.00	1212.21
60.4	613.00	1212.21
60.6	601.00	1212.20
60.8	585.00	1212.20
61	569.00	1212.19
61.2	555.00	1212.19
61.4	542.00	1212.18
61.6	530.00	1212.18
61.8	517.00	1212.17
62	505.00	1212.17
62.2	494.00	1212.16
62.4	485.00	1212.16
62.6	475.00	1212.15
62.8	466.00	1212.15
63	459.00	1212.15
63.2	453.00	1212.15
63.4	445.00	1212.14
63.6	435.00	1212.14

63.8	422.00	1212.13
64	409.00	1212.13
64.2	396.00	1212.12
64.4	386.00	1212.12
64.6	376.00	1212.12
64.8	368.00	1212.11
65	358.00	1212.11
65.2	349.00	1212.11
65.4	340.00	1212.10
65.6	331.00	1212.10
65.8	324.00	1212.10
66	319.00	1212.09
66.2	314.00	1212.09
66.4	310.00	1212.09
66.6	304.00	1212.09
66.8	299.00	1212.09
67	294.00	1212.09
67.2	290.00	1212.08
67.4	287.00	1212.08
67.6	286.00	1212.08
67.8	285.00	1212.08
68	282.00	1212.08
68.2	280.00	1212.08
68.4	277.00	1212.08
68.6	275.00	1212.08
68.8	273.00	1212.08
69	273.00	1212.08
69.2	273.00	1212.08
69.4	273.00	1212.08
69.6	271.00	1212.08
69.8	270.00	1212.08
70	268.00	1212.08
70.2	266.00	1212.07
70.4	264.00	1212.07
70.6	259.00	1212.07
70.8	253.00	1212.07
71	245.00	1212.07
71.2	237.00	1212.06
71.4	229.00	1212.06
71.6	221.00	1212.06
71.8	213.00	1212.05
72	206.00	1212.05
72.2	198.00	1212.05
72.4	190.00	1212.05
72.6	180.00	1212.04
72.8	168.00	1212.04
73	155.00	1212.03
73.2	143.00	1212.03
73.4	131.00	1212.02
73.6	120.00	1212.02
73.8	109.00	1212.01
74	99.00	1212.01
74.2	90.00	1212.01
74.4	81.00	1212.00
74.6	73.00	1212.00
74.8	73.00	1212.00
75	73.00	1212.00
75.2	72.95	1211.99
75.4	72.93	1211.99

75.6	72.91	1211.98
75.8	72.90	1211.98
76	72.88	1211.98
76.2	72.86	1211.97
76.4	72.84	1211.97
76.6	72.82	1211.96
76.8	72.80	1211.96
77	72.78	1211.96
77.2	72.76	1211.95
77.4	72.74	1211.95
77.6	72.72	1211.94
77.8	72.71	1211.94
78	72.69	1211.94
78.2	72.67	1211.93
78.4	72.65	1211.93
78.6	72.63	1211.93
78.8	72.61	1211.92
79	72.59	1211.92
79.2	72.57	1211.91
79.4	72.55	1211.91
79.6	72.53	1211.91
79.8	72.51	1211.90
80	72.49	1211.90
80.2	72.48	1211.90
80.4	72.46	1211.89
80.6	72.44	1211.89
80.8	72.42	1211.88
81	72.40	1211.88
81.2	72.38	1211.88
81.4	72.36	1211.87
81.6	72.34	1211.87
81.8	72.32	1211.86
82	72.30	1211.86
82.2	72.28	1211.86
82.4	72.26	1211.85
82.6	72.25	1211.85
82.8	72.23	1211.85
83	72.21	1211.84
83.2	72.19	1211.84
83.4	72.17	1211.83
83.6	72.15	1211.83
83.8	72.13	1211.83
84	72.11	1211.82
84.2	72.09	1211.82
84.4	72.07	1211.81
84.6	72.05	1211.81
84.8	72.04	1211.81
85	72.02	1211.80
85.2	72.00	1211.80
85.4	71.98	1211.80
85.6	71.96	1211.79
85.8	71.94	1211.79
86	71.92	1211.78
86.2	71.90	1211.78

APPENDIX G

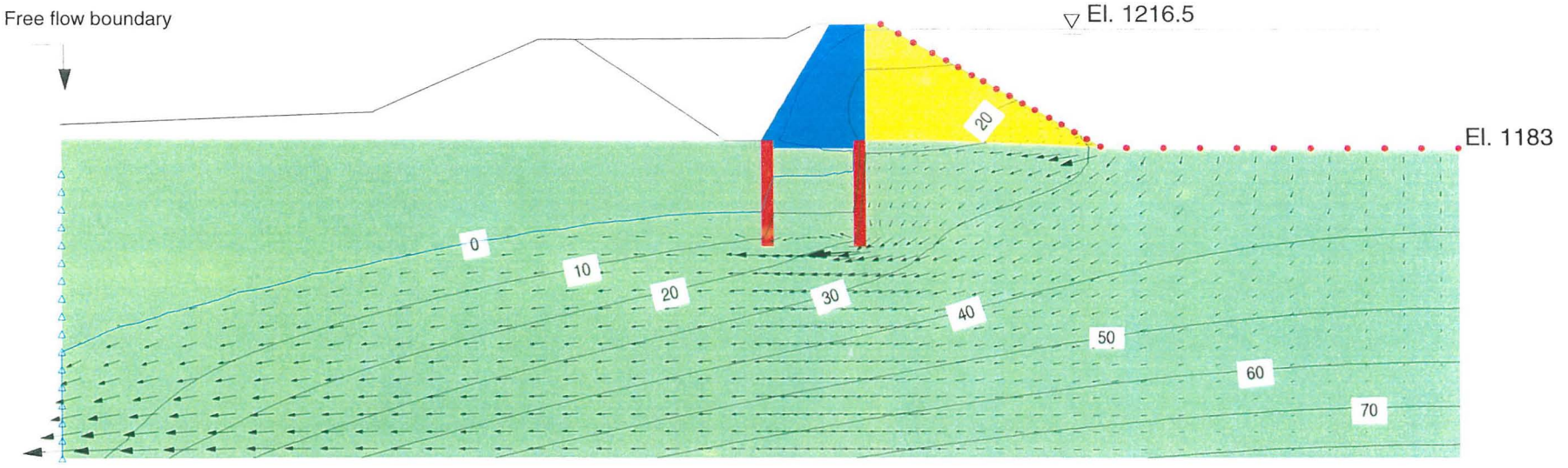
CALCULATION PACKAGES – GEOTECHNICAL DESIGN

INDEX OF GEOTECHNICAL DESIGN CALCULATION PACKAGES

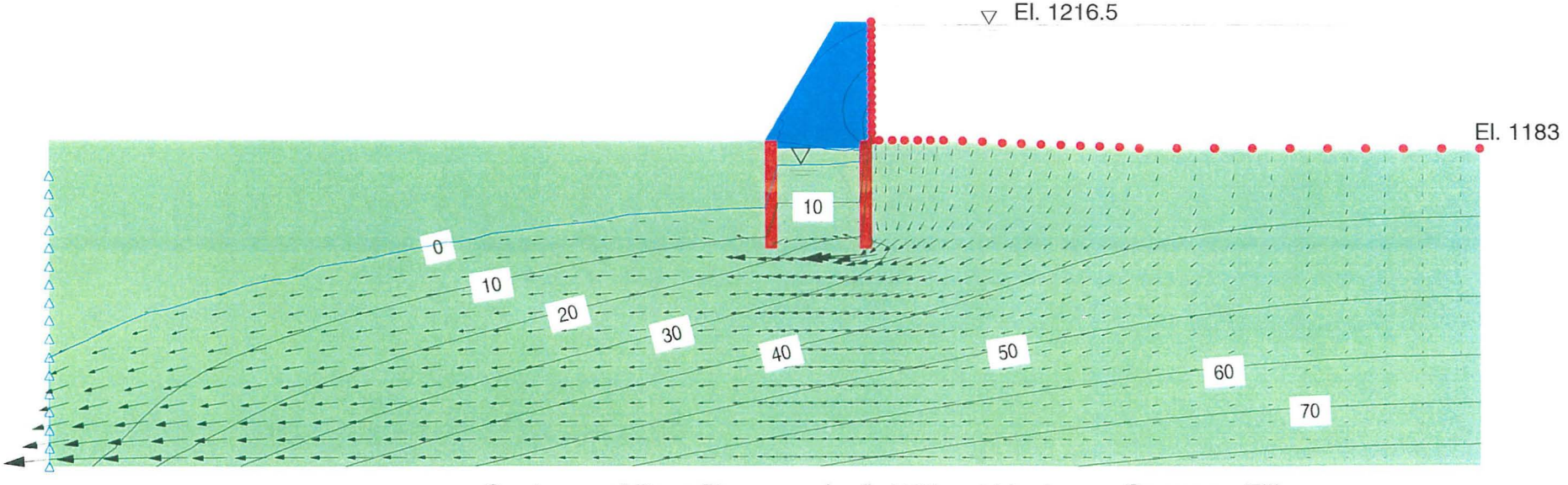
(WHITE TANK FLOOD RETARDING STRUCTURE NO. 3 REMEDIATION DESIGN STUDY)

Index Number	Title
G-1	SEEPAGE ANALYSIS
G-2	SLOPE STABILITY ANALYSIS
G-3	SLIDING AND OVERTURNING STABILITY ANALYSIS
G-4	SETTLEMENT ANALYSIS
G-5	SEISMIC ANALYSIS
G-6	SOIL CEMENT BEAM ANALYSIS

Appendix G.1
Seepage Analysis

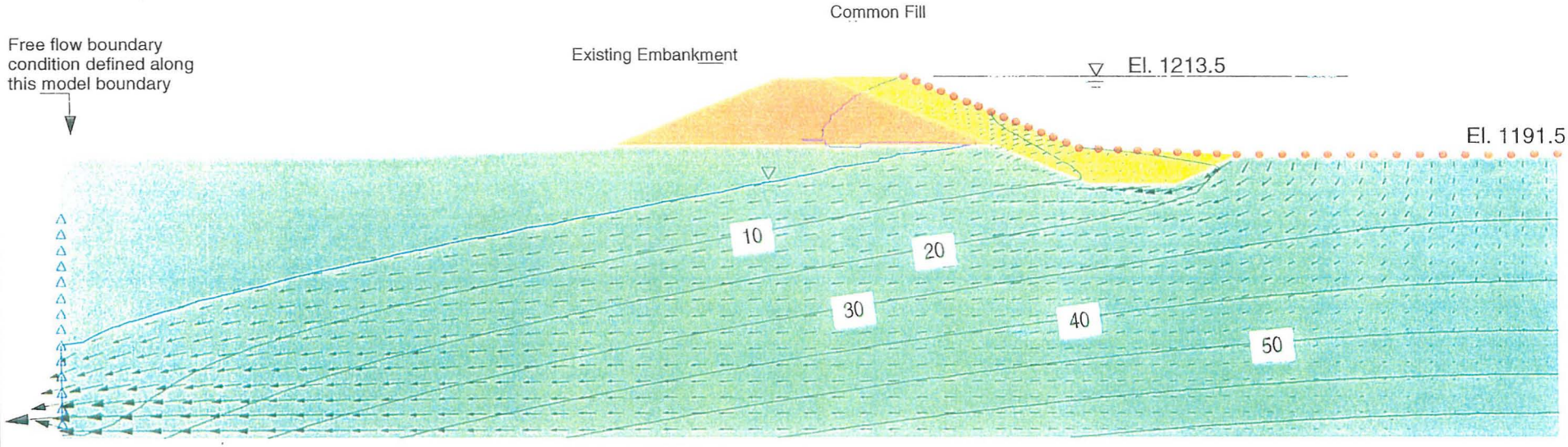


Contours of Pore Pressure (psf), With Upstream Common Fill



Contours of Pore Pressure (psf), Without Upstream Common Fill

Project No. 23443748	White Tanks FRS No.3 Arizona	Seepage Analysis Results Maximum Height Modified Soil-Cement Section	Figure G.1-1
	URS		



Contours of Pore Pressure (psf)

Project No. 23443748	White Tanks FRS No.3 Arizona	Seepage Analysis Results Transition Section	Figure G.1-2
	URS		

Trans_2.GRF with /8/26/04/ <initials>

URS **EXHIBIT 4.7-2**

CALCULATION COVER SHEET

Client: FLOOD CONTROL DISTRICT OF MARICOPA COUNTY, ARIZONA Project Name: 23443748

Project/Calculation Number: _____

Title: SEEPAGE ANALYSIS FOR FRS No. 3

Total Number of Pages (including cover sheet): _____

Total Number of Computer Runs: _____

Prepared by: HGO Date: 11/05/04

Checked by: ISG Date: 11/05/04

Description and Purpose:

PERFORMED SEEPAGE ANALYSIS FOR MAX HEIGT MODIFIED SOIL-CEMED SECTION.

Design Basis/References/Assumptions

SEE WRITEUP IN THE DESIGN REPORT

Remarks/Conclusions/Results:

COMPUTED PHEATIC SURFACE SEEM QUITE REASONABLE SEE DETAILED DISCUSSION OF THE SEEPAGE RESULTS IN THE DESIGN REPORT

Calculation Approved by: _____

Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

Project Manager/Date

SEEP/W Input and Output Files
Maximum Height Modified Soil-Cement Section

11/3/2004
8:16:28 PM
0 +0.0000E+000 = Step Number, Elapsed time

Node#	Head	Flux(Q)	Sum_Volume
1	+9.485500E+001	-6.748167E-001	+0.000000E+000
2	+9.988300E+001	-8.886667E-001	+0.000000E+000
3	+1.049100E+002	-6.664793E-001	+0.000000E+000
4	+1.099400E+002	-5.393851E-001	+0.000000E+000
5	+1.149700E+002	-4.377491E-001	+0.000000E+000
6	+1.200000E+002	-3.359182E-001	+0.000000E+000
7	+1.250300E+002	-1.475090E-001	+0.000000E+000
8	+1.285274E+002	+0.000000E+000	+0.000000E+000
9	+1.336656E+002	+0.000000E+000	+0.000000E+000
10	+1.378088E+002	+0.000000E+000	+0.000000E+000
11	+1.414854E+002	+0.000000E+000	+0.000000E+000
12	+1.444020E+002	+0.000000E+000	+0.000000E+000
13	+1.468113E+002	+0.000000E+000	+0.000000E+000
14	+1.487424E+002	+0.000000E+000	+0.000000E+000
15	+1.502422E+002	+0.000000E+000	+0.000000E+000
16	+1.513624E+002	+0.000000E+000	+0.000000E+000
17	+1.521361E+002	+0.000000E+000	+0.000000E+000
18	+1.525893E+002	+0.000000E+000	+0.000000E+000
19	+1.527381E+002	+0.000000E+000	+0.000000E+000
20	+1.043407E+002	+0.000000E+000	+0.000000E+000
21	+1.061253E+002	+0.000000E+000	+0.000000E+000
22	+1.098535E+002	+0.000000E+000	+0.000000E+000
23	+1.139766E+002	+0.000000E+000	+0.000000E+000
24	+1.182645E+002	+0.000000E+000	+0.000000E+000
25	+1.225978E+002	+0.000000E+000	+0.000000E+000
26	+1.266724E+002	+0.000000E+000	+0.000000E+000
27	+1.300141E+002	+0.000000E+000	+0.000000E+000
28	+1.332494E+002	+0.000000E+000	+0.000000E+000
29	+1.381640E+002	+0.000000E+000	+0.000000E+000
30	+1.415986E+002	+0.000000E+000	+0.000000E+000
31	+1.445225E+002	+0.000000E+000	+0.000000E+000
32	+1.469205E+002	+0.000000E+000	+0.000000E+000
33	+1.488370E+002	+0.000000E+000	+0.000000E+000
34	+1.503292E+002	+0.000000E+000	+0.000000E+000
35	+1.514411E+002	+0.000000E+000	+0.000000E+000
36	+1.522088E+002	+0.000000E+000	+0.000000E+000
37	+1.526577E+002	+0.000000E+000	+0.000000E+000
38	+1.528056E+002	+0.000000E+000	+0.000000E+000
39	+1.109992E+002	+0.000000E+000	+0.000000E+000
40	+1.120415E+002	+0.000000E+000	+0.000000E+000
41	+1.146257E+002	+0.000000E+000	+0.000000E+000
42	+1.179357E+002	+0.000000E+000	+0.000000E+000
43	+1.215493E+002	+0.000000E+000	+0.000000E+000
44	+1.252359E+002	+0.000000E+000	+0.000000E+000
45	+1.287544E+002	+0.000000E+000	+0.000000E+000
46	+1.319680E+002	+0.000000E+000	+0.000000E+000
47	+1.350291E+002	+0.000000E+000	+0.000000E+000
48	+1.386838E+002	+0.000000E+000	+0.000000E+000
49	+1.419797E+002	+0.000000E+000	+0.000000E+000
50	+1.448795E+002	+0.000000E+000	+0.000000E+000
51	+1.472513E+002	+0.000000E+000	+0.000000E+000
52	+1.491301E+002	+0.000000E+000	+0.000000E+000

53	+1.505882E+002	+0.000000E+000	+0.000000E+000
54	+1.516742E+002	+0.000000E+000	+0.000000E+000
55	+1.524250E+002	+0.000000E+000	+0.000000E+000
56	+1.528638E+002	+0.000000E+000	+0.000000E+000
57	+1.530074E+002	+0.000000E+000	+0.000000E+000
58	+1.165212E+002	+0.000000E+000	+0.000000E+000
59	+1.172404E+002	+0.000000E+000	+0.000000E+000
60	+1.191400E+002	+0.000000E+000	+0.000000E+000
61	+1.217755E+002	+0.000000E+000	+0.000000E+000
62	+1.247929E+002	+0.000000E+000	+0.000000E+000
63	+1.279362E+002	+0.000000E+000	+0.000000E+000
64	+1.310352E+002	+0.000000E+000	+0.000000E+000
65	+1.339848E+002	+0.000000E+000	+0.000000E+000
66	+1.368108E+002	+0.000000E+000	+0.000000E+000
67	+1.391630E+002	+0.000000E+000	+0.000000E+000
68	+1.426260E+002	+0.000000E+000	+0.000000E+000
69	+1.454679E+002	+0.000000E+000	+0.000000E+000
70	+1.478167E+002	+0.000000E+000	+0.000000E+000
71	+1.496089E+002	+0.000000E+000	+0.000000E+000
72	+1.510161E+002	+0.000000E+000	+0.000000E+000
73	+1.520633E+002	+0.000000E+000	+0.000000E+000
74	+1.527836E+002	+0.000000E+000	+0.000000E+000
75	+1.532031E+002	+0.000000E+000	+0.000000E+000
76	+1.533407E+002	+0.000000E+000	+0.000000E+000
77	+1.213350E+002	+0.000000E+000	+0.000000E+000
78	+1.218720E+002	+0.000000E+000	+0.000000E+000
79	+1.233299E+002	+0.000000E+000	+0.000000E+000
80	+1.254547E+002	+0.000000E+000	+0.000000E+000
81	+1.279708E+002	+0.000000E+000	+0.000000E+000
82	+1.306744E+002	+0.000000E+000	+0.000000E+000
83	+1.333997E+002	+0.000000E+000	+0.000000E+000
84	+1.360658E+002	+0.000000E+000	+0.000000E+000
85	+1.385813E+002	+0.000000E+000	+0.000000E+000
86	+1.409299E+002	+0.000000E+000	+0.000000E+000
87	+1.430004E+002	+0.000000E+000	+0.000000E+000
88	+1.465266E+002	+0.000000E+000	+0.000000E+000
89	+1.485840E+002	+0.000000E+000	+0.000000E+000
90	+1.502562E+002	+0.000000E+000	+0.000000E+000
91	+1.516107E+002	+0.000000E+000	+0.000000E+000
92	+1.526006E+002	+0.000000E+000	+0.000000E+000
93	+1.532778E+002	+0.000000E+000	+0.000000E+000
94	+1.536710E+002	+0.000000E+000	+0.000000E+000
95	+1.537988E+002	+0.000000E+000	+0.000000E+000
96	+1.256417E+002	+0.000000E+000	+0.000000E+000
97	+1.260618E+002	+0.000000E+000	+0.000000E+000
98	+1.272215E+002	+0.000000E+000	+0.000000E+000
99	+1.289549E+002	+0.000000E+000	+0.000000E+000
100	+1.310749E+002	+0.000000E+000	+0.000000E+000
101	+1.334007E+002	+0.000000E+000	+0.000000E+000
102	+1.358082E+002	+0.000000E+000	+0.000000E+000
103	+1.381916E+002	+0.000000E+000	+0.000000E+000
104	+1.404966E+002	+0.000000E+000	+0.000000E+000
105	+1.426453E+002	+0.000000E+000	+0.000000E+000
106	+1.449341E+002	+0.000000E+000	+0.000000E+000
107	+1.481694E+002	+0.000000E+000	+0.000000E+000
108	+1.493147E+002	+0.000000E+000	+0.000000E+000
109	+1.511301E+002	+0.000000E+000	+0.000000E+000
110	+1.523590E+002	+0.000000E+000	+0.000000E+000
111	+1.532813E+002	+0.000000E+000	+0.000000E+000
112	+1.539021E+002	+0.000000E+000	+0.000000E+000

113	+1.542584E+002	+0.000000E+000	+0.000000E+000
114	+1.543740E+002	+0.000000E+000	+0.000000E+000
115	+1.295616E+002	+0.000000E+000	+0.000000E+000
116	+1.299004E+002	+0.000000E+000	+0.000000E+000
117	+1.308462E+002	+0.000000E+000	+0.000000E+000
118	+1.322867E+002	+0.000000E+000	+0.000000E+000
119	+1.340860E+002	+0.000000E+000	+0.000000E+000
120	+1.361014E+002	+0.000000E+000	+0.000000E+000
121	+1.382222E+002	+0.000000E+000	+0.000000E+000
122	+1.403616E+002	+0.000000E+000	+0.000000E+000
123	+1.424602E+002	+0.000000E+000	+0.000000E+000
124	+1.444910E+002	+0.000000E+000	+0.000000E+000
125	+1.464458E+002	+0.000000E+000	+0.000000E+000
126	+1.469893E+002	+0.000000E+000	+0.000000E+000
127	+1.507769E+002	+0.000000E+000	+0.000000E+000
128	+1.520986E+002	+0.000000E+000	+0.000000E+000
129	+1.532712E+002	+0.000000E+000	+0.000000E+000
130	+1.540999E+002	+0.000000E+000	+0.000000E+000
131	+1.546446E+002	+0.000000E+000	+0.000000E+000
132	+1.549555E+002	+0.000000E+000	+0.000000E+000
133	+1.550540E+002	+0.000000E+000	+0.000000E+000
134	+1.327390E+002	+0.000000E+000	+0.000000E+000
135	+1.330247E+002	+0.000000E+000	+0.000000E+000
136	+1.338281E+002	+0.000000E+000	+0.000000E+000
137	+1.350705E+002	+0.000000E+000	+0.000000E+000
138	+1.366391E+002	+0.000000E+000	+0.000000E+000
139	+1.384256E+002	+0.000000E+000	+0.000000E+000
140	+1.403323E+002	+0.000000E+000	+0.000000E+000
141	+1.422807E+002	+0.000000E+000	+0.000000E+000
142	+1.442171E+002	+0.000000E+000	+0.000000E+000
143	+1.461113E+002	+0.000000E+000	+0.000000E+000
144	+1.478345E+002	+0.000000E+000	+0.000000E+000
145	+1.501055E+002	+0.000000E+000	+0.000000E+000
146	+1.518953E+002	+0.000000E+000	+0.000000E+000
147	+1.530736E+002	+0.000000E+000	+0.000000E+000
148	+1.542085E+002	+0.000000E+000	+0.000000E+000
149	+1.549183E+002	+0.000000E+000	+0.000000E+000
150	+1.553823E+002	+0.000000E+000	+0.000000E+000
151	+1.556444E+002	+0.000000E+000	+0.000000E+000
152	+1.557260E+002	+0.000000E+000	+0.000000E+000
153	+1.357168E+002	+0.000000E+000	+0.000000E+000
154	+1.359624E+002	+0.000000E+000	+0.000000E+000
155	+1.366563E+002	+0.000000E+000	+0.000000E+000
156	+1.377356E+002	+0.000000E+000	+0.000000E+000
157	+1.391167E+002	+0.000000E+000	+0.000000E+000
158	+1.407092E+002	+0.000000E+000	+0.000000E+000
159	+1.424296E+002	+0.000000E+000	+0.000000E+000
160	+1.442071E+002	+0.000000E+000	+0.000000E+000
161	+1.459902E+002	+0.000000E+000	+0.000000E+000
162	+1.477334E+002	+0.000000E+000	+0.000000E+000
163	+1.494589E+002	+0.000000E+000	+0.000000E+000
164	+1.512093E+002	+0.000000E+000	+0.000000E+000
165	+1.521990E+002	+0.000000E+000	+0.000000E+000
166	+1.543627E+002	+0.000000E+000	+0.000000E+000
167	+1.552545E+002	+0.000000E+000	+0.000000E+000
168	+1.558223E+002	+0.000000E+000	+0.000000E+000
169	+1.561891E+002	+0.000000E+000	+0.000000E+000
170	+1.563967E+002	+0.000000E+000	+0.000000E+000
171	+1.564582E+002	+0.000000E+000	+0.000000E+000
172	+1.385253E+002	+0.000000E+000	+0.000000E+000

173	+1.387394E+002	+0.000000E+000	+0.000000E+000
174	+1.393447E+002	+0.000000E+000	+0.000000E+000
175	+1.402940E+002	+0.000000E+000	+0.000000E+000
176	+1.415202E+002	+0.000000E+000	+0.000000E+000
177	+1.429489E+002	+0.000000E+000	+0.000000E+000
178	+1.445080E+002	+0.000000E+000	+0.000000E+000
179	+1.461340E+002	+0.000000E+000	+0.000000E+000
180	+1.477762E+002	+0.000000E+000	+0.000000E+000
181	+1.493990E+002	+0.000000E+000	+0.000000E+000
182	+1.510077E+002	+0.000000E+000	+0.000000E+000
183	+1.524306E+002	+0.000000E+000	+0.000000E+000
184	+1.540417E+002	+0.000000E+000	+0.000000E+000
185	+1.557784E+002	+0.000000E+000	+0.000000E+000
186	+1.564386E+002	+0.000000E+000	+0.000000E+000
187	+1.567732E+002	+0.000000E+000	+0.000000E+000
188	+1.570597E+002	+0.000000E+000	+0.000000E+000
189	+1.571971E+002	+0.000000E+000	+0.000000E+000
190	+1.572382E+002	+0.000000E+000	+0.000000E+000
191	+1.411867E+002	+0.000000E+000	+0.000000E+000
192	+1.413756E+002	+0.000000E+000	+0.000000E+000
193	+1.419104E+002	+0.000000E+000	+0.000000E+000
194	+1.427543E+002	+0.000000E+000	+0.000000E+000
195	+1.438528E+002	+0.000000E+000	+0.000000E+000
196	+1.451436E+002	+0.000000E+000	+0.000000E+000
197	+1.465639E+002	+0.000000E+000	+0.000000E+000
198	+1.480560E+002	+0.000000E+000	+0.000000E+000
199	+1.495713E+002	+0.000000E+000	+0.000000E+000
200	+1.510776E+002	+0.000000E+000	+0.000000E+000
201	+1.525346E+002	+0.000000E+000	+0.000000E+000
202	+1.539765E+002	+0.000000E+000	+0.000000E+000
203	+1.553680E+002	+0.000000E+000	+0.000000E+000
204	+1.582012E+002	+0.000000E+000	+0.000000E+000
205	+1.573718E+002	+0.000000E+000	+0.000000E+000
206	+1.578456E+002	+0.000000E+000	+0.000000E+000
207	+1.579619E+002	+0.000000E+000	+0.000000E+000
208	+1.580337E+002	+0.000000E+000	+0.000000E+000
209	+1.580501E+002	+0.000000E+000	+0.000000E+000
210	+1.437191E+002	+0.000000E+000	+0.000000E+000
211	+1.438880E+002	+0.000000E+000	+0.000000E+000
212	+1.443669E+002	+0.000000E+000	+0.000000E+000
213	+1.451261E+002	+0.000000E+000	+0.000000E+000
214	+1.461177E+002	+0.000000E+000	+0.000000E+000
215	+1.472930E+002	+0.000000E+000	+0.000000E+000
216	+1.485952E+002	+0.000000E+000	+0.000000E+000
217	+1.499705E+002	+0.000000E+000	+0.000000E+000
218	+1.513698E+002	+0.000000E+000	+0.000000E+000
219	+1.527600E+002	+0.000000E+000	+0.000000E+000
220	+1.541158E+002	+0.000000E+000	+0.000000E+000
221	+1.554219E+002	+0.000000E+000	+0.000000E+000
222	+1.567837E+002	+0.000000E+000	+0.000000E+000
223	+1.571603E+002	+0.000000E+000	+0.000000E+000
224	+1.589012E+002	+0.000000E+000	+0.000000E+000
225	+1.588889E+002	+0.000000E+000	+0.000000E+000
226	+1.588998E+002	+0.000000E+000	+0.000000E+000
227	+1.588839E+002	+0.000000E+000	+0.000000E+000
228	+1.588811E+002	+0.000000E+000	+0.000000E+000
229	+1.461364E+002	+0.000000E+000	+0.000000E+000
230	+1.462894E+002	+0.000000E+000	+0.000000E+000
231	+1.467226E+002	+0.000000E+000	+0.000000E+000
232	+1.474124E+002	+0.000000E+000	+0.000000E+000

```
233 +1.483203E+002 +0.000000E+000 +0.000000E+000
234 +1.493983E+002 +0.000000E+000 +0.000000E+000
235 +1.506011E+002 +0.000000E+000 +0.000000E+000
236 +1.518739E+002 +0.000000E+000 +0.000000E+000
237 +1.531753E+002 +0.000000E+000 +0.000000E+000
238 +1.544627E+002 +0.000000E+000 +0.000000E+000
239 +1.557023E+002 +0.000000E+000 +0.000000E+000
240 +1.569057E+002 +0.000000E+000 +0.000000E+000
241 +1.580038E+002 +0.000000E+000 +0.000000E+000
242 +1.594868E+002 +0.000000E+000 +0.000000E+000
243 +1.601176E+002 +0.000000E+000 +0.000000E+000
244 +1.600638E+002 +0.000000E+000 +0.000000E+000
245 +1.597989E+002 +0.000000E+000 +0.000000E+000
246 +1.597423E+002 +0.000000E+000 +0.000000E+000
247 +1.597110E+002 +0.000000E+000 +0.000000E+000
248 +1.484498E+002 +0.000000E+000 +0.000000E+000
249 +1.485904E+002 +0.000000E+000 +0.000000E+000
250 +1.489881E+002 +0.000000E+000 +0.000000E+000
251 +1.496213E+002 +0.000000E+000 +0.000000E+000
252 +1.504597E+002 +0.000000E+000 +0.000000E+000
253 +1.514602E+002 +0.000000E+000 +0.000000E+000
254 +1.525815E+002 +0.000000E+000 +0.000000E+000
255 +1.537714E+002 +0.000000E+000 +0.000000E+000
256 +1.549871E+002 +0.000000E+000 +0.000000E+000
257 +1.561788E+002 +0.000000E+000 +0.000000E+000
258 +1.573173E+002 +0.000000E+000 +0.000000E+000
259 +1.583720E+002 +0.000000E+000 +0.000000E+000
260 +1.594052E+002 +0.000000E+000 +0.000000E+000
261 +1.602410E+002 +0.000000E+000 +0.000000E+000
262 +1.625800E+002 +0.000000E+000 +0.000000E+000
263 +1.608533E+002 +0.000000E+000 +0.000000E+000
264 +1.607335E+002 +0.000000E+000 +0.000000E+000
265 +1.605744E+002 +0.000000E+000 +0.000000E+000
266 +1.605314E+002 +0.000000E+000 +0.000000E+000
267 +1.506690E+002 +0.000000E+000 +0.000000E+000
268 +1.507993E+002 +0.000000E+000 +0.000000E+000
269 +1.511682E+002 +0.000000E+000 +0.000000E+000
270 +1.517572E+002 +0.000000E+000 +0.000000E+000
271 +1.525409E+002 +0.000000E+000 +0.000000E+000
272 +1.534800E+002 +0.000000E+000 +0.000000E+000
273 +1.545369E+002 +0.000000E+000 +0.000000E+000
274 +1.556608E+002 +0.000000E+000 +0.000000E+000
275 +1.568048E+002 +0.000000E+000 +0.000000E+000
276 +1.579199E+002 +0.000000E+000 +0.000000E+000
277 +1.589543E+002 +0.000000E+000 +0.000000E+000
278 +1.598880E+002 +0.000000E+000 +0.000000E+000
279 +1.607045E+002 +0.000000E+000 +0.000000E+000
280 +1.615078E+002 +0.000000E+000 +0.000000E+000
281 +1.618214E+002 +0.000000E+000 +0.000000E+000
282 +1.619728E+002 +0.000000E+000 +0.000000E+000
283 +1.615655E+002 +0.000000E+000 +0.000000E+000
284 +1.613880E+002 +0.000000E+000 +0.000000E+000
285 +1.613177E+002 +0.000000E+000 +0.000000E+000
286 +1.528011E+002 +0.000000E+000 +0.000000E+000
287 +1.529231E+002 +0.000000E+000 +0.000000E+000
288 +1.532704E+002 +0.000000E+000 +0.000000E+000
289 +1.538260E+002 +0.000000E+000 +0.000000E+000
290 +1.545662E+002 +0.000000E+000 +0.000000E+000
291 +1.554587E+002 +0.000000E+000 +0.000000E+000
292 +1.564675E+002 +0.000000E+000 +0.000000E+000
```



```
293 +1.575430E+002 +0.000000E+000 +0.000000E+000
294 +1.586360E+002 +0.000000E+000 +0.000000E+000
295 +1.596892E+002 +0.000000E+000 +0.000000E+000
296 +1.606365E+002 +0.000000E+000 +0.000000E+000
297 +1.614304E+002 +0.000000E+000 +0.000000E+000
298 +1.620746E+002 +0.000000E+000 +0.000000E+000
299 +1.625990E+002 +0.000000E+000 +0.000000E+000
300 +1.626526E+002 +0.000000E+000 +0.000000E+000
301 +1.627978E+002 +0.000000E+000 +0.000000E+000
302 +1.623924E+002 +0.000000E+000 +0.000000E+000
303 +1.621519E+002 +0.000000E+000 +0.000000E+000
304 +1.620632E+002 +0.000000E+000 +0.000000E+000
305 +1.548506E+002 +0.000000E+000 +0.000000E+000
306 +1.549669E+002 +0.000000E+000 +0.000000E+000
307 +1.552969E+002 +0.000000E+000 +0.000000E+000
308 +1.558274E+002 +0.000000E+000 +0.000000E+000
309 +1.565370E+002 +0.000000E+000 +0.000000E+000
310 +1.573967E+002 +0.000000E+000 +0.000000E+000
311 +1.583731E+002 +0.000000E+000 +0.000000E+000
312 +1.594184E+002 +0.000000E+000 +0.000000E+000
313 +1.604813E+002 +0.000000E+000 +0.000000E+000
314 +1.614943E+002 +0.000000E+000 +0.000000E+000
315 +1.623742E+002 +0.000000E+000 +0.000000E+000
316 +1.630369E+002 +0.000000E+000 +0.000000E+000
317 +1.634696E+002 +0.000000E+000 +0.000000E+000
318 +1.637601E+002 +0.000000E+000 +0.000000E+000
319 +1.646357E+002 +0.000000E+000 +0.000000E+000
320 +1.635232E+002 +0.000000E+000 +0.000000E+000
321 +1.631779E+002 +0.000000E+000 +0.000000E+000
322 +1.628608E+002 +0.000000E+000 +0.000000E+000
323 +1.627473E+002 +0.000000E+000 +0.000000E+000
324 +1.568223E+002 +0.000000E+000 +0.000000E+000
325 +1.569345E+002 +0.000000E+000 +0.000000E+000
326 +1.572521E+002 +0.000000E+000 +0.000000E+000
327 +1.577649E+002 +0.000000E+000 +0.000000E+000
328 +1.584538E+002 +0.000000E+000 +0.000000E+000
329 +1.592953E+002 +0.000000E+000 +0.000000E+000
330 +1.602510E+002 +0.000000E+000 +0.000000E+000
331 +1.612866E+002 +0.000000E+000 +0.000000E+000
332 +1.623425E+002 +0.000000E+000 +0.000000E+000
333 +1.633474E+002 +0.000000E+000 +0.000000E+000
334 +1.641949E+002 +0.000000E+000 +0.000000E+000
335 +1.647417E+002 +0.000000E+000 +0.000000E+000
336 +1.649893E+002 +0.000000E+000 +0.000000E+000
337 +1.649373E+002 +0.000000E+000 +0.000000E+000
338 +1.650189E+002 +0.000000E+000 +0.000000E+000
339 +1.644419E+002 +0.000000E+000 +0.000000E+000
340 +1.638930E+002 +0.000000E+000 +0.000000E+000
341 +1.635034E+002 +0.000000E+000 +0.000000E+000
342 +1.633471E+002 +0.000000E+000 +0.000000E+000
343 +1.587201E+002 +0.000000E+000 +0.000000E+000
344 +1.588288E+002 +0.000000E+000 +0.000000E+000
345 +1.591390E+002 +0.000000E+000 +0.000000E+000
346 +1.596489E+002 +0.000000E+000 +0.000000E+000
347 +1.603187E+002 +0.000000E+000 +0.000000E+000
348 +1.611499E+002 +0.000000E+000 +0.000000E+000
349 +1.621028E+002 +0.000000E+000 +0.000000E+000
350 +1.631432E+002 +0.000000E+000 +0.000000E+000
351 +1.642170E+002 +0.000000E+000 +0.000000E+000
352 +1.652498E+002 +0.000000E+000 +0.000000E+000
```



```
353 +1.661214E+002 +0.000000E+000 +0.000000E+000
354 +1.666032E+002 +0.000000E+000 +0.000000E+000
355 +1.664519E+002 +0.000000E+000 +0.000000E+000
356 +1.659287E+002 +0.000000E+000 +0.000000E+000
357 +1.656736E+002 +0.000000E+000 +0.000000E+000
358 +1.652345E+002 +0.000000E+000 +0.000000E+000
359 +1.645993E+002 +0.000000E+000 +0.000000E+000
360 +1.640463E+002 +0.000000E+000 +0.000000E+000
361 +1.638335E+002 +0.000000E+000 +0.000000E+000
362 +1.641623E+002 +0.000000E+000 +0.000000E+000
363 +1.605444E+002 +0.000000E+000 +0.000000E+000
364 +1.606506E+002 +0.000000E+000 +0.000000E+000
365 +1.609559E+002 +0.000000E+000 +0.000000E+000
366 +1.614525E+002 +0.000000E+000 +0.000000E+000
367 +1.621267E+002 +0.000000E+000 +0.000000E+000
368 +1.629595E+002 +0.000000E+000 +0.000000E+000
369 +1.639233E+002 +0.000000E+000 +0.000000E+000
370 +1.649880E+002 +0.000000E+000 +0.000000E+000
371 +1.661059E+002 +0.000000E+000 +0.000000E+000
372 +1.672036E+002 +0.000000E+000 +0.000000E+000
373 +1.681701E+002 +0.000000E+000 +0.000000E+000
374 +1.687433E+002 +0.000000E+000 +0.000000E+000
375 +1.682026E+002 +0.000000E+000 +0.000000E+000
376 +1.667364E+002 +0.000000E+000 +0.000000E+000
377 +1.661617E+002 +0.000000E+000 +0.000000E+000
378 +1.662616E+002 +0.000000E+000 +0.000000E+000
379 +1.652061E+002 +0.000000E+000 +0.000000E+000
380 +1.644700E+002 +0.000000E+000 +0.000000E+000
381 +1.642802E+002 +0.000000E+000 +0.000000E+000
382 +1.622976E+002 +0.000000E+000 +0.000000E+000
383 +1.624017E+002 +0.000000E+000 +0.000000E+000
384 +1.627047E+002 +0.000000E+000 +0.000000E+000
385 +1.632007E+002 +0.000000E+000 +0.000000E+000
386 +1.638783E+002 +0.000000E+000 +0.000000E+000
387 +1.647215E+002 +0.000000E+000 +0.000000E+000
388 +1.657093E+002 +0.000000E+000 +0.000000E+000
389 +1.668150E+002 +0.000000E+000 +0.000000E+000
390 +1.679980E+002 +0.000000E+000 +0.000000E+000
391 +1.692080E+002 +0.000000E+000 +0.000000E+000
392 +1.702896E+002 +0.000000E+000 +0.000000E+000
393 +1.712613E+002 +0.000000E+000 +0.000000E+000
394 +1.707085E+002 +0.000000E+000 +0.000000E+000
395 +1.667984E+002 +0.000000E+000 +0.000000E+000
396 +1.663241E+002 +0.000000E+000 +0.000000E+000
397 +1.662746E+002 +0.000000E+000 +0.000000E+000
398 +1.661633E+002 +0.000000E+000 +0.000000E+000
399 +1.645600E+002 +0.000000E+000 +0.000000E+000
400 +1.643462E+002 +0.000000E+000 +0.000000E+000
401 +1.859780E+002 +0.000000E+000 +0.000000E+000
402 +1.882998E+002 +0.000000E+000 +0.000000E+000
403 +1.629381E+002 +0.000000E+000 +0.000000E+000
404 +1.630413E+002 +0.000000E+000 +0.000000E+000
405 +1.633442E+002 +0.000000E+000 +0.000000E+000
406 +1.638411E+002 +0.000000E+000 +0.000000E+000
407 +1.645232E+002 +0.000000E+000 +0.000000E+000
408 +1.653723E+002 +0.000000E+000 +0.000000E+000
409 +1.663694E+002 +0.000000E+000 +0.000000E+000
410 +1.674930E+002 +0.000000E+000 +0.000000E+000
411 +1.687100E+002 +0.000000E+000 +0.000000E+000
412 +1.699539E+002 +0.000000E+000 +0.000000E+000
```



```
413 +1.711788E+002 +0.000000E+000 +0.000000E+000
414 +1.719625E+002 +0.000000E+000 +0.000000E+000
415 +1.732121E+002 +0.000000E+000 +0.000000E+000
416 +1.771028E+002 +0.000000E+000 +0.000000E+000
417 +1.774299E+002 +0.000000E+000 +0.000000E+000
418 +1.778679E+002 +0.000000E+000 +0.000000E+000
419 +1.781513E+002 +0.000000E+000 +0.000000E+000
420 +1.783528E+002 +0.000000E+000 +0.000000E+000
421 +1.812551E+002 +0.000000E+000 +0.000000E+000
422 +1.854685E+002 +0.000000E+000 +0.000000E+000
423 +1.911664E+002 +0.000000E+000 +0.000000E+000
424 +1.874301E+002 +0.000000E+000 +0.000000E+000
425 +1.928216E+002 +0.000000E+000 +0.000000E+000
426 +1.893945E+002 +0.000000E+000 +0.000000E+000
427 +1.950533E+002 +0.000000E+000 +0.000000E+000
428 +1.916819E+002 +0.000000E+000 +0.000000E+000
429 +1.635699E+002 +0.000000E+000 +0.000000E+000
430 +1.636726E+002 +0.000000E+000 +0.000000E+000
431 +1.639758E+002 +0.000000E+000 +0.000000E+000
432 +1.644742E+002 +0.000000E+000 +0.000000E+000
433 +1.651578E+002 +0.000000E+000 +0.000000E+000
434 +1.660138E+002 +0.000000E+000 +0.000000E+000
435 +1.670229E+002 +0.000000E+000 +0.000000E+000
436 +1.681674E+002 +0.000000E+000 +0.000000E+000
437 +1.694154E+002 +0.000000E+000 +0.000000E+000
438 +1.707201E+002 +0.000000E+000 +0.000000E+000
439 +1.720837E+002 +0.000000E+000 +0.000000E+000
440 +1.730087E+002 +0.000000E+000 +0.000000E+000
441 +1.743735E+002 +0.000000E+000 +0.000000E+000
442 +1.769259E+002 +0.000000E+000 +0.000000E+000
443 +1.774904E+002 +0.000000E+000 +0.000000E+000
444 +1.778636E+002 +0.000000E+000 +0.000000E+000
445 +1.781657E+002 +0.000000E+000 +0.000000E+000
446 +1.783446E+002 +0.000000E+000 +0.000000E+000
447 +1.815086E+002 +0.000000E+000 +0.000000E+000
448 +1.859093E+002 +0.000000E+000 +0.000000E+000
449 +1.973822E+002 +0.000000E+000 +0.000000E+000
450 +1.939092E+002 +0.000000E+000 +0.000000E+000
451 +1.880701E+002 +0.000000E+000 +0.000000E+000
452 +1.992651E+002 +0.000000E+000 +0.000000E+000
453 +1.983374E+002 +0.000000E+000 +0.000000E+000
454 +1.961286E+002 +0.000000E+000 +0.000000E+000
455 +1.926544E+002 +0.000000E+000 +0.000000E+000
456 +2.013844E+002 +0.000000E+000 +0.000000E+000
457 +1.983101E+002 +0.000000E+000 +0.000000E+000
458 +1.819048E+002 +0.000000E+000 +0.000000E+000
459 +1.641896E+002 +0.000000E+000 +0.000000E+000
460 +1.642921E+002 +0.000000E+000 +0.000000E+000
461 +1.645958E+002 +0.000000E+000 +0.000000E+000
462 +1.650961E+002 +0.000000E+000 +0.000000E+000
463 +1.657839E+002 +0.000000E+000 +0.000000E+000
464 +1.666475E+002 +0.000000E+000 +0.000000E+000
465 +1.676698E+002 +0.000000E+000 +0.000000E+000
466 +1.688361E+002 +0.000000E+000 +0.000000E+000
467 +1.701189E+002 +0.000000E+000 +0.000000E+000
468 +1.714827E+002 +0.000000E+000 +0.000000E+000
469 +1.728494E+002 +0.000000E+000 +0.000000E+000
470 +1.740617E+002 +0.000000E+000 +0.000000E+000
471 +1.753861E+002 +0.000000E+000 +0.000000E+000
472 +1.769544E+002 +0.000000E+000 +0.000000E+000
```

473	+1.775060E+002	+0.000000E+000	+0.000000E+000
474	+1.778754E+002	+0.000000E+000	+0.000000E+000
475	+1.781859E+002	+0.000000E+000	+0.000000E+000
476	+1.783827E+002	+0.000000E+000	+0.000000E+000
477	+1.864981E+002	+0.000000E+000	+0.000000E+000
478	+1.950094E+002	+0.000000E+000	+0.000000E+000
479	+2.004165E+002	+0.000000E+000	+0.000000E+000
480	+2.035030E+002	+0.000000E+000	+0.000000E+000
481	+1.888000E+002	+0.000000E+000	+0.000000E+000
482	+1.973145E+002	+0.000000E+000	+0.000000E+000
483	+2.024814E+002	+0.000000E+000	+0.000000E+000
484	+1.913075E+002	+0.000000E+000	+0.000000E+000
485	+2.051467E+002	+0.000000E+000	+0.000000E+000
486	+1.995495E+002	+0.000000E+000	+0.000000E+000
487	+1.938582E+002	+0.000000E+000	+0.000000E+000
488	+2.043869E+002	+0.000000E+000	+0.000000E+000
489	+2.016593E+002	+0.000000E+000	+0.000000E+000
490	+1.963799E+002	+0.000000E+000	+0.000000E+000
491	+2.072103E+002	+0.000000E+000	+0.000000E+000
492	+1.825760E+002	+0.000000E+000	+0.000000E+000
493	+2.061361E+002	+0.000000E+000	+0.000000E+000
494	+1.647990E+002	+0.000000E+000	+0.000000E+000
495	+1.649015E+002	+0.000000E+000	+0.000000E+000
496	+1.652060E+002	+0.000000E+000	+0.000000E+000
497	+1.657086E+002	+0.000000E+000	+0.000000E+000
498	+1.664011E+002	+0.000000E+000	+0.000000E+000
499	+1.672731E+002	+0.000000E+000	+0.000000E+000
500	+1.683096E+002	+0.000000E+000	+0.000000E+000
501	+1.694988E+002	+0.000000E+000	+0.000000E+000
502	+1.708187E+002	+0.000000E+000	+0.000000E+000
503	+1.722425E+002	+0.000000E+000	+0.000000E+000
504	+1.737080E+002	+0.000000E+000	+0.000000E+000
505	+1.751145E+002	+0.000000E+000	+0.000000E+000
506	+1.763545E+002	+0.000000E+000	+0.000000E+000
507	+1.770765E+002	+0.000000E+000	+0.000000E+000
508	+1.775092E+002	+0.000000E+000	+0.000000E+000
509	+1.778916E+002	+0.000000E+000	+0.000000E+000
510	+1.782187E+002	+0.000000E+000	+0.000000E+000
511	+1.784408E+002	+0.000000E+000	+0.000000E+000
512	+1.866738E+002	+0.000000E+000	+0.000000E+000
513	+1.987776E+002	+0.000000E+000	+0.000000E+000
514	+2.036379E+002	+0.000000E+000	+0.000000E+000
515	+1.896031E+002	+0.000000E+000	+0.000000E+000
516	+2.087417E+002	+0.000000E+000	+0.000000E+000
517	+2.010244E+002	+0.000000E+000	+0.000000E+000
518	+2.054392E+002	+0.000000E+000	+0.000000E+000
519	+2.077757E+002	+0.000000E+000	+0.000000E+000
520	+1.925835E+002	+0.000000E+000	+0.000000E+000
521	+2.030766E+002	+0.000000E+000	+0.000000E+000
522	+1.954559E+002	+0.000000E+000	+0.000000E+000
523	+2.070922E+002	+0.000000E+000	+0.000000E+000
524	+2.102781E+002	+0.000000E+000	+0.000000E+000
525	+2.091763E+002	+0.000000E+000	+0.000000E+000
526	+1.981514E+002	+0.000000E+000	+0.000000E+000
527	+2.049354E+002	+0.000000E+000	+0.000000E+000
528	+2.085663E+002	+0.000000E+000	+0.000000E+000
529	+2.005984E+002	+0.000000E+000	+0.000000E+000
530	+2.066049E+002	+0.000000E+000	+0.000000E+000
531	+2.107239E+002	+0.000000E+000	+0.000000E+000
532	+2.116314E+002	+0.000000E+000	+0.000000E+000

533	+2.027825E+002	+0.000000E+000	+0.000000E+000
534	+1.831978E+002	+0.000000E+000	+0.000000E+000
535	+2.099295E+002	+0.000000E+000	+0.000000E+000
536	+1.653980E+002	+0.000000E+000	+0.000000E+000
537	+1.655007E+002	+0.000000E+000	+0.000000E+000
538	+1.658063E+002	+0.000000E+000	+0.000000E+000
539	+1.663116E+002	+0.000000E+000	+0.000000E+000
540	+1.670093E+002	+0.000000E+000	+0.000000E+000
541	+1.678904E+002	+0.000000E+000	+0.000000E+000
542	+1.689417E+002	+0.000000E+000	+0.000000E+000
543	+1.701549E+002	+0.000000E+000	+0.000000E+000
544	+1.715131E+002	+0.000000E+000	+0.000000E+000
545	+1.729988E+002	+0.000000E+000	+0.000000E+000
546	+1.745718E+002	+0.000000E+000	+0.000000E+000
547	+1.761691E+002	+0.000000E+000	+0.000000E+000
548	+1.773587E+002	+0.000000E+000	+0.000000E+000
549	+1.772113E+002	+0.000000E+000	+0.000000E+000
550	+1.775123E+002	+0.000000E+000	+0.000000E+000
551	+1.779096E+002	+0.000000E+000	+0.000000E+000
552	+1.782606E+002	+0.000000E+000	+0.000000E+000
553	+1.785520E+002	+0.000000E+000	+0.000000E+000
554	+1.871175E+002	+0.000000E+000	+0.000000E+000
555	+2.081016E+002	+0.000000E+000	+0.000000E+000
556	+2.047031E+002	+0.000000E+000	+0.000000E+000
557	+1.909414E+002	+0.000000E+000	+0.000000E+000
558	+2.119039E+002	+0.000000E+000	+0.000000E+000
559	+1.945238E+002	+0.000000E+000	+0.000000E+000
560	+2.063963E+002	+0.000000E+000	+0.000000E+000
561	+2.094368E+002	+0.000000E+000	+0.000000E+000
562	+2.126579E+002	+0.000000E+000	+0.000000E+000
563	+2.111607E+002	+0.000000E+000	+0.000000E+000
564	+1.977216E+002	+0.000000E+000	+0.000000E+000
565	+2.078773E+002	+0.000000E+000	+0.000000E+000
566	+2.106291E+002	+0.000000E+000	+0.000000E+000
567	+2.005130E+002	+0.000000E+000	+0.000000E+000
568	+2.122044E+002	+0.000000E+000	+0.000000E+000
569	+2.128283E+002	+0.000000E+000	+0.000000E+000
570	+2.028685E+002	+0.000000E+000	+0.000000E+000
571	+2.091848E+002	+0.000000E+000	+0.000000E+000
572	+2.132364E+002	+0.000000E+000	+0.000000E+000
573	+2.117065E+002	+0.000000E+000	+0.000000E+000
574	+2.048779E+002	+0.000000E+000	+0.000000E+000
575	+2.103359E+002	+0.000000E+000	+0.000000E+000
576	+2.065658E+002	+0.000000E+000	+0.000000E+000
577	+2.130440E+002	+0.000000E+000	+0.000000E+000
578	+2.133462E+002	+0.000000E+000	+0.000000E+000
579	+2.124754E+002	+0.000000E+000	+0.000000E+000
580	+2.080190E+002	+0.000000E+000	+0.000000E+000
581	+2.113692E+002	+0.000000E+000	+0.000000E+000
582	+2.092558E+002	+0.000000E+000	+0.000000E+000
583	+2.122589E+002	+0.000000E+000	+0.000000E+000
584	+1.832854E+002	+0.000000E+000	+0.000000E+000
585	+2.135204E+002	+0.000000E+000	+0.000000E+000
586	+1.676083E+002	+0.000000E+000	+0.000000E+000
587	+1.684990E+002	+0.000000E+000	+0.000000E+000
588	+1.695659E+002	+0.000000E+000	+0.000000E+000
589	+1.708038E+002	+0.000000E+000	+0.000000E+000
590	+1.722011E+002	+0.000000E+000	+0.000000E+000
591	+1.737498E+002	+0.000000E+000	+0.000000E+000
592	+1.754358E+002	+0.000000E+000	+0.000000E+000

593	+1.772221E+002	+0.000000E+000	+0.000000E+000
594	+1.784851E+002	+0.000000E+000	+0.000000E+000
595	+1.772762E+002	+0.000000E+000	+0.000000E+000
596	+1.775254E+002	+0.000000E+000	+0.000000E+000
597	+1.779330E+002	+0.000000E+000	+0.000000E+000
598	+1.782862E+002	+0.000000E+000	+0.000000E+000
599	+1.788848E+002	+0.000000E+000	+0.000000E+000
600	+1.886528E+002	+0.000000E+000	+0.000000E+000
601	+2.133524E+002	+0.000000E+000	+0.000000E+000
602	+1.659885E+002	+0.000000E+000	+0.000000E+000
603	+1.660914E+002	+0.000000E+000	+0.000000E+000
604	+1.663983E+002	+0.000000E+000	+0.000000E+000
605	+1.669067E+002	+0.000000E+000	+0.000000E+000
606	+2.103400E+002	+0.000000E+000	+0.000000E+000
607	+1.935189E+002	+0.000000E+000	+0.000000E+000
608	+1.977224E+002	+0.000000E+000	+0.000000E+000
609	+2.112807E+002	+0.000000E+000	+0.000000E+000
610	+2.131523E+002	+0.000000E+000	+0.000000E+000
611	+2.010417E+002	+0.000000E+000	+0.000000E+000
612	+2.036480E+002	+0.000000E+000	+0.000000E+000
613	+2.137201E+002	+0.000000E+000	+0.000000E+000
614	+2.121197E+002	+0.000000E+000	+0.000000E+000
615	+2.056935E+002	+0.000000E+000	+0.000000E+000
616	+2.136361E+002	+0.000000E+000	+0.000000E+000
617	+2.073405E+002	+0.000000E+000	+0.000000E+000
618	+2.128729E+002	+0.000000E+000	+0.000000E+000
619	+2.086794E+002	+0.000000E+000	+0.000000E+000
620	+2.097891E+002	+0.000000E+000	+0.000000E+000
621	+2.139778E+002	+0.000000E+000	+0.000000E+000
622	+2.135492E+002	+0.000000E+000	+0.000000E+000
623	+2.107327E+002	+0.000000E+000	+0.000000E+000
624	+2.115486E+002	+0.000000E+000	+0.000000E+000
625	+2.140168E+002	+0.000000E+000	+0.000000E+000
626	+2.122597E+002	+0.000000E+000	+0.000000E+000
627	+2.128972E+002	+0.000000E+000	+0.000000E+000
628	+2.142405E+002	+0.000000E+000	+0.000000E+000
629	+2.134750E+002	+0.000000E+000	+0.000000E+000
630	+2.140321E+002	+0.000000E+000	+0.000000E+000
631	+2.144424E+002	+0.000000E+000	+0.000000E+000
632	+2.144969E+002	+0.000000E+000	+0.000000E+000
633	+1.831113E+002	+0.000000E+000	+0.000000E+000
634	+1.798489E+002	+0.000000E+000	+0.000000E+000
635	+1.793604E+002	+0.000000E+000	+0.000000E+000
636	+1.925278E+002	+0.000000E+000	+0.000000E+000
637	+1.701817E+002	+0.000000E+000	+0.000000E+000
638	+1.714446E+002	+0.000000E+000	+0.000000E+000
639	+1.728824E+002	+0.000000E+000	+0.000000E+000
640	+1.744911E+002	+0.000000E+000	+0.000000E+000
641	+1.763026E+002	+0.000000E+000	+0.000000E+000
642	+1.782470E+002	+0.000000E+000	+0.000000E+000
643	+1.771519E+002	+0.000000E+000	+0.000000E+000
644	+1.775778E+002	+0.000000E+000	+0.000000E+000
645	+1.779552E+002	+0.000000E+000	+0.000000E+000
646	+1.782923E+002	+0.000000E+000	+0.000000E+000
647	+1.990100E+002	+0.000000E+000	+0.000000E+000
648	+2.031068E+002	+0.000000E+000	+0.000000E+000
649	+2.057954E+002	+0.000000E+000	+0.000000E+000
650	+2.076885E+002	+0.000000E+000	+0.000000E+000
651	+2.090765E+002	+0.000000E+000	+0.000000E+000
652	+1.665669E+002	+0.000000E+000	+0.000000E+000

653	+1.666702E+002	+0.000000E+000	+0.000000E+000
654	+1.669786E+002	+0.000000E+000	+0.000000E+000
655	+1.674903E+002	+0.000000E+000	+0.000000E+000
656	+1.681996E+002	+0.000000E+000	+0.000000E+000
657	+1.691004E+002	+0.000000E+000	+0.000000E+000
658	+2.101596E+002	+0.000000E+000	+0.000000E+000
659	+2.110070E+002	+0.000000E+000	+0.000000E+000
660	+2.117065E+002	+0.000000E+000	+0.000000E+000
661	+2.122950E+002	+0.000000E+000	+0.000000E+000
662	+2.128080E+002	+0.000000E+000	+0.000000E+000
663	+2.132690E+002	+0.000000E+000	+0.000000E+000
664	+2.136846E+002	+0.000000E+000	+0.000000E+000
665	+2.140819E+002	+0.000000E+000	+0.000000E+000
666	+2.144674E+002	+0.000000E+000	+0.000000E+000
667	+2.146779E+002	+0.000000E+000	+0.000000E+000
668	+2.148589E+002	+0.000000E+000	+0.000000E+000
669	+1.804929E+002	+0.000000E+000	+0.000000E+000
670	+1.770147E+002	+0.000000E+000	+0.000000E+000
671	+1.776255E+002	+0.000000E+000	+0.000000E+000
672	+1.779570E+002	+0.000000E+000	+0.000000E+000
673	+1.783109E+002	+0.000000E+000	+0.000000E+000
674	+1.794072E+002	+0.000000E+000	+0.000000E+000
675	+1.831410E+002	+0.000000E+000	+0.000000E+000
676	+1.973948E+002	+0.000000E+000	+0.000000E+000
677	+2.036294E+002	+0.000000E+000	+0.000000E+000
678	+2.069474E+002	+0.000000E+000	+0.000000E+000
679	+2.090238E+002	+0.000000E+000	+0.000000E+000
680	+2.104298E+002	+0.000000E+000	+0.000000E+000
681	+2.114286E+002	+0.000000E+000	+0.000000E+000
682	+2.121788E+002	+0.000000E+000	+0.000000E+000
683	+2.127821E+002	+0.000000E+000	+0.000000E+000
684	+2.132606E+002	+0.000000E+000	+0.000000E+000
685	+2.136731E+002	+0.000000E+000	+0.000000E+000
686	+2.140194E+002	+0.000000E+000	+0.000000E+000
687	+2.143291E+002	+0.000000E+000	+0.000000E+000
688	+2.146180E+002	+0.000000E+000	+0.000000E+000
689	+2.148900E+002	+0.000000E+000	+0.000000E+000
690	+2.151579E+002	+0.000000E+000	+0.000000E+000
691	+2.155970E+002	+0.000000E+000	+0.000000E+000
692	+2.155936E+002	+0.000000E+000	+0.000000E+000
693	+2.059002E+002	+0.000000E+000	+0.000000E+000
694	+2.095915E+002	+0.000000E+000	+0.000000E+000
695	+2.115287E+002	+0.000000E+000	+0.000000E+000
696	+2.126512E+002	+0.000000E+000	+0.000000E+000
697	+2.133878E+002	+0.000000E+000	+0.000000E+000
698	+2.139255E+002	+0.000000E+000	+0.000000E+000
699	+2.143120E+002	+0.000000E+000	+0.000000E+000
700	+2.146228E+002	+0.000000E+000	+0.000000E+000
701	+2.148745E+002	+0.000000E+000	+0.000000E+000
702	+2.150758E+002	+0.000000E+000	+0.000000E+000
703	+2.152501E+002	+0.000000E+000	+0.000000E+000
704	+2.154116E+002	+0.000000E+000	+0.000000E+000
705	+2.155536E+002	+0.000000E+000	+0.000000E+000
706	+2.156963E+002	+0.000000E+000	+0.000000E+000
707	+2.158501E+002	+0.000000E+000	+0.000000E+000
708	+2.159852E+002	+0.000000E+000	+0.000000E+000
709	+2.169506E+002	+0.000000E+000	+0.000000E+000
710	+1.735537E+002	+0.000000E+000	+0.000000E+000
711	+1.752289E+002	+0.000000E+000	+0.000000E+000
712	+1.771337E+002	+0.000000E+000	+0.000000E+000

713	+1.793710E+002	+0.000000E+000	+0.000000E+000
714	+1.671350E+002	+0.000000E+000	+0.000000E+000
715	+1.672387E+002	+0.000000E+000	+0.000000E+000
716	+1.675488E+002	+0.000000E+000	+0.000000E+000
717	+1.680640E+002	+0.000000E+000	+0.000000E+000
718	+1.687796E+002	+0.000000E+000	+0.000000E+000
719	+1.696989E+002	+0.000000E+000	+0.000000E+000
720	+1.707902E+002	+0.000000E+000	+0.000000E+000
721	+1.720788E+002	+0.000000E+000	+0.000000E+000
722	+2.165000E+002	+2.586667E-002	+0.000000E+000
723	+2.165000E+002	+2.641466E-003	+0.000000E+000
724	+2.165000E+002	+1.853123E-003	+0.000000E+000
725	+2.165000E+002	+1.408153E-003	+0.000000E+000
726	+2.165000E+002	+1.126797E-003	+0.000000E+000
727	+2.165000E+002	+9.272908E-004	+0.000000E+000
728	+2.165000E+002	+7.879991E-004	+0.000000E+000
729	+2.165000E+002	+6.722257E-004	+0.000000E+000
730	+2.165000E+002	+5.810261E-004	+0.000000E+000
731	+2.165000E+002	+5.097766E-004	+0.000000E+000
732	+2.165000E+002	+4.430626E-004	+0.000000E+000
733	+2.165000E+002	+3.853116E-004	+0.000000E+000
734	+2.165000E+002	+3.353941E-004	+0.000000E+000
735	+1.931388E+002	+0.000000E+000	+0.000000E+000
736	+1.984353E+002	+0.000000E+000	+0.000000E+000
737	+2.034104E+002	+0.000000E+000	+0.000000E+000
738	+2.079330E+002	+0.000000E+000	+0.000000E+000
739	+2.122649E+002	+0.000000E+000	+0.000000E+000
740	+2.165000E+002	+2.819591E-004	+0.000000E+000
741	+2.165000E+002	+2.315395E-004	+0.000000E+000
742	+1.838845E+002	+0.000000E+000	+0.000000E+000
743	+2.146593E+002	+0.000000E+000	+0.000000E+000
744	+2.165000E+002	+1.167759E-004	+0.000000E+000
745	+2.165000E+002	+1.566491E-005	+0.000000E+000
746	+2.165000E+002	+7.512657E-002	+0.000000E+000
747	+2.146587E+002	+0.000000E+000	+0.000000E+000
748	+2.079282E+002	+0.000000E+000	+0.000000E+000
749	+2.122430E+002	+0.000000E+000	+0.000000E+000
750	+1.742152E+002	+0.000000E+000	+0.000000E+000
751	+1.759557E+002	+0.000000E+000	+0.000000E+000
752	+1.779482E+002	+0.000000E+000	+0.000000E+000
753	+1.804733E+002	+0.000000E+000	+0.000000E+000
754	+1.840496E+002	+0.000000E+000	+0.000000E+000
755	+1.929532E+002	+0.000000E+000	+0.000000E+000
756	+1.984834E+002	+0.000000E+000	+0.000000E+000
757	+2.033976E+002	+0.000000E+000	+0.000000E+000
758	+1.677969E+002	+0.000000E+000	+0.000000E+000
759	+1.681087E+002	+0.000000E+000	+0.000000E+000
760	+1.686277E+002	+0.000000E+000	+0.000000E+000
761	+1.693500E+002	+0.000000E+000	+0.000000E+000
762	+1.702718E+002	+0.000000E+000	+0.000000E+000
763	+1.713877E+002	+0.000000E+000	+0.000000E+000
764	+1.727019E+002	+0.000000E+000	+0.000000E+000
765	+1.676943E+002	+0.000000E+000	+0.000000E+000
766	+2.146841E+002	+0.000000E+000	+0.000000E+000
767	+1.985684E+002	+0.000000E+000	+0.000000E+000
768	+2.034371E+002	+0.000000E+000	+0.000000E+000
769	+2.079715E+002	+0.000000E+000	+0.000000E+000
770	+2.122793E+002	+0.000000E+000	+0.000000E+000
771	+2.165000E+002	+8.253331E-002	+0.000000E+000
772	+1.766635E+002	+0.000000E+000	+0.000000E+000

773	+1.787702E+002	+0.000000E+000	+0.000000E+000
774	+1.814164E+002	+0.000000E+000	+0.000000E+000
775	+1.854567E+002	+0.000000E+000	+0.000000E+000
776	+1.928744E+002	+0.000000E+000	+0.000000E+000
777	+1.691812E+002	+0.000000E+000	+0.000000E+000
778	+1.699103E+002	+0.000000E+000	+0.000000E+000
779	+1.708430E+002	+0.000000E+000	+0.000000E+000
780	+1.719755E+002	+0.000000E+000	+0.000000E+000
781	+1.733147E+002	+0.000000E+000	+0.000000E+000
782	+1.748692E+002	+0.000000E+000	+0.000000E+000
783	+1.682415E+002	+0.000000E+000	+0.000000E+000
784	+1.683461E+002	+0.000000E+000	+0.000000E+000
785	+1.686598E+002	+0.000000E+000	+0.000000E+000
786	+2.146997E+002	+0.000000E+000	+0.000000E+000
787	+2.035007E+002	+0.000000E+000	+0.000000E+000
788	+2.080224E+002	+0.000000E+000	+0.000000E+000
789	+2.123222E+002	+0.000000E+000	+0.000000E+000
790	+2.165000E+002	+8.306897E-002	+0.000000E+000
791	+1.773597E+002	+0.000000E+000	+0.000000E+000
792	+1.795576E+002	+0.000000E+000	+0.000000E+000
793	+1.823466E+002	+0.000000E+000	+0.000000E+000
794	+1.865484E+002	+0.000000E+000	+0.000000E+000
795	+1.930293E+002	+0.000000E+000	+0.000000E+000
796	+1.986507E+002	+0.000000E+000	+0.000000E+000
797	+1.704605E+002	+0.000000E+000	+0.000000E+000
798	+1.714041E+002	+0.000000E+000	+0.000000E+000
799	+1.725531E+002	+0.000000E+000	+0.000000E+000
800	+1.739171E+002	+0.000000E+000	+0.000000E+000
801	+1.755086E+002	+0.000000E+000	+0.000000E+000
802	+1.687784E+002	+0.000000E+000	+0.000000E+000
803	+1.688833E+002	+0.000000E+000	+0.000000E+000
804	+1.691989E+002	+0.000000E+000	+0.000000E+000
805	+1.697260E+002	+0.000000E+000	+0.000000E+000
806	+2.147193E+002	+0.000000E+000	+0.000000E+000
807	+1.987572E+002	+0.000000E+000	+0.000000E+000
808	+2.035803E+002	+0.000000E+000	+0.000000E+000
809	+2.080837E+002	+0.000000E+000	+0.000000E+000
810	+2.123720E+002	+0.000000E+000	+0.000000E+000
811	+2.165000E+002	+8.215223E-002	+0.000000E+000
812	+1.803174E+002	+0.000000E+000	+0.000000E+000
813	+1.832277E+002	+0.000000E+000	+0.000000E+000
814	+1.874468E+002	+0.000000E+000	+0.000000E+000
815	+1.932966E+002	+0.000000E+000	+0.000000E+000
816	+1.719549E+002	+0.000000E+000	+0.000000E+000
817	+1.731202E+002	+0.000000E+000	+0.000000E+000
818	+1.745083E+002	+0.000000E+000	+0.000000E+000
819	+1.761352E+002	+0.000000E+000	+0.000000E+000
820	+1.780418E+002	+0.000000E+000	+0.000000E+000
821	+1.693049E+002	+0.000000E+000	+0.000000E+000
822	+1.694099E+002	+0.000000E+000	+0.000000E+000
823	+1.697275E+002	+0.000000E+000	+0.000000E+000
824	+1.702588E+002	+0.000000E+000	+0.000000E+000
825	+1.710019E+002	+0.000000E+000	+0.000000E+000
826	+2.147398E+002	+0.000000E+000	+0.000000E+000
827	+2.165000E+002	+8.153912E-002	+0.000000E+000
828	+1.988940E+002	+0.000000E+000	+0.000000E+000
829	+2.036739E+002	+0.000000E+000	+0.000000E+000
830	+2.081538E+002	+0.000000E+000	+0.000000E+000
831	+2.124341E+002	+0.000000E+000	+0.000000E+000
832	+1.810497E+002	+0.000000E+000	+0.000000E+000

833	+1.840495E+002	+0.000000E+000	+0.000000E+000
834	+1.882197E+002	+0.000000E+000	+0.000000E+000
835	+1.936204E+002	+0.000000E+000	+0.000000E+000
836	+1.724950E+002	+0.000000E+000	+0.000000E+000
837	+1.736763E+002	+0.000000E+000	+0.000000E+000
838	+1.750877E+002	+0.000000E+000	+0.000000E+000
839	+1.767484E+002	+0.000000E+000	+0.000000E+000
840	+1.787041E+002	+0.000000E+000	+0.000000E+000
841	+1.702454E+002	+0.000000E+000	+0.000000E+000
842	+1.707810E+002	+0.000000E+000	+0.000000E+000
843	+1.715312E+002	+0.000000E+000	+0.000000E+000
844	+1.698224E+002	+0.000000E+000	+0.000000E+000
845	+1.699272E+002	+0.000000E+000	+0.000000E+000
846	+2.165000E+002	+8.685394E-002	+0.000000E+000
847	+1.990581E+002	+0.000000E+000	+0.000000E+000
848	+2.037808E+002	+0.000000E+000	+0.000000E+000
849	+2.082329E+002	+0.000000E+000	+0.000000E+000
850	+2.125041E+002	+0.000000E+000	+0.000000E+000
851	+1.817531E+002	+0.000000E+000	+0.000000E+000
852	+1.848125E+002	+0.000000E+000	+0.000000E+000
853	+1.889058E+002	+0.000000E+000	+0.000000E+000
854	+1.939708E+002	+0.000000E+000	+0.000000E+000
855	+1.742212E+002	+0.000000E+000	+0.000000E+000
856	+1.756549E+002	+0.000000E+000	+0.000000E+000
857	+1.773473E+002	+0.000000E+000	+0.000000E+000
858	+1.793475E+002	+0.000000E+000	+0.000000E+000
859	+1.707526E+002	+0.000000E+000	+0.000000E+000
860	+1.712924E+002	+0.000000E+000	+0.000000E+000
861	+1.720497E+002	+0.000000E+000	+0.000000E+000
862	+1.730258E+002	+0.000000E+000	+0.000000E+000
863	+1.703282E+002	+0.000000E+000	+0.000000E+000
864	+1.704321E+002	+0.000000E+000	+0.000000E+000
865	+2.038052E+002	+0.000000E+000	+0.000000E+000
866	+2.082101E+002	+0.000000E+000	+0.000000E+000
867	+2.124508E+002	+0.000000E+000	+0.000000E+000
868	+2.165000E+002	+1.246808E-001	+0.000000E+000
869	+1.897147E+002	+0.000000E+000	+0.000000E+000
870	+1.943787E+002	+0.000000E+000	+0.000000E+000
871	+1.991993E+002	+0.000000E+000	+0.000000E+000
872	+1.781977E+002	+0.000000E+000	+0.000000E+000
873	+1.802454E+002	+0.000000E+000	+0.000000E+000
874	+1.827085E+002	+0.000000E+000	+0.000000E+000
875	+1.857891E+002	+0.000000E+000	+0.000000E+000
876	+1.728121E+002	+0.000000E+000	+0.000000E+000
877	+1.737991E+002	+0.000000E+000	+0.000000E+000
878	+1.750156E+002	+0.000000E+000	+0.000000E+000
879	+1.764717E+002	+0.000000E+000	+0.000000E+000
880	+1.711832E+002	+0.000000E+000	+0.000000E+000
881	+1.715068E+002	+0.000000E+000	+0.000000E+000
882	+1.720508E+002	+0.000000E+000	+0.000000E+000
883	+1.710825E+002	+0.000000E+000	+0.000000E+000
884	+2.082055E+002	+0.000000E+000	+0.000000E+000
885	+2.124166E+002	+0.000000E+000	+0.000000E+000
886	+2.165000E+002	+1.271583E-001	+0.000000E+000
887	+1.948004E+002	+0.000000E+000	+0.000000E+000
888	+1.993745E+002	+0.000000E+000	+0.000000E+000
889	+2.038689E+002	+0.000000E+000	+0.000000E+000
890	+1.835901E+002	+0.000000E+000	+0.000000E+000
891	+1.866590E+002	+0.000000E+000	+0.000000E+000
892	+1.904253E+002	+0.000000E+000	+0.000000E+000

893	+1.757769E+002	+0.000000E+000	+0.000000E+000
894	+1.772577E+002	+0.000000E+000	+0.000000E+000
895	+1.790114E+002	+0.000000E+000	+0.000000E+000
896	+1.810951E+002	+0.000000E+000	+0.000000E+000
897	+1.727817E+002	+0.000000E+000	+0.000000E+000
898	+1.735512E+002	+0.000000E+000	+0.000000E+000
899	+1.745489E+002	+0.000000E+000	+0.000000E+000
900	+1.718080E+002	+0.000000E+000	+0.000000E+000
901	+1.719098E+002	+0.000000E+000	+0.000000E+000
902	+1.722350E+002	+0.000000E+000	+0.000000E+000
903	+2.124019E+002	+0.000000E+000	+0.000000E+000
904	+2.165000E+002	+1.270357E-001	+0.000000E+000
905	+1.995864E+002	+0.000000E+000	+0.000000E+000
906	+2.039563E+002	+0.000000E+000	+0.000000E+000
907	+2.082268E+002	+0.000000E+000	+0.000000E+000
908	+1.874423E+002	+0.000000E+000	+0.000000E+000
909	+1.910731E+002	+0.000000E+000	+0.000000E+000
910	+1.952192E+002	+0.000000E+000	+0.000000E+000
911	+1.780075E+002	+0.000000E+000	+0.000000E+000
912	+1.797842E+002	+0.000000E+000	+0.000000E+000
913	+1.818934E+002	+0.000000E+000	+0.000000E+000
914	+1.844060E+002	+0.000000E+000	+0.000000E+000
915	+1.752670E+002	+0.000000E+000	+0.000000E+000
916	+1.765125E+002	+0.000000E+000	+0.000000E+000
917	+1.726087E+002	+0.000000E+000	+0.000000E+000
918	+1.729357E+002	+0.000000E+000	+0.000000E+000
919	+1.734861E+002	+0.000000E+000	+0.000000E+000
920	+1.742633E+002	+0.000000E+000	+0.000000E+000
921	+1.725077E+002	+0.000000E+000	+0.000000E+000
922	+2.082540E+002	+0.000000E+000	+0.000000E+000
923	+2.124061E+002	+0.000000E+000	+0.000000E+000
924	+2.165000E+002	+1.283160E-001	+0.000000E+000
925	+1.916642E+002	+0.000000E+000	+0.000000E+000
926	+1.956157E+002	+0.000000E+000	+0.000000E+000
927	+1.998142E+002	+0.000000E+000	+0.000000E+000
928	+2.040537E+002	+0.000000E+000	+0.000000E+000
929	+1.826432E+002	+0.000000E+000	+0.000000E+000
930	+1.851580E+002	+0.000000E+000	+0.000000E+000
931	+1.881546E+002	+0.000000E+000	+0.000000E+000
932	+1.772135E+002	+0.000000E+000	+0.000000E+000
933	+1.787279E+002	+0.000000E+000	+0.000000E+000
934	+1.805229E+002	+0.000000E+000	+0.000000E+000
935	+1.741637E+002	+0.000000E+000	+0.000000E+000
936	+1.749466E+002	+0.000000E+000	+0.000000E+000
937	+1.759603E+002	+0.000000E+000	+0.000000E+000
938	+1.731793E+002	+0.000000E+000	+0.000000E+000
939	+1.732822E+002	+0.000000E+000	+0.000000E+000
940	+1.736110E+002	+0.000000E+000	+0.000000E+000
941	+2.082998E+002	+0.000000E+000	+0.000000E+000
942	+2.124090E+002	+0.000000E+000	+0.000000E+000
943	+2.165000E+002	+1.286589E-001	+0.000000E+000
944	+1.960031E+002	+0.000000E+000	+0.000000E+000
945	+2.000389E+002	+0.000000E+000	+0.000000E+000
946	+2.041713E+002	+0.000000E+000	+0.000000E+000
947	+1.858585E+002	+0.000000E+000	+0.000000E+000
948	+1.888035E+002	+0.000000E+000	+0.000000E+000
949	+1.922077E+002	+0.000000E+000	+0.000000E+000
950	+1.794097E+002	+0.000000E+000	+0.000000E+000
951	+1.812169E+002	+0.000000E+000	+0.000000E+000
952	+1.833469E+002	+0.000000E+000	+0.000000E+000

```
 953 +1.756004E+002 +0.000000E+000 +0.000000E+000
 954 +1.766208E+002 +0.000000E+000 +0.000000E+000
 955 +1.778876E+002 +0.000000E+000 +0.000000E+000
 956 +1.742581E+002 +0.000000E+000 +0.000000E+000
 957 +1.748154E+002 +0.000000E+000 +0.000000E+000
 958 +1.738249E+002 +0.000000E+000 +0.000000E+000
 959 +1.739286E+002 +0.000000E+000 +0.000000E+000
 960 +2.124152E+002 +0.000000E+000 +0.000000E+000
 961 +2.165000E+002 +1.294545E-001 +0.000000E+000
 962 +2.002715E+002 +0.000000E+000 +0.000000E+000
 963 +2.042874E+002 +0.000000E+000 +0.000000E+000
 964 +2.083439E+002 +0.000000E+000 +0.000000E+000
 965 +1.927072E+002 +0.000000E+000 +0.000000E+000
 966 +1.963714E+002 +0.000000E+000 +0.000000E+000
 967 +1.818719E+002 +0.000000E+000 +0.000000E+000
 968 +1.840040E+002 +0.000000E+000 +0.000000E+000
 969 +1.864968E+002 +0.000000E+000 +0.000000E+000
 970 +1.893989E+002 +0.000000E+000 +0.000000E+000
 971 +1.785263E+002 +0.000000E+000 +0.000000E+000
 972 +1.800582E+002 +0.000000E+000 +0.000000E+000
 973 +1.754382E+002 +0.000000E+000 +0.000000E+000
 974 +1.762289E+002 +0.000000E+000 +0.000000E+000
 975 +1.772557E+002 +0.000000E+000 +0.000000E+000
 976 +1.744421E+002 +0.000000E+000 +0.000000E+000
 977 +1.745466E+002 +0.000000E+000 +0.000000E+000
 978 +1.748791E+002 +0.000000E+000 +0.000000E+000
 979 +2.165000E+002 +1.283920E-001 +0.000000E+000
 980 +2.044138E+002 +0.000000E+000 +0.000000E+000
 981 +2.083975E+002 +0.000000E+000 +0.000000E+000
 982 +2.124313E+002 +0.000000E+000 +0.000000E+000
 983 +1.967175E+002 +0.000000E+000 +0.000000E+000
 984 +2.004993E+002 +0.000000E+000 +0.000000E+000
 985 +1.870964E+002 +0.000000E+000 +0.000000E+000
 986 +1.899450E+002 +0.000000E+000 +0.000000E+000
 987 +1.931688E+002 +0.000000E+000 +0.000000E+000
 988 +1.806745E+002 +0.000000E+000 +0.000000E+000
 989 +1.824939E+002 +0.000000E+000 +0.000000E+000
 990 +1.846187E+002 +0.000000E+000 +0.000000E+000
 991 +1.768260E+002 +0.000000E+000 +0.000000E+000
 992 +1.778571E+002 +0.000000E+000 +0.000000E+000
 993 +1.791374E+002 +0.000000E+000 +0.000000E+000
 994 +1.754707E+002 +0.000000E+000 +0.000000E+000
 995 +1.760330E+002 +0.000000E+000 +0.000000E+000
 996 +1.750329E+002 +0.000000E+000 +0.000000E+000
 997 +1.751384E+002 +0.000000E+000 +0.000000E+000
 998 +2.084414E+002 +0.000000E+000 +0.000000E+000
 999 +2.124322E+002 +0.000000E+000 +0.000000E+000
1000 +2.165000E+002 +1.294375E-001 +0.000000E+000
1001 +1.970346E+002 +0.000000E+000 +0.000000E+000
1002 +2.007099E+002 +0.000000E+000 +0.000000E+000
1003 +2.045310E+002 +0.000000E+000 +0.000000E+000
1004 +1.904470E+002 +0.000000E+000 +0.000000E+000
1005 +1.935936E+002 +0.000000E+000 +0.000000E+000
1006 +1.830730E+002 +0.000000E+000 +0.000000E+000
1007 +1.851952E+002 +0.000000E+000 +0.000000E+000
1008 +1.876469E+002 +0.000000E+000 +0.000000E+000
1009 +1.797130E+002 +0.000000E+000 +0.000000E+000
1010 +1.812544E+002 +0.000000E+000 +0.000000E+000
1011 +1.766000E+002 +0.000000E+000 +0.000000E+000
1012 +1.773971E+002 +0.000000E+000 +0.000000E+000
```



```
1013 +1.784322E+002 +0.000000E+000 +0.000000E+000
1014 +1.757014E+002 +0.000000E+000 +0.000000E+000
1015 +1.760365E+002 +0.000000E+000 +0.000000E+000
1016 +1.755959E+002 +0.000000E+000 +0.000000E+000
1017 +2.124206E+002 +0.000000E+000 +0.000000E+000
1018 +2.165000E+002 +1.304202E-001 +0.000000E+000
1019 +2.009170E+002 +0.000000E+000 +0.000000E+000
1020 +2.046511E+002 +0.000000E+000 +0.000000E+000
1021 +2.084893E+002 +0.000000E+000 +0.000000E+000
1022 +1.939785E+002 +0.000000E+000 +0.000000E+000
1023 +1.973376E+002 +0.000000E+000 +0.000000E+000
1024 +1.881544E+002 +0.000000E+000 +0.000000E+000
1025 +1.909039E+002 +0.000000E+000 +0.000000E+000
1026 +1.817993E+002 +0.000000E+000 +0.000000E+000
1027 +1.836164E+002 +0.000000E+000 +0.000000E+000
1028 +1.857282E+002 +0.000000E+000 +0.000000E+000
1029 +1.789762E+002 +0.000000E+000 +0.000000E+000
1030 +1.802579E+002 +0.000000E+000 +0.000000E+000
1031 +1.765734E+002 +0.000000E+000 +0.000000E+000
1032 +1.771398E+002 +0.000000E+000 +0.000000E+000
1033 +1.779392E+002 +0.000000E+000 +0.000000E+000
1034 +1.761296E+002 +0.000000E+000 +0.000000E+000
1035 +1.762378E+002 +0.000000E+000 +0.000000E+000
1036 +2.165000E+002 +2.022135E-001 +0.000000E+000
1037 +2.047558E+002 +0.000000E+000 +0.000000E+000
1038 +2.085259E+002 +0.000000E+000 +0.000000E+000
1039 +2.123920E+002 +0.000000E+000 +0.000000E+000
1040 +1.976177E+002 +0.000000E+000 +0.000000E+000
1041 +2.011117E+002 +0.000000E+000 +0.000000E+000
1042 +1.886226E+002 +0.000000E+000 +0.000000E+000
1043 +1.913282E+002 +0.000000E+000 +0.000000E+000
1044 +1.943396E+002 +0.000000E+000 +0.000000E+000
1045 +1.841228E+002 +0.000000E+000 +0.000000E+000
1046 +1.862218E+002 +0.000000E+000 +0.000000E+000
1047 +1.807729E+002 +0.000000E+000 +0.000000E+000
1048 +1.823151E+002 +0.000000E+000 +0.000000E+000
1049 +1.776501E+002 +0.000000E+000 +0.000000E+000
1050 +1.784513E+002 +0.000000E+000 +0.000000E+000
1051 +1.794886E+002 +0.000000E+000 +0.000000E+000
1052 +1.767455E+002 +0.000000E+000 +0.000000E+000
1053 +1.770832E+002 +0.000000E+000 +0.000000E+000
1054 +1.766355E+002 +0.000000E+000 +0.000000E+000
1055 +2.088446E+002 +0.000000E+000 +0.000000E+000
1056 +2.126226E+002 +0.000000E+000 +0.000000E+000
1057 +2.165000E+002 +2.363895E-001 +0.000000E+000
1058 +2.016600E+002 +0.000000E+000 +0.000000E+000
1059 +2.051865E+002 +0.000000E+000 +0.000000E+000
1060 +1.921940E+002 +0.000000E+000 +0.000000E+000
1061 +1.951160E+002 +0.000000E+000 +0.000000E+000
1062 +1.982868E+002 +0.000000E+000 +0.000000E+000
1063 +1.850779E+002 +0.000000E+000 +0.000000E+000
1064 +1.871641E+002 +0.000000E+000 +0.000000E+000
1065 +1.895375E+002 +0.000000E+000 +0.000000E+000
1066 +1.817129E+002 +0.000000E+000 +0.000000E+000
1067 +1.832633E+002 +0.000000E+000 +0.000000E+000
1068 +1.785621E+002 +0.000000E+000 +0.000000E+000
1069 +1.793706E+002 +0.000000E+000 +0.000000E+000
1070 +1.804204E+002 +0.000000E+000 +0.000000E+000
1071 +1.775284E+002 +0.000000E+000 +0.000000E+000
1072 +1.776443E+002 +0.000000E+000 +0.000000E+000
```



```
1073 +1.779877E+002 +0.000000E+000 +0.000000E+000
1074 +2.165000E+002 +2.257029E-001 +0.000000E+000
1075 +2.055616E+002 +0.000000E+000 +0.000000E+000
1076 +2.091192E+002 +0.000000E+000 +0.000000E+000
1077 +2.127725E+002 +0.000000E+000 +0.000000E+000
1078 +1.957872E+002 +0.000000E+000 +0.000000E+000
1079 +1.988634E+002 +0.000000E+000 +0.000000E+000
1080 +2.021379E+002 +0.000000E+000 +0.000000E+000
1081 +1.879822E+002 +0.000000E+000 +0.000000E+000
1082 +1.903223E+002 +0.000000E+000 +0.000000E+000
1083 +1.929302E+002 +0.000000E+000 +0.000000E+000
1084 +1.825408E+002 +0.000000E+000 +0.000000E+000
1085 +1.840956E+002 +0.000000E+000 +0.000000E+000
1086 +1.859052E+002 +0.000000E+000 +0.000000E+000
1087 +1.793667E+002 +0.000000E+000 +0.000000E+000
1088 +1.801837E+002 +0.000000E+000 +0.000000E+000
1089 +1.812389E+002 +0.000000E+000 +0.000000E+000
1090 +1.783223E+002 +0.000000E+000 +0.000000E+000
1091 +1.784398E+002 +0.000000E+000 +0.000000E+000
1092 +1.787877E+002 +0.000000E+000 +0.000000E+000
1093 +2.058812E+002 +0.000000E+000 +0.000000E+000
1094 +2.093460E+002 +0.000000E+000 +0.000000E+000
1095 +2.128938E+002 +0.000000E+000 +0.000000E+000
1096 +2.165000E+002 +2.180221E-001 +0.000000E+000
1097 +1.963496E+002 +0.000000E+000 +0.000000E+000
1098 +1.993529E+002 +0.000000E+000 +0.000000E+000
1099 +2.025449E+002 +0.000000E+000 +0.000000E+000
1100 +1.909919E+002 +0.000000E+000 +0.000000E+000
1101 +1.935518E+002 +0.000000E+000 +0.000000E+000
1102 +1.832553E+002 +0.000000E+000 +0.000000E+000
1103 +1.848076E+002 +0.000000E+000 +0.000000E+000
1104 +1.866158E+002 +0.000000E+000 +0.000000E+000
1105 +1.886749E+002 +0.000000E+000 +0.000000E+000
1106 +1.800660E+002 +0.000000E+000 +0.000000E+000
1107 +1.808884E+002 +0.000000E+000 +0.000000E+000
1108 +1.819489E+002 +0.000000E+000 +0.000000E+000
1109 +1.790130E+002 +0.000000E+000 +0.000000E+000
1110 +1.791315E+002 +0.000000E+000 +0.000000E+000
1111 +1.794816E+002 +0.000000E+000 +0.000000E+000
1112 +2.129902E+002 +0.000000E+000 +0.000000E+000
1113 +2.165000E+002 +2.119670E-001 +0.000000E+000
1114 +1.997597E+002 +0.000000E+000 +0.000000E+000
1115 +2.028837E+002 +0.000000E+000 +0.000000E+000
1116 +2.061466E+002 +0.000000E+000 +0.000000E+000
1117 +2.095310E+002 +0.000000E+000 +0.000000E+000
1118 +1.915438E+002 +0.000000E+000 +0.000000E+000
1119 +1.940724E+002 +0.000000E+000 +0.000000E+000
1120 +1.968164E+002 +0.000000E+000 +0.000000E+000
1121 +1.838544E+002 +0.000000E+000 +0.000000E+000
1122 +1.854087E+002 +0.000000E+000 +0.000000E+000
1123 +1.872067E+002 +0.000000E+000 +0.000000E+000
1124 +1.892558E+002 +0.000000E+000 +0.000000E+000
1125 +1.806585E+002 +0.000000E+000 +0.000000E+000
1126 +1.814827E+002 +0.000000E+000 +0.000000E+000
1127 +1.825488E+002 +0.000000E+000 +0.000000E+000
1128 +1.795994E+002 +0.000000E+000 +0.000000E+000
1129 +1.797182E+002 +0.000000E+000 +0.000000E+000
1130 +1.800706E+002 +0.000000E+000 +0.000000E+000
1131 +2.165000E+002 +2.074017E-001 +0.000000E+000
1132 +2.063661E+002 +0.000000E+000 +0.000000E+000
```



```
1133 +2.096703E+002 +0.000000E+000 +0.000000E+000
1134 +2.130663E+002 +0.000000E+000 +0.000000E+000
1135 +1.944870E+002 +0.000000E+000 +0.000000E+000
1136 +1.971916E+002 +0.000000E+000 +0.000000E+000
1137 +2.000937E+002 +0.000000E+000 +0.000000E+000
1138 +2.031570E+002 +0.000000E+000 +0.000000E+000
1139 +1.858943E+002 +0.000000E+000 +0.000000E+000
1140 +1.876895E+002 +0.000000E+000 +0.000000E+000
1141 +1.897216E+002 +0.000000E+000 +0.000000E+000
1142 +1.919889E+002 +0.000000E+000 +0.000000E+000
1143 +1.811437E+002 +0.000000E+000 +0.000000E+000
1144 +1.819707E+002 +0.000000E+000 +0.000000E+000
1145 +1.830364E+002 +0.000000E+000 +0.000000E+000
1146 +1.843458E+002 +0.000000E+000 +0.000000E+000
1147 +1.800804E+002 +0.000000E+000 +0.000000E+000
1148 +1.801994E+002 +0.000000E+000 +0.000000E+000
1149 +1.805533E+002 +0.000000E+000 +0.000000E+000
1150 +2.097905E+002 +0.000000E+000 +0.000000E+000
1151 +2.131247E+002 +0.000000E+000 +0.000000E+000
1152 +2.165000E+002 +2.036550E-001 +0.000000E+000
1153 +1.974797E+002 +0.000000E+000 +0.000000E+000
1154 +2.003451E+002 +0.000000E+000 +0.000000E+000
1155 +2.033665E+002 +0.000000E+000 +0.000000E+000
1156 +2.065292E+002 +0.000000E+000 +0.000000E+000
1157 +1.862735E+002 +0.000000E+000 +0.000000E+000
1158 +1.880591E+002 +0.000000E+000 +0.000000E+000
1159 +1.900801E+002 +0.000000E+000 +0.000000E+000
1160 +1.923355E+002 +0.000000E+000 +0.000000E+000
1161 +1.948056E+002 +0.000000E+000 +0.000000E+000
1162 +1.815200E+002 +0.000000E+000 +0.000000E+000
1163 +1.823502E+002 +0.000000E+000 +0.000000E+000
1164 +1.834175E+002 +0.000000E+000 +0.000000E+000
1165 +1.847240E+002 +0.000000E+000 +0.000000E+000
1166 +1.804552E+002 +0.000000E+000 +0.000000E+000
1167 +1.805743E+002 +0.000000E+000 +0.000000E+000
1168 +1.809294E+002 +0.000000E+000 +0.000000E+000
1169 +2.165000E+002 +2.020281E-001 +0.000000E+000
1170 +2.005231E+002 +0.000000E+000 +0.000000E+000
1171 +2.035147E+002 +0.000000E+000 +0.000000E+000
1172 +2.066442E+002 +0.000000E+000 +0.000000E+000
1173 +2.098697E+002 +0.000000E+000 +0.000000E+000
1174 +2.131654E+002 +0.000000E+000 +0.000000E+000
1175 +1.883253E+002 +0.000000E+000 +0.000000E+000
1176 +1.903388E+002 +0.000000E+000 +0.000000E+000
1177 +1.925775E+002 +0.000000E+000 +0.000000E+000
1178 +1.950306E+002 +0.000000E+000 +0.000000E+000
1179 +1.976892E+002 +0.000000E+000 +0.000000E+000
1180 +1.826198E+002 +0.000000E+000 +0.000000E+000
1181 +1.836897E+002 +0.000000E+000 +0.000000E+000
1182 +1.849963E+002 +0.000000E+000 +0.000000E+000
1183 +1.865409E+002 +0.000000E+000 +0.000000E+000
1184 +1.807236E+002 +0.000000E+000 +0.000000E+000
1185 +1.808426E+002 +0.000000E+000 +0.000000E+000
1186 +1.811984E+002 +0.000000E+000 +0.000000E+000
1187 +1.817906E+002 +0.000000E+000 +0.000000E+000
1188 +2.036030E+002 +0.000000E+000 +0.000000E+000
1189 +2.067127E+002 +0.000000E+000 +0.000000E+000
1190 +2.099165E+002 +0.000000E+000 +0.000000E+000
1191 +2.131900E+002 +0.000000E+000 +0.000000E+000
1192 +2.165000E+002 +2.003332E-001 +0.000000E+000
```

```
1193 +1.904906E+002 +0.000000E+000 +0.000000E+000
1194 +1.927216E+002 +0.000000E+000 +0.000000E+000
1195 +1.951699E+002 +0.000000E+000 +0.000000E+000
1196 +1.978106E+002 +0.000000E+000 +0.000000E+000
1197 +2.006292E+002 +0.000000E+000 +0.000000E+000
1198 +1.827835E+002 +0.000000E+000 +0.000000E+000
1199 +1.838516E+002 +0.000000E+000 +0.000000E+000
1200 +1.851576E+002 +0.000000E+000 +0.000000E+000
1201 +1.867041E+002 +0.000000E+000 +0.000000E+000
1202 +1.884824E+002 +0.000000E+000 +0.000000E+000
1203 +1.808849E+002 +0.000000E+000 +0.000000E+000
1204 +1.810039E+002 +0.000000E+000 +0.000000E+000
1205 +1.813593E+002 +0.000000E+000 +0.000000E+000
1206 +1.819531E+002 +0.000000E+000 +0.000000E+000
1207 +2.131976E+002 +0.000000E+000 +0.000000E+000
1208 +2.165000E+002 +9.986050E-002 +0.000000E+000
1209 +1.952141E+002 +0.000000E+000 +0.000000E+000
1210 +1.978509E+002 +0.000000E+000 +0.000000E+000
1211 +2.006644E+002 +0.000000E+000 +0.000000E+000
1212 +2.036324E+002 +0.000000E+000 +0.000000E+000
1213 +2.067355E+002 +0.000000E+000 +0.000000E+000
1214 +2.099316E+002 +0.000000E+000 +0.000000E+000
1215 +1.820082E+002 +0.000000E+000 +0.000000E+000
1216 +1.828393E+002 +0.000000E+000 +0.000000E+000
1217 +1.839079E+002 +0.000000E+000 +0.000000E+000
1218 +1.852143E+002 +0.000000E+000 +0.000000E+000
1219 +1.867573E+002 +0.000000E+000 +0.000000E+000
1220 +1.885345E+002 +0.000000E+000 +0.000000E+000
1221 +1.905455E+002 +0.000000E+000 +0.000000E+000
1222 +1.927741E+002 +0.000000E+000 +0.000000E+000
1223 +1.809389E+002 +0.000000E+000 +0.000000E+000
1224 +1.810580E+002 +0.000000E+000 +0.000000E+000
1225 +1.814138E+002 +0.000000E+000 +0.000000E+000
```

```
FILEINFO
SEEPW 4.22
TITLE



11/3/2004
16:28 PM
ALYSIS
    1     1 +6.2400e+001     1     0
CONVERGE
  200 +1.0000e-004 +1.0000e+000 +1.1000e+000 +1.0000e-004
TIME          10 +0.0000e+000 +1.0000e+000 +0.0000e+000 +1.5000e+000    10
1     1
     1 +1.0000e-002 +1.0000e-002     1
     2 +5.0000e-002 +6.0000e-002     1
     3 +2.2500e+000 +2.3100e+000     1
     4 +3.3750e+000 +5.6850e+000     1
     5 +5.0625e+000 +1.0748e+001     1
     6 +7.5938e+000 +1.8341e+001     1
     7 +1.1391e+001 +2.9732e+001     1
     8 +1.7086e+001 +4.6818e+001     1
     9 +2.5629e+001 +7.2447e+001     1
    10 +3.8443e+001 +1.1089e+002     1
MATERIAL        4
     1     7     1 +1.0000e+000 +0.0000e+000
     2     5     2 +1.0000e-001 +0.0000e+000
     3     4     3 +1.0000e-001 +0.0000e+000
     4     7     0 +1.0000e+000 +0.0000e+000
KFUNCTION       7
     1     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-1 cm/sec
-1.0000e+000 +2.8341e+000
+0.0000e+000 +2.8341e+002
+1.0000e+001 +2.8341e+002
     2     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-2
-1.0000e+000 +2.8340e-002
+0.0000e+000 +2.8340e+001
+1.0000e+001 +2.8340e+001
     4     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-4
-1.0000e+000 +2.8339e-003
+0.0000e+000 +2.8339e-001
+1.0000e+001 +2.8339e-001
     5     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-5cm/sec
-1.0000e+000 +2.8340e-004
+0.0000e+000 +2.8340e-002
+1.0000e+001 +2.8340e-002
     6     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-6
-1.0000e+000 +2.8340e-005
+0.0000e+000 +2.8341e-003
+1.0000e+001 +2.8341e-003
     7     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-7cm/sec
-1.0000e+000 +2.8340e-006
+0.0000e+000 +2.8340e-004
```



```
+1.0000e+001 +2.8340e-004
SFUNCTION       3
     1     4 +0.0000e+000 +1.5300e+000
Fissure
-2.0000e+000 +1.0000e-001
-1.0000e+000 +1.0000e-001
+0.0000e+000 +1.0000e-001
+1.0000e+001 +1.0000e-001
     2     2 +0.0000e+000 +1.5300e+000

+0.0000e+000 +1.0000e-003
+1.0000e+001 +1.0000e-003
     3     2 +0.0000e+000 +1.5300e+000
Common Fill
+0.0000e+000 +3.0000e-001
+1.0000e+001 +3.0000e-001
BFUNCTION       0
MFUNCTION       0
NODE         1225
     1 -7.4742e+001 +9.4855e+001 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     2 -7.4742e+001 +9.9883e+001 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     3 -7.4742e+001 +1.0491e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     4 -7.4742e+001 +1.0994e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     5 -7.4742e+001 +1.1497e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     6 -7.4742e+001 +1.2000e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     7 -7.4742e+001 +1.2503e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     8 -7.4742e+001 +1.3005e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     9 -7.4742e+001 +1.3508e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    10 -7.4742e+001 +1.4011e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    11 -7.4742e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    12 -7.4742e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    13 -7.4742e+001 +1.5520e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    14 -7.4742e+001 +1.6023e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    15 -7.4742e+001 +1.6525e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    16 -7.4742e+001 +1.7028e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    17 -7.4742e+001 +1.7531e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    18 -7.4742e+001 +1.8034e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    19 -7.4742e+001 +1.8537e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    20 -6.3985e+001 +9.4865e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    21 -6.3985e+001 +9.9892e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    22 -6.3985e+001 +1.0492e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    23 -6.3985e+001 +1.0995e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    24 -6.3985e+001 +1.1497e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    25 -6.3985e+001 +1.2000e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    26 -6.3985e+001 +1.2503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    27 -6.3985e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    28 -6.3985e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    29 -6.3985e+001 +1.4011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    30 -6.3985e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    31 -6.3985e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    32 -6.3985e+001 +1.5520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    33 -6.3985e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    34 -6.3985e+001 +1.6525e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    35 -6.3985e+001 +1.7028e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    36 -6.3985e+001 +1.7531e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    37 -6.3985e+001 +1.8033e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    38 -6.3985e+001 +1.8536e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    39 -5.3229e+001 +9.4874e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    40 -5.3229e+001 +9.9901e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    41 -5.3229e+001 +1.0493e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
    42 -5.3229e+001 +1.0995e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    43 -5.3229e+001 +1.1498e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    44 -5.3229e+001 +1.2001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    45 -5.3229e+001 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    46 -5.3229e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    47 -5.3229e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    48 -5.3229e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    49 -5.3229e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    50 -5.3229e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    51 -5.3229e+001 +1.5520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    52 -5.3229e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    53 -5.3229e+001 +1.6525e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    54 -5.3229e+001 +1.7027e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    55 -5.3229e+001 +1.7530e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    56 -5.3229e+001 +1.8033e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    57 -5.3229e+001 +1.8535e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    58 -4.2472e+001 +9.4884e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    59 -4.2472e+001 +9.9910e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    60 -4.2472e+001 +1.0494e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    61 -4.2472e+001 +1.0996e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    62 -4.2472e+001 +1.1499e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    63 -4.2472e+001 +1.2001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    64 -4.2472e+001 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    65 -4.2472e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    66 -4.2472e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    67 -4.2472e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    68 -4.2472e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    69 -4.2472e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    70 -4.2472e+001 +1.5519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    71 -4.2472e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    72 -4.2472e+001 +1.6525e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    73 -4.2472e+001 +1.7027e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    74 -4.2472e+001 +1.7530e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    75 -4.2472e+001 +1.8032e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    76 -4.2472e+001 +1.8535e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    77 -3.1716e+001 +9.4894e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    78 -3.1716e+001 +9.9919e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    79 -3.1716e+001 +1.0494e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    80 -3.1716e+001 +1.0997e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    81 -3.1716e+001 +1.1499e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    82 -3.1716e+001 +1.2002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    83 -3.1716e+001 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    84 -3.1716e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    85 -3.1716e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    86 -3.1716e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    87 -3.1716e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    88 -3.1716e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    89 -3.1716e+001 +1.5519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    90 -3.1716e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    91 -3.1716e+001 +1.6524e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    92 -3.1716e+001 +1.7027e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    93 -3.1716e+001 +1.7529e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    94 -3.1716e+001 +1.8032e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    95 -3.1716e+001 +1.8534e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    96 -2.0960e+001 +9.4903e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    97 -2.0960e+001 +9.9927e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    98 -2.0960e+001 +1.0495e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    99 -2.0960e+001 +1.0997e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   100 -2.0960e+001 +1.1500e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   101 -2.0960e+001 +1.2002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
   102 -2.0960e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   103 -2.0960e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   104 -2.0960e+001 +1.3510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   105 -2.0960e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   106 -2.0960e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   107 -2.0960e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   108 -2.0960e+001 +1.5519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   109 -2.0960e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   110 -2.0960e+001 +1.6524e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   111 -2.0960e+001 +1.7026e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   112 -2.0960e+001 +1.7529e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   113 -2.0960e+001 +1.8031e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   114 -2.0960e+001 +1.8534e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   115 -1.0203e+001 +9.4913e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   116 -1.0203e+001 +9.9936e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   117 -1.0203e+001 +1.0496e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   118 -1.0203e+001 +1.0998e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   119 -1.0203e+001 +1.1501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   120 -1.0203e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   121 -1.0203e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   122 -1.0203e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   123 -1.0203e+001 +1.3510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   124 -1.0203e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   125 -1.0203e+001 +1.4515e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   126 -1.0203e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   127 -1.0203e+001 +1.5519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   128 -1.0203e+001 +1.6021e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   129 -1.0203e+001 +1.6524e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   130 -1.0203e+001 +1.7026e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   131 -1.0203e+001 +1.7528e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   132 -1.0203e+001 +1.8031e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   133 -1.0203e+001 +1.8533e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   134 -7.8174e-001 +9.4919e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   135 -7.8168e-001 +9.9941e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   136 -7.8163e-001 +1.0496e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   137 -7.8157e-001 +1.0999e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   138 -7.8151e-001 +1.1501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   139 -7.8146e-001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   140 -7.8140e-001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   141 -7.8135e-001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   142 -7.8129e-001 +1.3510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   143 -7.8124e-001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   144 -7.8118e-001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   145 -7.8113e-001 +1.5016e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   146 -7.8107e-001 +1.5518e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   147 -7.8101e-001 +1.6021e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   148 -7.8096e-001 +1.6523e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   149 -7.8090e-001 +1.7025e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   150 -7.8085e-001 +1.7527e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   151 -7.8079e-001 +1.8029e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   152 -7.8074e-001 +1.8532e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   153 +8.6399e+000 +9.4925e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   154 +8.6400e+000 +9.9946e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   155 +8.6402e+000 +1.0497e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   156 +8.6403e+000 +1.0999e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   157 +8.6404e+000 +1.1501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   158 +8.6405e+000 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   159 +8.6406e+000 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   160 +8.6407e+000 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   161 +8.6408e+000 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```

```
162 +8.6409e+000 +1.4011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
163 +8.6410e+000 +1.4513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
164 +8.6412e+000 +1.5016e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
165 +8.6413e+000 +1.5518e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
166 +8.6414e+000 +1.6020e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
167 +8.6415e+000 +1.6522e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
168 +8.6416e+000 +1.7024e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
169 +8.6417e+000 +1.7526e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
170 +8.6418e+000 +1.8028e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
171 +8.6419e+000 +1.8530e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
172 +1.8062e+001 +9.4932e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
173 +1.8062e+001 +9.9951e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
174 +1.8062e+001 +1.0497e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
175 +1.8062e+001 +1.0999e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
176 +1.8062e+001 +1.1501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
177 +1.8062e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
178 +1.8063e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
179 +1.8063e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
180 +1.8063e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
181 +1.8063e+001 +1.4011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
182 +1.8063e+001 +1.4513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
183 +1.8063e+001 +1.5015e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
184 +1.8064e+001 +1.5517e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
185 +1.8064e+001 +1.6019e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
186 +1.8064e+001 +1.6521e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
187 +1.8064e+001 +1.7023e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
188 +1.8064e+001 +1.7525e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
189 +1.8064e+001 +1.8027e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
190 +1.8065e+001 +1.8529e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
191 +2.7483e+001 +9.4938e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
192 +2.7483e+001 +9.9956e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
193 +2.7484e+001 +1.0497e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
194 +2.7484e+001 +1.0999e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
195 +2.7484e+001 +1.1501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
196 +2.7484e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
197 +2.7485e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
198 +2.7485e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
199 +2.7485e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
200 +2.7485e+001 +1.4011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
201 +2.7486e+001 +1.4512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
202 +2.7486e+001 +1.5014e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
203 +2.7486e+001 +1.5516e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
204 +2.7486e+001 +1.6018e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
205 +2.7486e+001 +1.6520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
206 +2.7487e+001 +1.7022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
207 +2.7487e+001 +1.7524e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
208 +2.7487e+001 +1.8026e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
209 +2.7487e+001 +1.8527e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
210 +3.6905e+001 +9.4944e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
211 +3.6905e+001 +9.9962e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
212 +3.6905e+001 +1.0498e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
213 +3.6906e+001 +1.1000e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
214 +3.6906e+001 +1.1501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
215 +3.6906e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
216 +3.6907e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
217 +3.6907e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
218 +3.6907e+001 +1.3508e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
219 +3.6907e+001 +1.4010e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
220 +3.6908e+001 +1.4512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
221 +3.6908e+001 +1.5014e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
222 +3.6908e+001 +1.5515e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
223 +3.6909e+001 +1.6017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
224 +3.6909e+001 +1.6519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
225 +3.6909e+001 +1.7021e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
226 +3.6909e+001 +1.7522e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
227 +3.6910e+001 +1.8024e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
228 +3.6910e+001 +1.8526e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
229 +4.6327e+001 +9.4950e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
230 +4.6327e+001 +9.9967e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
231 +4.6327e+001 +1.0498e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
232 +4.6328e+001 +1.1000e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
233 +4.6328e+001 +1.1502e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
234 +4.6328e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
235 +4.6329e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
236 +4.6329e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
237 +4.6329e+001 +1.3508e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
238 +4.6330e+001 +1.4010e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
239 +4.6330e+001 +1.4511e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
240 +4.6330e+001 +1.5013e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
241 +4.6331e+001 +1.5515e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
242 +4.6331e+001 +1.6016e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
243 +4.6331e+001 +1.6518e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
244 +4.6332e+001 +1.7020e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
245 +4.6332e+001 +1.7521e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
246 +4.6332e+001 +1.8023e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
247 +4.6333e+001 +1.8524e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
248 +5.5748e+001 +9.4956e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
249 +5.5749e+001 +9.9972e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
250 +5.5749e+001 +1.0499e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
251 +5.5750e+001 +1.1000e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
252 +5.5750e+001 +1.1502e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
253 +5.5750e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
254 +5.5751e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
255 +5.5751e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
256 +5.5751e+001 +1.3508e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
257 +5.5752e+001 +1.4009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
258 +5.5752e+001 +1.4511e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
259 +5.5753e+001 +1.5012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
260 +5.5753e+001 +1.5514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
261 +5.5753e+001 +1.6015e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
262 +5.5754e+001 +1.6517e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
263 +5.5754e+001 +1.7018e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
264 +5.5755e+001 +1.7520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
265 +5.5755e+001 +1.8021e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
266 +5.5755e+001 +1.8523e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
267 +6.5170e+001 +9.4963e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
268 +6.5170e+001 +9.9977e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
269 +6.5171e+001 +1.0499e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
270 +6.5171e+001 +1.1000e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
271 +6.5172e+001 +1.1502e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
272 +6.5172e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
273 +6.5173e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
274 +6.5173e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
275 +6.5174e+001 +1.3507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
276 +6.5174e+001 +1.4009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
277 +6.5174e+001 +1.4510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
278 +6.5175e+001 +1.5012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
279 +6.5175e+001 +1.5513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
280 +6.5176e+001 +1.6015e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
281 +6.5176e+001 +1.6516e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
282 +6.5177e+001 +1.7017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
283 +6.5177e+001 +1.7519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
284 +6.5177e+001 +1.8020e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
285 +6.5178e+001 +1.8522e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
286 +7.4592e+001 +9.4969e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
287 +7.4592e+001 +9.9982e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
288 +7.4593e+001 +1.0500e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
289 +7.4593e+001 +1.1001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
290 +7.4594e+001 +1.1502e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
291 +7.4594e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
292 +7.4595e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
293 +7.4595e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
294 +7.4596e+001 +1.3507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
295 +7.4596e+001 +1.4009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
296 +7.4597e+001 +1.4510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
297 +7.4597e+001 +1.5011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
298 +7.4598e+001 +1.5512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
299 +7.4598e+001 +1.6014e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
300 +7.4599e+001 +1.6515e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
301 +7.4599e+001 +1.7016e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
302 +7.4600e+001 +1.7518e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
303 +7.4600e+001 +1.8019e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
304 +7.4601e+001 +1.8520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
305 +8.4013e+001 +9.4975e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
306 +8.4014e+001 +9.9987e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
307 +8.4014e+001 +1.0500e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
308 +8.4015e+001 +1.1001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
309 +8.4016e+001 +1.1502e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
310 +8.4016e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
311 +8.4017e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
312 +8.4017e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
313 +8.4018e+001 +1.3507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
314 +8.4018e+001 +1.4008e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
315 +8.4019e+001 +1.4509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
316 +8.4019e+001 +1.5010e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
317 +8.4020e+001 +1.5512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
318 +8.4021e+001 +1.6013e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
319 +8.4021e+001 +1.6514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
320 +8.4022e+001 +1.7015e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
321 +8.4022e+001 +1.7516e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
322 +8.4023e+001 +1.8018e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
323 +8.4023e+001 +1.8519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
324 +9.3435e+001 +9.4981e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
325 +9.3436e+001 +9.9992e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
326 +9.3436e+001 +1.0500e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
327 +9.3437e+001 +1.1001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
328 +9.3437e+001 +1.1502e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
329 +9.3438e+001 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
330 +9.3439e+001 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
331 +9.3439e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
332 +9.3440e+001 +1.3507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
333 +9.3440e+001 +1.4008e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
334 +9.3441e+001 +1.4509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
335 +9.3442e+001 +1.5010e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
336 +9.3442e+001 +1.5511e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
337 +9.3443e+001 +1.6012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
338 +9.3443e+001 +1.6513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
339 +9.3444e+001 +1.7014e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
340 +9.3445e+001 +1.7515e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
341 +9.3445e+001 +1.8016e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
342 +9.3446e+001 +1.8517e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
343 +1.0286e+002 +9.4988e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
344 +1.0286e+002 +9.9997e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
345 +1.0286e+002 +1.0501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
346 +1.0286e+002 +1.1002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
347 +1.0286e+002 +1.1503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
348 +1.0286e+002 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
349 +1.0286e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
350 +1.0286e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
351 +1.0286e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
352 +1.0286e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
353 +1.0286e+002 +1.4508e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
354 +1.0286e+002 +1.5009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
355 +1.0286e+002 +1.5510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
356 +1.0286e+002 +1.6011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
357 +1.0287e+002 +1.6512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
358 +1.0287e+002 +1.7013e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
359 +1.0287e+002 +1.7514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
360 +1.0287e+002 +1.8015e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
361 +1.0287e+002 +1.8516e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
362 +1.1170e+002 +1.8508e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
363 +1.1228e+002 +9.4994e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
364 +1.1228e+002 +1.0000e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
365 +1.1228e+002 +1.0501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
366 +1.1228e+002 +1.1002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
367 +1.1228e+002 +1.1503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
368 +1.1228e+002 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
369 +1.1228e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
370 +1.1228e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
371 +1.1228e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
372 +1.1229e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
373 +1.1229e+002 +1.4508e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
374 +1.1229e+002 +1.5009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
375 +1.1229e+002 +1.5509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
376 +1.1229e+002 +1.6010e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
377 +1.1229e+002 +1.6511e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
378 +1.1229e+002 +1.7012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
379 +1.1229e+002 +1.7513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
380 +1.1229e+002 +1.8014e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
381 +1.1688e+002 +1.8511e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
382 +1.2170e+002 +9.5000e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
383 +1.2170e+002 +1.0001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
384 +1.2170e+002 +1.0501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
385 +1.2170e+002 +1.1002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
386 +1.2170e+002 +1.1503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
387 +1.2170e+002 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
388 +1.2171e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
389 +1.2171e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
390 +1.2171e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
391 +1.2171e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
392 +1.2171e+002 +1.4507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
393 +1.2171e+002 +1.5008e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
394 +1.2171e+002 +1.5509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
395 +1.2171e+002 +1.6009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
396 +1.2171e+002 +1.6510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
397 +1.2171e+002 +1.7011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
398 +1.2171e+002 +1.7512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
399 +1.2171e+002 +1.8012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
400 +1.2171e+002 +1.8513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
401 +1.2295e+002 +1.8718e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```

```
402 +1.2419e+002 +1.8924e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
403 +1.2524e+002 +9.5000e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
404 +1.2524e+002 +1.0001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
405 +1.2524e+002 +1.0501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
406 +1.2524e+002 +1.1002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
407 +1.2525e+002 +1.1503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
408 +1.2525e+002 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
409 +1.2525e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
410 +1.2525e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
411 +1.2525e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
412 +1.2525e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
413 +1.2525e+002 +1.4507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
414 +1.2525e+002 +1.5008e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
415 +1.2525e+002 +1.5509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
416 +1.2525e+002 +1.6009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
417 +1.2525e+002 +1.6510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
418 +1.2525e+002 +1.7011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
419 +1.2525e+002 +1.7512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
420 +1.2525e+002 +1.8012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
421 +1.2525e+002 +1.8296e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
422 +1.2525e+002 +1.8513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
423 +1.2543e+002 +1.9129e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
424 +1.2631e+002 +1.8718e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
425 +1.2666e+002 +1.9335e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
426 +1.2737e+002 +1.8924e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
427 +1.2790e+002 +1.9540e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
428 +1.2843e+002 +1.9129e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
429 +1.2879e+002 +9.5000e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
430 +1.2879e+002 +1.0001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
431 +1.2879e+002 +1.0501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
432 +1.2879e+002 +1.1002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
433 +1.2879e+002 +1.1503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
434 +1.2879e+002 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
435 +1.2879e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
436 +1.2879e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
437 +1.2879e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
438 +1.2879e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
439 +1.2879e+002 +1.4507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
440 +1.2879e+002 +1.5008e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
441 +1.2879e+002 +1.5509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
442 +1.2879e+002 +1.6009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
443 +1.2879e+002 +1.6510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
444 +1.2879e+002 +1.7011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
445 +1.2879e+002 +1.7512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
446 +1.2879e+002 +1.8012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
447 +1.2879e+002 +1.8296e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
448 +1.2879e+002 +1.8513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
449 +1.2914e+002 +1.9746e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
450 +1.2950e+002 +1.9335e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
451 +1.2968e+002 +1.8718e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
452 +1.3038e+002 +1.9951e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
453 +1.3056e+002 +1.8924e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
454 +1.3056e+002 +1.9540e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
455 +1.3145e+002 +1.9129e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
456 +1.3161e+002 +2.0157e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
457 +1.3162e+002 +1.9746e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
458 +1.3232e+002 +1.8296e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
459 +1.3233e+002 +9.5000e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
460 +1.3233e+002 +1.0001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
461 +1.3233e+002 +1.0501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
462 +1.3233e+002 +1.1002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
463 +1.3233e+002 +1.1503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
464 +1.3233e+002 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
465 +1.3233e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
466 +1.3233e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
467 +1.3233e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
468 +1.3233e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
469 +1.3233e+002 +1.4507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
470 +1.3233e+002 +1.5008e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
471 +1.3233e+002 +1.5509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
472 +1.3233e+002 +1.6009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
473 +1.3233e+002 +1.6510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
474 +1.3233e+002 +1.7011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
475 +1.3233e+002 +1.7512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
476 +1.3233e+002 +1.8012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
477 +1.3233e+002 +1.8513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
478 +1.3233e+002 +1.9335e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
479 +1.3268e+002 +1.9951e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
480 +1.3285e+002 +2.0362e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
481 +1.3304e+002 +1.8718e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
482 +1.3321e+002 +1.9540e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
483 +1.3374e+002 +2.0157e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
484 +1.3375e+002 +1.8924e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
485 +1.3409e+002 +2.0568e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
486 +1.3410e+002 +1.9746e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
487 +1.3445e+002 +1.9129e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
488 +1.3480e+002 +2.0362e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
489 +1.3498e+002 +1.9951e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
490 +1.3516e+002 +1.9335e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
491 +1.3532e+002 +2.0773e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
492 +1.3585e+002 +1.8296e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
493 +1.3586e+002 +2.0568e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
494 +1.3587e+002 +9.5000e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
495 +1.3587e+002 +1.0001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
496 +1.3587e+002 +1.0501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
497 +1.3587e+002 +1.1002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
498 +1.3587e+002 +1.1503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
499 +1.3587e+002 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
500 +1.3587e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
501 +1.3587e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
502 +1.3587e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
503 +1.3587e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
504 +1.3587e+002 +1.4507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
505 +1.3587e+002 +1.5008e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
506 +1.3587e+002 +1.5509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
507 +1.3587e+002 +1.6009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
508 +1.3587e+002 +1.6510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
509 +1.3587e+002 +1.7011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
510 +1.3587e+002 +1.7512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
511 +1.3587e+002 +1.8012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
512 +1.3587e+002 +1.8513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
513 +1.3587e+002 +1.9540e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
514 +1.3587e+002 +2.0157e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
515 +1.3640e+002 +1.8718e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
516 +1.3656e+002 +2.0979e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
517 +1.3658e+002 +1.9746e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
518 +1.3675e+002 +2.0362e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
519 +1.3692e+002 +2.0773e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
520 +1.3693e+002 +1.8924e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
521 +1.3729e+002 +1.9951e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
522 +1.3746e+002 +1.9129e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
523 +1.3764e+002 +2.0568e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
524 +1.3780e+002 +2.1184e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
525 +1.3798e+002 +2.0979e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
526 +1.3799e+002 +1.9335e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
527 +1.3799e+002 +2.0157e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
528 +1.3852e+002 +2.0773e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
529 +1.3853e+002 +1.9540e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
530 +1.3870e+002 +2.0362e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
531 +1.3904e+002 +2.1184e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
532 +1.3904e+002 +2.1389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
533 +1.3906e+002 +1.9746e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
534 +1.3938e+002 +1.8296e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
535 +1.3940e+002 +2.0979e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
536 +1.3941e+002 +9.5000e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
537 +1.3941e+002 +1.0001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
538 +1.3941e+002 +1.0501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
539 +1.3941e+002 +1.1002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
540 +1.3941e+002 +1.1503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
541 +1.3941e+002 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
542 +1.3941e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
543 +1.3941e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
544 +1.3941e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
545 +1.3941e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
546 +1.3941e+002 +1.4507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
547 +1.3941e+002 +1.5008e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
548 +1.3941e+002 +1.5509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
549 +1.3941e+002 +1.6009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
550 +1.3941e+002 +1.6510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
551 +1.3941e+002 +1.7011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
552 +1.3941e+002 +1.7512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
553 +1.3941e+002 +1.8012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
554 +1.3941e+002 +1.8513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
555 +1.3941e+002 +2.0568e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
556 +1.3959e+002 +1.9951e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
557 +1.3976e+002 +1.8718e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
558 +1.4010e+002 +2.1389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
559 +1.4012e+002 +1.8924e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
560 +1.4012e+002 +2.0157e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
561 +1.4012e+002 +2.0773e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
562 +1.4027e+002 +2.1595e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
563 +1.4029e+002 +2.1184e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
564 +1.4047e+002 +1.9129e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
565 +1.4065e+002 +2.0362e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
566 +1.4082e+002 +2.0979e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
567 +1.4083e+002 +1.9335e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
568 +1.4117e+002 +2.1389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
569 +1.4117e+002 +2.1595e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
570 +1.4118e+002 +1.9540e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
571 +1.4118e+002 +2.0568e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
572 +1.4151e+002 +2.1800e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
573 +1.4153e+002 +2.1184e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
574 +1.4154e+002 +1.9746e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
575 +1.4171e+002 +2.0773e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
576 +1.4189e+002 +1.9951e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
577 +1.4206e+002 +2.1595e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
578 +1.4223e+002 +2.1800e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
579 +1.4224e+002 +2.1389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
580 +1.4225e+002 +2.0157e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
581 +1.4225e+002 +2.0979e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
582 +1.4260e+002 +2.0362e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
583 +1.4278e+002 +2.1184e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
584 +1.4291e+002 +1.8296e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
585 +1.4294e+002 +2.1800e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
586 +1.4295e+002 +1.1503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
587 +1.4295e+002 +1.2004e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
588 +1.4295e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
589 +1.4295e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
590 +1.4295e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
591 +1.4295e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
592 +1.4295e+002 +1.4507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
593 +1.4295e+002 +1.5008e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
594 +1.4295e+002 +1.5509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
595 +1.4295e+002 +1.6009e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
596 +1.4295e+002 +1.6510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
597 +1.4295e+002 +1.7011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
598 +1.4295e+002 +1.7512e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
599 +1.4295e+002 +1.8012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
600 +1.4295e+002 +1.8513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
601 +1.4295e+002 +2.1595e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
602 +1.4296e+002 +9.5000e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
603 +1.4296e+002 +1.0001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
604 +1.4296e+002 +1.0501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
605 +1.4296e+002 +1.1002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
606 +1.4296e+002 +2.0568e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
607 +1.4312e+002 +1.8718e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
608 +1.4330e+002 +1.8924e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
609 +1.4331e+002 +2.0773e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
610 +1.4331e+002 +2.1389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
611 +1.4348e+002 +1.9129e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
612 +1.4366e+002 +1.9335e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
613 +1.4366e+002 +2.1800e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
614 +1.4367e+002 +2.0979e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
615 +1.4384e+002 +1.9540e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
616 +1.4384e+002 +2.1595e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
617 +1.4402e+002 +1.9746e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
618 +1.4402e+002 +2.1184e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
619 +1.4420e+002 +1.9951e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
620 +1.4437e+002 +2.0157e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
621 +1.4437e+002 +2.1800e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
622 +1.4438e+002 +2.1389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
623 +1.4455e+002 +2.0362e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
624 +1.4473e+002 +2.0568e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
625 +1.4473e+002 +2.1595e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
626 +1.4491e+002 +2.0773e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
627 +1.4509e+002 +2.0979e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
628 +1.4509e+002 +2.1800e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
629 +1.4527e+002 +2.1184e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
630 +1.4544e+002 +2.1389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
631 +1.4562e+002 +2.1595e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
632 +1.4580e+002 +2.1800e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
633 +1.4644e+002 +1.8296e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
634 +1.4646e+002 +1.5508e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
635 +1.4648e+002 +1.8012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
636 +1.4648e+002 +1.8513e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
637 +1.4649e+002 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
638 +1.4649e+002 +1.3005e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
639 +1.4649e+002 +1.3506e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
640 +1.4649e+002 +1.4007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
641 +1.4649e+002 +1.4507e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```

642	+1.4649e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
643	+1.4649e+002	+1.6010e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
644	+1.4649e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
645	+1.4649e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
646	+1.4649e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
647	+1.4649e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
648	+1.4649e+002	+1.8924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
649	+1.4649e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
650	+1.4649e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
651	+1.4649e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
652	+1.4650e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
653	+1.4650e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
654	+1.4650e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
655	+1.4650e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
656	+1.4650e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
657	+1.4650e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
658	+1.4650e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
659	+1.4650e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
660	+1.4650e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
661	+1.4650e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
662	+1.4650e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
663	+1.4651e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
664	+1.4651e+002	+2.0978e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
665	+1.4651e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
666	+1.4651e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
667	+1.4651e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
668	+1.4652e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
669	+1.4797e+002	+1.5508e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
670	+1.4797e+002	+1.6010e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
671	+1.4797e+002	+1.6512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
672	+1.4797e+002	+1.7013e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
673	+1.4797e+002	+1.7515e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
674	+1.4797e+002	+1.8017e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
675	+1.4797e+002	+1.8297e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
676	+1.4811e+002	+1.8512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
677	+1.4812e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
678	+1.4812e+002	+1.8923e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
679	+1.4812e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
680	+1.4813e+002	+1.9334e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
681	+1.4813e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
682	+1.4813e+002	+1.9745e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
683	+1.4814e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
684	+1.4814e+002	+2.0156e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
685	+1.4815e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
686	+1.4815e+002	+2.0567e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
687	+1.4815e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
688	+1.4816e+002	+2.0978e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
689	+1.4816e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
690	+1.4816e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
691	+1.4817e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
692	+1.4817e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
693	+1.4974e+002	+1.8511e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
694	+1.4975e+002	+1.8717e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
695	+1.4976e+002	+1.8922e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
696	+1.4976e+002	+1.9128e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
697	+1.4976e+002	+1.9333e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
698	+1.4977e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
699	+1.4977e+002	+1.9745e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
700	+1.4978e+002	+1.9950e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
701	+1.4979e+002	+2.0156e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

702	+1.4979e+002	+2.0361e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
703	+1.4979e+002	+2.0567e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
704	+1.4980e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
705	+1.4980e+002	+2.0978e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
706	+1.4981e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
707	+1.4981e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
708	+1.4982e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
709	+1.4982e+002	+2.1801e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
710	+1.5003e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
711	+1.5003e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
712	+1.5003e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
713	+1.5003e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
714	+1.5004e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
715	+1.5004e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
716	+1.5004e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
717	+1.5004e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
718	+1.5004e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
719	+1.5004e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
720	+1.5004e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
721	+1.5004e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
722	+1.5138e+002	+1.8510e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
723	+1.5138e+002	+1.8716e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
724	+1.5139e+002	+1.8921e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
725	+1.5140e+002	+1.9127e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
726	+1.5140e+002	+1.9333e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
727	+1.5141e+002	+1.9538e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
728	+1.5141e+002	+1.9744e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
729	+1.5142e+002	+1.9950e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
730	+1.5143e+002	+2.0155e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
731	+1.5143e+002	+2.0361e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
732	+1.5144e+002	+2.0567e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
733	+1.5145e+002	+2.0772e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
734	+1.5145e+002	+2.0978e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
735	+1.5146e+002	+1.6010e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
736	+1.5146e+002	+1.6512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
737	+1.5146e+002	+1.7013e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
738	+1.5146e+002	+1.7515e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
739	+1.5146e+002	+1.8017e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
740	+1.5146e+002	+2.1184e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
741	+1.5146e+002	+2.1389e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
742	+1.5147e+002	+1.5508e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
743	+1.5147e+002	+1.8297e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
744	+1.5147e+002	+2.1595e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
745	+1.5148e+002	+2.1801e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
746	+1.5350e+002	+1.8507e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
747	+1.5351e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
748	+1.5356e+002	+1.7511e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
749	+1.5356e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
750	+1.5357e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
751	+1.5357e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
752	+1.5357e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
753	+1.5357e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
754	+1.5357e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
755	+1.5357e+002	+1.6010e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
756	+1.5357e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
757	+1.5357e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
758	+1.5358e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
759	+1.5358e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
760	+1.5358e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
761	+1.5358e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

762	+1.5358e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
763	+1.5358e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
764	+1.5358e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
765	+1.5359e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
766	+1.5704e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
767	+1.5710e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
768	+1.5710e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
769	+1.5710e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
770	+1.5710e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
771	+1.5710e+002	+1.8513e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
772	+1.5711e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
773	+1.5711e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
774	+1.5711e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
775	+1.5711e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
776	+1.5711e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
777	+1.5712e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
778	+1.5712e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
779	+1.5712e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
780	+1.5712e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
781	+1.5712e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
782	+1.5712e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
783	+1.5713e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
784	+1.5713e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
785	+1.5713e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
786	+1.6057e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
787	+1.6064e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
788	+1.6064e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
789	+1.6064e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
790	+1.6064e+002	+1.8513e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
791	+1.6065e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
792	+1.6065e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
793	+1.6065e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
794	+1.6065e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
795	+1.6065e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
796	+1.6065e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
797	+1.6066e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
798	+1.6066e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
799	+1.6066e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
800	+1.6066e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
801	+1.6066e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
802	+1.6067e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
803	+1.6067e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
804	+1.6067e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
805	+1.6067e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
806	+1.6410e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
807	+1.6418e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
808	+1.6418e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
809	+1.6418e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
810	+1.6418e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
811	+1.6418e+002	+1.8513e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
812	+1.6419e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
813	+1.6419e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
814	+1.6419e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
815	+1.6419e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
816	+1.6420e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
817	+1.6420e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
818	+1.6420e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
819	+1.6420e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
820	+1.6420e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
821	+1.6421e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

822	+1.6421e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
823	+1.6421e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
824	+1.6421e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
825	+1.6421e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
826	+1.6763e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
827	+1.6771e+002	+1.8513e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
828	+1.6772e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
829	+1.6772e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
830	+1.6772e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
831	+1.6772e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
832	+1.6773e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
833	+1.6773e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
834	+1.6773e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
835	+1.6773e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
836	+1.6774e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
837	+1.6774e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
838	+1.6774e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
839	+1.6774e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
840	+1.6774e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
841	+1.6775e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
842	+1.6775e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
843	+1.6775e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
844	+1.6776e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
845	+1.6776e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
846	+1.7125e+002	+1.8513e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
847	+1.7126e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
848	+1.7126e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
849	+1.7126e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
850	+1.7126e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
851	+1.7127e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
852	+1.7127e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
853	+1.7127e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
854	+1.7127e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
855	+1.7128e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
856	+1.7128e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
857	+1.7128e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
858	+1.7128e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
859	+1.7129e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
860	+1.7129e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
861	+1.7129e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
862	+1.7129e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
863	+1.7130e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
864	+1.7130e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
865	+1.7668e+002	+1.6993e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
866	+1.7668e+002	+1.7493e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
867	+1.7668e+002	+1.7993e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
868	+1.7668e+002	+1.8492e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
869	+1.7669e+002	+1.5495e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
870	+1.7669e+002	+1.5994e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
871	+1.7669e+002	+1.6494e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
872	+1.7670e+002	+1.3496e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
873	+1.7670e+002	+1.3996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
874	+1.7670e+002	+1.4495e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
875	+1.7670e+002	+1.4995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
876	+1.7671e+002	+1.1497e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
877	+1.7671e+002	+1.1997e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
878	+1.7671e+002	+1.2497e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
879	+1.7671e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
880	+1.7672e+002	+9.9987e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
881	+1.7672e+002	+1.0498e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

```
 882 +1.7672e+002 +1.0998e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 883 +1.7673e+002 +9.4991e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 884 +1.8210e+002 +1.7474e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 885 +1.8210e+002 +1.7973e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 886 +1.8210e+002 +1.8471e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
 887 +1.8211e+002 +1.5979e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 888 +1.8211e+002 +1.6477e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 889 +1.8211e+002 +1.6976e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 890 +1.8212e+002 +1.4483e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 891 +1.8212e+002 +1.4982e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 892 +1.8212e+002 +1.5480e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 893 +1.8213e+002 +1.2489e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 894 +1.8213e+002 +1.2988e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 895 +1.8213e+002 +1.3486e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 896 +1.8213e+002 +1.3985e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 897 +1.8214e+002 +1.0994e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 898 +1.8214e+002 +1.1492e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 899 +1.8214e+002 +1.1991e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 900 +1.8215e+002 +9.4981e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 901 +1.8215e+002 +9.9966e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 902 +1.8215e+002 +1.0495e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 903 +1.8752e+002 +1.7953e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 904 +1.8752e+002 +1.8451e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
 905 +1.8753e+002 +1.6461e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 906 +1.8753e+002 +1.6959e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 907 +1.8753e+002 +1.7456e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 908 +1.8754e+002 +1.4969e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 909 +1.8754e+002 +1.5466e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 910 +1.8754e+002 +1.5964e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 911 +1.8755e+002 +1.2979e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 912 +1.8755e+002 +1.3476e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 913 +1.8755e+002 +1.3974e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 914 +1.8755e+002 +1.4471e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 915 +1.8756e+002 +1.1984e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 916 +1.8756e+002 +1.2482e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 917 +1.8757e+002 +9.9946e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 918 +1.8757e+002 +1.0492e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 919 +1.8757e+002 +1.0989e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 920 +1.8757e+002 +1.1487e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 921 +1.8758e+002 +9.4972e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 922 +1.9295e+002 +1.7437e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 923 +1.9295e+002 +1.7934e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 924 +1.9295e+002 +1.8430e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
 925 +1.9296e+002 +1.5452e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 926 +1.9296e+002 +1.5948e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 927 +1.9296e+002 +1.6445e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 928 +1.9296e+002 +1.6941e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 929 +1.9297e+002 +1.3963e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 930 +1.9297e+002 +1.4459e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 931 +1.9297e+002 +1.4956e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 932 +1.9298e+002 +1.2474e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 933 +1.9298e+002 +1.2971e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 934 +1.9298e+002 +1.3467e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 935 +1.9299e+002 +1.0985e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 936 +1.9299e+002 +1.1482e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 937 +1.9299e+002 +1.1978e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 938 +1.9300e+002 +9.4963e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 939 +1.9300e+002 +9.9926e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 940 +1.9300e+002 +1.0489e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 941 +1.9837e+002 +1.7419e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
 942 +1.9837e+002 +1.7914e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 943 +1.9837e+002 +1.8409e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
 944 +1.9838e+002 +1.5933e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 945 +1.9838e+002 +1.6428e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 946 +1.9838e+002 +1.6924e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 947 +1.9839e+002 +1.4448e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 948 +1.9839e+002 +1.4943e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 949 +1.9839e+002 +1.5438e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 950 +1.9840e+002 +1.2962e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 951 +1.9840e+002 +1.3457e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 952 +1.9840e+002 +1.3952e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 953 +1.9841e+002 +1.1476e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 954 +1.9841e+002 +1.1971e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 955 +1.9841e+002 +1.2467e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 956 +1.9842e+002 +1.0486e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 957 +1.9842e+002 +1.0981e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 958 +1.9843e+002 +9.4953e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 959 +1.9843e+002 +9.9906e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 960 +2.0379e+002 +1.7894e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 961 +2.0379e+002 +1.8388e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
 962 +2.0380e+002 +1.6412e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 963 +2.0380e+002 +1.6906e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 964 +2.0380e+002 +1.7400e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 965 +2.0381e+002 +1.5424e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 966 +2.0381e+002 +1.5918e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 967 +2.0382e+002 +1.3447e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 968 +2.0382e+002 +1.3941e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 969 +2.0382e+002 +1.4435e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 970 +2.0382e+002 +1.4930e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 971 +2.0383e+002 +1.2459e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 972 +2.0383e+002 +1.2953e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 973 +2.0384e+002 +1.0977e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 974 +2.0384e+002 +1.1471e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 975 +2.0384e+002 +1.1965e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 976 +2.0385e+002 +9.4944e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 977 +2.0385e+002 +9.9885e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 978 +2.0385e+002 +1.0483e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 979 +2.0921e+002 +1.8368e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
 980 +2.0922e+002 +1.6889e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 981 +2.0922e+002 +1.7382e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 982 +2.0922e+002 +1.7875e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 983 +2.0923e+002 +1.5903e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 984 +2.0923e+002 +1.6396e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 985 +2.0924e+002 +1.4424e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 986 +2.0924e+002 +1.4917e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 987 +2.0924e+002 +1.5410e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 988 +2.0925e+002 +1.2945e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 989 +2.0925e+002 +1.3438e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 990 +2.0925e+002 +1.3930e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 991 +2.0926e+002 +1.1465e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 992 +2.0926e+002 +1.1958e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 993 +2.0926e+002 +1.2452e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 994 +2.0927e+002 +1.0479e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 995 +2.0927e+002 +1.0972e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 996 +2.0928e+002 +9.4935e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 997 +2.0928e+002 +9.9865e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 998 +2.1464e+002 +1.7363e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
 999 +2.1464e+002 +1.7855e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1000 +2.1464e+002 +1.8347e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1001 +2.1465e+002 +1.5887e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
1002 +2.1465e+002 +1.6379e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1003 +2.1465e+002 +1.6871e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1004 +2.1466e+002 +1.4904e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1005 +2.1466e+002 +1.5396e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1006 +2.1467e+002 +1.3428e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1007 +2.1467e+002 +1.3920e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1008 +2.1467e+002 +1.4412e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1009 +2.1468e+002 +1.2444e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1010 +2.1468e+002 +1.2936e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1011 +2.1469e+002 +1.0968e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1012 +2.1469e+002 +1.1460e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1013 +2.1469e+002 +1.1952e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1014 +2.1470e+002 +9.9844e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1015 +2.1470e+002 +1.0476e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1016 +2.1471e+002 +9.4925e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1017 +2.2006e+002 +1.7835e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1018 +2.2006e+002 +1.8326e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1019 +2.2007e+002 +1.6363e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1020 +2.2007e+002 +1.6854e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1021 +2.2007e+002 +1.7345e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1022 +2.2008e+002 +1.5381e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1023 +2.2008e+002 +1.5872e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1024 +2.2009e+002 +1.4400e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1025 +2.2009e+002 +1.4890e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1026 +2.2010e+002 +1.2927e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1027 +2.2010e+002 +1.3418e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1028 +2.2010e+002 +1.3909e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1029 +2.2011e+002 +1.1946e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1030 +2.2011e+002 +1.2436e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1031 +2.2012e+002 +1.0473e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1032 +2.2012e+002 +1.0964e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1033 +2.2012e+002 +1.1455e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1034 +2.2013e+002 +9.4916e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1035 +2.2013e+002 +9.9824e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1036 +2.2548e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1037 +2.2549e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1038 +2.2549e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1039 +2.2549e+002 +1.7816e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1040 +2.2550e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1041 +2.2550e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1042 +2.2551e+002 +1.4388e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1043 +2.2551e+002 +1.4877e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1044 +2.2551e+002 +1.5367e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1045 +2.2552e+002 +1.3408e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1046 +2.2552e+002 +1.3898e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1047 +2.2553e+002 +1.2429e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1048 +2.2553e+002 +1.2919e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1049 +2.2554e+002 +1.0960e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1050 +2.2554e+002 +1.1450e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1051 +2.2554e+002 +1.1939e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1052 +2.2555e+002 +9.9804e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1053 +2.2555e+002 +1.0470e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1054 +2.2556e+002 +9.4907e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1055 +2.3590e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1056 +2.3590e+002 +1.7816e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1057 +2.3590e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1058 +2.3591e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1059 +2.3591e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1060 +2.3592e+002 +1.4878e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1061 +2.3592e+002 +1.5367e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
1062 +2.3592e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1063 +2.3593e+002 +1.3409e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1064 +2.3593e+002 +1.3898e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1065 +2.3593e+002 +1.4388e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1066 +2.3594e+002 +1.2429e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1067 +2.3594e+002 +1.2919e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1068 +2.3595e+002 +1.0961e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1069 +2.3595e+002 +1.1450e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1070 +2.3595e+002 +1.1940e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1071 +2.3596e+002 +9.4916e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1072 +2.3596e+002 +9.9812e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1073 +2.3596e+002 +1.0471e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1074 +2.4631e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1075 +2.4632e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1076 +2.4632e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1077 +2.4632e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1078 +2.4633e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1079 +2.4633e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1080 +2.4633e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1081 +2.4634e+002 +1.3899e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1082 +2.4634e+002 +1.4388e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1083 +2.4634e+002 +1.4878e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1084 +2.4635e+002 +1.2430e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1085 +2.4635e+002 +1.2920e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1086 +2.4635e+002 +1.3409e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1087 +2.4636e+002 +1.0961e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1088 +2.4636e+002 +1.1451e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1089 +2.4636e+002 +1.1940e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1090 +2.4637e+002 +9.4925e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1091 +2.4637e+002 +9.9821e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1092 +2.4637e+002 +1.0472e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1093 +2.5673e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1094 +2.5673e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1095 +2.5673e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1096 +2.5673e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1097 +2.5674e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1098 +2.5674e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1099 +2.5674e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1100 +2.5675e+002 +1.4389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1101 +2.5675e+002 +1.4878e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1102 +2.5676e+002 +1.2431e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1103 +2.5676e+002 +1.2920e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1104 +2.5676e+002 +1.3410e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1105 +2.5676e+002 +1.3899e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1106 +2.5677e+002 +1.0962e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1107 +2.5677e+002 +1.1452e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1108 +2.5677e+002 +1.1941e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1109 +2.5678e+002 +9.4934e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1110 +2.5678e+002 +9.9830e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1111 +2.5678e+002 +1.0472e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1112 +2.6714e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1113 +2.6714e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1114 +2.6715e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1115 +2.6715e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1116 +2.6715e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1117 +2.6715e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1118 +2.6716e+002 +1.4389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1119 +2.6716e+002 +1.4879e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1120 +2.6716e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1121 +2.6717e+002 +1.2431e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```

```
1122 +2.6717e+002 +1.2921e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1123 +2.6717e+002 +1.3410e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1124 +2.6717e+002 +1.3900e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1125 +2.6718e+002 +1.0963e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1126 +2.6718e+002 +1.1452e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1127 +2.6718e+002 +1.1942e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1128 +2.6719e+002 +9.4944e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1129 +2.6719e+002 +9.9838e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1130 +2.6719e+002 +1.0473e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1131 +2.7755e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1132 +2.7756e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1133 +2.7756e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1134 +2.7756e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1135 +2.7757e+002 +1.4879e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1136 +2.7757e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1137 +2.7757e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1138 +2.7757e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1139 +2.7758e+002 +1.2921e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1140 +2.7758e+002 +1.3411e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1141 +2.7758e+002 +1.3900e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1142 +2.7758e+002 +1.4389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1143 +2.7759e+002 +1.0964e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1144 +2.7759e+002 +1.1453e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1145 +2.7759e+002 +1.1942e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1146 +2.7759e+002 +1.2432e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1147 +2.7760e+002 +9.4953e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1148 +2.7760e+002 +9.9847e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1149 +2.7760e+002 +1.0474e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1150 +2.8797e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1151 +2.8797e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1152 +2.8797e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1153 +2.8798e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1154 +2.8798e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1155 +2.8798e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1156 +2.8798e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1157 +2.8799e+002 +1.2922e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1158 +2.8799e+002 +1.3411e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1159 +2.8799e+002 +1.3900e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1160 +2.8799e+002 +1.4390e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1161 +2.8799e+002 +1.4879e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1162 +2.8800e+002 +1.0964e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1163 +2.8800e+002 +1.1454e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1164 +2.8800e+002 +1.1943e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1165 +2.8800e+002 +1.2432e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1166 +2.8801e+002 +9.4962e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1167 +2.8801e+002 +9.9856e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1168 +2.8801e+002 +1.0475e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1169 +2.9838e+002 +1.8304e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1170 +2.9839e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1171 +2.9839e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1172 +2.9839e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1173 +2.9839e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1174 +2.9839e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1175 +2.9840e+002 +1.3412e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1176 +2.9840e+002 +1.3901e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1177 +2.9840e+002 +1.4390e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1178 +2.9840e+002 +1.4879e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1179 +2.9840e+002 +1.5369e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1180 +2.9841e+002 +1.1454e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1181 +2.9841e+002 +1.1944e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
1182 +2.9841e+002 +1.2433e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1183 +2.9841e+002 +1.2922e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1184 +2.9842e+002 +9.4972e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1185 +2.9842e+002 +9.9865e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1186 +2.9842e+002 +1.0476e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1187 +2.9842e+002 +1.0965e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1188 +3.0880e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1189 +3.0880e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1190 +3.0880e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1191 +3.0880e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1192 +3.0880e+002 +1.8304e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1193 +3.0881e+002 +1.3901e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1194 +3.0881e+002 +1.4390e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1195 +3.0881e+002 +1.4880e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1196 +3.0881e+002 +1.5369e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1197 +3.0881e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1198 +3.0882e+002 +1.1455e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1199 +3.0882e+002 +1.1944e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1200 +3.0882e+002 +1.2433e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1201 +3.0882e+002 +1.2923e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1202 +3.0882e+002 +1.3412e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1203 +3.0883e+002 +9.4981e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1204 +3.0883e+002 +9.9873e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1205 +3.0883e+002 +1.0476e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1206 +3.0883e+002 +1.0966e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1207 +3.1921e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1208 +3.1921e+002 +1.8304e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1209 +3.1922e+002 +1.4880e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1210 +3.1922e+002 +1.5369e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1211 +3.1922e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1212 +3.1922e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1213 +3.1922e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1214 +3.1922e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1215 +3.1923e+002 +1.0967e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1216 +3.1923e+002 +1.1456e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1217 +3.1923e+002 +1.1945e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1218 +3.1923e+002 +1.2434e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1219 +3.1923e+002 +1.2923e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1220 +3.1923e+002 +1.3412e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1221 +3.1923e+002 +1.3902e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1222 +3.1923e+002 +1.4391e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1223 +3.1924e+002 +9.4990e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1224 +3.1924e+002 +9.9882e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1225 +3.1924e+002 +1.0477e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```

ELEMENT 1142

1	20	21	2	1	0	0	0	0	3	4	+1.0000e+000
0 0											
2	21	22	3	2	0	0	0	0	3	4	+1.0000e+000
0 0											
3	22	23	4	3	0	0	0	0	3	4	+1.0000e+000
0 0											
4	23	24	5	4	0	0	0	0	3	4	+1.0000e+000
0 0											
5	24	25	6	5	0	0	0	0	3	4	+1.0000e+000
0 0											
6	25	26	7	6	0	0	0	0	3	4	+1.0000e+000
0 0											
7	26	27	8	7	0	0	0	0	3	4	+1.0000e+000
0 0											
8	27	28	9	8	0	0	0	0	3	4	+1.0000e+000

0 0											
9	28	29	10	9	0	0	0	0	3	4	+1.0000e+000
0 0											
10	29	30	11	10	0	0	0	0	3	4	+1.0000e+000
0 0											
11	30	31	12	11	0	0	0	0	3	4	+1.0000e+000
0 0											
12	31	32	13	12	0	0	0	0	3	4	+1.0000e+00
0 0											
13	32	33	14	13	0	0	0	0	3	4	+1.0000e+0
0 0											
14	33	34	15	14	0	0	0	0	3	4	+1.0000e+000
0 0											
15	34	35	16	15	0	0	0	0	3	4	+1.0000e+000
0 0											
16	35	36	17	16	0	0	0	0	3	4	+1.0000e+000
0 0											
17	36	37	18	17	0	0	0	0	3	4	+1.0000e+000
0 0											
18	37	38	19	18	0	0	0	0	3	4	+1.0000e+000
0 0											
19	39	40	21	20	0	0	0	0	3	4	+1.0000e+000
0 0											
20	40	41	22	21	0	0	0	0	3	4	+1.0000e+000
0 0											
21	41	42	23	22	0	0	0	0	3	4	+1.0000e+000
0 0											
22	42	43	24	23	0	0	0	0	3	4	+1.0000e+000
0 0											
23	43	44	25	24	0	0	0	0	3	4	+1.0000e+000
0 0											
24	44	45	26	25	0	0	0	0	3	4	+1.0000e+000
0 0											
25	45	46	27	26	0	0	0	0	3	4	+1.0000e+000
0 0											
26	46	47	28	27	0	0	0	0	3	4	+1.0000e+000
0 0											
27	47	48	29	28	0	0	0	0	3	4	+1.0000e+000
0 0											
28	48	49	30	29	0	0	0	0	3	4	+1.0000e+000
0 0											
29	49	50	31	30	0	0	0	0	3	4	+1.0000e+000
0 0											
30	50	51	32	31	0	0	0	0	3	4	+1.0000e+000
0 0											
31	51	52	33	32	0	0	0	0	3	4	+1.0000e+000
0 0											
32	52	53	34	33	0	0	0	0	3	4	+1.0000e+000
0 0											
33	53	54	35	34	0	0	0	0	3	4	+1.0000e+000
0 0											
34	54	55	36	35	0	0	0	0	3	4	+1.0000e+000
0 0											
35	55	56	37	36	0	0	0	0	3	4	+1.0000e+000
0 0											
36	56	57	38	37	0	0	0	0	3	4	+1.0000e+000
0 0											
37	58	59	40	39	0	0	0	0	3	4	+1.0000e+000
0 0											
38	59	60	41	40	0	0	0	0	3	4	+1.0000e+0

0 0											
39	60	61	42	41	0	0	0	0	3	4	+1.0000e+000
0 0											
40	61	62	43	42	0	0	0	0	3	4	+1.0000e+000
0 0											
41	62	63	44	43	0	0	0	0	3	4	+1.0000e+000
0 0											
42	63	64	45	44	0	0	0	0	3	4	+1.0000e+000
0 0											
43	64	65	46	45	0	0	0	0	3	4	+1.0000e+000
0 0											
44	65	66	47	46	0	0	0	0	3	4	+1.0000e+000
0 0											
45	66	67	48	47	0	0	0	0	3	4	+1.0000e+000
0 0											
46	67	68	49	48	0	0	0	0	3	4	+1.0000e+000
0 0											
47	68	69	50	49	0	0	0	0	3	4	+1.0000e+000
0 0											
48	69	70	51	50	0	0	0	0	3	4	+1.0000e+000
0 0											
49	70	71	52	51	0	0	0	0	3	4	+1.0000e+000
0 0											
50	71	72	53	52	0	0	0	0	3	4	+1.0000e+000
0 0											
51	72	73	54	53	0	0	0	0	3	4	+1.0000e+000
0 0											
52	73	74	55	54	0	0	0	0	3	4	+1.0000e+000
0 0											
53	74	75	56	55	0	0	0	0	3	4	+1.0000e+000
0 0											
54	75	76	57	56	0	0	0	0	3	4	+1.0000e+000
0 0											
55	77	78	59	58	0	0	0	0	3	4	+1.0000e+000
0 0											
56	78	79	60	59	0	0	0	0	3	4	+1.0000e+000
0 0											
57	79	80	61	60	0	0	0	0	3	4	+1.0000e+000
0 0											
58	80	81	62	61	0	0	0	0	3	4	+1.0000e+000
0 0											
59	81	82	63	62	0	0	0	0	3	4	+1.0000e+000
0 0											
60	82	83	64	63	0	0	0	0	3	4	+1.0000e+000
0 0											
61	83	84	65	64	0	0	0	0	3	4	+1.0000e+000
0 0											
62	84	85	66	65	0	0	0	0	3	4	+1.0000e+0
0 0											
63	85	86	67	66	0	0	0	0	3	4	+1.0000e+0
0 0											
64	86	87	68	67	0	0	0	0	3	4	+1.0000e+000
0 0											
65	87	88	69	68	0	0	0	0	3	4	+1.0000e+000
0 0											
66	88	89	70	69	0	0	0	0	3	4	+1.0000e+000
0 0											
67	89	90	71	70	0	0	0	0	3	4	+1.0000e+000
0 0											
68	90	91	72	71	0	0	0	0	3	4	+1.0000e+000

69	91	92	73	72	0	0	0	0	3	4	+1.0000e+000
70	92	93	74	73	0	0	0	0	3	4	+1.0000e+000
71	93	94	75	74	0	0	0	0	3	4	+1.0000e+000
72	94	95	76	75	0	0	0	0	3	4	+1.0000e+000
73	96	97	78	77	0	0	0	0	3	4	+1.0000e+000
74	97	98	79	78	0	0	0	0	3	4	+1.0000e+000
75	98	99	80	79	0	0	0	0	3	4	+1.0000e+000
76	99	100	81	80	0	0	0	0	3	4	+1.0000e+000
77	100	101	82	81	0	0	0	0	3	4	+1.0000e+000
78	101	102	83	82	0	0	0	0	3	4	+1.0000e+000
79	102	103	84	83	0	0	0	0	3	4	+1.0000e+000
80	103	104	85	84	0	0	0	0	3	4	+1.0000e+000
81	104	105	86	85	0	0	0	0	3	4	+1.0000e+000
82	105	106	87	86	0	0	0	0	3	4	+1.0000e+000
83	106	107	88	87	0	0	0	0	3	4	+1.0000e+000
84	107	108	89	88	0	0	0	0	3	4	+1.0000e+000
85	108	109	90	89	0	0	0	0	3	4	+1.0000e+000
86	109	110	91	90	0	0	0	0	3	4	+1.0000e+000
87	110	111	92	91	0	0	0	0	3	4	+1.0000e+000
88	111	112	93	92	0	0	0	0	3	4	+1.0000e+000
89	112	113	94	93	0	0	0	0	3	4	+1.0000e+000
90	113	114	95	94	0	0	0	0	3	4	+1.0000e+000
91	115	116	97	96	0	0	0	0	3	4	+1.0000e+000
92	116	117	98	97	0	0	0	0	3	4	+1.0000e+000
93	117	118	99	98	0	0	0	0	3	4	+1.0000e+000
94	118	119	100	99	0	0	0	0	3	4	+1.0000e+000
95	119	120	101	100	0	0	0	0	3	4	+1.0000e+000
96	120	121	102	101	0	0	0	0	3	4	+1.0000e+000
97	121	122	103	102	0	0	0	0	3	4	+1.0000e+000
98	122	123	104	103	0	0	0	0	3	4	+1.0000e+000

99	123	124	105	104	0	0	0	0	3	4	+1.0000e+000
100	124	125	106	105	0	0	0	0	3	4	+1.0000e+000
101	125	126	107	106	0	0	0	0	3	4	+1.0000e+000
102	126	127	108	107	0	0	0	0	3	4	+1.0000e+000
103	127	128	109	108	0	0	0	0	3	4	+1.0000e+000
104	128	129	110	109	0	0	0	0	3	4	+1.0000e+000
105	129	130	111	110	0	0	0	0	3	4	+1.0000e+000
106	130	131	112	111	0	0	0	0	3	4	+1.0000e+000
107	131	132	113	112	0	0	0	0	3	4	+1.0000e+000
108	132	133	114	113	0	0	0	0	3	4	+1.0000e+000
109	134	135	116	115	0	0	0	0	3	4	+1.0000e+000
110	135	136	117	116	0	0	0	0	3	4	+1.0000e+000
111	136	137	118	117	0	0	0	0	3	4	+1.0000e+000
112	137	138	119	118	0	0	0	0	3	4	+1.0000e+000
113	138	139	120	119	0	0	0	0	3	4	+1.0000e+000
114	139	140	121	120	0	0	0	0	3	4	+1.0000e+000
115	140	141	122	121	0	0	0	0	3	4	+1.0000e+000
116	141	142	123	122	0	0	0	0	3	4	+1.0000e+000
117	142	143	124	123	0	0	0	0	3	4	+1.0000e+000
118	143	144	125	124	0	0	0	0	3	4	+1.0000e+000
119	144	145	126	125	0	0	0	0	3	4	+1.0000e+000
120	145	146	127	126	0	0	0	0	3	4	+1.0000e+000
121	146	147	128	127	0	0	0	0	3	4	+1.0000e+000
122	147	148	129	128	0	0	0	0	3	4	+1.0000e+000
123	148	149	130	129	0	0	0	0	3	4	+1.0000e+000
124	149	150	131	130	0	0	0	0	3	4	+1.0000e+000
125	150	151	132	131	0	0	0	0	3	4	+1.0000e+000
126	151	152	133	132	0	0	0	0	3	4	+1.0000e+000
127	153	154	135	134	0	0	0	0	3	4	+1.0000e+000
128	154	155	136	135	0	0	0	0	3	4	+1.0000e+000

129	155	156	137	136	0	0	0	0	3	4	+1.0000e+000
130	156	157	138	137	0	0	0	0	3	4	+1.0000e+000
131	157	158	139	138	0	0	0	0	3	4	+1.0000e+000
132	158	159	140	139	0	0	0	0	3	4	+1.0000e+000
133	159	160	141	140	0	0	0	0	3	4	+1.0000e+000
134	160	161	142	141	0	0	0	0	3	4	+1.0000e+000
135	161	162	143	142	0	0	0	0	3	4	+1.0000e+000
136	162	163	144	143	0	0	0	0	3	4	+1.0000e+000
137	163	164	145	144	0	0	0	0	3	4	+1.0000e+000
138	164	165	146	145	0	0	0	0	3	4	+1.0000e+000
139	165	166	147	146	0	0	0	0	3	4	+1.0000e+000
140	166	167	148	147	0	0	0	0	3	4	+1.0000e+000
141	167	168	149	148	0	0	0	0	3	4	+1.0000e+000
142	168	169	150	149	0	0	0	0	3	4	+1.0000e+000
143	169	170	151	150	0	0	0	0	3	4	+1.0000e+000
144	170	171	152	151	0	0	0	0	3	4	+1.0000e+000
145	172	173	154	153	0	0	0	0	3	4	+1.0000e+000
146	173	174	155	154	0	0	0	0	3	4	+1.0000e+000
147	174	175	156	155	0	0	0	0	3	4	+1.0000e+000
148	175	176	157	156	0	0	0	0	3	4	+1.0000e+000
149	176	177	158	157	0	0	0	0	3	4	+1.0000e+000
150	177	178	159	158	0	0	0	0	3	4	+1.0000e+000
151	178	179	160	159	0	0	0	0	3	4	+1.0000e+000
152	179	180	161	160	0	0	0	0	3	4	+1.0000e+000
153	180	181	162	161	0	0	0	0	3	4	+1.0000e+000
154	181	182	163	162	0	0	0	0	3	4	+1.0000e+000
155	182	183	164	163	0	0	0	0	3	4	+1.0000e+000
156	183	184	165	164	0	0	0	0	3	4	+1.0000e+000
157	184	185	166	165	0	0	0	0	3	4	+1.0000e+000
158	185	186	167	166	0	0	0	0	3	4	+1.0000e+000

159	186	187	168	167	0	0	0	0	3	4	+1.0000e+000
160	187	188	169	168	0	0	0	0	3	4	+1.0000e+000
161	188	189	170	169	0	0	0	0	3	4	+1.0000e+000
162	189	190	171	170	0	0	0	0	3	4	+1.0000e+000
163	191	192	173	172	0	0	0	0	3	4	+1.0000e+000
164	192	193	174	173	0	0	0	0	3	4	+1.0000e+000
165	193	194	175	174	0	0	0	0	3	4	+1.0000e+000
166	194	195	176	175	0	0	0	0	3	4	+1.0000e+000
167	195	196	177	176	0	0	0	0	3	4	+1.0000e+000
168	196	197	178	177	0	0	0	0	3	4	+1.0000e+000
169	197	198	179	178	0	0	0	0	3	4	+1.0000e+000
170	198	199	180	179	0	0	0	0	3	4	+1.0000e+000
171	199	200	181	180	0	0	0	0	3	4	+1.0000e+000
172	200	201	182	181	0	0	0	0	3	4	+1.0000e+000
173	201	202	183	182	0	0	0	0	3	4	+1.0000e+000
174	202	203	184	183	0	0	0	0	3	4	+1.0000e+000
175	203	204	185	184	0	0	0	0	3	4	+1.0000e+000
176	204	205	186	185	0	0	0	0	3	4	+1.0000e+000
177	205	206	187	186	0	0	0	0	3	4	+1.0000e+000
178	206	207	188	187	0	0	0	0	3	4	+1.0000e+000
179	207	208	189	188	0	0	0	0	3	4	+1.0000e+000
180	208	209	190	189	0	0	0	0	3	4	+1.0000e+000
181	210	211	192	191	0	0	0	0	3	4	+1.0000e+000
182	211	212	193	192	0	0	0	0	3	4	+1.0000e+000
183	212	213	194	193	0	0	0	0	3	4	+1.0000e+000
184	213	214	195	194	0	0	0	0	3	4	+1.0000e+000
185	214	215	196	195	0	0	0	0	3	4	+1.0000e+000
186	215	216	197	196	0	0	0	0	3	4	+1.0000e+000
187	216	217	198	197	0	0	0	0	3	4	+1.0000e+000
188	217	218	199	198	0	0	0	0	3	4	+1.0000e+000

0	0											
189	218	219	200	199	0	0	0	0	3	4	+1.0000e+000	
0	0											
190	219	220	201	200	0	0	0	0	3	4	+1.0000e+000	
0	0											
191	220	221	202	201	0	0	0	0	3	4	+1.0000e+000	
0	0											
192	221	222	203	202	0	0	0	0	3	4	+1.0000e+000	
0	0											
193	222	223	204	203	0	0	0	0	3	4	+1.0000e+000	
0	0											
194	223	224	205	204	0	0	0	0	3	4	+1.0000e+000	
0	0											
195	224	225	206	205	0	0	0	0	3	4	+1.0000e+000	
0	0											
196	225	226	207	206	0	0	0	0	3	4	+1.0000e+000	
0	0											
197	226	227	208	207	0	0	0	0	3	4	+1.0000e+000	
0	0											
198	227	228	209	208	0	0	0	0	3	4	+1.0000e+000	
0	0											
199	229	230	211	210	0	0	0	0	3	4	+1.0000e+000	
0	0											
200	230	231	212	211	0	0	0	0	3	4	+1.0000e+000	
0	0											
201	231	232	213	212	0	0	0	0	3	4	+1.0000e+000	
0	0											
202	232	233	214	213	0	0	0	0	3	4	+1.0000e+000	
0	0											
203	233	234	215	214	0	0	0	0	3	4	+1.0000e+000	
0	0											
204	234	235	216	215	0	0	0	0	3	4	+1.0000e+000	
0	0											
205	235	236	217	216	0	0	0	0	3	4	+1.0000e+000	
0	0											
206	236	237	218	217	0	0	0	0	3	4	+1.0000e+000	
0	0											
207	237	238	219	218	0	0	0	0	3	4	+1.0000e+000	
0	0											
208	238	239	220	219	0	0	0	0	3	4	+1.0000e+000	
0	0											
209	239	240	221	220	0	0	0	0	3	4	+1.0000e+000	
0	0											
210	240	241	222	221	0	0	0	0	3	4	+1.0000e+000	
0	0											
211	241	242	223	222	0	0	0	0	3	4	+1.0000e+000	
0	0											
212	242	243	224	223	0	0	0	0	3	4	+1.0000e+000	
0	0											
213	243	244	225	224	0	0	0	0	3	4	+1.0000e+000	
0	0											
214	244	245	226	225	0	0	0	0	3	4	+1.0000e+000	
0	0											
215	245	246	227	226	0	0	0	0	3	4	+1.0000e+000	
0	0											
216	246	247	228	227	0	0	0	0	3	4	+1.0000e+000	
0	0											
217	248	249	230	229	0	0	0	0	3	4	+1.0000e+000	
0	0											
218	249	250	231	230	0	0	0	0	3	4	+1.0000e+000	

0	0											
219	250	251	232	231	0	0	0	0	3	4	+1.0000e+000	
0	0											
220	251	252	233	232	0	0	0	0	3	4	+1.0000e+000	
0	0											
221	252	253	234	233	0	0	0	0	3	4	+1.0000e+000	
0	0											
222	253	254	235	234	0	0	0	0	3	4	+1.0000e+000	
0	0											
223	254	255	236	235	0	0	0	0	3	4	+1.0000e+000	
0	0											
224	255	256	237	236	0	0	0	0	3	4	+1.0000e+000	
0	0											
225	256	257	238	237	0	0	0	0	3	4	+1.0000e+000	
0	0											
226	257	258	239	238	0	0	0	0	3	4	+1.0000e+000	
0	0											
227	258	259	240	239	0	0	0	0	3	4	+1.0000e+000	
0	0											
228	259	260	241	240	0	0	0	0	3	4	+1.0000e+000	
0	0											
229	260	261	242	241	0	0	0	0	3	4	+1.0000e+000	
0	0											
230	261	262	243	242	0	0	0	0	3	4	+1.0000e+000	
0	0											
231	262	263	244	243	0	0	0	0	3	4	+1.0000e+000	
0	0											
232	263	264	245	244	0	0	0	0	3	4	+1.0000e+000	
0	0											
233	264	265	246	245	0	0	0	0	3	4	+1.0000e+000	
0	0											
234	265	266	247	246	0	0	0	0	3	4	+1.0000e+000	
0	0											
235	267	268	249	248	0	0	0	0	3	4	+1.0000e+000	
0	0											
236	268	269	250	249	0	0	0	0	3	4	+1.0000e+000	
0	0											
237	269	270	251	250	0	0	0	0	3	4	+1.0000e+000	
0	0											
238	270	271	252	251	0	0	0	0	3	4	+1.0000e+000	
0	0											
239	271	272	253	252	0	0	0	0	3	4	+1.0000e+000	
0	0											
240	272	273	254	253	0	0	0	0	3	4	+1.0000e+000	
0	0											
241	273	274	255	254	0	0	0	0	3	4	+1.0000e+000	
0	0											
242	274	275	256	255	0	0	0	0	3	4	+1.0000e+000	
0	0											
243	275	276	257	256	0	0	0	0	3	4	+1.0000e+000	
0	0											
244	276	277	258	257	0	0	0	0	3	4	+1.0000e+000	
0	0											
245	277	278	259	258	0	0	0	0	3	4	+1.0000e+000	
0	0											
246	278	279	260	259	0	0	0	0	3	4	+1.0000e+000	
0	0											
247	279	280	261	260	0	0	0	0	3	4	+1.0000e+000	
0	0											
248	280	281	262	261	0	0	0	0	3	4	+1.0000e+000	

0	0											
249	281	282	263	262	0	0	0	0	3	4	+1.0000e+000	
0	0											
250	282	283	264	263	0	0	0	0	3	4	+1.0000e+000	
0	0											
251	283	284	265	264	0	0	0	0	3	4	+1.0000e+000	
0	0											
252	284	285	266	265	0	0	0	0	3	4	+1.0000e+000	
0	0											
253	286	287	268	267	0	0	0	0	3	4	+1.0000e+00	
0	0											
254	287	288	269	268	0	0	0	0	3	4	+1.0000e+000	
0	0											
255	288	289	270	269	0	0	0	0	3	4	+1.0000e+000	
0	0											
256	289	290	271	270	0	0	0	0	3	4	+1.0000e+000	
0	0											
257	290	291	272	271	0	0	0	0	3	4	+1.0000e+000	
0	0											
258	291	292	273	272	0	0	0	0	3	4	+1.0000e+000	
0	0											
259	292	293	274	273	0	0	0	0	3	4	+1.0000e+000	
0	0											
260	293	294	275	274	0	0	0	0	3	4	+1.0000e+000	
0	0											
261	294	295	276	275	0	0	0	0	3	4	+1.0000e+000	
0	0											
262	295	296	277	276	0	0	0	0	3	4	+1.0000e+000	
0	0											
263	296	297	278	277	0	0	0	0	3	4	+1.0000e+000	
0	0											
264	297	298	279	278	0	0	0	0	3	4	+1.0000e+000	
0	0											
265	298	299	280	279	0	0	0	0	3	4	+1.0000e+000	
0	0											
266	299	300	281	280	0	0	0	0	3	4	+1.0000e+000	
0	0											
267	300	301	282	281	0	0	0	0	3	4	+1.0000e+000	
0	0											
268	301	302	283	282	0	0	0	0	3	4	+1.0000e+000	
0	0											
269	302	303	284	283	0	0	0	0	3	4	+1.0000e+000	
0	0											
270	303	304	285	284	0	0	0	0	3	4	+1.0000e+000	
0	0											
271	305	306	287	286	0	0	0	0	3	4	+1.0000e+000	
0	0											
272	306	307	288	287	0	0	0	0	3	4	+1.0000e+000	
0	0											
273	307	308	289	288	0	0	0	0	3	4	+1.0000e+000	
0	0											
274	308	309	290	289	0	0	0	0	3	4	+1.0000e+000	
0	0											
275	309	310	291	290	0	0	0	0	3	4	+1.0000e+000	
0	0											
276	310	311	292	291	0	0	0	0	3	4	+1.0000e+000	
0	0											
277	311	312	293	292	0	0	0	0	3	4	+1.0000e+000	
0	0											
278	312	313	294	293	0	0	0	0	3	4	+1.0000e+0	

0	0											
279	313	314	295	294	0	0	0	0	3	4	+1.0000e+000	
0	0											
280	314	315	296	295	0	0	0	0	3	4	+1.0000e+000	
0	0											
281	315	316	297	296	0	0	0	0	3	4	+1.0000e+000	
0	0											
282	316	317	298	297	0	0	0	0	3	4	+1.0000e+000	
0	0											
283	317	318	299	298	0	0	0	0	3	4	+1.0000e+000	
0	0											
284	318	319	300	299	0	0	0	0	3	4	+1.0000e+000	
0	0											
285	319	320	301	300	0	0	0	0	3	4	+1.0000e+000	
0	0											
286	320	321	302	301	0	0	0	0	3	4	+1.0000e+000	
0	0											
287	321	322	303	302	0	0	0	0	3	4	+1.0000e+000	
0	0											
288	322	323	304	303	0	0	0	0	3	4	+1.0000e+000	
0	0											
289	324	325	306	305	0	0	0	0	3	4	+1.0000e+000	
0	0											
290	325	326	307	306	0	0	0	0	3	4	+1.0000e+000	
0	0											
291	326	327	308	307	0	0	0	0	3	4	+1.0000e+000	
0	0											
292	327	328	309	308	0	0	0	0	3	4	+1.0000e+000	
0	0											
293	328	329	310	309	0	0	0	0	3	4	+1.0000e+000	
0	0											
294	329	330	311	310	0	0	0	0	3	4	+1.0000e+000	
0	0											
295	330	331	312	311	0	0	0	0	3	4	+1.0000e+000	
0	0											
296	331	332	313	312	0	0	0	0	3	4	+1.0000e+000	
0	0											
297	332	333	314	313	0	0	0	0	3	4	+1.0000e+000	
0	0											
298	333	334	315	314	0	0	0	0	3	4	+1.0000e+000	
0	0											
299	334	335	316	315	0	0	0	0	3	4	+1.0000e+000	
0	0											
300	335	336	317	316	0	0	0	0	3	4	+1.0000e+000	
0	0											
301	336	337	318	317	0	0	0	0	3	4	+1.0000e+000	
0	0											
302	337	338	319	318	0	0	0	0	3	4	+1.0000e+0	
0	0											
303	338	339	320	319	0	0	0	0	3	4	+1.0000e+0	
0	0											
304	339	340	321	320	0	0	0	0	3	4	+1.0000e+000	
0	0											
305	340	341	322	321	0	0	0	0	3	4	+1.0000e+000	
0	0											
306	341	342	323	322	0	0	0	0	3	4	+1.0000e+000	
0	0											
307	343	344	325	324	0	0	0	0	3	4	+1.0000e+000	
0	0											
308	344	345	326	325	0	0	0	0	3	4	+1.0000e+000	

0	0											
309	345	346	327	326	0	0	0	0	3	4	+1.0000e+000	
0	0											
310	346	347	328	327	0	0	0	0	3	4	+1.0000e+000	
0	0											
311	347	348	329	328	0	0	0	0	3	4	+1.0000e+000	
0	0											
312	348	349	330	329	0	0	0	0	3	4	+1.0000e+000	
0	0											
313	349	350	331	330	0	0	0	0	3	4	+1.0000e+000	
0	0											
314	350	351	332	331	0	0	0	0	3	4	+1.0000e+000	
0	0											
315	351	352	333	332	0	0	0	0	3	4	+1.0000e+000	
0	0											
316	352	353	334	333	0	0	0	0	3	4	+1.0000e+000	
0	0											
317	353	354	335	334	0	0	0	0	3	4	+1.0000e+000	
0	0											
318	354	355	336	335	0	0	0	0	3	4	+1.0000e+000	
0	0											
319	355	356	337	336	0	0	0	0	3	4	+1.0000e+000	
0	0											
320	356	357	338	337	0	0	0	0	3	4	+1.0000e+000	
0	0											
321	357	358	339	338	0	0	0	0	3	4	+1.0000e+000	
0	0											
322	358	359	340	339	0	0	0	0	3	4	+1.0000e+000	
0	0											
323	359	360	341	340	0	0	0	0	3	4	+1.0000e+000	
0	0											
324	360	361	342	341	0	0	0	0	3	4	+1.0000e+000	
0	0											
325	363	364	344	343	0	0	0	0	3	4	+1.0000e+000	
0	0											
326	364	365	345	344	0	0	0	0	3	4	+1.0000e+000	
0	0											
327	365	366	346	345	0	0	0	0	3	4	+1.0000e+000	
0	0											
328	366	367	347	346	0	0	0	0	3	4	+1.0000e+000	
0	0											
329	367	368	348	347	0	0	0	0	3	4	+1.0000e+000	
0	0											
330	368	369	349	348	0	0	0	0	3	4	+1.0000e+000	
0	0											
331	369	370	350	349	0	0	0	0	3	4	+1.0000e+000	
0	0											
332	370	371	351	350	0	0	0	0	3	4	+1.0000e+000	
0	0											
333	371	372	352	351	0	0	0	0	3	4	+1.0000e+000	
0	0											
334	372	373	353	352	0	0	0	0	3	4	+1.0000e+000	
0	0											
335	373	374	354	353	0	0	0	0	3	4	+1.0000e+000	
0	0											
336	374	375	355	354	0	0	0	0	3	4	+1.0000e+000	
0	0											
337	375	376	356	355	0	0	0	0	3	4	+1.0000e+000	
0	0											
338	376	377	357	356	0	0	0	0	3	4	+1.0000e+000	

0	0											
339	377	378	358	357	0	0	0	0	3	4	+1.0000e+000	
0	0											
340	378	379	359	358	0	0	0	0	3	4	+1.0000e+000	
0	0											
341	379	380	360	359	0	0	0	0	3	4	+1.0000e+000	
0	0											
342	361	360	380	362	0	0	0	0	3	4	+1.0000e+000	
0	0											
343	362	380	381	0	0	0	0	0	3	3	+1.0000e+000	
0	0											
344	382	383	364	363	0	0	0	0	3	4	+1.0000e+000	
0	0											
345	383	384	365	364	0	0	0	0	3	4	+1.0000e+000	
0	0											
346	384	385	366	365	0	0	0	0	3	4	+1.0000e+000	
0	0											
347	385	386	367	366	0	0	0	0	3	4	+1.0000e+000	
0	0											
348	386	387	368	367	0	0	0	0	3	4	+1.0000e+000	
0	0											
349	387	388	369	368	0	0	0	0	3	4	+1.0000e+000	
0	0											
350	388	389	370	369	0	0	0	0	3	4	+1.0000e+000	
0	0											
351	389	390	371	370	0	0	0	0	3	4	+1.0000e+000	
0	0											
352	390	391	372	371	0	0	0	0	3	4	+1.0000e+000	
0	0											
353	391	392	373	372	0	0	0	0	3	4	+1.0000e+000	
0	0											
354	392	393	374	373	0	0	0	0	3	4	+1.0000e+000	
0	0											
355	393	394	375	374	0	0	0	0	3	4	+1.0000e+000	
0	0											
356	394	395	376	375	0	0	0	0	3	4	+1.0000e+000	
0	0											
357	395	396	377	376	0	0	0	0	3	4	+1.0000e+000	
0	0											
358	396	397	378	377	0	0	0	0	3	4	+1.0000e+000	
0	0											
359	397	398	379	378	0	0	0	0	3	4	+1.0000e+000	
0	0											
360	398	399	380	379	0	0	0	0	3	4	+1.0000e+000	
0	0											
361	381	380	399	0	0	0	0	0	3	3	+1.0000e+000	
0	0											
362	381	399	400	0	0	0	0	0	3	3	+1.0000e+000	
0	0											
363	383	382	403	404	0	0	0	0	3	4	+1.0000e+000	
0	0											
364	384	383	404	405	0	0	0	0	3	4	+1.0000e+000	
0	0											
365	385	384	405	406	0	0	0	0	3	4	+1.0000e+000	
0	0											
366	386	385	406	407	0	0	0	0	3	4	+1.0000e+000	
0	0											
367	387	386	407	408	0	0	0	0	3	4	+1.0000e+000	
0	0											
368	388	387	408	409	0	0	0	0	3	4	+1.0000e+000	

0	0											
369	389	388	409	410	0	0	0	0	3	4	+1.0000e+000	
0	0											
370	390	389	410	411	0	0	0	0	3	4	+1.0000e+000	
0	0											
371	391	390	411	412	0	0	0	0	3	4	+1.0000e+000	
0	0											
372	392	391	412	413	0	0	0	0	3	4	+1.0000e+000	
0	0											
373	393	392	413	414	0	0	0	0	3	4	+1.0000e+000	
0	0											
374	394	393	414	415	0	0	0	0	3	4	+1.0000e+000	
0	0											
375	395	394	415	416	0	0	0	0	4	4	+1.0000e+000	
0	0											
376	396	395	416	417	0	0	0	0	4	4	+1.0000e+000	
0	0											
377	397	396	417	418	0	0	0	0	4	4	+1.0000e+000	
0	0											
378	398	397	418	419	0	0	0	0	4	4	+1.0000e+000	
0	0											
379	399	398	419	420	0	0	0	0	4	4	+1.0000e+000	
0	0											
380	399	420	421	0	0	0	0	0	4	3	+1.0000e+000	
0	0											
381	400	399	421	422	0	0	0	0	4	9	+1.0000e+000	
0	0											
382	401	400	422	424	0	0	0	0	1	9	+1.0000e+000	
0	0											
383	402	401	424	426	0	0	0	0	1	9	+1.0000e+000	
0	0											
384	423	402	426	428	0	0	0	0	1	9	+1.0000e+000	
0	0											
385	404	403	429	430	0	0	0	0	3	4	+1.0000e+000	
0	0											
386	405	404	430	431	0	0	0	0	3	4	+1.0000e+000	
0	0											
387	406	405	431	432	0	0	0	0	3	4	+1.0000e+000	
0	0											
388	407	406	432	433	0	0	0	0	3	4	+1.0000e+000	
0	0											
389	408	407	433	434	0	0	0	0	3	4	+1.0000e+000	
0	0											
390	409	408	434	435	0	0	0	0	3	4	+1.0000e+000	
0	0											
391	410	409	435	436	0	0	0	0	3	4	+1.0000e+000	
0	0											
392	411	410	436	437	0	0	0	0	3	4	+1.0000e+000	
0	0											
393	412	411	437	438	0	0	0	0	3	4	+1.0000e+000	
0	0											
394	413	412	438	439	0	0	0	0	3	4	+1.0000e+000	
0	0											
395	414	413	439	440	0	0	0	0	3	4	+1.0000e+000	
0	0											
396	415	414	440	441	0	0	0	0	3	4	+1.0000e+000	
0	0											
397	416	415	441	442	0	0	0	0	3	4	+1.0000e+000	
0	0											
398	417	416	442	443	0	0	0	0	3	4	+1.0000e+000	

0	0											
399	418	417	443	444	0	0	0	0	3	4	+1.0000e+000	
0	0											
400	419	418	444	445	0	0	0	0	3	4	+1.0000e+000	
0	0											
401	420	419	445	446	0	0	0	0	3	4	+1.0000e+000	
0	0											
402	421	420	446	447	0	0	0	0	3	4	+1.0000e+000	
0	0											
403	422	421	447	448	0	0	0	0	1	4	+1.0000e+000	
0	0											
404	424	422	448	451	0	0	0	0	1	9	+1.0000e+000	
0	0											
405	425	423	428	450	0	0	0	0	1	9	+1.0000e+000	
0	0											
406	426	424	451	453	0	0	0	0	1	9	+1.0000e+000	
0	0											
407	427	425	450	454	0	0	0	0	1	9	+1.0000e+000	
0	0											
408	428	426	453	455	0	0	0	0	1	9	+1.0000e+000	
0	0											
409	449	427	454	457	0	0	0	0	1	9	+1.0000e+000	
0	0											
410	450	428	455	478	0	0	0	0	1	9	+1.0000e+000	
0	0											
411	430	429	459	460	0	0	0	0	3	4	+1.0000e+000	
0	0											
412	431	430	460	461	0	0	0	0	3	4	+1.0000e+000	
0	0											
413	432	431	461	462	0	0	0	0	3	4	+1.0000e+000	
0	0											
414	433	432	462	463	0	0	0	0	3	4	+1.0000e+000	
0	0											
415	434	433	463	464	0	0	0	0	3	4	+1.0000e+000	
0	0											
416	435	434	464	465	0	0	0	0	3	4	+1.0000e+000	
0	0											
417	436	435	465	466	0	0	0	0	3	4	+1.0000e+000	
0	0											
418	437	436	466	467	0	0	0	0	3	4	+1.0000e+000	
0	0											
419	438	437	467	468	0	0	0	0	3	4	+1.0000e+000	
0	0											
420	439	438	468	469	0	0	0	0	3	4	+1.0000e+000	
0	0											
421	440	439	469	470	0	0	0	0	3	4	+1.0000e+000	
0	0											
422	441	440	470	471	0	0	0	0	3	4	+1.0000e+000	
0	0											
423	442	441	471	472	0	0	0	0	3	4	+1.0000e+000	
0	0											
424	443	442	472	473	0	0	0	0	3	4	+1.0000e+000	
0	0											
425	444	443	473	474	0	0	0	0	3	4	+1.0000e+000	
0	0											
426	445	444	474	475	0	0	0	0	3	4	+1.0000e+000	
0	0											
427	446	445	475	476	0	0	0	0	3	4	+1.0000e+000	
0	0											
428	447	446	476	458	0	0	0	0	3	4	+1.0000e+000	

0	0										
429	448	447	458	477	0	0	0	0	1	4	+1.0000e+000
0	0										
430	452	449	457	479	0	0	0	0	1	9	+1.0000e+000
0	0										
431	451	448	477	481	0	0	0	0	1	9	+1.0000e+000
0	0										
432	454	450	478	482	0	0	0	0	1	9	+1.0000e+000
0	0										
433	453	451	481	484	0	0	0	0	1	9	+1.0000e+000
0	0										
434	456	452	479	483	0	0	0	0	1	9	+1.0000e+000
0	0										
435	457	454	482	486	0	0	0	0	1	9	+1.0000e+000
0	0										
436	455	453	484	487	0	0	0	0	1	9	+1.0000e+000
0	0										
437	480	456	483	488	0	0	0	0	1	9	+1.0000e+000
0	0										
438	479	457	486	489	0	0	0	0	1	9	+1.0000e+000
0	0										
439	478	455	487	490	0	0	0	0	1	9	+1.0000e+000
0	0										
440	458	476	511	492	0	0	0	0	3	4	+1.0000e+000
0	0										
441	477	458	492	512	0	0	0	0	1	4	+1.0000e+000
0	0										
442	460	459	494	495	0	0	0	0	3	4	+1.0000e+000
0	0										
443	461	460	495	496	0	0	0	0	3	4	+1.0000e+000
0	0										
444	462	461	496	497	0	0	0	0	3	4	+1.0000e+000
0	0										
445	463	462	497	498	0	0	0	0	3	4	+1.0000e+000
0	0										
446	464	463	498	499	0	0	0	0	3	4	+1.0000e+000
0	0										
447	465	464	499	500	0	0	0	0	3	4	+1.0000e+000
0	0										
448	466	465	500	501	0	0	0	0	3	4	+1.0000e+000
0	0										
449	467	466	501	502	0	0	0	0	3	4	+1.0000e+000
0	0										
450	468	467	502	503	0	0	0	0	3	4	+1.0000e+000
0	0										
451	469	468	503	504	0	0	0	0	3	4	+1.0000e+000
0	0										
452	470	469	504	505	0	0	0	0	3	4	+1.0000e+000
0	0										
453	471	470	505	506	0	0	0	0	3	4	+1.0000e+000
0	0										
454	472	471	506	507	0	0	0	0	3	4	+1.0000e+000
0	0										
455	473	472	507	508	0	0	0	0	3	4	+1.0000e+000
0	0										
456	474	473	508	509	0	0	0	0	3	4	+1.0000e+000
0	0										
457	475	474	509	510	0	0	0	0	3	4	+1.0000e+000
0	0										
458	476	475	510	511	0	0	0	0	3	4	+1.0000e+000

0	0										
459	482	478	490	513	0	0	0	0	1	9	+1.0000e+000
0	0										
460	483	479	489	514	0	0	0	0	1	9	+1.0000e+000
0	0										
461	485	480	488	493	0	0	0	0	1	9	+1.0000e+000
0	0										
462	481	477	512	515	0	0	0	0	1	9	+1.0000e+000
0	0										
463	486	482	513	517	0	0	0	0	1	9	+1.0000e+000
0	0										
464	484	481	515	520	0	0	0	0	1	9	+1.0000e+000
0	0										
465	488	483	514	518	0	0	0	0	1	9	+1.0000e+000
0	0										
466	491	485	493	519	0	0	0	0	1	9	+1.0000e+000
0	0										
467	487	484	520	522	0	0	0	0	1	9	+1.0000e+000
0	0										
468	489	486	517	521	0	0	0	0	1	9	+1.0000e+000
0	0										
469	490	487	522	526	0	0	0	0	1	9	+1.0000e+000
0	0										
470	493	488	518	523	0	0	0	0	1	9	+1.0000e+000
0	0										
471	514	489	521	527	0	0	0	0	1	9	+1.0000e+000
0	0										
472	516	491	519	525	0	0	0	0	1	9	+1.0000e+000
0	0										
473	513	490	526	529	0	0	0	0	1	9	+1.0000e+000
0	0										
474	519	493	523	528	0	0	0	0	1	9	+1.0000e+000
0	0										
475	518	514	527	530	0	0	0	0	1	9	+1.0000e+000
0	0										
476	517	513	529	533	0	0	0	0	1	9	+1.0000e+000
0	0										
477	492	511	553	534	0	0	0	0	3	4	+1.0000e+000
0	0										
478	512	492	534	554	0	0	0	0	1	4	+1.0000e+000
0	0										
479	495	494	536	537	0	0	0	0	3	4	+1.0000e+000
0	0										
480	496	495	537	538	0	0	0	0	3	4	+1.0000e+000
0	0										
481	497	496	538	539	0	0	0	0	3	4	+1.0000e+000
0	0										
482	498	497	539	540	0	0	0	0	3	4	+1.0000e+000
0	0										
483	499	498	540	541	0	0	0	0	3	4	+1.0000e+000
0	0										
484	500	499	541	542	0	0	0	0	3	4	+1.0000e+000
0	0										
485	501	500	542	543	0	0	0	0	3	4	+1.0000e+000
0	0										
486	502	501	543	544	0	0	0	0	3	4	+1.0000e+000
0	0										
487	503	502	544	545	0	0	0	0	3	4	+1.0000e+000
0	0										
488	504	503	545	546	0	0	0	0	3	4	+1.0000e+000

0	0										
489	505	504	546	547	0	0	0	0	3	4	+1.0000e+000
0	0										
490	506	505	547	548	0	0	0	0	3	4	+1.0000e+000
0	0										
491	507	506	548	549	0	0	0	0	3	4	+1.0000e+000
0	0										
492	508	507	549	550	0	0	0	0	3	4	+1.0000e+000
0	0										
493	509	508	550	551	0	0	0	0	3	4	+1.0000e+0(
0	0										
494	510	509	551	552	0	0	0	0	3	4	+1.0000e+000
0	0										
495	511	510	552	553	0	0	0	0	3	4	+1.0000e+000
0	0										
496	524	516	525	531	0	0	0	0	1	9	+1.0000e+000
0	0										
497	515	512	554	557	0	0	0	0	1	9	+1.0000e+000
0	0										
498	523	518	530	555	0	0	0	0	1	9	+1.0000e+000
0	0										
499	521	517	533	556	0	0	0	0	1	9	+1.0000e+000
0	0										
500	525	519	528	535	0	0	0	0	1	9	+1.0000e+000
0	0										
501	520	515	557	559	0	0	0	0	1	9	+1.0000e+000
0	0										
502	522	520	559	564	0	0	0	0	1	9	+1.0000e+000
0	0										
503	527	521	556	560	0	0	0	0	1	9	+1.0000e+000
0	0										
504	528	523	555	561	0	0	0	0	1	9	+1.0000e+000
0	0										
505	532	524	531	558	0	0	0	0	1	9	+1.0000e+000
0	0										
506	531	525	535	563	0	0	0	0	1	9	+1.0000e+000
0	0										
507	526	522	564	567	0	0	0	0	1	9	+1.0000e+000
0	0										
508	530	527	560	565	0	0	0	0	1	9	+1.0000e+000
0	0										
509	529	526	567	570	0	0	0	0	1	9	+1.0000e+000
0	0										
510	535	528	561	566	0	0	0	0	1	9	+1.0000e+000
0	0										
511	555	530	565	571	0	0	0	0	1	9	+1.0000e+000
0	0										
512	533	529	570	574	0	0	0	0	1	9	+1.0000e+000
0	0										
513	558	531	563	568	0	0	0	0	1	9	+1.0000e+000
0	0										
514	562	532	558	569	0	0	0	0	1	9	+1.0000e+000
0	0										
515	563	535	566	573	0	0	0	0	1	9	+1.0000e+000
0	0										
516	556	533	574	576	0	0	0	0	1	9	+1.0000e+000
0	0										
517	561	555	571	575	0	0	0	0	1	9	+1.0000e+000
0	0										
518	560	556	576	580	0	0	0	0	1	9	+1.0000e+0

0	0										
519	569	558	568	577	0	0	0	0	1	9	+1.0000e+000
0	0										
520	534	553	599	584	0	0	0	0	3	4	+1.0000e+000
0	0										
521	554	534	584	600	0	0	0	0	1	4	+1.0000e+000
0	0										
522	541	540	586	587	0	0	0	0	3	4	+1.0000e+000
0	0										
523	542	541	587	588	0	0	0	0	3	4	+1.0000e+000
0	0										
524	543	542	588	589	0	0	0	0	3	4	+1.0000e+000
0	0										
525	544	543	589	590	0	0	0	0	3	4	+1.0000e+000
0	0										
526	545	544	590	591	0	0	0	0	3	4	+1.0000e+000
0	0										
527	546	545	591	592	0	0	0	0	3	4	+1.0000e+000
0	0										
528	547	546	592	593	0	0	0	0	3	4	+1.0000e+000
0	0										
529	548	547	593	594	0	0	0	0	3	4	+1.0000e+000
0	0										
530	549	548	594	595	0	0	0	0	3	4	+1.0000e+000
0	0										
531	550	549	595	596	0	0	0	0	3	4	+1.0000e+000
0	0										
532	551	550	596	597	0	0	0	0	3	4	+1.0000e+000
0	0										
533	552	551	597	598	0	0	0	0	3	4	+1.0000e+000
0	0										
534	553	552	598	599	0	0	0	0	3	4	+1.0000e+000
0	0										
535	566	561	575	581	0	0	0	0	1	9	+1.0000e+000
0	0										
536	537	536	602	603	0	0	0	0	3	4	+1.0000e+000
0	0										
537	538	537	603	604	0	0	0	0	3	4	+1.0000e+000
0	0										
538	539	538	604	605	0	0	0	0	3	4	+1.0000e+000
0	0										
539	540	539	605	586	0	0	0	0	3	4	+1.0000e+000
0	0										
540	572	562	569	578	0	0	0	0	1	9	+1.0000e+000
0	0										
541	557	554	600	607	0	0	0	0	1	9	+1.0000e+000
0	0										
542	568	563	573	579	0	0	0	0	1	9	+1.0000e+0
0	0										
543	565	560	580	582	0	0	0	0	1	9	+1.0000e+0
0	0										
544	559	557	607	608	0	0	0	0	1	9	+1.0000e+000
0	0										
545	564	559	608	611	0	0	0	0	1	9	+1.0000e+000
0	0										
546	573	566	581	583	0	0	0	0	1	9	+1.0000e+000
0	0										
547	571	565	582	606	0	0	0	0	1	9	+1.0000e+000
0	0										
548	578	569	577	585	0	0	0	0	1	9	+1.0000e+000

549	577	568	579	601	0	0	0	0	1	9	+1.0000e+000
550	567	564	611	612	0	0	0	0	1	9	+1.0000e+000
551	575	571	606	609	0	0	0	0	1	9	+1.0000e+000
552	570	567	612	615	0	0	0	0	1	9	+1.0000e+000
553	579	573	583	610	0	0	0	0	1	9	+1.0000e+000
554	574	570	615	617	0	0	0	0	1	9	+1.0000e+000
555	581	575	609	614	0	0	0	0	1	9	+1.0000e+000
556	585	577	601	613	0	0	0	0	1	9	+1.0000e+000
557	576	574	617	619	0	0	0	0	1	9	+1.0000e+000
558	601	579	610	616	0	0	0	0	1	9	+1.0000e+000
559	580	576	619	620	0	0	0	0	1	9	+1.0000e+000
560	583	581	614	618	0	0	0	0	1	9	+1.0000e+000
561	582	580	620	623	0	0	0	0	1	9	+1.0000e+000
562	610	583	618	622	0	0	0	0	1	9	+1.0000e+000
563	613	601	616	621	0	0	0	0	1	9	+1.0000e+000
564	606	582	623	624	0	0	0	0	1	9	+1.0000e+000
565	609	606	624	626	0	0	0	0	1	9	+1.0000e+000
566	616	610	622	625	0	0	0	0	1	9	+1.0000e+000
567	614	609	626	627	0	0	0	0	1	9	+1.0000e+000
568	621	616	625	628	0	0	0	0	1	9	+1.0000e+000
569	618	614	627	629	0	0	0	0	1	9	+1.0000e+000
570	584	599	635	633	0	0	0	0	3	4	+1.0000e+000
571	600	584	633	636	0	0	0	0	1	4	+1.0000e+000
572	589	588	637	638	0	0	0	0	3	4	+1.0000e+000
573	590	589	638	639	0	0	0	0	3	4	+1.0000e+000
574	591	590	639	640	0	0	0	0	3	4	+1.0000e+000
575	592	591	640	641	0	0	0	0	3	4	+1.0000e+000
576	593	592	641	642	0	0	0	0	3	4	+1.0000e+000
577	594	593	642	634	0	0	0	0	3	4	+1.0000e+000
578	595	594	634	643	0	0	0	0	3	4	+1.0000e+000

579	595	643	644	596	0	0	0	0	3	4	+1.0000e+000
580	597	596	644	645	0	0	0	0	3	4	+1.0000e+000
581	598	597	645	646	0	0	0	0	3	4	+1.0000e+000
582	599	598	646	635	0	0	0	0	3	4	+1.0000e+000
583	607	600	636	647	0	0	0	0	1	9	+1.0000e+000
584	586	605	655	656	0	0	0	0	3	4	+1.0000e+000
585	587	586	656	657	0	0	0	0	3	4	+1.0000e+000
586	588	587	657	637	0	0	0	0	3	4	+1.0000e+000
587	603	602	652	653	0	0	0	0	3	4	+1.0000e+000
588	604	603	653	654	0	0	0	0	3	4	+1.0000e+000
589	605	604	654	655	0	0	0	0	3	4	+1.0000e+000
590	622	618	629	630	0	0	0	0	1	9	+1.0000e+000
591	608	607	647	648	0	0	0	0	1	9	+1.0000e+000
592	611	608	648	649	0	0	0	0	1	9	+1.0000e+000
593	612	611	649	650	0	0	0	0	1	9	+1.0000e+000
594	625	622	630	631	0	0	0	0	1	9	+1.0000e+000
595	615	612	650	651	0	0	0	0	1	9	+1.0000e+000
596	617	615	651	658	0	0	0	0	1	9	+1.0000e+000
597	619	617	658	659	0	0	0	0	1	9	+1.0000e+000
598	628	625	631	632	0	0	0	0	1	9	+1.0000e+000
599	620	619	659	660	0	0	0	0	1	9	+1.0000e+000
600	620	660	661	623	0	0	0	0	1	4	+1.0000e+000
601	623	661	662	624	0	0	0	0	1	4	+1.0000e+000
602	626	624	662	663	0	0	0	0	1	9	+1.0000e+000
603	627	626	663	664	0	0	0	0	1	9	+1.0000e+000
604	627	664	665	629	0	0	0	0	1	4	+1.0000e+000
605	629	665	666	630	0	0	0	0	1	4	+1.0000e+000
606	631	630	666	667	0	0	0	0	1	9	+1.0000e+000
607	632	631	667	668	0	0	0	0	1	9	+1.0000e+000
608	635	674	675	633	0	0	0	0	3	4	+1.0000e+000

609	642	669	634	0	0	0	0	0	3	3	+1.0000e+000
610	643	634	669	670	0	0	0	0	3	4	+1.0000e+000
611	635	646	673	674	0	0	0	0	3	4	+1.0000e+000
612	643	670	671	644	0	0	0	0	3	4	+1.0000e+000
613	645	644	671	672	0	0	0	0	3	4	+1.0000e+000
614	646	645	672	673	0	0	0	0	3	4	+1.0000e+000
615	633	675	676	636	0	0	0	0	1	4	+1.0000e+000
616	677	647	636	676	0	0	0	0	1	4	+1.0000e+000
617	647	677	678	648	0	0	0	0	1	4	+1.0000e+000
618	648	678	679	649	0	0	0	0	1	4	+1.0000e+000
619	680	650	649	679	0	0	0	0	1	4	+1.0000e+000
620	681	651	650	680	0	0	0	0	1	4	+1.0000e+000
621	651	681	682	658	0	0	0	0	1	4	+1.0000e+000
622	658	682	683	659	0	0	0	0	1	4	+1.0000e+000
623	684	660	659	683	0	0	0	0	1	4	+1.0000e+000
624	685	661	660	684	0	0	0	0	1	4	+1.0000e+000
625	661	685	686	662	0	0	0	0	1	4	+1.0000e+000
626	662	686	687	663	0	0	0	0	1	4	+1.0000e+000
627	688	664	663	687	0	0	0	0	1	4	+1.0000e+000
628	689	665	664	688	0	0	0	0	1	4	+1.0000e+000
629	690	666	665	689	0	0	0	0	1	4	+1.0000e+000
630	666	690	691	667	0	0	0	0	1	4	+1.0000e+000
631	667	691	692	668	0	0	0	0	1	4	+1.0000e+000
632	640	639	710	711	0	0	0	0	3	4	+1.0000e+000
633	641	640	711	712	0	0	0	0	3	4	+1.0000e+000
634	642	641	712	713	0	0	0	0	3	4	+1.0000e+000
635	642	713	669	0	0	0	0	0	3	3	+1.0000e+000
636	637	657	719	720	0	0	0	0	3	4	+1.0000e+000
637	638	637	720	721	0	0	0	0	3	4	+1.0000e+000
638	639	638	721	710	0	0	0	0	3	4	+1.0000e+000

639	653	652	714	715	0	0	0	0	3	4	+1.0000e+000
640	654	653	715	716	0	0	0	0	3	4	+1.0000e+000
641	655	654	716	717	0	0	0	0	3	4	+1.0000e+000
642	656	655	717	718	0	0	0	0	3	4	+1.0000e+000
643	657	656	718	719	0	0	0	0	3	4	+1.0000e+000
644	675	693	676	0	0	0	0	0	4	3	+1.0000e+000
645	694	677	676	693	0	0	0	0	1	4	+1.0000e+000
646	695	678	677	694	0	0	0	0	1	4	+1.0000e+000
647	696	679	678	695	0	0	0	0	1	4	+1.0000e+000
648	697	680	679	696	0	0	0	0	1	4	+1.0000e+000
649	698	681	680	697	0	0	0	0	1	4	+1.0000e+000
650	699	682	681	698	0	0	0	0	1	4	+1.0000e+000
651	700	683	682	699	0	0	0	0	1	4	+1.0000e+000
652	701	684	683	700	0	0	0	0	1	4	+1.0000e+000
653	702	685	684	701	0	0	0	0	1	4	+1.0000e+000
654	703	686	685	702	0	0	0	0	1	4	+1.0000e+000
655	704	687	686	703	0	0	0	0	1	4	+1.0000e+000
656	705	688	687	704	0	0	0	0	1	4	+1.0000e+000
657	706	689	688	705	0	0	0	0	1	4	+1.0000e+000
658	707	690	689	706	0	0	0	0	1	4	+1.0000e+000
659	708	691	690	707	0	0	0	0	1	4	+1.0000e+000
660	709	692	691	708	0	0	0	0	1	4	+1.0000e+000
661	736	671	670	735	0	0	0	0	4	4	+1.0000e+000
662	737	672	671	736	0	0	0	0	4	4	+1.0000e+000
663	738	673	672	737	0	0	0	0	4	4	+1.0000e+000
664	739	674	673	738	0	0	0	0	4	4	+1.0000e+000
665	742	669	713	0	0	0	0	0	3	3	+1.0000e+000
666	735	670	669	742	0	0	0	0	4	4	+1.0000e+000
667	739	743	675	674	0	0	0	0	4	4	+1.0000e+000
668	693	675	743	0	0	0	0	0	4	3	+1.0000e+000

669	723	694	693	722	0	0	0	0	1	4	+1.0000e+000	0 0
670	724	695	694	723	0	0	0	0	1	4	+1.0000e+000	0 0
671	725	696	695	724	0	0	0	0	1	4	+1.0000e+000	0 0
672	726	697	696	725	0	0	0	0	1	4	+1.0000e+000	0 0
673	727	698	697	726	0	0	0	0	1	4	+1.0000e+000	0 0
674	728	699	698	727	0	0	0	0	1	4	+1.0000e+000	0 0
675	729	700	699	728	0	0	0	0	1	4	+1.0000e+000	0 0
676	730	701	700	729	0	0	0	0	1	4	+1.0000e+000	0 0
677	693	743	722	0	0	0	0	0	4	3	+1.0000e+000	0 0
678	731	702	701	730	0	0	0	0	1	4	+1.0000e+000	0 0
679	732	703	702	731	0	0	0	0	1	4	+1.0000e+000	0 0
680	733	704	703	732	0	0	0	0	1	4	+1.0000e+000	0 0
681	734	705	704	733	0	0	0	0	1	4	+1.0000e+000	0 0
682	740	706	705	734	0	0	0	0	1	4	+1.0000e+000	0 0
683	741	707	706	740	0	0	0	0	1	4	+1.0000e+000	0 0
684	744	708	707	741	0	0	0	0	1	4	+1.0000e+000	0 0
685	745	709	708	744	0	0	0	0	1	4	+1.0000e+000	0 0
686	711	710	750	751	0	0	0	0	3	4	+1.0000e+000	0 0
687	712	711	751	752	0	0	0	0	3	4	+1.0000e+000	0 0
688	713	712	752	753	0	0	0	0	3	4	+1.0000e+000	0 0
689	713	753	742	0	0	0	0	0	3	3	+1.0000e+000	0 0
690	710	721	764	750	0	0	0	0	3	4	+1.0000e+000	0 0
691	716	715	758	759	0	0	0	0	3	4	+1.0000e+000	0 0
692	717	716	759	760	0	0	0	0	3	4	+1.0000e+000	0 0
693	718	717	760	761	0	0	0	0	3	4	+1.0000e+000	0 0
694	719	718	761	762	0	0	0	0	3	4	+1.0000e+000	0 0
695	720	719	762	763	0	0	0	0	3	4	+1.0000e+000	0 0
696	721	720	763	764	0	0	0	0	3	4	+1.0000e+000	0 0
697	715	714	765	758	0	0	0	0	3	4	+1.0000e+000	0 0
698	722	743	747	746	0	0	0	0	3	4	+1.0000e+000	0 0

699	749	739	738	748	0	0	0	0	3	4	+1.0000e+000	0 0
700	743	739	749	747	0	0	0	0	3	4	+1.0000e+000	0 0
701	735	742	754	755	0	0	0	0	3	4	+1.0000e+000	0 0
702	756	736	735	755	0	0	0	0	3	4	+1.0000e+000	0 0
703	736	756	757	737	0	0	0	0	3	4	+1.0000e+000	0 0
704	737	757	748	738	0	0	0	0	3	4	+1.0000e+000	0 0
705	742	753	754	0	0	0	0	0	3	3	+1.0000e+000	0 0
706	746	747	766	771	0	0	0	0	3	4	+1.0000e+000	0 0
707	747	749	770	766	0	0	0	0	3	4	+1.0000e+000	0 0
708	757	768	769	748	0	0	0	0	3	4	+1.0000e+000	0 0
709	748	769	770	749	0	0	0	0	3	4	+1.0000e+000	0 0
710	756	767	768	757	0	0	0	0	3	4	+1.0000e+000	0 0
711	752	751	772	773	0	0	0	0	3	4	+1.0000e+000	0 0
712	753	752	773	774	0	0	0	0	3	4	+1.0000e+000	0 0
713	754	753	774	775	0	0	0	0	3	4	+1.0000e+000	0 0
714	754	775	776	755	0	0	0	0	3	4	+1.0000e+000	0 0
715	755	776	767	756	0	0	0	0	3	4	+1.0000e+000	0 0
716	750	764	781	782	0	0	0	0	3	4	+1.0000e+000	0 0
717	751	750	782	772	0	0	0	0	3	4	+1.0000e+000	0 0
718	761	760	777	778	0	0	0	0	3	4	+1.0000e+000	0 0
719	762	761	778	779	0	0	0	0	3	4	+1.0000e+000	0 0
720	763	762	779	780	0	0	0	0	3	4	+1.0000e+000	0 0
721	764	763	780	781	0	0	0	0	3	4	+1.0000e+000	0 0
722	758	765	783	784	0	0	0	0	3	4	+1.0000e+000	0 0
723	759	758	784	785	0	0	0	0	3	4	+1.0000e+000	0 0
724	760	759	785	777	0	0	0	0	3	4	+1.0000e+000	0 0
725	766	770	789	786	0	0	0	0	3	4	+1.0000e+000	0 0
726	771	766	786	790	0	0	0	0	3	4	+1.0000e+000	0 0
727	769	768	787	788	0	0	0	0	3	4	+1.0000e+000	0 0
728	770	769	788	789	0	0	0	0	3	4	+1.0000e+000	0 0

729	767	776	795	796	0	0	0	0	3	4	+1.0000e+000	0 0
730	768	767	796	787	0	0	0	0	3	4	+1.0000e+000	0 0
731	773	772	791	792	0	0	0	0	3	4	+1.0000e+000	0 0
732	774	773	792	793	0	0	0	0	3	4	+1.0000e+000	0 0
733	775	774	793	794	0	0	0	0	3	4	+1.0000e+00	0 0
734	776	775	794	795	0	0	0	0	3	4	+1.0000e+000	0 0
735	772	782	801	791	0	0	0	0	3	4	+1.0000e+000	0 0
736	779	778	797	798	0	0	0	0	3	4	+1.0000e+000	0 0
737	780	779	798	799	0	0	0	0	3	4	+1.0000e+000	0 0
738	781	780	799	800	0	0	0	0	3	4	+1.0000e+000	0 0
739	782	781	800	801	0	0	0	0	3	4	+1.0000e+000	0 0
740	777	785	804	805	0	0	0	0	3	4	+1.0000e+000	0 0
741	778	777	805	797	0	0	0	0	3	4	+1.0000e+000	0 0
742	784	783	802	803	0	0	0	0	3	4	+1.0000e+000	0 0
743	785	784	803	804	0	0	0	0	3	4	+1.0000e+000	0 0
744	786	789	810	806	0	0	0	0	3	4	+1.0000e+000	0 0
745	790	786	806	811	0	0	0	0	3	4	+1.0000e+000	0 0
746	787	796	807	808	0	0	0	0	3	4	+1.0000e+000	0 0
747	788	787	808	809	0	0	0	0	3	4	+1.0000e+000	0 0
748	789	788	809	810	0	0	0	0	3	4	+1.0000e+000	0 0
749	793	792	812	813	0	0	0	0	3	4	+1.0000e+000	0 0
750	794	793	813	814	0	0	0	0	3	4	+1.0000e+000	0 0
751	795	794	814	815	0	0	0	0	3	4	+1.0000e+000	0 0
752	796	795	815	807	0	0	0	0	3	4	+1.0000e+000	0 0
753	791	801	819	820	0	0	0	0	3	4	+1.0000e+000	0 0
754	792	791	820	812	0	0	0	0	3	4	+1.0000e+000	0 0
755	799	798	816	817	0	0	0	0	3	4	+1.0000e+000	0 0
756	800	799	817	818	0	0	0	0	3	4	+1.0000e+000	0 0
757	801	800	818	819	0	0	0	0	3	4	+1.0000e+000	0 0
758	797	805	824	825	0	0	0	0	3	4	+1.0000e+0	0

759	798	797	825	816	0	0	0	0	3	4	+1.0000e+000	0 0
760	803	802	821	822	0	0	0	0	3	4	+1.0000e+000	0 0
761	804	803	822	823	0	0	0	0	3	4	+1.0000e+000	0 0
762	805	804	823	824	0	0	0	0	3	4	+1.0000e+000	0 0
763	811	806	826	827	0	0	0	0	3	4	+1.0000e+000	0 0
764	806	810	831	826	0	0	0	0	3	4	+1.0000e+000	0 0
765	808	807	828	829	0	0	0	0	3	4	+1.0000e+000	0 0
766	809	808	829	830	0	0	0	0	3	4	+1.0000e+000	0 0
767	810	809	830	831	0	0	0	0	3	4	+1.0000e+000	0 0
768	807	815	835	828	0	0	0	0	3	4	+1.0000e+000	0 0
769	813	812	832	833	0	0	0	0	3	4	+1.0000e+000	0 0
770	814	813	833	834	0	0	0	0	3	4	+1.0000e+000	0 0
771	815	814	834	835	0	0	0	0	3	4	+1.0000e+000	0 0
772	812	820	840	832	0	0	0	0	3	4	+1.0000e+000	0 0
773	817	816	836	837	0	0	0	0	3	4	+1.0000e+000	0 0
774	818	817	837	838	0	0	0	0	3	4	+1.0000e+000	0 0
775	819	818	838	839	0	0	0	0	3	4	+1.0000e+000	0 0
776	820	819	839	840	0	0	0	0	3	4	+1.0000e+000	0 0
777	816	825	843	836	0	0	0	0	3	4	+1.0000e+000	0 0
778	824	823	841	842	0	0	0	0	3	4	+1.0000e+000	0 0
779	825	824	842	843	0	0	0	0	3	4	+1.0000e+000	0 0
780	822	821	844	845	0	0	0	0	3	4	+1.0000e+000	0 0
781	823	822	845	841	0	0	0	0	3	4	+1.0000e+000	0 0
782	826	831	850	0	0	0	0	0	3	3	+1.0000e+0	0 0
783	827	826	850	846	0	0	0	0	3	9	+1.0000e+0	0 0
784	829	828	847	848	0	0	0	0	3	4	+1.0000e+000	0 0
785	830	829	848	849	0	0	0	0	3	4	+1.0000e+000	0 0
786	831	830	849	850	0	0	0	0	3	4	+1.0000e+000	0 0
787	828	835	854	847	0	0	0	0	3	4	+1.0000e+000	0 0
788	833	832	851	852	0	0	0	0	3	4	+1.0000e+000	0 0

789	834	833	852	853	0	0	0	0	3	4	+1.0000e+000	0 0
790	835	834	853	854	0	0	0	0	3	4	+1.0000e+000	0 0
791	832	840	858	851	0	0	0	0	3	4	+1.0000e+000	0 0
792	838	837	855	856	0	0	0	0	3	4	+1.0000e+000	0 0
793	839	838	856	857	0	0	0	0	3	4	+1.0000e+000	0 0
794	840	839	857	858	0	0	0	0	3	4	+1.0000e+000	0 0
795	836	843	861	862	0	0	0	0	3	4	+1.0000e+000	0 0
796	837	836	862	855	0	0	0	0	3	4	+1.0000e+000	0 0
797	842	841	859	860	0	0	0	0	3	4	+1.0000e+000	0 0
798	843	842	860	861	0	0	0	0	3	4	+1.0000e+000	0 0
799	841	845	864	859	0	0	0	0	3	4	+1.0000e+000	0 0
800	845	844	863	864	0	0	0	0	3	4	+1.0000e+000	0 0
801	846	850	867	868	0	0	0	0	3	4	+1.0000e+000	0 0
802	849	848	865	866	0	0	0	0	3	4	+1.0000e+000	0 0
803	850	849	866	867	0	0	0	0	3	4	+1.0000e+000	0 0
804	847	854	870	871	0	0	0	0	3	4	+1.0000e+000	0 0
805	848	847	871	865	0	0	0	0	3	4	+1.0000e+000	0 0
806	854	853	869	870	0	0	0	0	3	4	+1.0000e+000	0 0
807	851	858	873	874	0	0	0	0	3	4	+1.0000e+000	0 0
808	852	851	874	875	0	0	0	0	3	4	+1.0000e+000	0 0
809	853	852	875	869	0	0	0	0	3	4	+1.0000e+000	0 0
810	858	857	872	873	0	0	0	0	3	4	+1.0000e+000	0 0
811	855	862	877	878	0	0	0	0	3	4	+1.0000e+000	0 0
812	856	855	878	879	0	0	0	0	3	4	+1.0000e+000	0 0
813	857	856	879	872	0	0	0	0	3	4	+1.0000e+000	0 0
814	862	861	876	877	0	0	0	0	3	4	+1.0000e+000	0 0
815	859	864	880	881	0	0	0	0	3	4	+1.0000e+000	0 0
816	860	859	881	882	0	0	0	0	3	4	+1.0000e+000	0 0
817	861	860	882	876	0	0	0	0	3	4	+1.0000e+000	0 0
818	864	863	883	880	0	0	0	0	3	4	+1.0000e+000	0 0

819	867	866	884	885	0	0	0	0	3	4	+1.0000e+000	0 0
820	868	867	885	886	0	0	0	0	3	4	+1.0000e+000	0 0
821	865	871	888	889	0	0	0	0	3	4	+1.0000e+000	0 0
822	866	865	889	884	0	0	0	0	3	4	+1.0000e+000	0 0
823	871	870	887	888	0	0	0	0	3	4	+1.0000e+000	0 0
824	869	875	891	892	0	0	0	0	3	4	+1.0000e+000	0 0
825	870	869	892	887	0	0	0	0	3	4	+1.0000e+000	0 0
826	875	874	890	891	0	0	0	0	3	4	+1.0000e+000	0 0
827	872	879	894	895	0	0	0	0	3	4	+1.0000e+000	0 0
828	873	872	895	896	0	0	0	0	3	4	+1.0000e+000	0 0
829	874	873	896	890	0	0	0	0	3	4	+1.0000e+000	0 0
830	879	878	893	894	0	0	0	0	3	4	+1.0000e+000	0 0
831	876	882	897	898	0	0	0	0	3	4	+1.0000e+000	0 0
832	877	876	898	899	0	0	0	0	3	4	+1.0000e+000	0 0
833	878	877	899	893	0	0	0	0	3	4	+1.0000e+000	0 0
834	880	883	900	901	0	0	0	0	3	4	+1.0000e+000	0 0
835	881	880	901	902	0	0	0	0	3	4	+1.0000e+000	0 0
836	882	881	902	897	0	0	0	0	3	4	+1.0000e+000	0 0
837	886	885	903	904	0	0	0	0	3	4	+1.0000e+000	0 0
838	884	889	906	907	0	0	0	0	3	4	+1.0000e+000	0 0
839	885	884	907	903	0	0	0	0	3	4	+1.0000e+000	0 0
840	889	888	905	906	0	0	0	0	3	4	+1.0000e+000	0 0
841	887	892	909	910	0	0	0	0	3	4	+1.0000e+000	0 0
842	888	887	910	905	0	0	0	0	3	4	+1.0000e+000	0 0
843	892	891	908	909	0	0	0	0	3	4	+1.0000e+000	0 0
844	890	896	913	914	0	0	0	0	3	4	+1.0000e+000	0 0
845	891	890	914	908	0	0	0	0	3	4	+1.0000e+000	0 0
846	895	894	911	912	0	0	0	0	3	4	+1.0000e+000	0 0
847	896	895	912	913	0	0	0	0	3	4	+1.0000e+000	0 0
848	893	899	915	916	0	0	0	0	3	4	+1.0000e+000	0 0

849	894	893	916	911	0	0	0	0	3	4	+1.0000e+000	0 0
850	897	902	918	919	0	0	0	0	3	4	+1.0000e+000	0 0
851	898	897	919	920	0	0	0	0	3	4	+1.0000e+000	0 0
852	899	898	920	915	0	0	0	0	3	4	+1.0000e+000	0 0
853	902	901	917	918	0	0	0	0	3	4	+1.0000e+000	0 0
854	901	900	921	917	0	0	0	0	3	4	+1.0000e+000	0 0
855	903	907	922	923	0	0	0	0	3	4	+1.0000e+000	0 0
856	904	903	923	924	0	0	0	0	3	4	+1.0000e+000	0 0
857	905	910	926	927	0	0	0	0	3	4	+1.0000e+000	0 0
858	906	905	927	928	0	0	0	0	3	4	+1.0000e+000	0 0
859	907	906	928	922	0	0	0	0	3	4	+1.0000e+000	0 0
860	910	909	925	926	0	0	0	0	3	4	+1.0000e+000	0 0
861	908	914	930	931	0	0	0	0	3	4	+1.0000e+000	0 0
862	909	908	931	925	0	0	0	0	3	4	+1.0000e+000	0 0
863	914	913	929	930	0	0	0	0	3	4	+1.0000e+000	0 0
864	911	916	932	933	0	0	0	0	3	4	+1.0000e+000	0 0
865	912	911	933	934	0	0	0	0	3	4	+1.0000e+000	0 0
866	913	912	934	929	0	0	0	0	3	4	+1.0000e+000	0 0
867	915	920	936	937	0	0	0	0	3	4	+1.0000e+000	0 0
868	916	915	937	932	0	0	0	0	3	4	+1.0000e+000	0 0
869	920	919	935	936	0	0	0	0	3	4	+1.0000e+000	0 0
870	917	921	938	939	0	0	0	0	3	4	+1.0000e+000	0 0
871	918	917	939	940	0	0	0	0	3	4	+1.0000e+000	0 0
872	919	918	940	935	0	0	0	0	3	4	+1.0000e+000	0 0
873	923	922	941	942	0	0	0	0	3	4	+1.0000e+000	0 0
874	924	923	942	943	0	0	0	0	3	4	+1.0000e+000	0 0
875	922	928	946	941	0	0	0	0	3	4	+1.0000e+000	0 0
876	927	926	944	945	0	0	0	0	3	4	+1.0000e+000	0 0
877	928	927	945	946	0	0	0	0	3	4	+1.0000e+000	0 0
878	925	931	948	949	0	0	0	0	3	4	+1.0000e+000	0 0

879	926	925	949	944	0	0	0	0	3	4	+1.0000e+000	0 0
880	931	930	947	948	0	0	0	0	3	4	+1.0000e+000	0 0
881	929	934	951	952	0	0	0	0	3	4	+1.0000e+000	0 0
882	930	929	952	947	0	0	0	0	3	4	+1.0000e+000	0 0
883	934	933	950	951	0	0	0	0	3	4	+1.0000e+000	0 0
884	932	937	954	955	0	0	0	0	3	4	+1.0000e+000	0 0
885	933	932	955	950	0	0	0	0	3	4	+1.0000e+000	0 0
886	937	936	953	954	0	0	0	0	3	4	+1.0000e+000	0 0
887	935	940	956	957	0	0	0	0	3	4	+1.0000e+000	0 0
888	936	935	957	953	0	0	0	0	3	4	+1.0000e+000	0 0
889	939	938	958	959	0	0	0	0	3	4	+1.0000e+000	0 0
890	940	939	959	956	0	0	0	0	3	4	+1.0000e+000	0 0
891	943	942	960	961	0	0	0	0	3	4	+1.0000e+000	0 0
892	941	946	963	964	0	0	0	0	3	4	+1.0000e+000	0 0
893	942	941	964	960	0	0	0	0	3	4	+1.0000e+000	0 0
894	946	945	962	963	0	0	0	0	3	4	+1.0000e+000	0 0
895	944	949	965	966	0	0	0	0	3	4	+1.0000e+000	0 0
896	945	944	966	962	0	0	0	0	3	4	+1.0000e+000	0 0
897	947	952	968	969	0	0	0	0	3	4	+1.0000e+000	0 0
898	948	947	969	970	0	0	0	0	3	4	+1.0000e+000	0 0
899	949	948	970	965	0	0	0	0	3	4	+1.0000e+000	0 0
900	952	951	967	968	0	0	0	0	3	4	+1.0000e+000	0 0
901	950	955	971	972	0	0	0	0	3	4	+1.0000e+000	0 0
902	951	950	972	967	0	0	0	0	3	4	+1.0000e+000	0 0
903	953	957	973	974	0	0	0	0	3	4	+1.0000e+000	0 0
904	954	953	974	975	0	0	0	0	3	4	+1.0000e+000	0 0
905	955	954	975	971	0	0	0	0	3	4	+1.0000e+000	0 0
906	956	959	977	978	0	0	0	0	3	4	+1.0000e+000	0 0
907	957	956	978	973	0	0	0	0	3	4	+1.0000e+000	0 0
908	959	958	976	977	0	0	0	0	3	4	+1.0000e+000	0 0

909	960	964	981	982	0	0	0	0	3	4	+1.0000e+000	0 0
910	961	960	982	979	0	0	0	0	3	4	+1.0000e+000	0 0
911	964	963	980	981	0	0	0	0	3	4	+1.0000e+000	0 0
912	962	966	983	984	0	0	0	0	3	4	+1.0000e+000	0 0
913	963	962	984	980	0	0	0	0	3	4	+1.0000e+000	0 0
914	965	970	986	987	0	0	0	0	3	4	+1.0000e+000	0 0
915	966	965	987	983	0	0	0	0	3	4	+1.0000e+000	0 0
916	970	969	985	986	0	0	0	0	3	4	+1.0000e+000	0 0
917	967	972	988	989	0	0	0	0	3	4	+1.0000e+000	0 0
918	968	967	989	990	0	0	0	0	3	4	+1.0000e+000	0 0
919	969	968	990	985	0	0	0	0	3	4	+1.0000e+000	0 0
920	971	975	992	993	0	0	0	0	3	4	+1.0000e+000	0 0
921	972	971	993	988	0	0	0	0	3	4	+1.0000e+000	0 0
922	975	974	991	992	0	0	0	0	3	4	+1.0000e+000	0 0
923	973	978	994	995	0	0	0	0	3	4	+1.0000e+000	0 0
924	974	973	995	991	0	0	0	0	3	4	+1.0000e+000	0 0
925	977	976	996	997	0	0	0	0	3	4	+1.0000e+000	0 0
926	978	977	997	994	0	0	0	0	3	4	+1.0000e+000	0 0
927	979	982	999	1000	0	0	0	0	3	4	+1.0000e+000	0 0
928	982	981	998	999	0	0	0	0	3	4	+1.0000e+000	0 0
929	980	984	1002	1003	0	0	0	0	3	4	+1.0000e+000	0 0
930	981	980	1003	998	0	0	0	0	3	4	+1.0000e+000	0 0
931	984	983	1001	1002	0	0	0	0	3	4	+1.0000e+000	0 0
932	983	987	1005	1001	0	0	0	0	3	4	+1.0000e+000	0 0
933	987	986	1004	1005	0	0	0	0	3	4	+1.0000e+000	0 0
934	985	990	1007	1008	0	0	0	0	3	4	+1.0000e+000	0 0
935	986	985	1008	1004	0	0	0	0	3	4	+1.0000e+000	0 0
936	990	989	1006	1007	0	0	0	0	3	4	+1.0000e+000	0 0
937	988	993	1009	1010	0	0	0	0	3	4	+1.0000e+000	0 0
938	989	988	1010	1006	0	0	0	0	3	4	+1.0000e+000	0 0

939	991	995	1011	1012	0	0	0	0	3	4	+1.0000e+000	0 0
940	992	991	1012	1013	0	0	0	0	3	4	+1.0000e+000	0 0
941	993	992	1013	1009	0	0	0	0	3	4	+1.0000e+000	0 0
942	994	997	1014	1015	0	0	0	0	3	4	+1.0000e+000	0 0
943	995	994	1015	1011	0	0	0	0	3	4	+1.0000e+000	0 0
944	997	996	1016	1014	0	0	0	0	3	4	+1.0000e+000	0 0
945	1000	999	1017	1018	0	0	0	0	3	4	+1.0000e+000	0 0
946	998	1003	1020	1021	0	0	0	0	3	4	+1.0000e+000	0 0
947	999	998	1021	1017	0	0	0	0	3	4	+1.0000e+000	0 0
948	1003	1002	1019	1020	0	0	0	0	3	4	+1.0000e+000	0 0
949	1001	1005	1022	1023	0	0	0	0	3	4	+1.0000e+000	0 0
950	1002	1001	1023	1019	0	0	0	0	3	4	+1.0000e+000	0 0
951	1004	1008	1024	1025	0	0	0	0	3	4	+1.0000e+000	0 0
952	1005	1004	1025	1022	0	0	0	0	3	4	+1.0000e+000	0 0
953	1006	1010	1026	1027	0	0	0	0	3	4	+1.0000e+000	0 0
954	1007	1006	1027	1028	0	0	0	0	3	4	+1.0000e+000	0 0
955	1008	1007	1028	1024	0	0	0	0	3	4	+1.0000e+000	0 0
956	1009	1013	1029	1030	0	0	0	0	3	4	+1.0000e+000	0 0
957	1010	1009	1030	1026	0	0	0	0	3	4	+1.0000e+000	0 0
958	1011	1015	1031	1032	0	0	0	0	3	4	+1.0000e+000	0 0
959	1012	1011	1032	1033	0	0	0	0	3	4	+1.0000e+000	0 0
960	1013	1012	1033	1029	0	0	0	0	3	4	+1.0000e+000	0 0
961	1014	1016	1034	1035	0	0	0	0	3	4	+1.0000e+000	0 0
962	1015	1014	1035	1031	0	0	0	0	3	4	+1.0000e+000	0 0
963	1017	1021	1038	1039	0	0	0	0	3	4	+1.0000e+000	0 0
964	1018	1017	1039	1036	0	0	0	0	3	4	+1.0000e+000	0 0
965	1021	1020	1037	1038	0	0	0	0	3	4	+1.0000e+000	0 0
966	1019	1023	1040	1041	0	0	0	0	3	4	+1.0000e+000	0 0
967	1020	1019	1041	1037	0	0	0	0	3	4	+1.0000e+000	0 0
968	1022	1025	1043	1044	0	0	0	0	3	4	+1.0000e+000	0 0

969	1023	1022	1044	1040	0	0	0	0	3	4	+1.0000e+000	0 0
970	1025	1024	1042	1043	0	0	0	0	3	4	+1.0000e+000	0 0
971	1024	1028	1046	1042	0	0	0	0	3	4	+1.0000e+000	0 0
972	1028	1027	1045	1046	0	0	0	0	3	4	+1.0000e+000	0 0
973	1026	1030	1047	1048	0	0	0	0	3	4	+1.0000e+000	0 0
974	1027	1026	1048	1045	0	0	0	0	3	4	+1.0000e+000	0 0
975	1029	1033	1050	1051	0	0	0	0	3	4	+1.0000e+000	0 0
976	1030	1029	1051	1047	0	0	0	0	3	4	+1.0000e+000	0 0
977	1033	1032	1049	1050	0	0	0	0	3	4	+1.0000e+000	0 0
978	1031	1035	1052	1053	0	0	0	0	3	4	+1.0000e+000	0 0
979	1032	1031	1053	1049	0	0	0	0	3	4	+1.0000e+000	0 0
980	1035	1034	1054	1052	0	0	0	0	3	4	+1.0000e+000	0 0
981	1036	1039	1056	1057	0	0	0	0	3	4	+1.0000e+000	0 0
982	1039	1038	1055	1056	0	0	0	0	3	4	+1.0000e+000	0 0
983	1037	1041	1058	1059	0	0	0	0	3	4	+1.0000e+000	0 0
984	1038	1037	1059	1055	0	0	0	0	3	4	+1.0000e+000	0 0
985	1040	1044	1061	1062	0	0	0	0	3	4	+1.0000e+000	0 0
986	1041	1040	1062	1058	0	0	0	0	3	4	+1.0000e+000	0 0
987	1044	1043	1060	1061	0	0	0	0	3	4	+1.0000e+000	0 0
988	1042	1046	1064	1065	0	0	0	0	3	4	+1.0000e+000	0 0
989	1043	1042	1065	1060	0	0	0	0	3	4	+1.0000e+000	0 0
990	1046	1045	1063	1064	0	0	0	0	3	4	+1.0000e+000	0 0
991	1045	1048	1067	1063	0	0	0	0	3	4	+1.0000e+000	0 0
992	1048	1047	1066	1067	0	0	0	0	3	4	+1.0000e+000	0 0
993	1047	1051	1070	1066	0	0	0	0	3	4	+1.0000e+000	0 0
994	1050	1049	1068	1069	0	0	0	0	3	4	+1.0000e+000	0 0
995	1051	1050	1069	1070	0	0	0	0	3	4	+1.0000e+000	0 0
996	1049	1053	1073	1068	0	0	0	0	3	4	+1.0000e+000	0 0
997	1052	1054	1071	1072	0	0	0	0	3	4	+1.0000e+000	0 0
998	1053	1052	1072	1073	0	0	0	0	3	4	+1.0000e+000	0 0

999	1055	1059	1075	1076	0	0	0	0	3	4	+1.0000e+000	0 0
1000	1056	1055	1076	1077	0	0	0	0	3	4	+1.0000e+000	0 0
1001	1057	1056	1077	1074	0	0	0	0	3	4	+1.0000e+000	0 0
1002	1058	1062	1079	1080	0	0	0	0	3	4	+1.0000e+000	0 0
1003	1059	1058	1080	1075	0	0	0	0	3	4	+1.0000e+000	0 0
1004	1062	1061	1078	1079	0	0	0	0	3	4	+1.0000e+000	0 0
1005	1060	1065	1082	1083	0	0	0	0	3	4	+1.0000e+000	0 0
1006	1061	1060	1083	1078	0	0	0	0	3	4	+1.0000e+000	0 0
1007	1065	1064	1081	1082	0	0	0	0	3	4	+1.0000e+000	0 0
1008	1063	1067	1085	1086	0	0	0	0	3	4	+1.0000e+000	0 0
1009	1064	1063	1086	1081	0	0	0	0	3	4	+1.0000e+000	0 0
1010	1067	1066	1084	1085	0	0	0	0	3	4	+1.0000e+000	0 0
1011	1066	1070	1089	1084	0	0	0	0	3	4	+1.0000e+000	0 0
1012	1069	1068	1087	1088	0	0	0	0	3	4	+1.0000e+000	0 0
1013	1070	1069	1088	1089	0	0	0	0	3	4	+1.0000e+000	0 0
1014	1068	1073	1092	1087	0	0	0	0	3	4	+1.0000e+000	0 0
1015	1072	1071	1090	1091	0	0	0	0	3	4	+1.0000e+000	0 0
1016	1073	1072	1091	1092	0	0	0	0	3	4	+1.0000e+000	0 0
1017	1074	1077	1095	1096	0	0	0	0	3	4	+1.0000e+000	0 0
1018	1076	1075	1093	1094	0	0	0	0	3	4	+1.0000e+000	0 0
1019	1077	1076	1094	1095	0	0	0	0	3	4	+1.0000e+000	0 0
1020	1075	1080	1099	1093	0	0	0	0	3	4	+1.0000e+000	0 0
1021	1079	1078	1097	1098	0	0	0	0	3	4	+1.0000e+000	0 0
1022	1080	1079	1098	1099	0	0	0	0	3	4	+1.0000e+000	0 0
1023	1078	1083	1101	1097	0	0	0	0	3	4	+1.0000e+000	0 0
1024	1083	1082	1100	1101	0	0	0	0	3	4	+1.0000e+000	0 0
1025	1081	1086	1104	1105	0	0	0	0	3	4	+1.0000e+000	0 0
1026	1082	1081	1105	1100	0	0	0	0	3	4	+1.0000e+000	0 0
1027	1085	1084	1102	1103	0	0	0	0	3	4	+1.0000e+000	0 0
1028	1086	1085	1103	1104	0	0	0	0	3	4	+1.0000e+000	0 0

```
0   0
1029  1084  1089  1108  1102     0     0     0     0     3     4 +1.0000e+000
0   0
1030  1088  1087  1106  1107     0     0     0     0     3     4 +1.0000e+000
0   0
1031  1089  1088  1107  1108     0     0     0     0     3     4 +1.0000e+000
0   0
1032  1087  1092  1111  1106     0     0     0     0     3     4 +1.0000e+000
    0
033   1091  1090  1109  1110     0     0     0     0     3     4 +1.0000e+000
    0
1034  1092  1091  1110  1111     0     0     0     0     3     4 +1.0000e+000
0   0
1035  1096  1095  1112  1113     0     0     0     0     3     4 +1.0000e+000
0   0
1036  1093  1099  1115  1116     0     0     0     0     3     4 +1.0000e+000
0   0
1037  1094  1093  1116  1117     0     0     0     0     3     4 +1.0000e+000
0   0
1038  1095  1094  1117  1112     0     0     0     0     3     4 +1.0000e+000
0   0
1039  1099  1098  1114  1115     0     0     0     0     3     4 +1.0000e+000
0   0
1040  1097  1101  1119  1120     0     0     0     0     3     4 +1.0000e+000
0   0
1041  1098  1097  1120  1114     0     0     0     0     3     4 +1.0000e+000
0   0
1042  1101  1100  1118  1119     0     0     0     0     3     4 +1.0000e+000
0   0
1043  1100  1105  1124  1118     0     0     0     0     3     4 +1.0000e+000
0   0
1044  1103  1102  1121  1122     0     0     0     0     3     4 +1.0000e+000
0   0
1045  1104  1103  1122  1123     0     0     0     0     3     4 +1.0000e+000
0   0
1046  1105  1104  1123  1124     0     0     0     0     3     4 +1.0000e+000
0   0
1047  1102  1108  1127  1121     0     0     0     0     3     4 +1.0000e+000
0   0
1048  1107  1106  1125  1126     0     0     0     0     3     4 +1.0000e+000
0   0
1049  1108  1107  1126  1127     0     0     0     0     3     4 +1.0000e+000
0   0
1050  1106  1111  1130  1125     0     0     0     0     3     4 +1.0000e+000
0   0
1051  1110  1109  1128  1129     0     0     0     0     3     4 +1.0000e+000
0   0
1052  1111  1110  1129  1130     0     0     0     0     3     4 +1.0000e+000
0   0
1053  1112  1117  1133  1134     0     0     0     0     3     4 +1.0000e+000
0   0
1054  1113  1112  1134  1131     0     0     0     0     3     4 +1.0000e+000
0   0
1055  1117  1116  1132  1133     0     0     0     0     3     4 +1.0000e+000
0   0
1056  1114  1120  1136  1137     0     0     0     0     3     4 +1.0000e+000
0   0
1057  1115  1114  1137  1138     0     0     0     0     3     4 +1.0000e+000
0   0
1058  1116  1115  1138  1132     0     0     0     0     3     4 +1.0000e+000
```



```
0   0
1059  1120  1119  1135  1136     0     0     0     0     3     4 +1.0000e+000
0   0
1060  1118  1124  1141  1142     0     0     0     0     3     4 +1.0000e+000
0   0
1061  1119  1118  1142  1135     0     0     0     0     3     4 +1.0000e+000
0   0
1062  1123  1122  1139  1140     0     0     0     0     3     4 +1.0000e+000
0   0
1063  1124  1123  1140  1141     0     0     0     0     3     4 +1.0000e+000
0   0
1064  1121  1127  1145  1146     0     0     0     0     3     4 +1.0000e+000
0   0
1065  1122  1121  1146  1139     0     0     0     0     3     4 +1.0000e+000
0   0
1066  1126  1125  1143  1144     0     0     0     0     3     4 +1.0000e+000
0   0
1067  1127  1126  1144  1145     0     0     0     0     3     4 +1.0000e+000
0   0
1068  1125  1130  1149  1143     0     0     0     0     3     4 +1.0000e+000
0   0
1069  1129  1128  1147  1148     0     0     0     0     3     4 +1.0000e+000
0   0
1070  1130  1129  1148  1149     0     0     0     0     3     4 +1.0000e+000
0   0
1071  1131  1134  1151  1152     0     0     0     0     3     4 +1.0000e+000
0   0
1072  1134  1133  1150  1151     0     0     0     0     3     4 +1.0000e+000
0   0
1073  1132  1138  1155  1156     0     0     0     0     3     4 +1.0000e+000
0   0
1074  1133  1132  1156  1150     0     0     0     0     3     4 +1.0000e+000
0   0
1075  1137  1136  1153  1154     0     0     0     0     3     4 +1.0000e+000
0   0
1076  1138  1137  1154  1155     0     0     0     0     3     4 +1.0000e+000
0   0
1077  1135  1142  1160  1161     0     0     0     0     3     4 +1.0000e+000
0   0
1078  1136  1135  1161  1153     0     0     0     0     3     4 +1.0000e+000
0   0
1079  1140  1139  1157  1158     0     0     0     0     3     4 +1.0000e+000
0   0
1080  1141  1140  1158  1159     0     0     0     0     3     4 +1.0000e+000
0   0
1081  1142  1141  1159  1160     0     0     0     0     3     4 +1.0000e+000
0   0
1082  1139  1146  1165  1157     0     0     0     0     3     4 +1.0000e+000
0   0
1083  1144  1143  1162  1163     0     0     0     0     3     4 +1.0000e+000
0   0
1084  1145  1144  1163  1164     0     0     0     0     3     4 +1.0000e+000
0   0
1085  1146  1145  1164  1165     0     0     0     0     3     4 +1.0000e+000
0   0
1086  1143  1149  1168  1162     0     0     0     0     3     4 +1.0000e+000
0   0
1087  1148  1147  1166  1167     0     0     0     0     3     4 +1.0000e+000
0   0
1088  1149  1148  1167  1168     0     0     0     0     3     4 +1.0000e+000
```



```
0   0
1089  1150  1156  1172  1173     0     0     0     0     3     4 +1.0000e+000
0   0
1090  1151  1150  1173  1174     0     0     0     0     3     4 +1.0000e+000
0   0
1091  1152  1151  1174  1169     0     0     0     0     3     4 +1.0000e+000
0   0
1092  1155  1154  1170  1171     0     0     0     0     3     4 +1.0000e+000
0   0
1093  1156  1155  1171  1172     0     0     0     0     3     4 +1.0000e+000
0   0
1094  1153  1161  1178  1179     0     0     0     0     3     4 +1.0000e+000
0   0
1095  1154  1153  1179  1170     0     0     0     0     3     4 +1.0000e+000
0   0
1096  1159  1158  1175  1176     0     0     0     0     3     4 +1.0000e+000
0   0
1097  1160  1159  1176  1177     0     0     0     0     3     4 +1.0000e+000
0   0
1098  1161  1160  1177  1178     0     0     0     0     3     4 +1.0000e+000
0   0
1099  1157  1165  1182  1183     0     0     0     0     3     4 +1.0000e+000
0   0
1100  1158  1157  1183  1175     0     0     0     0     3     4 +1.0000e+000
0   0
1101  1164  1163  1180  1181     0     0     0     0     3     4 +1.0000e+000
0   0
1102  1165  1164  1181  1182     0     0     0     0     3     4 +1.0000e+000
0   0
1103  1162  1168  1186  1187     0     0     0     0     3     4 +1.0000e+000
0   0
1104  1163  1162  1187  1180     0     0     0     0     3     4 +1.0000e+000
0   0
1105  1167  1166  1184  1185     0     0     0     0     3     4 +1.0000e+000
0   0
1106  1168  1167  1185  1186     0     0     0     0     3     4 +1.0000e+000
0   0
1107  1169  1174  1191  1192     0     0     0     0     3     4 +1.0000e+000
0   0
1108  1172  1171  1188  1189     0     0     0     0     3     4 +1.0000e+000
0   0
1109  1173  1172  1189  1190     0     0     0     0     3     4 +1.0000e+000
0   0
1110  1174  1173  1190  1191     0     0     0     0     3     4 +1.0000e+000
0   0
1111  1170  1179  1196  1197     0     0     0     0     3     4 +1.0000e+000
0   0
1112  1171  1170  1197  1188     0     0     0     0     3     4 +1.0000e+000
0   0
1113  1177  1176  1193  1194     0     0     0     0     3     4 +1.0000e+000
0   0
1114  1178  1177  1194  1195     0     0     0     0     3     4 +1.0000e+000
0   0
1115  1179  1178  1195  1196     0     0     0     0     3     4 +1.0000e+000
0   0
1116  1175  1183  1201  1202     0     0     0     0     3     4 +1.0000e+000
0   0
1117  1176  1175  1202  1193     0     0     0     0     3     4 +1.0000e+000
0   0
1118  1181  1180  1198  1199     0     0     0     0     3     4 +1.0000e+000
```



```
0   0
1119  1182  1181  1199  1200     0     0     0     0     3     4 +1.0000e+000
0   0
1120  1183  1182  1200  1201     0     0     0     0     3     4 +1.0000e+000
0   0
1121  1180  1187  1206  1198     0     0     0     0     3     4 +1.0000e+000
0   0
1122  1185  1184  1203  1204     0     0     0     0     3     4 +1.0000e+000
0   0
1123  1186  1185  1204  1205     0     0     0     0     3     4 +1.0000e+000
0   0
1124  1187  1186  1205  1206     0     0     0     0     3     4 +1.0000e+000
0   0
1125  1192  1191  1207  1208     0     0     0     0     3     4 +1.0000e+000
0   0
1126  1188  1197  1211  1212     0     0     0     0     3     4 +1.0000e+000
0   0
1127  1189  1188  1212  1213     0     0     0     0     3     4 +1.0000e+000
0   0
1128  1190  1189  1213  1214     0     0     0     0     3     4 +1.0000e+000
0   0
1129  1191  1190  1214  1207     0     0     0     0     3     4 +1.0000e+000
0   0
1130  1196  1195  1209  1210     0     0     0     0     3     4 +1.0000e+000
0   0
1131  1197  1196  1210  1211     0     0     0     0     3     4 +1.0000e+000
0   0
1132  1193  1202  1220  1221     0     0     0     0     3     4 +1.0000e+000
0   0
1133  1194  1193  1221  1222     0     0     0     0     3     4 +1.0000e+000
0   0
1134  1195  1194  1222  1209     0     0     0     0     3     4 +1.0000e+000
0   0
1135  1198  1206  1215  1216     0     0     0     0     3     4 +1.0000e+000
0   0
1136  1199  1198  1216  1217     0     0     0     0     3     4 +1.0000e+000
0   0
1137  1200  1199  1217  1218     0     0     0     0     3     4 +1.0000e+000
0   0
1138  1201  1200  1218  1219     0     0     0     0     3     4 +1.0000e+000
0   0
1139  1202  1201  1219  1220     0     0     0     0     3     4 +1.0000e+000
0   0
1140  1204  1203  1223  1224     0     0     0     0     3     4 +1.0000e+000
0   0
1141  1205  1204  1224  1225     0     0     0     0     3     4 +1.0000e+000
0   0
1142  1206  1205  1225  1215     0     0     0     0     3     4 +1.0000e+000
0   0
POLE            0
FLUX            0
DENSITY
+1.0000e+000 +1.0000e+000
WATERTABLE      1
    1     1 +1.0000e+000
    1 +1.5136e+002 +2.1652e+002 +2.6241e+002 +2.1652e+002
qBOUNDARY       0
MAILCOLOR       4
    1     0   255   255
    2   255   255     0
```

```
  3   128   255   128
  4   255     0     0
```

11/2/2004
4:00:18 PM
0 +0.0000E+000 = Step Number, Elapsed time

Node#	Head	Flux(O)	Sum_Volume
1	+9.485500E+001	-6.670390E-001	+0.000000E+000
2	+9.988300E+001	-8.729702E-001	+0.000000E+000
3	+1.049100E+002	-6.504552E-001	+0.000000E+000
4	+1.099400E+002	-5.227978E-001	+0.000000E+000
5	+1.149700E+002	-4.203594E-001	+0.000000E+000
6	+1.200000E+002	-3.170950E-001	+0.000000E+000
7	+1.250300E+002	-4.266002E-002	+0.000000E+000
8	+1.284973E+002	+0.000000E+000	+0.000000E+000
9	+1.337778E+002	+0.000000E+000	+0.000000E+000
10	+1.375809E+002	+0.000000E+000	+0.000000E+000
11	+1.409942E+002	+0.000000E+000	+0.000000E+000
12	+1.438000E+002	+0.000000E+000	+0.000000E+000
13	+1.460797E+002	+0.000000E+000	+0.000000E+000
14	+1.478832E+002	+0.000000E+000	+0.000000E+000
15	+1.492749E+002	+0.000000E+000	+0.000000E+000
16	+1.503113E+002	+0.000000E+000	+0.000000E+000
17	+1.510256E+002	+0.000000E+000	+0.000000E+000
18	+1.514434E+002	+0.000000E+000	+0.000000E+000
19	+1.515806E+002	+0.000000E+000	+0.000000E+000
20	+1.042235E+002	+0.000000E+000	+0.000000E+000
21	+1.060071E+002	+0.000000E+000	+0.000000E+000
22	+1.097329E+002	+0.000000E+000	+0.000000E+000
23	+1.138520E+002	+0.000000E+000	+0.000000E+000
24	+1.181335E+002	+0.000000E+000	+0.000000E+000
25	+1.224594E+002	+0.000000E+000	+0.000000E+000
26	+1.265115E+002	+0.000000E+000	+0.000000E+000
27	+1.300365E+002	+0.000000E+000	+0.000000E+000
28	+1.336290E+002	+0.000000E+000	+0.000000E+000
29	+1.377712E+002	+0.000000E+000	+0.000000E+000
30	+1.411152E+002	+0.000000E+000	+0.000000E+000
31	+1.439256E+002	+0.000000E+000	+0.000000E+000
32	+1.461883E+002	+0.000000E+000	+0.000000E+000
33	+1.479722E+002	+0.000000E+000	+0.000000E+000
34	+1.493564E+002	+0.000000E+000	+0.000000E+000
35	+1.503844E+002	+0.000000E+000	+0.000000E+000
36	+1.510927E+002	+0.000000E+000	+0.000000E+000
37	+1.515065E+002	+0.000000E+000	+0.000000E+000
38	+1.516428E+002	+0.000000E+000	+0.000000E+000
39	+1.107652E+002	+0.000000E+000	+0.000000E+000
40	+1.118057E+002	+0.000000E+000	+0.000000E+000
41	+1.143854E+002	+0.000000E+000	+0.000000E+000
42	+1.176874E+002	+0.000000E+000	+0.000000E+000
43	+1.212889E+002	+0.000000E+000	+0.000000E+000
44	+1.249566E+002	+0.000000E+000	+0.000000E+000
45	+1.284650E+002	+0.000000E+000	+0.000000E+000
46	+1.316818E+002	+0.000000E+000	+0.000000E+000
47	+1.343223E+002	+0.000000E+000	+0.000000E+000
48	+1.381641E+002	+0.000000E+000	+0.000000E+000
49	+1.414920E+002	+0.000000E+000	+0.000000E+000
50	+1.443178E+002	+0.000000E+000	+0.000000E+000
51	+1.465077E+002	+0.000000E+000	+0.000000E+000
52	+1.482478E+002	+0.000000E+000	+0.000000E+000

53	+1.495993E+002	+0.000000E+000	+0.000000E+000
54	+1.506007E+002	+0.000000E+000	+0.000000E+000
55	+1.512923E+002	+0.000000E+000	+0.000000E+000
56	+1.516964E+002	+0.000000E+000	+0.000000E+000
57	+1.518287E+002	+0.000000E+000	+0.000000E+000
58	+1.161716E+002	+0.000000E+000	+0.000000E+000
59	+1.168883E+002	+0.000000E+000	+0.000000E+000
60	+1.187814E+002	+0.000000E+000	+0.000000E+000
61	+1.214855E+002	+0.000000E+000	+0.000000E+000
62	+1.244851E+002	+0.000000E+000	+0.000000E+000
63	+1.275227E+002	+0.000000E+000	+0.000000E+000
64	+1.305846E+002	+0.000000E+000	+0.000000E+000
65	+1.334267E+002	+0.000000E+000	+0.000000E+000
66	+1.358904E+002	+0.000000E+000	+0.000000E+000
67	+1.382355E+002	+0.000000E+000	+0.000000E+000
68	+1.423565E+002	+0.000000E+000	+0.000000E+000
69	+1.449521E+002	+0.000000E+000	+0.000000E+000
70	+1.470205E+002	+0.000000E+000	+0.000000E+000
71	+1.487050E+002	+0.000000E+000	+0.000000E+000
72	+1.499996E+002	+0.000000E+000	+0.000000E+000
73	+1.509606E+002	+0.000000E+000	+0.000000E+000
74	+1.516231E+002	+0.000000E+000	+0.000000E+000
75	+1.520091E+002	+0.000000E+000	+0.000000E+000
76	+1.521358E+002	+0.000000E+000	+0.000000E+000
77	+1.208714E+002	+0.000000E+000	+0.000000E+000
78	+1.214055E+002	+0.000000E+000	+0.000000E+000
79	+1.228552E+002	+0.000000E+000	+0.000000E+000
80	+1.249657E+002	+0.000000E+000	+0.000000E+000
81	+1.274597E+002	+0.000000E+000	+0.000000E+000
82	+1.301298E+002	+0.000000E+000	+0.000000E+000
83	+1.327985E+002	+0.000000E+000	+0.000000E+000
84	+1.353429E+002	+0.000000E+000	+0.000000E+000
85	+1.376973E+002	+0.000000E+000	+0.000000E+000
86	+1.398759E+002	+0.000000E+000	+0.000000E+000
87	+1.438068E+002	+0.000000E+000	+0.000000E+000
88	+1.456671E+002	+0.000000E+000	+0.000000E+000
89	+1.477655E+002	+0.000000E+000	+0.000000E+000
90	+1.493290E+002	+0.000000E+000	+0.000000E+000
91	+1.505495E+002	+0.000000E+000	+0.000000E+000
92	+1.514572E+002	+0.000000E+000	+0.000000E+000
93	+1.520781E+002	+0.000000E+000	+0.000000E+000
94	+1.524402E+002	+0.000000E+000	+0.000000E+000
95	+1.525579E+002	+0.000000E+000	+0.000000E+000
96	+1.250664E+002	+0.000000E+000	+0.000000E+000
97	+1.254831E+002	+0.000000E+000	+0.000000E+000
98	+1.266334E+002	+0.000000E+000	+0.000000E+000
99	+1.283505E+002	+0.000000E+000	+0.000000E+000
100	+1.304452E+002	+0.000000E+000	+0.000000E+000
101	+1.327329E+002	+0.000000E+000	+0.000000E+000
102	+1.350789E+002	+0.000000E+000	+0.000000E+000
103	+1.373699E+002	+0.000000E+000	+0.000000E+000
104	+1.395617E+002	+0.000000E+000	+0.000000E+000
105	+1.416880E+002	+0.000000E+000	+0.000000E+000
106	+1.435649E+002	+0.000000E+000	+0.000000E+000
107	+1.468874E+002	+0.000000E+000	+0.000000E+000
108	+1.486787E+002	+0.000000E+000	+0.000000E+000
109	+1.501079E+002	+0.000000E+000	+0.000000E+000
110	+1.512476E+002	+0.000000E+000	+0.000000E+000
111	+1.520819E+002	+0.000000E+000	+0.000000E+000
112	+1.526523E+002	+0.000000E+000	+0.000000E+000

113	+1.529812E+002	+0.000000E+000	+0.000000E+000
114	+1.530882E+002	+0.000000E+000	+0.000000E+000
115	+1.288770E+002	+0.000000E+000	+0.000000E+000
116	+1.292122E+002	+0.000000E+000	+0.000000E+000
117	+1.301479E+002	+0.000000E+000	+0.000000E+000
118	+1.315707E+002	+0.000000E+000	+0.000000E+000
119	+1.333431E+002	+0.000000E+000	+0.000000E+000
120	+1.353193E+002	+0.000000E+000	+0.000000E+000
121	+1.373840E+002	+0.000000E+000	+0.000000E+000
122	+1.394503E+002	+0.000000E+000	+0.000000E+000
123	+1.414752E+002	+0.000000E+000	+0.000000E+000
124	+1.434496E+002	+0.000000E+000	+0.000000E+000
125	+1.452542E+002	+0.000000E+000	+0.000000E+000
126	+1.485400E+002	+0.000000E+000	+0.000000E+000
127	+1.496303E+002	+0.000000E+000	+0.000000E+000
128	+1.510595E+002	+0.000000E+000	+0.000000E+000
129	+1.520784E+002	+0.000000E+000	+0.000000E+000
130	+1.528304E+002	+0.000000E+000	+0.000000E+000
131	+1.533348E+002	+0.000000E+000	+0.000000E+000
132	+1.536236E+002	+0.000000E+000	+0.000000E+000
133	+1.537154E+002	+0.000000E+000	+0.000000E+000
134	+1.319611E+002	+0.000000E+000	+0.000000E+000
135	+1.322431E+002	+0.000000E+000	+0.000000E+000
136	+1.330359E+002	+0.000000E+000	+0.000000E+000
137	+1.342600E+002	+0.000000E+000	+0.000000E+000
138	+1.358016E+002	+0.000000E+000	+0.000000E+000
139	+1.375502E+002	+0.000000E+000	+0.000000E+000
140	+1.394067E+002	+0.000000E+000	+0.000000E+000
141	+1.412948E+002	+0.000000E+000	+0.000000E+000
142	+1.431723E+002	+0.000000E+000	+0.000000E+000
143	+1.449971E+002	+0.000000E+000	+0.000000E+000
144	+1.468171E+002	+0.000000E+000	+0.000000E+000
145	+1.485212E+002	+0.000000E+000	+0.000000E+000
146	+1.500891E+002	+0.000000E+000	+0.000000E+000
147	+1.519888E+002	+0.000000E+000	+0.000000E+000
148	+1.529899E+002	+0.000000E+000	+0.000000E+000
149	+1.535796E+002	+0.000000E+000	+0.000000E+000
150	+1.540126E+002	+0.000000E+000	+0.000000E+000
151	+1.542591E+002	+0.000000E+000	+0.000000E+000
152	+1.543362E+002	+0.000000E+000	+0.000000E+000
153	+1.348479E+002	+0.000000E+000	+0.000000E+000
154	+1.350898E+002	+0.000000E+000	+0.000000E+000
155	+1.357728E+002	+0.000000E+000	+0.000000E+000
156	+1.368339E+002	+0.000000E+000	+0.000000E+000
157	+1.381883E+002	+0.000000E+000	+0.000000E+000
158	+1.397451E+002	+0.000000E+000	+0.000000E+000
159	+1.414287E+002	+0.000000E+000	+0.000000E+000
160	+1.431475E+002	+0.000000E+000	+0.000000E+000
161	+1.448779E+002	+0.000000E+000	+0.000000E+000
162	+1.465810E+002	+0.000000E+000	+0.000000E+000
163	+1.482793E+002	+0.000000E+000	+0.000000E+000
164	+1.496516E+002	+0.000000E+000	+0.000000E+000
165	+1.522248E+002	+0.000000E+000	+0.000000E+000
166	+1.529338E+002	+0.000000E+000	+0.000000E+000
167	+1.538653E+002	+0.000000E+000	+0.000000E+000
168	+1.544038E+002	+0.000000E+000	+0.000000E+000
169	+1.547557E+002	+0.000000E+000	+0.000000E+000
170	+1.549537E+002	+0.000000E+000	+0.000000E+000
171	+1.550143E+002	+0.000000E+000	+0.000000E+000
172	+1.375679E+002	+0.000000E+000	+0.000000E+000

173	+1.377782E+002	+0.000000E+000	+0.000000E+000
174	+1.383726E+002	+0.000000E+000	+0.000000E+000
175	+1.393837E+002	+0.000000E+000	+0.000000E+000
176	+1.405042E+002	+0.000000E+000	+0.000000E+000
177	+1.418995E+002	+0.000000E+000	+0.000000E+000
178	+1.434184E+002	+0.000000E+000	+0.000000E+000
179	+1.450002E+002	+0.000000E+000	+0.000000E+000
180	+1.465977E+002	+0.000000E+000	+0.000000E+000
181	+1.481858E+002	+0.000000E+000	+0.000000E+000
182	+1.496999E+002	+0.000000E+000	+0.000000E+000
183	+1.512465E+002	+0.000000E+000	+0.000000E+000
184	+1.523286E+002	+0.000000E+000	+0.000000E+000
185	+1.542412E+002	+0.000000E+000	+0.000000E+000
186	+1.548974E+002	+0.000000E+000	+0.000000E+000
187	+1.552957E+002	+0.000000E+000	+0.000000E+000
188	+1.555503E+002	+0.000000E+000	+0.000000E+000
189	+1.556965E+002	+0.000000E+000	+0.000000E+000
190	+1.557384E+002	+0.000000E+000	+0.000000E+000
191	+1.401432E+002	+0.000000E+000	+0.000000E+000
192	+1.403283E+002	+0.000000E+000	+0.000000E+000
193	+1.408523E+002	+0.000000E+000	+0.000000E+000
194	+1.416783E+002	+0.000000E+000	+0.000000E+000
195	+1.427519E+002	+0.000000E+000	+0.000000E+000
196	+1.440114E+002	+0.000000E+000	+0.000000E+000
197	+1.453952E+002	+0.000000E+000	+0.000000E+000
198	+1.468479E+002	+0.000000E+000	+0.000000E+000
199	+1.483257E+002	+0.000000E+000	+0.000000E+000
200	+1.497897E+002	+0.000000E+000	+0.000000E+000
201	+1.512273E+002	+0.000000E+000	+0.000000E+000
202	+1.525256E+002	+0.000000E+000	+0.000000E+000
203	+1.540758E+002	+0.000000E+000	+0.000000E+000
204	+1.556282E+002	+0.000000E+000	+0.000000E+000
205	+1.560543E+002	+0.000000E+000	+0.000000E+000
206	+1.562106E+002	+0.000000E+000	+0.000000E+000
207	+1.563918E+002	+0.000000E+000	+0.000000E+000
208	+1.564735E+002	+0.000000E+000	+0.000000E+000
209	+1.564963E+002	+0.000000E+000	+0.000000E+000
210	+1.425920E+002	+0.000000E+000	+0.000000E+000
211	+1.427570E+002	+0.000000E+000	+0.000000E+000
212	+1.432252E+002	+0.000000E+000	+0.000000E+000
213	+1.439668E+002	+0.000000E+000	+0.000000E+000
214	+1.449344E+002	+0.000000E+000	+0.000000E+000
215	+1.460800E+002	+0.000000E+000	+0.000000E+000
216	+1.473483E+002	+0.000000E+000	+0.000000E+000
217	+1.486884E+002	+0.000000E+000	+0.000000E+000
218	+1.500532E+002	+0.000000E+000	+0.000000E+000
219	+1.514145E+002	+0.000000E+000	+0.000000E+000
220	+1.527348E+002	+0.000000E+000	+0.000000E+000
221	+1.540612E+002	+0.000000E+000	+0.000000E+000
222	+1.553849E+002	+0.000000E+000	+0.000000E+000
223	+1.580340E+002	+0.000000E+000	+0.000000E+000
224	+1.569319E+002	+0.000000E+000	+0.000000E+000
225	+1.572174E+002	+0.000000E+000	+0.000000E+000
226	+1.572501E+002	+0.000000E+000	+0.000000E+000
227	+1.572740E+002	+0.000000E+000	+0.000000E+000
228	+1.572730E+002	+0.000000E+000	+0.000000E+000
229	+1.449281E+002	+0.000000E+000	+0.000000E+000
230	+1.450773E+002	+0.000000E+000	+0.000000E+000
231	+1.454998E+002	+0.000000E+000	+0.000000E+000
232	+1.461722E+002	+0.000000E+000	+0.000000E+000

```
233 +1.470566E+002 +0.000000E+000 +0.000000E+000
234 +1.481059E+002 +0.000000E+000 +0.000000E+000
235 +1.492767E+002 +0.000000E+000 +0.000000E+000
236 +1.505169E+002 +0.000000E+000 +0.000000E+000
237 +1.517882E+002 +0.000000E+000 +0.000000E+000
238 +1.530502E+002 +0.000000E+000 +0.000000E+000
239 +1.542804E+002 +0.000000E+000 +0.000000E+000
240 +1.554783E+002 +0.000000E+000 +0.000000E+000
241 +1.567471E+002 +0.000000E+000 +0.000000E+000
242 +1.579936E+002 +0.000000E+000 +0.000000E+000
243 +1.583147E+002 +0.000000E+000 +0.000000E+000
244 +1.581685E+002 +0.000000E+000 +0.000000E+000
245 +1.581372E+002 +0.000000E+000 +0.000000E+000
246 +1.580768E+002 +0.000000E+000 +0.000000E+000
247 +1.580552E+002 +0.000000E+000 +0.000000E+000
248 +1.471628E+002 +0.000000E+000 +0.000000E+000
249 +1.472996E+002 +0.000000E+000 +0.000000E+000
250 +1.476865E+002 +0.000000E+000 +0.000000E+000
251 +1.483024E+002 +0.000000E+000 +0.000000E+000
252 +1.491174E+002 +0.000000E+000 +0.000000E+000
253 +1.500897E+002 +0.000000E+000 +0.000000E+000
254 +1.511800E+002 +0.000000E+000 +0.000000E+000
255 +1.523387E+002 +0.000000E+000 +0.000000E+000
256 +1.535266E+002 +0.000000E+000 +0.000000E+000
257 +1.546997E+002 +0.000000E+000 +0.000000E+000
258 +1.558316E+002 +0.000000E+000 +0.000000E+000
259 +1.569271E+002 +0.000000E+000 +0.000000E+000
260 +1.579185E+002 +0.000000E+000 +0.000000E+000
261 +1.592559E+002 +0.000000E+000 +0.000000E+000
262 +1.592494E+002 +0.000000E+000 +0.000000E+000
263 +1.592423E+002 +0.000000E+000 +0.000000E+000
264 +1.589968E+002 +0.000000E+000 +0.000000E+000
265 +1.588720E+002 +0.000000E+000 +0.000000E+000
266 +1.588243E+002 +0.000000E+000 +0.000000E+000
267 +1.493058E+002 +0.000000E+000 +0.000000E+000
268 +1.494323E+002 +0.000000E+000 +0.000000E+000
269 +1.497903E+002 +0.000000E+000 +0.000000E+000
270 +1.503617E+002 +0.000000E+000 +0.000000E+000
271 +1.511218E+002 +0.000000E+000 +0.000000E+000
272 +1.520326E+002 +0.000000E+000 +0.000000E+000
273 +1.530583E+002 +0.000000E+000 +0.000000E+000
274 +1.541512E+002 +0.000000E+000 +0.000000E+000
275 +1.552686E+002 +0.000000E+000 +0.000000E+000
276 +1.563669E+002 +0.000000E+000 +0.000000E+000
277 +1.574055E+002 +0.000000E+000 +0.000000E+000
278 +1.583565E+002 +0.000000E+000 +0.000000E+000
279 +1.592847E+002 +0.000000E+000 +0.000000E+000
280 +1.598801E+002 +0.000000E+000 +0.000000E+000
281 +1.608677E+002 +0.000000E+000 +0.000000E+000
282 +1.601963E+002 +0.000000E+000 +0.000000E+000
283 +1.598414E+002 +0.000000E+000 +0.000000E+000
284 +1.596365E+002 +0.000000E+000 +0.000000E+000
285 +1.595629E+002 +0.000000E+000 +0.000000E+000
286 +1.513642E+002 +0.000000E+000 +0.000000E+000
287 +1.514824E+002 +0.000000E+000 +0.000000E+000
288 +1.518185E+002 +0.000000E+000 +0.000000E+000
289 +1.523560E+002 +0.000000E+000 +0.000000E+000
290 +1.530720E+002 +0.000000E+000 +0.000000E+000
291 +1.539354E+002 +0.000000E+000 +0.000000E+000
292 +1.549118E+002 +0.000000E+000 +0.000000E+000
```



```
293 +1.559552E+002 +0.000000E+000 +0.000000E+000
294 +1.570204E+002 +0.000000E+000 +0.000000E+000
295 +1.580574E+002 +0.000000E+000 +0.000000E+000
296 +1.590073E+002 +0.000000E+000 +0.000000E+000
297 +1.598389E+002 +0.000000E+000 +0.000000E+000
298 +1.605260E+002 +0.000000E+000 +0.000000E+000
299 +1.612829E+002 +0.000000E+000 +0.000000E+000
300 +1.622466E+002 +0.000000E+000 +0.000000E+000
301 +1.610629E+002 +0.000000E+000 +0.000000E+000
302 +1.606467E+002 +0.000000E+000 +0.000000E+000
303 +1.603522E+002 +0.000000E+000 +0.000000E+000
304 +1.602553E+002 +0.000000E+000 +0.000000E+000
305 +1.533427E+002 +0.000000E+000 +0.000000E+000
306 +1.534550E+002 +0.000000E+000 +0.000000E+000
307 +1.537735E+002 +0.000000E+000 +0.000000E+000
308 +1.542852E+002 +0.000000E+000 +0.000000E+000
309 +1.549695E+002 +0.000000E+000 +0.000000E+000
310 +1.557985E+002 +0.000000E+000 +0.000000E+000
311 +1.567406E+002 +0.000000E+000 +0.000000E+000
312 +1.577509E+002 +0.000000E+000 +0.000000E+000
313 +1.587827E+002 +0.000000E+000 +0.000000E+000
314 +1.597758E+002 +0.000000E+000 +0.000000E+000
315 +1.606576E+002 +0.000000E+000 +0.000000E+000
316 +1.613553E+002 +0.000000E+000 +0.000000E+000
317 +1.618651E+002 +0.000000E+000 +0.000000E+000
318 +1.623109E+002 +0.000000E+000 +0.000000E+000
319 +1.622571E+002 +0.000000E+000 +0.000000E+000
320 +1.620364E+002 +0.000000E+000 +0.000000E+000
321 +1.613562E+002 +0.000000E+000 +0.000000E+000
322 +1.610089E+002 +0.000000E+000 +0.000000E+000
323 +1.608783E+002 +0.000000E+000 +0.000000E+000
324 +1.552461E+002 +0.000000E+000 +0.000000E+000
325 +1.553541E+002 +0.000000E+000 +0.000000E+000
326 +1.556597E+002 +0.000000E+000 +0.000000E+000
327 +1.561529E+002 +0.000000E+000 +0.000000E+000
328 +1.568150E+002 +0.000000E+000 +0.000000E+000
329 +1.576237E+002 +0.000000E+000 +0.000000E+000
330 +1.585420E+002 +0.000000E+000 +0.000000E+000
331 +1.595382E+002 +0.000000E+000 +0.000000E+000
332 +1.605573E+002 +0.000000E+000 +0.000000E+000
333 +1.615351E+002 +0.000000E+000 +0.000000E+000
334 +1.623774E+002 +0.000000E+000 +0.000000E+000
335 +1.629580E+002 +0.000000E+000 +0.000000E+000
336 +1.632259E+002 +0.000000E+000 +0.000000E+000
337 +1.632998E+002 +0.000000E+000 +0.000000E+000
338 +1.638960E+002 +0.000000E+000 +0.000000E+000
339 +1.626482E+002 +0.000000E+000 +0.000000E+000
340 +1.620372E+002 +0.000000E+000 +0.000000E+000
341 +1.615749E+002 +0.000000E+000 +0.000000E+000
342 +1.614146E+002 +0.000000E+000 +0.000000E+000
343 +1.570783E+002 +0.000000E+000 +0.000000E+000
344 +1.571827E+002 +0.000000E+000 +0.000000E+000
345 +1.574803E+002 +0.000000E+000 +0.000000E+000
346 +1.579615E+002 +0.000000E+000 +0.000000E+000
347 +1.586108E+002 +0.000000E+000 +0.000000E+000
348 +1.594064E+002 +0.000000E+000 +0.000000E+000
349 +1.603181E+002 +0.000000E+000 +0.000000E+000
350 +1.613134E+002 +0.000000E+000 +0.000000E+000
351 +1.623421E+002 +0.000000E+000 +0.000000E+000
352 +1.633358E+002 +0.000000E+000 +0.000000E+000
```



```
353 +1.641889E+002 +0.000000E+000 +0.000000E+000
354 +1.646982E+002 +0.000000E+000 +0.000000E+000
355 +1.646459E+002 +0.000000E+000 +0.000000E+000
356 +1.643133E+002 +0.000000E+000 +0.000000E+000
357 +1.643246E+002 +0.000000E+000 +0.000000E+000
358 +1.633938E+002 +0.000000E+000 +0.000000E+000
359 +1.626095E+002 +0.000000E+000 +0.000000E+000
360 +1.620397E+002 +0.000000E+000 +0.000000E+000
361 +1.618327E+002 +0.000000E+000 +0.000000E+000
362 +1.621283E+002 +0.000000E+000 +0.000000E+000
363 +1.588400E+002 +0.000000E+000 +0.000000E+000
364 +1.589418E+002 +0.000000E+000 +0.000000E+000
365 +1.592337E+002 +0.000000E+000 +0.000000E+000
366 +1.597084E+002 +0.000000E+000 +0.000000E+000
367 +1.603523E+002 +0.000000E+000 +0.000000E+000
368 +1.611465E+002 +0.000000E+000 +0.000000E+000
369 +1.620643E+002 +0.000000E+000 +0.000000E+000
370 +1.630770E+002 +0.000000E+000 +0.000000E+000
371 +1.641393E+002 +0.000000E+000 +0.000000E+000
372 +1.651836E+002 +0.000000E+000 +0.000000E+000
373 +1.661092E+002 +0.000000E+000 +0.000000E+000
374 +1.666813E+002 +0.000000E+000 +0.000000E+000
375 +1.662615E+002 +0.000000E+000 +0.000000E+000
376 +1.650646E+002 +0.000000E+000 +0.000000E+000
377 +1.645835E+002 +0.000000E+000 +0.000000E+000
378 +1.641440E+002 +0.000000E+000 +0.000000E+000
379 +1.631072E+002 +0.000000E+000 +0.000000E+000
380 +1.623466E+002 +0.000000E+000 +0.000000E+000
381 +1.622339E+002 +0.000000E+000 +0.000000E+000
382 +1.605337E+002 +0.000000E+000 +0.000000E+000
383 +1.606332E+002 +0.000000E+000 +0.000000E+000
384 +1.609223E+002 +0.000000E+000 +0.000000E+000
385 +1.613952E+002 +0.000000E+000 +0.000000E+000
386 +1.620402E+002 +0.000000E+000 +0.000000E+000
387 +1.628416E+002 +0.000000E+000 +0.000000E+000
388 +1.637783E+002 +0.000000E+000 +0.000000E+000
389 +1.648239E+002 +0.000000E+000 +0.000000E+000
390 +1.659394E+002 +0.000000E+000 +0.000000E+000
391 +1.670766E+002 +0.000000E+000 +0.000000E+000
392 +1.680930E+002 +0.000000E+000 +0.000000E+000
393 +1.690038E+002 +0.000000E+000 +0.000000E+000
394 +1.685338E+002 +0.000000E+000 +0.000000E+000
395 +1.650969E+002 +0.000000E+000 +0.000000E+000
396 +1.648177E+002 +0.000000E+000 +0.000000E+000
397 +1.654225E+002 +0.000000E+000 +0.000000E+000
398 +1.632795E+002 +0.000000E+000 +0.000000E+000
399 +1.624925E+002 +0.000000E+000 +0.000000E+000
400 +1.622972E+002 +0.000000E+000 +0.000000E+000
401 +1.793193E+002 +0.000000E+000 +0.000000E+000
402 +1.857504E+002 +0.000000E+000 +0.000000E+000
403 +1.611527E+002 +0.000000E+000 +0.000000E+000
404 +1.612511E+002 +0.000000E+000 +0.000000E+000
405 +1.615400E+002 +0.000000E+000 +0.000000E+000
406 +1.620133E+002 +0.000000E+000 +0.000000E+000
407 +1.626620E+002 +0.000000E+000 +0.000000E+000
408 +1.634680E+002 +0.000000E+000 +0.000000E+000
409 +1.644121E+002 +0.000000E+000 +0.000000E+000
410 +1.654726E+002 +0.000000E+000 +0.000000E+000
411 +1.666169E+002 +0.000000E+000 +0.000000E+000
412 +1.677817E+002 +0.000000E+000 +0.000000E+000
```



```
413 +1.689225E+002 +0.000000E+000 +0.000000E+000
414 +1.696564E+002 +0.000000E+000 +0.000000E+000
415 +1.708011E+002 +0.000000E+000 +0.000000E+000
416 +1.742735E+002 +0.000000E+000 +0.000000E+000
417 +1.745099E+002 +0.000000E+000 +0.000000E+000
418 +1.748382E+002 +0.000000E+000 +0.000000E+000
419 +1.749895E+002 +0.000000E+000 +0.000000E+000
420 +1.795351E+002 +0.000000E+000 +0.000000E+000
421 +1.812385E+002 +0.000000E+000 +0.000000E+000
422 +1.846715E+002 +0.000000E+000 +0.000000E+000
423 +1.891470E+002 +0.000000E+000 +0.000000E+000
424 +1.865906E+002 +0.000000E+000 +0.000000E+000
425 +1.915487E+002 +0.000000E+000 +0.000000E+000
426 +1.889081E+002 +0.000000E+000 +0.000000E+000
427 +1.939460E+002 +0.000000E+000 +0.000000E+000
428 +1.906777E+002 +0.000000E+000 +0.000000E+000
429 +1.617634E+002 +0.000000E+000 +0.000000E+000
430 +1.618613E+002 +0.000000E+000 +0.000000E+000
431 +1.621501E+002 +0.000000E+000 +0.000000E+000
432 +1.626244E+002 +0.000000E+000 +0.000000E+000
433 +1.632740E+002 +0.000000E+000 +0.000000E+000
434 +1.640857E+002 +0.000000E+000 +0.000000E+000
435 +1.650398E+002 +0.000000E+000 +0.000000E+000
436 +1.661181E+002 +0.000000E+000 +0.000000E+000
437 +1.672886E+002 +0.000000E+000 +0.000000E+000
438 +1.685056E+002 +0.000000E+000 +0.000000E+000
439 +1.696946E+002 +0.000000E+000 +0.000000E+000
440 +1.706204E+002 +0.000000E+000 +0.000000E+000
441 +1.718524E+002 +0.000000E+000 +0.000000E+000
442 +1.741136E+002 +0.000000E+000 +0.000000E+000
443 +1.745640E+002 +0.000000E+000 +0.000000E+000
444 +1.748351E+002 +0.000000E+000 +0.000000E+000
445 +1.750010E+002 +0.000000E+000 +0.000000E+000
446 +1.795457E+002 +0.000000E+000 +0.000000E+000
447 +1.816398E+002 +0.000000E+000 +0.000000E+000
448 +1.857819E+002 +0.000000E+000 +0.000000E+000
449 +1.959946E+002 +0.000000E+000 +0.000000E+000
450 +1.930670E+002 +0.000000E+000 +0.000000E+000
451 +1.876043E+002 +0.000000E+000 +0.000000E+000
452 +1.983175E+002 +0.000000E+000 +0.000000E+000
453 +1.896958E+002 +0.000000E+000 +0.000000E+000
454 +1.950352E+002 +0.000000E+000 +0.000000E+000
455 +1.918033E+002 +0.000000E+000 +0.000000E+000
456 +2.004861E+002 +0.000000E+000 +0.000000E+000
457 +1.973161E+002 +0.000000E+000 +0.000000E+000
458 +1.821733E+002 +0.000000E+000 +0.000000E+000
459 +1.623625E+002 +0.000000E+000 +0.000000E+000
460 +1.624601E+002 +0.000000E+000 +0.000000E+000
461 +1.627493E+002 +0.000000E+000 +0.000000E+000
462 +1.632250E+002 +0.000000E+000 +0.000000E+000
463 +1.638780E+002 +0.000000E+000 +0.000000E+000
464 +1.646961E+002 +0.000000E+000 +0.000000E+000
465 +1.656615E+002 +0.000000E+000 +0.000000E+000
466 +1.667585E+002 +0.000000E+000 +0.000000E+000
467 +1.679589E+002 +0.000000E+000 +0.000000E+000
468 +1.692265E+002 +0.000000E+000 +0.000000E+000
469 +1.704861E+002 +0.000000E+000 +0.000000E+000
470 +1.715909E+002 +0.000000E+000 +0.000000E+000
471 +1.727724E+002 +0.000000E+000 +0.000000E+000
472 +1.741397E+002 +0.000000E+000 +0.000000E+000
```

473	+1.745775E+002	+0.000000E+000	+0.000000E+000
474	+1.748485E+002	+0.000000E+000	+0.000000E+000
475	+1.750217E+002	+0.000000E+000	+0.000000E+000
476	+1.796100E+002	+0.000000E+000	+0.000000E+000
477	+1.862459E+002	+0.000000E+000	+0.000000E+000
478	+1.940139E+002	+0.000000E+000	+0.000000E+000
479	+1.994845E+002	+0.000000E+000	+0.000000E+000
480	+2.024614E+002	+0.000000E+000	+0.000000E+000
481	+1.883771E+002	+0.000000E+000	+0.000000E+000
482	+1.961747E+002	+0.000000E+000	+0.000000E+000
483	+2.014557E+002	+0.000000E+000	+0.000000E+000
484	+1.905685E+002	+0.000000E+000	+0.000000E+000
485	+2.043332E+002	+0.000000E+000	+0.000000E+000
486	+1.983583E+002	+0.000000E+000	+0.000000E+000
487	+1.928336E+002	+0.000000E+000	+0.000000E+000
488	+2.032647E+002	+0.000000E+000	+0.000000E+000
489	+2.004398E+002	+0.000000E+000	+0.000000E+000
490	+1.951212E+002	+0.000000E+000	+0.000000E+000
491	+2.061471E+002	+0.000000E+000	+0.000000E+000
492	+1.826128E+002	+0.000000E+000	+0.000000E+000
493	+2.050352E+002	+0.000000E+000	+0.000000E+000
494	+1.629518E+002	+0.000000E+000	+0.000000E+000
495	+1.630494E+002	+0.000000E+000	+0.000000E+000
496	+1.633391E+002	+0.000000E+000	+0.000000E+000
497	+1.638167E+002	+0.000000E+000	+0.000000E+000
498	+1.644737E+002	+0.000000E+000	+0.000000E+000
499	+1.652990E+002	+0.000000E+000	+0.000000E+000
500	+1.662766E+002	+0.000000E+000	+0.000000E+000
501	+1.673935E+002	+0.000000E+000	+0.000000E+000
502	+1.686260E+002	+0.000000E+000	+0.000000E+000
503	+1.699454E+002	+0.000000E+000	+0.000000E+000
504	+1.712901E+002	+0.000000E+000	+0.000000E+000
505	+1.725622E+002	+0.000000E+000	+0.000000E+000
506	+1.736548E+002	+0.000000E+000	+0.000000E+000
507	+1.742507E+002	+0.000000E+000	+0.000000E+000
508	+1.745792E+002	+0.000000E+000	+0.000000E+000
509	+1.748684E+002	+0.000000E+000	+0.000000E+000
510	+1.750581E+002	+0.000000E+000	+0.000000E+000
511	+1.796966E+002	+0.000000E+000	+0.000000E+000
512	+1.868071E+002	+0.000000E+000	+0.000000E+000
513	+1.973676E+002	+0.000000E+000	+0.000000E+000
514	+2.023999E+002	+0.000000E+000	+0.000000E+000
515	+1.890683E+002	+0.000000E+000	+0.000000E+000
516	+2.079322E+002	+0.000000E+000	+0.000000E+000
517	+1.995363E+002	+0.000000E+000	+0.000000E+000
518	+2.041895E+002	+0.000000E+000	+0.000000E+000
519	+2.067693E+002	+0.000000E+000	+0.000000E+000
520	+1.915467E+002	+0.000000E+000	+0.000000E+000
521	+2.015751E+002	+0.000000E+000	+0.000000E+000
522	+1.940347E+002	+0.000000E+000	+0.000000E+000
523	+2.059583E+002	+0.000000E+000	+0.000000E+000
524	+2.096128E+002	+0.000000E+000	+0.000000E+000
525	+2.084810E+002	+0.000000E+000	+0.000000E+000
526	+1.964660E+002	+0.000000E+000	+0.000000E+000
527	+2.034712E+002	+0.000000E+000	+0.000000E+000
528	+2.075601E+002	+0.000000E+000	+0.000000E+000
529	+1.987683E+002	+0.000000E+000	+0.000000E+000
530	+2.052333E+002	+0.000000E+000	+0.000000E+000
531	+2.100529E+002	+0.000000E+000	+0.000000E+000
532	+2.111074E+002	+0.000000E+000	+0.000000E+000

533	+2.089196E+002	+0.000000E+000	+0.000000E+000
534	+1.830711E+002	+0.000000E+000	+0.000000E+000
535	+2.089736E+002	+0.000000E+000	+0.000000E+000
536	+1.635312E+002	+0.000000E+000	+0.000000E+000
537	+1.636289E+002	+0.000000E+000	+0.000000E+000
538	+1.639195E+002	+0.000000E+000	+0.000000E+000
539	+1.643995E+002	+0.000000E+000	+0.000000E+000
540	+1.650609E+002	+0.000000E+000	+0.000000E+000
541	+1.658941E+002	+0.000000E+000	+0.000000E+000
542	+1.668849E+002	+0.000000E+000	+0.000000E+000
543	+1.680228E+002	+0.000000E+000	+0.000000E+000
544	+1.692887E+002	+0.000000E+000	+0.000000E+000
545	+1.706619E+002	+0.000000E+000	+0.000000E+000
546	+1.720996E+002	+0.000000E+000	+0.000000E+000
547	+1.735367E+002	+0.000000E+000	+0.000000E+000
548	+1.745713E+002	+0.000000E+000	+0.000000E+000
549	+1.743734E+002	+0.000000E+000	+0.000000E+000
550	+1.745801E+002	+0.000000E+000	+0.000000E+000
551	+1.748904E+002	+0.000000E+000	+0.000000E+000
552	+1.751156E+002	+0.000000E+000	+0.000000E+000
553	+1.797217E+002	+0.000000E+000	+0.000000E+000
554	+1.868008E+002	+0.000000E+000	+0.000000E+000
555	+2.068698E+002	+0.000000E+000	+0.000000E+000
556	+2.028943E+002	+0.000000E+000	+0.000000E+000
557	+1.898642E+002	+0.000000E+000	+0.000000E+000
558	+2.114361E+002	+0.000000E+000	+0.000000E+000
559	+1.928338E+002	+0.000000E+000	+0.000000E+000
560	+2.047892E+002	+0.000000E+000	+0.000000E+000
561	+2.083692E+002	+0.000000E+000	+0.000000E+000
562	+2.122693E+002	+0.000000E+000	+0.000000E+000
563	+2.105816E+002	+0.000000E+000	+0.000000E+000
564	+1.956077E+002	+0.000000E+000	+0.000000E+000
565	+2.063581E+002	+0.000000E+000	+0.000000E+000
566	+2.097511E+002	+0.000000E+000	+0.000000E+000
567	+1.981683E+002	+0.000000E+000	+0.000000E+000
568	+2.117973E+002	+0.000000E+000	+0.000000E+000
569	+2.124535E+002	+0.000000E+000	+0.000000E+000
570	+2.004702E+002	+0.000000E+000	+0.000000E+000
571	+2.078640E+002	+0.000000E+000	+0.000000E+000
572	+2.128802E+002	+0.000000E+000	+0.000000E+000
573	+2.111618E+002	+0.000000E+000	+0.000000E+000
574	+2.025580E+002	+0.000000E+000	+0.000000E+000
575	+2.092277E+002	+0.000000E+000	+0.000000E+000
576	+2.044177E+002	+0.000000E+000	+0.000000E+000
577	+2.126852E+002	+0.000000E+000	+0.000000E+000
578	+2.129926E+002	+0.000000E+000	+0.000000E+000
579	+2.121954E+002	+0.000000E+000	+0.000000E+000
580	+2.060987E+002	+0.000000E+000	+0.000000E+000
581	+2.104828E+002	+0.000000E+000	+0.000000E+000
582	+2.075919E+002	+0.000000E+000	+0.000000E+000
583	+2.115901E+002	+0.000000E+000	+0.000000E+000
584	+1.831430E+002	+0.000000E+000	+0.000000E+000
585	+2.131686E+002	+0.000000E+000	+0.000000E+000
586	+1.656395E+002	+0.000000E+000	+0.000000E+000
587	+1.664813E+002	+0.000000E+000	+0.000000E+000
588	+1.674858E+002	+0.000000E+000	+0.000000E+000
589	+1.686456E+002	+0.000000E+000	+0.000000E+000
590	+1.699460E+002	+0.000000E+000	+0.000000E+000
591	+1.713743E+002	+0.000000E+000	+0.000000E+000
592	+1.729104E+002	+0.000000E+000	+0.000000E+000

593	+1.745116E+002	+0.000000E+000	+0.000000E+000
594	+1.755997E+002	+0.000000E+000	+0.000000E+000
595	+1.744320E+002	+0.000000E+000	+0.000000E+000
596	+1.745915E+002	+0.000000E+000	+0.000000E+000
597	+1.749082E+002	+0.000000E+000	+0.000000E+000
598	+1.752030E+002	+0.000000E+000	+0.000000E+000
599	+1.796517E+002	+0.000000E+000	+0.000000E+000
600	+1.874367E+002	+0.000000E+000	+0.000000E+000
601	+2.129744E+002	+0.000000E+000	+0.000000E+000
602	+1.641025E+002	+0.000000E+000	+0.000000E+000
603	+1.642004E+002	+0.000000E+000	+0.000000E+000
604	+1.644921E+002	+0.000000E+000	+0.000000E+000
605	+1.649747E+002	+0.000000E+000	+0.000000E+000
606	+2.089414E+002	+0.000000E+000	+0.000000E+000
607	+1.913515E+002	+0.000000E+000	+0.000000E+000
608	+1.948399E+002	+0.000000E+000	+0.000000E+000
609	+2.101415E+002	+0.000000E+000	+0.000000E+000
610	+2.127248E+002	+0.000000E+000	+0.000000E+000
611	+1.978107E+002	+0.000000E+000	+0.000000E+000
612	+2.003670E+002	+0.000000E+000	+0.000000E+000
613	+2.133934E+002	+0.000000E+000	+0.000000E+000
614	+2.112269E+002	+0.000000E+000	+0.000000E+000
615	+2.025658E+002	+0.000000E+000	+0.000000E+000
616	+2.132860E+002	+0.000000E+000	+0.000000E+000
617	+2.044901E+002	+0.000000E+000	+0.000000E+000
618	+2.121995E+002	+0.000000E+000	+0.000000E+000
619	+2.061681E+002	+0.000000E+000	+0.000000E+000
620	+2.076419E+002	+0.000000E+000	+0.000000E+000
621	+2.136686E+002	+0.000000E+000	+0.000000E+000
622	+2.131428E+002	+0.000000E+000	+0.000000E+000
623	+2.089410E+002	+0.000000E+000	+0.000000E+000
624	+2.100925E+002	+0.000000E+000	+0.000000E+000
625	+2.136620E+002	+0.000000E+000	+0.000000E+000
626	+2.111062E+002	+0.000000E+000	+0.000000E+000
627	+2.120108E+002	+0.000000E+000	+0.000000E+000
628	+2.139814E+002	+0.000000E+000	+0.000000E+000
629	+2.128064E+002	+0.000000E+000	+0.000000E+000
630	+2.134282E+002	+0.000000E+000	+0.000000E+000
631	+2.141515E+002	+0.000000E+000	+0.000000E+000
632	+2.142832E+002	+0.000000E+000	+0.000000E+000
633	+1.832560E+002	+0.000000E+000	+0.000000E+000
634	+1.768445E+002	+0.000000E+000	+0.000000E+000
635	+1.793110E+002	+0.000000E+000	+0.000000E+000
636	+1.897078E+002	+0.000000E+000	+0.000000E+000
637	+1.688792E+002	+0.000000E+000	+0.000000E+000
638	+1.692612E+002	+0.000000E+000	+0.000000E+000
639	+1.705975E+002	+0.000000E+000	+0.000000E+000
640	+1.720787E+002	+0.000000E+000	+0.000000E+000
641	+1.737248E+002	+0.000000E+000	+0.000000E+000
642	+1.754635E+002	+0.000000E+000	+0.000000E+000
643	+1.743171E+002	+0.000000E+000	+0.000000E+000
644	+1.746431E+002	+0.000000E+000	+0.000000E+000
645	+1.749058E+002	+0.000000E+000	+0.000000E+000
646	+1.753313E+002	+0.000000E+000	+0.000000E+000
647	+1.945512E+002	+0.000000E+000	+0.000000E+000
648	+1.981239E+002	+0.000000E+000	+0.000000E+000
649	+2.008979E+002	+0.000000E+000	+0.000000E+000
650	+2.031807E+002	+0.000000E+000	+0.000000E+000
651	+2.050913E+002	+0.000000E+000	+0.000000E+000
652	+1.646623E+002	+0.000000E+000	+0.000000E+000

653	+1.647606E+002	+0.000000E+000	+0.000000E+000
654	+1.650536E+002	+0.000000E+000	+0.000000E+000
655	+1.655392E+002	+0.000000E+000	+0.000000E+000
656	+1.662110E+002	+0.000000E+000	+0.000000E+000
657	+1.670618E+002	+0.000000E+000	+0.000000E+000
658	+2.067396E+002	+0.000000E+000	+0.000000E+000
659	+2.081423E+002	+0.000000E+000	+0.000000E+000
660	+2.093601E+002	+0.000000E+000	+0.000000E+000
661	+2.104099E+002	+0.000000E+000	+0.000000E+000
662	+2.113258E+002	+0.000000E+000	+0.000000E+000
663	+2.121270E+002	+0.000000E+000	+0.000000E+000
664	+2.128244E+002	+0.000000E+000	+0.000000E+000
665	+2.134469E+002	+0.000000E+000	+0.000000E+000
666	+2.140514E+002	+0.000000E+000	+0.000000E+000
667	+2.147439E+002	+0.000000E+000	+0.000000E+000
668	+2.145386E+002	+0.000000E+000	+0.000000E+000
669	+1.774334E+002	+0.000000E+000	+0.000000E+000
670	+1.741916E+002	+0.000000E+000	+0.000000E+000
671	+1.746859E+002	+0.000000E+000	+0.000000E+000
672	+1.749066E+002	+0.000000E+000	+0.000000E+000
673	+1.753540E+002	+0.000000E+000	+0.000000E+000
674	+1.795223E+002	+0.000000E+000	+0.000000E+000
675	+1.832723E+002	+0.000000E+000	+0.000000E+000
676	+1.923922E+002	+0.000000E+000	+0.000000E+000
677	+1.971638E+002	+0.000000E+000	+0.000000E+000
678	+2.004128E+002	+0.000000E+000	+0.000000E+000
679	+2.029852E+002	+0.000000E+000	+0.000000E+000
680	+2.051008E+002	+0.000000E+000	+0.000000E+000
681	+2.068802E+002	+0.000000E+000	+0.000000E+000
682	+2.083890E+002	+0.000000E+000	+0.000000E+000
683	+2.096947E+002	+0.000000E+000	+0.000000E+000
684	+2.107969E+002	+0.000000E+000	+0.000000E+000
685	+2.117508E+002	+0.000000E+000	+0.000000E+000
686	+2.125510E+002	+0.000000E+000	+0.000000E+000
687	+2.132355E+002	+0.000000E+000	+0.000000E+000
688	+2.138233E+002	+0.000000E+000	+0.000000E+000
689	+2.143332E+002	+0.000000E+000	+0.000000E+000
690	+2.147928E+002	+0.000000E+000	+0.000000E+000
691	+2.152686E+002	+0.000000E+000	+0.000000E+000
692	+2.152347E+002	+0.000000E+000	+0.000000E+000
693	+1.970104E+002	+0.000000E+000	+0.000000E+000
694	+2.004134E+002	+0.000000E+000	+0.000000E+000
695	+2.031296E+002	+0.000000E+000	+0.000000E+000
696	+2.053461E+002	+0.000000E+000	+0.000000E+000
697	+2.072125E+002	+0.000000E+000	+0.000000E+000
698	+2.088264E+002	+0.000000E+000	+0.000000E+000
699	+2.101930E+002	+0.000000E+000	+0.000000E+000
700	+2.113684E+002	+0.000000E+000	+0.000000E+000
701	+2.123513E+002	+0.000000E+000	+0.000000E+000
702	+2.131691E+002	+0.000000E+000	+0.000000E+000
703	+2.138497E+002	+0.000000E+000	+0.000000E+000
704	+2.144147E+002	+0.000000E+000	+0.000000E+000
705	+2.148669E+002	+0.000000E+000	+0.000000E+000
706	+2.152435E+002	+0.000000E+000	+0.000000E+000
707	+2.155564E+002	+0.000000E+000	+0.000000E+000
708	+2.157840E+002	+0.000000E+000	+0.000000E+000
709	+2.158342E+002	+0.000000E+000	+0.000000E+000
710	+1.712406E+002	+0.000000E+000	+0.000000E+000
711	+1.727806E+002	+0.000000E+000	+0.000000E+000
712	+1.745089E+002	+0.000000E+000	+0.000000E+000

```
713 +1.765047E+002 +0.000000E+000 +0.000000E+000
714 +1.652123E+002 +0.000000E+000 +0.000000E+000
715 +1.653109E+002 +0.000000E+000 +0.000000E+000
716 +1.656054E+002 +0.000000E+000 +0.000000E+000
717 +1.660943E+002 +0.000000E+000 +0.000000E+000
718 +1.667719E+002 +0.000000E+000 +0.000000E+000
719 +1.676322E+002 +0.000000E+000 +0.000000E+000
720 +1.686660E+002 +0.000000E+000 +0.000000E+000
721 +1.698712E+002 +0.000000E+000 +0.000000E+000
722 +2.021392E+002 +0.000000E+000 +0.000000E+000
723 +2.041372E+002 +0.000000E+000 +0.000000E+000
724 +2.061134E+002 +0.000000E+000 +0.000000E+000
725 +2.079154E+002 +0.000000E+000 +0.000000E+000
726 +2.095195E+002 +0.000000E+000 +0.000000E+000
727 +2.109164E+002 +0.000000E+000 +0.000000E+000
728 +2.121238E+002 +0.000000E+000 +0.000000E+000
729 +2.131453E+002 +0.000000E+000 +0.000000E+000
730 +2.139915E+002 +0.000000E+000 +0.000000E+000
731 +2.146837E+002 +0.000000E+000 +0.000000E+000
732 +2.152340E+002 +0.000000E+000 +0.000000E+000
733 +2.156573E+002 +0.000000E+000 +0.000000E+000
734 +2.159726E+002 +0.000000E+000 +0.000000E+000
735 +1.886312E+002 +0.000000E+000 +0.000000E+000
736 +1.928911E+002 +0.000000E+000 +0.000000E+000
737 +1.965177E+002 +0.000000E+000 +0.000000E+000
738 +1.992477E+002 +0.000000E+000 +0.000000E+000
739 +2.011527E+002 +0.000000E+000 +0.000000E+000
740 +2.161925E+002 +0.000000E+000 +0.000000E+000
741 +2.163308E+002 +0.000000E+000 +0.000000E+000
742 +1.797981E+002 +0.000000E+000 +0.000000E+000
743 +2.018260E+002 +0.000000E+000 +0.000000E+000
744 +2.163968E+002 +0.000000E+000 +0.000000E+000
745 +2.164563E+002 +0.000000E+000 +0.000000E+000
746 +2.021621E+002 +0.000000E+000 +0.000000E+000
747 +2.018426E+002 +0.000000E+000 +0.000000E+000
748 +1.992532E+002 +0.000000E+000 +0.000000E+000
749 +2.011575E+002 +0.000000E+000 +0.000000E+000
750 +1.718753E+002 +0.000000E+000 +0.000000E+000
751 +1.734737E+002 +0.000000E+000 +0.000000E+000
752 +1.752797E+002 +0.000000E+000 +0.000000E+000
753 +1.775287E+002 +0.000000E+000 +0.000000E+000
754 +1.806787E+002 +0.000000E+000 +0.000000E+000
755 +1.884644E+002 +0.000000E+000 +0.000000E+000
756 +1.929404E+002 +0.000000E+000 +0.000000E+000
757 +1.965136E+002 +0.000000E+000 +0.000000E+000
758 +1.658514E+002 +0.000000E+000 +0.000000E+000
759 +1.661476E+002 +0.000000E+000 +0.000000E+000
760 +1.666399E+002 +0.000000E+000 +0.000000E+000
761 +1.673237E+002 +0.000000E+000 +0.000000E+000
762 +1.681938E+002 +0.000000E+000 +0.000000E+000
763 +1.692428E+002 +0.000000E+000 +0.000000E+000
764 +1.704712E+002 +0.000000E+000 +0.000000E+000
765 +1.657540E+002 +0.000000E+000 +0.000000E+000
766 +2.062723E+002 +0.000000E+000 +0.000000E+000
767 +2.043238E+002 +0.000000E+000 +0.000000E+000
768 +2.080560E+002 +0.000000E+000 +0.000000E+000
769 +2.096434E+002 +0.000000E+000 +0.000000E+000
770 +2.110372E+002 +0.000000E+000 +0.000000E+000
771 +2.122297E+002 +0.000000E+000 +0.000000E+000
772 +2.132428E+002 +0.000000E+000 +0.000000E+000
```



```
773 +2.140794E+002 +0.000000E+000 +0.000000E+000
774 +2.147630E+002 +0.000000E+000 +0.000000E+000
775 +2.153024E+002 +0.000000E+000 +0.000000E+000
776 +2.157192E+002 +0.000000E+000 +0.000000E+000
777 +2.160250E+002 +0.000000E+000 +0.000000E+000
778 +2.162365E+002 +0.000000E+000 +0.000000E+000
779 +2.163669E+002 +0.000000E+000 +0.000000E+000
780 +2.165000E+002 +2.418495E-004 +0.000000E+000
781 +2.019093E+002 +0.000000E+000 +0.000000E+000
782 +1.930351E+002 +0.000000E+000 +0.000000E+000
783 +1.965743E+002 +0.000000E+000 +0.000000E+000
784 +1.993282E+002 +0.000000E+000 +0.000000E+000
785 +2.012287E+002 +0.000000E+000 +0.000000E+000
786 +1.741506E+002 +0.000000E+000 +0.000000E+000
787 +1.760581E+002 +0.000000E+000 +0.000000E+000
788 +1.784151E+002 +0.000000E+000 +0.000000E+000
789 +1.819676E+002 +0.000000E+000 +0.000000E+000
790 +1.884067E+002 +0.000000E+000 +0.000000E+000
791 +2.022284E+002 +0.000000E+000 +0.000000E+000
792 +1.671760E+002 +0.000000E+000 +0.000000E+000
793 +1.678661E+002 +0.000000E+000 +0.000000E+000
794 +1.687463E+002 +0.000000E+000 +0.000000E+000
795 +1.698107E+002 +0.000000E+000 +0.000000E+000
796 +1.710621E+002 +0.000000E+000 +0.000000E+000
797 +1.725038E+002 +0.000000E+000 +0.000000E+000
798 +1.662842E+002 +0.000000E+000 +0.000000E+000
799 +1.663835E+002 +0.000000E+000 +0.000000E+000
800 +1.666815E+002 +0.000000E+000 +0.000000E+000
801 +2.045362E+002 +0.000000E+000 +0.000000E+000
802 +2.065067E+002 +0.000000E+000 +0.000000E+000
803 +2.082868E+002 +0.000000E+000 +0.000000E+000
804 +2.098646E+002 +0.000000E+000 +0.000000E+000
805 +2.112401E+002 +0.000000E+000 +0.000000E+000
806 +2.124238E+002 +0.000000E+000 +0.000000E+000
807 +2.134167E+002 +0.000000E+000 +0.000000E+000
808 +2.142375E+002 +0.000000E+000 +0.000000E+000
809 +2.149024E+002 +0.000000E+000 +0.000000E+000
810 +2.154267E+002 +0.000000E+000 +0.000000E+000
811 +2.158286E+002 +0.000000E+000 +0.000000E+000
812 +2.161180E+002 +0.000000E+000 +0.000000E+000
813 +2.163213E+002 +0.000000E+000 +0.000000E+000
814 +2.020213E+002 +0.000000E+000 +0.000000E+000
815 +1.966805E+002 +0.000000E+000 +0.000000E+000
816 +1.994394E+002 +0.000000E+000 +0.000000E+000
817 +2.013461E+002 +0.000000E+000 +0.000000E+000
818 +2.023487E+002 +0.000000E+000 +0.000000E+000
819 +1.748180E+002 +0.000000E+000 +0.000000E+000
820 +1.768075E+002 +0.000000E+000 +0.000000E+000
821 +1.792918E+002 +0.000000E+000 +0.000000E+000
822 +1.829803E+002 +0.000000E+000 +0.000000E+000
823 +1.885719E+002 +0.000000E+000 +0.000000E+000
824 +1.931441E+002 +0.000000E+000 +0.000000E+000
825 +1.683991E+002 +0.000000E+000 +0.000000E+000
826 +1.692896E+002 +0.000000E+000 +0.000000E+000
827 +1.703695E+002 +0.000000E+000 +0.000000E+000
828 +1.716439E+002 +0.000000E+000 +0.000000E+000
829 +1.731195E+002 +0.000000E+000 +0.000000E+000
830 +1.668045E+002 +0.000000E+000 +0.000000E+000
831 +1.669042E+002 +0.000000E+000 +0.000000E+000
832 +1.672039E+002 +0.000000E+000 +0.000000E+000
```



```
833 +1.677039E+002 +0.000000E+000 +0.000000E+000
834 +2.165000E+002 +1.487343E-003 +0.000000E+000
835 +2.021757E+002 +0.000000E+000 +0.000000E+000
836 +1.932912E+002 +0.000000E+000 +0.000000E+000
837 +1.968246E+002 +0.000000E+000 +0.000000E+000
838 +1.995927E+002 +0.000000E+000 +0.000000E+000
839 +2.015111E+002 +0.000000E+000 +0.000000E+000
840 +2.025152E+002 +0.000000E+000 +0.000000E+000
841 +1.775339E+002 +0.000000E+000 +0.000000E+000
842 +1.801270E+002 +0.000000E+000 +0.000000E+000
843 +1.838264E+002 +0.000000E+000 +0.000000E+000
844 +1.888507E+002 +0.000000E+000 +0.000000E+000
845 +1.698233E+002 +0.000000E+000 +0.000000E+000
846 +1.709186E+002 +0.000000E+000 +0.000000E+000
847 +1.722158E+002 +0.000000E+000 +0.000000E+000
848 +1.737243E+002 +0.000000E+000 +0.000000E+000
849 +1.754739E+002 +0.000000E+000 +0.000000E+000
850 +1.673149E+002 +0.000000E+000 +0.000000E+000
851 +1.674147E+002 +0.000000E+000 +0.000000E+000
852 +1.677164E+002 +0.000000E+000 +0.000000E+000
853 +1.682204E+002 +0.000000E+000 +0.000000E+000
854 +1.689239E+002 +0.000000E+000 +0.000000E+000
855 +2.048297E+002 +0.000000E+000 +0.000000E+000
856 +2.068278E+002 +0.000000E+000 +0.000000E+000
857 +2.086096E+002 +0.000000E+000 +0.000000E+000
858 +2.101777E+002 +0.000000E+000 +0.000000E+000
859 +2.115373E+002 +0.000000E+000 +0.000000E+000
860 +2.126965E+002 +0.000000E+000 +0.000000E+000
861 +2.136677E+002 +0.000000E+000 +0.000000E+000
862 +2.144665E+002 +0.000000E+000 +0.000000E+000
863 +2.151078E+002 +0.000000E+000 +0.000000E+000
864 +2.156083E+002 +0.000000E+000 +0.000000E+000
865 +2.159852E+002 +0.000000E+000 +0.000000E+000
866 +2.162576E+002 +0.000000E+000 +0.000000E+000
867 +2.165000E+002 +3.062136E-003 +0.000000E+000
868 +2.023593E+002 +0.000000E+000 +0.000000E+000
869 +2.027423E+002 +0.000000E+000 +0.000000E+000
870 +1.934817E+002 +0.000000E+000 +0.000000E+000
871 +1.970049E+002 +0.000000E+000 +0.000000E+000
872 +1.997870E+002 +0.000000E+000 +0.000000E+000
873 +2.017296E+002 +0.000000E+000 +0.000000E+000
874 +1.782374E+002 +0.000000E+000 +0.000000E+000
875 +1.809118E+002 +0.000000E+000 +0.000000E+000
876 +1.845667E+002 +0.000000E+000 +0.000000E+000
877 +1.891920E+002 +0.000000E+000 +0.000000E+000
878 +1.703473E+002 +0.000000E+000 +0.000000E+000
879 +1.714579E+002 +0.000000E+000 +0.000000E+000
880 +1.727772E+002 +0.000000E+000 +0.000000E+000
881 +1.743175E+002 +0.000000E+000 +0.000000E+000
882 +1.761128E+002 +0.000000E+000 +0.000000E+000
883 +1.682187E+002 +0.000000E+000 +0.000000E+000
884 +1.687269E+002 +0.000000E+000 +0.000000E+000
885 +1.694373E+002 +0.000000E+000 +0.000000E+000
886 +1.678169E+002 +0.000000E+000 +0.000000E+000
887 +1.679165E+002 +0.000000E+000 +0.000000E+000
888 +2.052325E+002 +0.000000E+000 +0.000000E+000
889 +2.072454E+002 +0.000000E+000 +0.000000E+000
890 +2.090291E+002 +0.000000E+000 +0.000000E+000
891 +2.105861E+002 +0.000000E+000 +0.000000E+000
892 +2.119183E+002 +0.000000E+000 +0.000000E+000
```



```
893 +2.130531E+002 +0.000000E+000 +0.000000E+000
894 +2.139960E+002 +0.000000E+000 +0.000000E+000
895 +2.147652E+002 +0.000000E+000 +0.000000E+000
896 +2.153732E+002 +0.000000E+000 +0.000000E+000
897 +2.158442E+002 +0.000000E+000 +0.000000E+000
898 +2.161901E+002 +0.000000E+000 +0.000000E+000
899 +2.165000E+002 +4.435688E-003 +0.000000E+000
900 +2.030317E+002 +0.000000E+000 +0.000000E+000
901 +1.937125E+002 +0.000000E+000 +0.000000E+000
902 +1.972201E+002 +0.000000E+000 +0.000000E+000
903 +2.000227E+002 +0.000000E+000 +0.000000E+000
904 +2.019980E+002 +0.000000E+000 +0.000000E+000
905 +1.789167E+002 +0.000000E+000 +0.000000E+000
906 +1.816472E+002 +0.000000E+000 +0.000000E+000
907 +1.852356E+002 +0.000000E+000 +0.000000E+000
908 +1.895682E+002 +0.000000E+000 +0.000000E+000
909 +1.719869E+002 +0.000000E+000 +0.000000E+000
910 +1.733277E+002 +0.000000E+000 +0.000000E+000
911 +1.748983E+002 +0.000000E+000 +0.000000E+000
912 +1.767357E+002 +0.000000E+000 +0.000000E+000
913 +1.687109E+002 +0.000000E+000 +0.000000E+000
914 +1.692234E+002 +0.000000E+000 +0.000000E+000
915 +1.699408E+002 +0.000000E+000 +0.000000E+000
916 +1.708626E+002 +0.000000E+000 +0.000000E+000
917 +1.683077E+002 +0.000000E+000 +0.000000E+000
918 +1.684064E+002 +0.000000E+000 +0.000000E+000
919 +2.057437E+002 +0.000000E+000 +0.000000E+000
920 +2.077787E+002 +0.000000E+000 +0.000000E+000
921 +2.095517E+002 +0.000000E+000 +0.000000E+000
922 +2.110848E+002 +0.000000E+000 +0.000000E+000
923 +2.123990E+002 +0.000000E+000 +0.000000E+000
924 +2.134948E+002 +0.000000E+000 +0.000000E+000
925 +2.144022E+002 +0.000000E+000 +0.000000E+000
926 +2.151315E+002 +0.000000E+000 +0.000000E+000
927 +2.157043E+002 +0.000000E+000 +0.000000E+000
928 +2.161351E+002 +0.000000E+000 +0.000000E+000
929 +2.165000E+002 +5.114601E-003 +0.000000E+000
930 +1.974980E+002 +0.000000E+000 +0.000000E+000
931 +2.003707E+002 +0.000000E+000 +0.000000E+000
932 +2.024358E+002 +0.000000E+000 +0.000000E+000
933 +2.034662E+002 +0.000000E+000 +0.000000E+000
934 +1.860581E+002 +0.000000E+000 +0.000000E+000
935 +1.900564E+002 +0.000000E+000 +0.000000E+000
936 +1.940116E+002 +0.000000E+000 +0.000000E+000
937 +1.757276E+002 +0.000000E+000 +0.000000E+000
938 +1.776122E+002 +0.000000E+000 +0.000000E+000
939 +1.798509E+002 +0.000000E+000 +0.000000E+000
940 +1.826082E+002 +0.000000E+000 +0.000000E+000
941 +1.706819E+002 +0.000000E+000 +0.000000E+000
942 +1.716149E+002 +0.000000E+000 +0.000000E+000
943 +1.727602E+002 +0.000000E+000 +0.000000E+000
944 +1.741235E+002 +0.000000E+000 +0.000000E+000
945 +1.691356E+002 +0.000000E+000 +0.000000E+000
946 +1.694434E+002 +0.000000E+000 +0.000000E+000
947 +1.699602E+002 +0.000000E+000 +0.000000E+000
948 +1.690400E+002 +0.000000E+000 +0.000000E+000
949 +2.063872E+002 +0.000000E+000 +0.000000E+000
950 +2.084181E+002 +0.000000E+000 +0.000000E+000
951 +2.101824E+002 +0.000000E+000 +0.000000E+000
952 +2.116940E+002 +0.000000E+000 +0.000000E+000
```

953	+2.129680E+002	+0.000000E+000	+0.000000E+000
954	+2.140283E+002	+0.000000E+000	+0.000000E+000
955	+2.148875E+002	+0.000000E+000	+0.000000E+000
956	+2.155715E+002	+0.000000E+000	+0.000000E+000
957	+2.160978E+002	+0.000000E+000	+0.000000E+000
958	+2.165000E+002	+6.835879E-003	+0.000000E+000
959	+2.165000E+002	+8.345768E-003	+0.000000E+000
960	+2.071433E+002	+0.000000E+000	+0.000000E+000
961	+2.091790E+002	+0.000000E+000	+0.000000E+000
962	+2.109302E+002	+0.000000E+000	+0.000000E+000
963	+2.124089E+002	+0.000000E+000	+0.000000E+000
964	+2.136399E+002	+0.000000E+000	+0.000000E+000
965	+2.146496E+002	+0.000000E+000	+0.000000E+000
966	+2.154452E+002	+0.000000E+000	+0.000000E+000
967	+2.160872E+002	+0.000000E+000	+0.000000E+000
968	+2.008051E+002	+0.000000E+000	+0.000000E+000
969	+2.029874E+002	+0.000000E+000	+0.000000E+000
970	+2.040544E+002	+0.000000E+000	+0.000000E+000
971	+1.985759E+002	+0.000000E+000	+0.000000E+000
972	+1.943691E+002	+0.000000E+000	+0.000000E+000
973	+1.978510E+002	+0.000000E+000	+0.000000E+000
974	+1.887223E+002	+0.000000E+000	+0.000000E+000
975	+1.834800E+002	+0.000000E+000	+0.000000E+000
976	+1.868049E+002	+0.000000E+000	+0.000000E+000
977	+1.735031E+002	+0.000000E+000	+0.000000E+000
978	+1.748918E+002	+0.000000E+000	+0.000000E+000
979	+1.765248E+002	+0.000000E+000	+0.000000E+000
980	+1.784474E+002	+0.000000E+000	+0.000000E+000
981	+1.706710E+002	+0.000000E+000	+0.000000E+000
982	+1.714012E+002	+0.000000E+000	+0.000000E+000
983	+1.723455E+002	+0.000000E+000	+0.000000E+000
984	+1.697448E+002	+0.000000E+000	+0.000000E+000
985	+1.698416E+002	+0.000000E+000	+0.000000E+000
986	+1.701512E+002	+0.000000E+000	+0.000000E+000
987	+2.165000E+002	+9.972580E-003	+0.000000E+000
988	+2.056728E+002	+0.000000E+000	+0.000000E+000
989	+2.080290E+002	+0.000000E+000	+0.000000E+000
990	+2.100749E+002	+0.000000E+000	+0.000000E+000
991	+2.117993E+002	+0.000000E+000	+0.000000E+000
992	+2.132344E+002	+0.000000E+000	+0.000000E+000
993	+2.144098E+002	+0.000000E+000	+0.000000E+000
994	+2.153563E+002	+0.000000E+000	+0.000000E+000
995	+2.036674E+002	+0.000000E+000	+0.000000E+000
996	+2.048061E+002	+0.000000E+000	+0.000000E+000
997	+1.947808E+002	+0.000000E+000	+0.000000E+000
998	+1.982593E+002	+0.000000E+000	+0.000000E+000
999	+2.013244E+002	+0.000000E+000	+0.000000E+000
1000	+1.842799E+002	+0.000000E+000	+0.000000E+000
1001	+1.875052E+002	+0.000000E+000	+0.000000E+000
1002	+1.911087E+002	+0.000000E+000	+0.000000E+000
1003	+1.756272E+002	+0.000000E+000	+0.000000E+000
1004	+1.772858E+002	+0.000000E+000	+0.000000E+000
1005	+1.792379E+002	+0.000000E+000	+0.000000E+000
1006	+1.815380E+002	+0.000000E+000	+0.000000E+000
1007	+1.730465E+002	+0.000000E+000	+0.000000E+000
1008	+1.742225E+002	+0.000000E+000	+0.000000E+000
1009	+1.705213E+002	+0.000000E+000	+0.000000E+000
1010	+1.708328E+002	+0.000000E+000	+0.000000E+000
1011	+1.713567E+002	+0.000000E+000	+0.000000E+000
1012	+1.720952E+002	+0.000000E+000	+0.000000E+000

1013	+1.704251E+002	+0.000000E+000	+0.000000E+000
1014	+2.165000E+002	+1.267614E-002	+0.000000E+000
1015	+2.066867E+002	+0.000000E+000	+0.000000E+000
1016	+2.090886E+002	+0.000000E+000	+0.000000E+000
1017	+2.111129E+002	+0.000000E+000	+0.000000E+000
1018	+2.127989E+002	+0.000000E+000	+0.000000E+000
1019	+2.141717E+002	+0.000000E+000	+0.000000E+000
1020	+2.152823E+002	+0.000000E+000	+0.000000E+000
1021	+2.165000E+002	+1.546917E-002	+0.000000E+000
1022	+2.019033E+002	+0.000000E+000	+0.000000E+000
1023	+2.044887E+002	+0.000000E+000	+0.000000E+000
1024	+2.057496E+002	+0.000000E+000	+0.000000E+000
1025	+1.881625E+002	+0.000000E+000	+0.000000E+000
1026	+1.916336E+002	+0.000000E+000	+0.000000E+000
1027	+1.952242E+002	+0.000000E+000	+0.000000E+000
1028	+1.987031E+002	+0.000000E+000	+0.000000E+000
1029	+1.799860E+002	+0.000000E+000	+0.000000E+000
1030	+1.822988E+002	+0.000000E+000	+0.000000E+000
1031	+1.850212E+002	+0.000000E+000	+0.000000E+000
1032	+1.749100E+002	+0.000000E+000	+0.000000E+000
1033	+1.763363E+002	+0.000000E+000	+0.000000E+000
1034	+1.780167E+002	+0.000000E+000	+0.000000E+000
1035	+1.720171E+002	+0.000000E+000	+0.000000E+000
1036	+1.727621E+002	+0.000000E+000	+0.000000E+000
1037	+1.737244E+002	+0.000000E+000	+0.000000E+000
1038	+1.710785E+002	+0.000000E+000	+0.000000E+000
1039	+1.711766E+002	+0.000000E+000	+0.000000E+000
1040	+1.714903E+002	+0.000000E+000	+0.000000E+000
1041	+2.078787E+002	+0.000000E+000	+0.000000E+000
1042	+2.103180E+002	+0.000000E+000	+0.000000E+000
1043	+2.123204E+002	+0.000000E+000	+0.000000E+000
1044	+2.139390E+002	+0.000000E+000	+0.000000E+000
1045	+2.152332E+002	+0.000000E+000	+0.000000E+000
1046	+2.165000E+002	+1.776229E-002	+0.000000E+000
1047	+2.025314E+002	+0.000000E+000	+0.000000E+000
1048	+2.054445E+002	+0.000000E+000	+0.000000E+000
1049	+2.069340E+002	+0.000000E+000	+0.000000E+000
1050	+1.921587E+002	+0.000000E+000	+0.000000E+000
1051	+1.956767E+002	+0.000000E+000	+0.000000E+000
1052	+1.991785E+002	+0.000000E+000	+0.000000E+000
1053	+1.830154E+002	+0.000000E+000	+0.000000E+000
1054	+1.857090E+002	+0.000000E+000	+0.000000E+000
1055	+1.887836E+002	+0.000000E+000	+0.000000E+000
1056	+1.770099E+002	+0.000000E+000	+0.000000E+000
1057	+1.787072E+002	+0.000000E+000	+0.000000E+000
1058	+1.806936E+002	+0.000000E+000	+0.000000E+000
1059	+1.734012E+002	+0.000000E+000	+0.000000E+000
1060	+1.743717E+002	+0.000000E+000	+0.000000E+000
1061	+1.755727E+002	+0.000000E+000	+0.000000E+000
1062	+1.721209E+002	+0.000000E+000	+0.000000E+000
1063	+1.726529E+002	+0.000000E+000	+0.000000E+000
1064	+1.717072E+002	+0.000000E+000	+0.000000E+000
1065	+1.718061E+002	+0.000000E+000	+0.000000E+000
1066	+2.092780E+002	+0.000000E+000	+0.000000E+000
1067	+2.117390E+002	+0.000000E+000	+0.000000E+000
1068	+2.136984E+002	+0.000000E+000	+0.000000E+000
1069	+2.152298E+002	+0.000000E+000	+0.000000E+000
1070	+2.165000E+002	+2.205547E-002	+0.000000E+000
1071	+2.165000E+002	+2.673949E-002	+0.000000E+000
1072	+2.133950E+002	+0.000000E+000	+0.000000E+000

1073	+2.152788E+002	+0.000000E+000	+0.000000E+000
1074	+2.108663E+002	+0.000000E+000	+0.000000E+000
1075	+2.065272E+002	+0.000000E+000	+0.000000E+000
1076	+2.084515E+002	+0.000000E+000	+0.000000E+000
1077	+1.961421E+002	+0.000000E+000	+0.000000E+000
1078	+1.996585E+002	+0.000000E+000	+0.000000E+000
1079	+2.031649E+002	+0.000000E+000	+0.000000E+000
1080	+1.893688E+002	+0.000000E+000	+0.000000E+000
1081	+1.926721E+002	+0.000000E+000	+0.000000E+000
1082	+1.793625E+002	+0.000000E+000	+0.000000E+000
1083	+1.813597E+002	+0.000000E+000	+0.000000E+000
1084	+1.836774E+002	+0.000000E+000	+0.000000E+000
1085	+1.863516E+002	+0.000000E+000	+0.000000E+000
1086	+1.762025E+002	+0.000000E+000	+0.000000E+000
1087	+1.776531E+002	+0.000000E+000	+0.000000E+000
1088	+1.732613E+002	+0.000000E+000	+0.000000E+000
1089	+1.740163E+002	+0.000000E+000	+0.000000E+000
1090	+1.749948E+002	+0.000000E+000	+0.000000E+000
1091	+1.723085E+002	+0.000000E+000	+0.000000E+000
1092	+1.724085E+002	+0.000000E+000	+0.000000E+000
1093	+1.727267E+002	+0.000000E+000	+0.000000E+000
1094	+2.165000E+002	+3.173362E-002	+0.000000E+000
1095	+2.104760E+002	+0.000000E+000	+0.000000E+000
1096	+2.001485E+002	+0.000000E+000	+0.000000E+000
1097	+2.037720E+002	+0.000000E+000	+0.000000E+000
1098	+2.076843E+002	+0.000000E+000	+0.000000E+000
1099	+1.931676E+002	+0.000000E+000	+0.000000E+000
1100	+1.966040E+002	+0.000000E+000	+0.000000E+000
1101	+1.843053E+002	+0.000000E+000	+0.000000E+000
1102	+1.869509E+002	+0.000000E+000	+0.000000E+000
1103	+1.899223E+002	+0.000000E+000	+0.000000E+000
1104	+1.782665E+002	+0.000000E+000	+0.000000E+000
1105	+1.799878E+002	+0.000000E+000	+0.000000E+000
1106	+1.819877E+002	+0.000000E+000	+0.000000E+000
1107	+1.746016E+002	+0.000000E+000	+0.000000E+000
1108	+1.755865E+002	+0.000000E+000	+0.000000E+000
1109	+1.768065E+002	+0.000000E+000	+0.000000E+000
1110	+1.733042E+002	+0.000000E+000	+0.000000E+000
1111	+1.738429E+002	+0.000000E+000	+0.000000E+000
1112	+1.728847E+002	+0.000000E+000	+0.000000E+000
1113	+1.729858E+002	+0.000000E+000	+0.000000E+000
1114	+2.165000E+002	+3.935114E-002	+0.000000E+000
1115	+2.143867E+002	+0.000000E+000	+0.000000E+000
1116	+2.165000E+002	+5.364937E-002	+0.000000E+000
1117	+2.043335E+002	+0.000000E+000	+0.000000E+000
1118	+2.086569E+002	+0.000000E+000	+0.000000E+000
1119	+2.134412E+002	+0.000000E+000	+0.000000E+000
1120	+1.936364E+002	+0.000000E+000	+0.000000E+000
1121	+1.970439E+002	+0.000000E+000	+0.000000E+000
1122	+2.006242E+002	+0.000000E+000	+0.000000E+000
1123	+1.875109E+002	+0.000000E+000	+0.000000E+000
1124	+1.904425E+002	+0.000000E+000	+0.000000E+000
1125	+1.805733E+002	+0.000000E+000	+0.000000E+000
1126	+1.825808E+002	+0.000000E+000	+0.000000E+000
1127	+1.848888E+002	+0.000000E+000	+0.000000E+000
1128	+1.773770E+002	+0.000000E+000	+0.000000E+000
1129	+1.788460E+002	+0.000000E+000	+0.000000E+000
1130	+1.743980E+002	+0.000000E+000	+0.000000E+000
1131	+1.751623E+002	+0.000000E+000	+0.000000E+000
1132	+1.761532E+002	+0.000000E+000	+0.000000E+000

1133	+1.735354E+002	+0.000000E+000	+0.000000E+000
1134	+1.738571E+002	+0.000000E+000	+0.000000E+000
1135	+1.734341E+002	+0.000000E+000	+0.000000E+000
1136	+2.165000E+002	+6.207734E-001	+0.000000E+000
1137	+2.090508E+002	+0.000000E+000	+0.000000E+000
1138	+1.974780E+002	+0.000000E+000	+0.000000E+000
1139	+2.010592E+002	+0.000000E+000	+0.000000E+000
1140	+2.049562E+002	+0.000000E+000	+0.000000E+000
1141	+1.909253E+002	+0.000000E+000	+0.000000E+000
1142	+1.940883E+002	+0.000000E+000	+0.000000E+000
1143	+1.854327E+002	+0.000000E+000	+0.000000E+000
1144	+1.880292E+002	+0.000000E+000	+0.000000E+000
1145	+1.793926E+002	+0.000000E+000	+0.000000E+000
1146	+1.811257E+002	+0.000000E+000	+0.000000E+000
1147	+1.831338E+002	+0.000000E+000	+0.000000E+000
1148	+1.766904E+002	+0.000000E+000	+0.000000E+000
1149	+1.779186E+002	+0.000000E+000	+0.000000E+000
1150	+1.743823E+002	+0.000000E+000	+0.000000E+000
1151	+1.749270E+002	+0.000000E+000	+0.000000E+000
1152	+1.756952E+002	+0.000000E+000	+0.000000E+000
1153	+1.739554E+002	+0.000000E+000	+0.000000E+000
1154	+1.740594E+002	+0.000000E+000	+0.000000E+000
1155	+2.165000E+002	+3.841366E-001	+0.000000E+000
1156	+2.014828E+002	+0.000000E+000	+0.000000E+000
1157	+2.053833E+002	+0.000000E+000	+0.000000E+000
1158	+2.099016E+002	+0.000000E+000	+0.000000E+000
1159	+1.945147E+002	+0.000000E+000	+0.000000E+000
1160	+1.978838E+002	+0.000000E+000	+0.000000E+000
1161	+1.859395E+002	+0.000000E+000	+0.000000E+000
1162	+1.885162E+002	+0.000000E+000	+0.000000E+000
1163	+1.913836E+002	+0.000000E+000	+0.000000E+000
1164	+1.816432E+002	+0.000000E+000	+0.000000E+000
1165	+1.836496E+002	+0.000000E+000	+0.000000E+000
1166	+1.784317E+002	+0.000000E+000	+0.000000E+000
1167	+1.799117E+002	+0.000000E+000	+0.000000E+000
1168	+1.754277E+002	+0.000000E+000	+0.000000E+000
1169	+1.761993E+002	+0.000000E+000	+0.000000E+000
1170	+1.771975E+002	+0.000000E+000	+0.000000E+000
1171	+1.745559E+002	+0.000000E+000	+0.000000E+000
1172	+1.748815E+002	+0.000000E+000	+0.000000E+000
1173	+1.744499E+002	+0.000000E+000	+0.000000E+000
1174	+2.064257E+002	+0.000000E+000	+0.000000E+000
1175	+2.110770E+002	+0.000000E+000	+0.000000E+000
1176	+2.165000E+002	+3.458126E-001	+0.000000E+000
1177	+1.988062E+002	+0.000000E+000	+0.000000E+000
1178	+2.024340E+002	+0.000000E+000	+0.000000E+000
1179	+1.894982E+002	+0.000000E+000	+0.000000E+000
1180	+1.923371E+002	+0.000000E+000	+0.000000E+000
1181	+1.954444E+002	+0.000000E+000	+0.000000E+000
1182	+1.826210E+002	+0.000000E+000	+0.000000E+000
1183	+1.846355E+002	+0.000000E+000	+0.000000E+000
1184	+1.869281E+002	+0.000000E+000	+0.000000E+000
1185	+1.793705E+002	+0.000000E+000	+0.000000E+000
1186	+1.808685E+002	+0.000000E+000	+0.000000E+000
1187	+1.763239E+002	+0.000000E+000	+0.000000E+000
1188	+1.771060E+002	+0.000000E+000	+0.000000E+000
1189	+1.781212E+002	+0.000000E+000	+0.000000E+000
1190	+1.753237E+002	+0.000000E+000	+0.000000E+000
1191	+1.754358E+002	+0.000000E+000	+0.000000E+000
1192	+1.757681E+002	+0.000000E+000	+0.000000E+000

1193	+2.165000E+002	+2.984667E-001	+0.000000E+000
1194	+2.032390E+002	+0.000000E+000	+0.000000E+000
1195	+2.072385E+002	+0.000000E+000	+0.000000E+000
1196	+2.116694E+002	+0.000000E+000	+0.000000E+000
1197	+1.931778E+002	+0.000000E+000	+0.000000E+000
1198	+1.962606E+002	+0.000000E+000	+0.000000E+000
1199	+1.996118E+002	+0.000000E+000	+0.000000E+000
1200	+1.855013E+002	+0.000000E+000	+0.000000E+000
1201	+1.877894E+002	+0.000000E+000	+0.000000E+000
1202	+1.903507E+002	+0.000000E+000	+0.000000E+000
1203	+1.802013E+002	+0.000000E+000	+0.000000E+000
1204	+1.817138E+002	+0.000000E+000	+0.000000E+000
1205	+1.834758E+002	+0.000000E+000	+0.000000E+000
1206	+1.771162E+002	+0.000000E+000	+0.000000E+000
1207	+1.779100E+002	+0.000000E+000	+0.000000E+000
1208	+1.789355E+002	+0.000000E+000	+0.000000E+000
1209	+1.761016E+002	+0.000000E+000	+0.000000E+000
1210	+1.762158E+002	+0.000000E+000	+0.000000E+000
1211	+1.765538E+002	+0.000000E+000	+0.000000E+000
1212	+2.038942E+002	+0.000000E+000	+0.000000E+000
1213	+2.078124E+002	+0.000000E+000	+0.000000E+000
1214	+2.120408E+002	+0.000000E+000	+0.000000E+000
1215	+2.165000E+002	+2.725036E-001	+0.000000E+000
1216	+1.938948E+002	+0.000000E+000	+0.000000E+000
1217	+1.969604E+002	+0.000000E+000	+0.000000E+000
1218	+2.002928E+002	+0.000000E+000	+0.000000E+000
1219	+1.885335E+002	+0.000000E+000	+0.000000E+000
1220	+1.910817E+002	+0.000000E+000	+0.000000E+000
1221	+1.809214E+002	+0.000000E+000	+0.000000E+000
1222	+1.824413E+002	+0.000000E+000	+0.000000E+000
1223	+1.842156E+002	+0.000000E+000	+0.000000E+000
1224	+1.862425E+002	+0.000000E+000	+0.000000E+000
1225	+1.778062E+002	+0.000000E+000	+0.000000E+000
1226	+1.786087E+002	+0.000000E+000	+0.000000E+000
1227	+1.796443E+002	+0.000000E+000	+0.000000E+000
1228	+1.767794E+002	+0.000000E+000	+0.000000E+000
1229	+1.768949E+002	+0.000000E+000	+0.000000E+000
1230	+1.772362E+002	+0.000000E+000	+0.000000E+000
1231	+2.122912E+002	+0.000000E+000	+0.000000E+000
1232	+2.165000E+002	+2.558122E-001	+0.000000E+000
1233	+1.975438E+002	+0.000000E+000	+0.000000E+000
1234	+2.008515E+002	+0.000000E+000	+0.000000E+000
1235	+2.044104E+002	+0.000000E+000	+0.000000E+000
1236	+2.082375E+002	+0.000000E+000	+0.000000E+000
1237	+1.891541E+002	+0.000000E+000	+0.000000E+000
1238	+1.917004E+002	+0.000000E+000	+0.000000E+000
1239	+1.944962E+002	+0.000000E+000	+0.000000E+000
1240	+1.815277E+002	+0.000000E+000	+0.000000E+000
1241	+1.830587E+002	+0.000000E+000	+0.000000E+000
1242	+1.848355E+002	+0.000000E+000	+0.000000E+000
1243	+1.868693E+002	+0.000000E+000	+0.000000E+000
1244	+1.783918E+002	+0.000000E+000	+0.000000E+000
1245	+1.791992E+002	+0.000000E+000	+0.000000E+000
1246	+1.802449E+002	+0.000000E+000	+0.000000E+000
1247	+1.773555E+002	+0.000000E+000	+0.000000E+000
1248	+1.774717E+002	+0.000000E+000	+0.000000E+000
1249	+1.778164E+002	+0.000000E+000	+0.000000E+000
1250	+2.165000E+002	+2.446255E-001	+0.000000E+000
1251	+2.048131E+002	+0.000000E+000	+0.000000E+000
1252	+2.085482E+002	+0.000000E+000	+0.000000E+000

1253	+2.124668E+002	+0.000000E+000	+0.000000E+000
1254	+1.921983E+002	+0.000000E+000	+0.000000E+000
1255	+1.949828E+002	+0.000000E+000	+0.000000E+000
1256	+1.980201E+002	+0.000000E+000	+0.000000E+000
1257	+2.012943E+002	+0.000000E+000	+0.000000E+000
1258	+1.835599E+002	+0.000000E+000	+0.000000E+000
1259	+1.853445E+002	+0.000000E+000	+0.000000E+000
1260	+1.873759E+002	+0.000000E+000	+0.000000E+000
1261	+1.896589E+002	+0.000000E+000	+0.000000E+000
1262	+1.788721E+002	+0.000000E+000	+0.000000E+000
1263	+1.796851E+002	+0.000000E+000	+0.000000E+000
1264	+1.807344E+002	+0.000000E+000	+0.000000E+000
1265	+1.820268E+002	+0.000000E+000	+0.000000E+000
1266	+1.778286E+002	+0.000000E+000	+0.000000E+000
1267	+1.779453E+002	+0.000000E+000	+0.000000E+000
1268	+1.782925E+002	+0.000000E+000	+0.000000E+000
1269	+2.087707E+002	+0.000000E+000	+0.000000E+000
1270	+2.125903E+002	+0.000000E+000	+0.000000E+000
1271	+2.165000E+002	+2.365873E-001	+0.000000E+000
1272	+1.953578E+002	+0.000000E+000	+0.000000E+000
1273	+1.983794E+002	+0.000000E+000	+0.000000E+000
1274	+2.016283E+002	+0.000000E+000	+0.000000E+000
1275	+2.051047E+002	+0.000000E+000	+0.000000E+000
1276	+1.839525E+002	+0.000000E+000	+0.000000E+000
1277	+1.857363E+002	+0.000000E+000	+0.000000E+000
1278	+1.877681E+002	+0.000000E+000	+0.000000E+000
1279	+1.900539E+002	+0.000000E+000	+0.000000E+000
1280	+1.925834E+002	+0.000000E+000	+0.000000E+000
1281	+1.792452E+002	+0.000000E+000	+0.000000E+000
1282	+1.800636E+002	+0.000000E+000	+0.000000E+000
1283	+1.811178E+002	+0.000000E+000	+0.000000E+000
1284	+1.824119E+002	+0.000000E+000	+0.000000E+000
1285	+1.781976E+002	+0.000000E+000	+0.000000E+000
1286	+1.783147E+002	+0.000000E+000	+0.000000E+000
1287	+1.786638E+002	+0.000000E+000	+0.000000E+000
1288	+2.165000E+002	+2.324336E-001	+0.000000E+000
1289	+1.986328E+002	+0.000000E+000	+0.000000E+000
1290	+2.018612E+002	+0.000000E+000	+0.000000E+000
1291	+2.053047E+002	+0.000000E+000	+0.000000E+000
1292	+2.089209E+002	+0.000000E+000	+0.000000E+000
1293	+2.126720E+002	+0.000000E+000	+0.000000E+000
1294	+1.860193E+002	+0.000000E+000	+0.000000E+000
1295	+1.880519E+002	+0.000000E+000	+0.000000E+000
1296	+1.903314E+002	+0.000000E+000	+0.000000E+000
1297	+1.928565E+002	+0.000000E+000	+0.000000E+000
1298	+1.956296E+002	+0.000000E+000	+0.000000E+000
1299	+1.803328E+002	+0.000000E+000	+0.000000E+000
1300	+1.813922E+002	+0.000000E+000	+0.000000E+000
1301	+1.826899E+002	+0.000000E+000	+0.000000E+000
1302	+1.842302E+002	+0.000000E+000	+0.000000E+000
1303	+1.784619E+002	+0.000000E+000	+0.000000E+000
1304	+1.785791E+002	+0.000000E+000	+0.000000E+000
1305	+1.789296E+002	+0.000000E+000	+0.000000E+000
1306	+1.795137E+002	+0.000000E+000	+0.000000E+000
1307	+2.019987E+002	+0.000000E+000	+0.000000E+000
1308	+2.054217E+002	+0.000000E+000	+0.000000E+000
1309	+2.090075E+002	+0.000000E+000	+0.000000E+000
1310	+2.127194E+002	+0.000000E+000	+0.000000E+000
1311	+2.165000E+002	+2.292391E-001	+0.000000E+000
1312	+1.882191E+002	+0.000000E+000	+0.000000E+000

1313	+1.904972E+002	+0.000000E+000	+0.000000E+000
1314	+1.930250E+002	+0.000000E+000	+0.000000E+000
1315	+1.957881E+002	+0.000000E+000	+0.000000E+000
1316	+1.987834E+002	+0.000000E+000	+0.000000E+000
1317	+1.804964E+002	+0.000000E+000	+0.000000E+000
1318	+1.815555E+002	+0.000000E+000	+0.000000E+000
1319	+1.828547E+002	+0.000000E+000	+0.000000E+000
1320	+1.843999E+002	+0.000000E+000	+0.000000E+000
1321	+1.861868E+002	+0.000000E+000	+0.000000E+000
1322	+1.786210E+002	+0.000000E+000	+0.000000E+000
1323	+1.787382E+002	+0.000000E+000	+0.000000E+000
1324	+1.790887E+002	+0.000000E+000	+0.000000E+000
1325	+1.796751E+002	+0.000000E+000	+0.000000E+000
1326	+2.127342E+002	+0.000000E+000	+0.000000E+000
1327	+2.165000E+002	+1.140703E-001	+0.000000E+000
1328	+1.930790E+002	+0.000000E+000	+0.000000E+000
1329	+1.958407E+002	+0.000000E+000	+0.000000E+000
1330	+1.988333E+002	+0.000000E+000	+0.000000E+000
1331	+2.020443E+002	+0.000000E+000	+0.000000E+000
1332	+2.054603E+002	+0.000000E+000	+0.000000E+000
1333	+2.090353E+002	+0.000000E+000	+0.000000E+000
1334	+1.797298E+002	+0.000000E+000	+0.000000E+000
1335	+1.805522E+002	+0.000000E+000	+0.000000E+000
1336	+1.816123E+002	+0.000000E+000	+0.000000E+000
1337	+1.829127E+002	+0.000000E+000	+0.000000E+000
1338	+1.844554E+002	+0.000000E+000	+0.000000E+000
1339	+1.862424E+002	+0.000000E+000	+0.000000E+000
1340	+1.882793E+002	+0.000000E+000	+0.000000E+000
1341	+1.905571E+002	+0.000000E+000	+0.000000E+000
1342	+1.786742E+002	+0.000000E+000	+0.000000E+000
1343	+1.787916E+002	+0.000000E+000	+0.000000E+000
1344	+1.791426E+002	+0.000000E+000	+0.000000E+000

```
FILEINFO
SEEPH 4.22
TITLE



11/2/2004
 3:14 PM
 LYSIS
   1     1 +6.2400e+001     1     0
ONVERGE
  200 +1.0000e-004 +1.0000e+000 +1.1000e+000 +1.0000e-004
TIME          10 +0.0000e+000 +1.0000e+000 +0.0000e+000 +1.5000e+000    10
1     1
    1 +1.0000e-002 +1.0000e-002     1
    2 +5.0000e-002 +6.0000e-002     1
    3 +2.2500e+000 +2.3100e+000     1
    4 +3.3750e+000 +5.6850e+000     1
    5 +5.0625e+000 +1.0748e+001     1
    6 +7.5938e+000 +1.8341e+001     1
    7 +1.1391e+001 +2.9732e+001     1
    8 +1.7086e+001 +4.6818e+001     1
    9 +2.5629e+001 +7.2447e+001     1
   10 +3.8443e+001 +1.1089e+002     1
MATERIAL       4
    1     7     1 +1.0000e+000 +0.0000e+000
    2     5     2 +1.0000e-001 +0.0000e+000
    3     4     3 +1.0000e-001 +0.0000e+000
    4     7     0 +1.0000e+000 +0.0000e+000
KFUNCTION      7
    1     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-1 cm/sec
-1.0000e+000 +2.8341e+000
+0.0000e+000 +2.8341e+002
+1.0000e+001 +2.8341e+002
    2     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-2
-1.0000e+000 +2.8340e-002
+0.0000e+000 +2.8340e+001
+1.0000e+001 +2.8340e+001
    4     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-4
-1.0000e+000 +2.8339e-003
+0.0000e+000 +2.8339e-001
+1.0000e+001 +2.8339e-001
    5     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-5cm/sec
-1.0000e+000 +2.8340e-004
+0.0000e+000 +2.8340e-002
+1.0000e+001 +2.8340e-002
    6     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-6
-1.0000e+000 +2.8340e-005
+0.0000e+000 +2.8341e-003
+1.0000e+001 +2.8341e-003
    7     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-7cm/sec
-1.0000e+000 +2.8340e-006
 .0000e+000 +2.8340e-004
```



```
+1.0000e+001 +2.8340e-004
SFUNCTION      3
    1     4 +0.0000e+000 +1.5300e+000
Fissure
-2.0000e+000 +1.0000e-001
-1.0000e+000 +1.0000e-001
+0.0000e+000 +1.0000e-001
+1.0000e+001 +1.0000e-001
    2     2 +0.0000e+000 +1.5300e+000

+0.0000e+000 +1.0000e-003
+1.0000e+001 +1.0000e-003
    3     2 +0.0000e+000 +1.5300e+000
Common Fill
+0.0000e+000 +3.0000e-001
+1.0000e+001 +3.0000e-001
BFUNCTION      0
MFUNCTION      0
NODE        1344
    1 -7.4742e+001 +9.4855e+001 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    2 -7.4742e+001 +9.9883e+001 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    3 -7.4742e+001 +1.0491e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    4 -7.4742e+001 +1.0994e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    5 -7.4742e+001 +1.1497e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    6 -7.4742e+001 +1.2000e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    7 -7.4742e+001 +1.2503e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    8 -7.4742e+001 +1.3005e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    9 -7.4742e+001 +1.3508e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
   10 -7.4742e+001 +1.4011e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
   11 -7.4742e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
   12 -7.4742e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
   13 -7.4742e+001 +1.5520e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
   14 -7.4742e+001 +1.6023e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
   15 -7.4742e+001 +1.6525e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
   16 -7.4742e+001 +1.7028e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
   17 -7.4742e+001 +1.7531e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
   18 -7.4742e+001 +1.8034e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   19 -7.4742e+001 +1.8537e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   20 -6.3985e+001 +9.4865e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   21 -6.3985e+001 +9.9892e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   22 -6.3985e+001 +1.0492e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   23 -6.3985e+001 +1.0995e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   24 -6.3985e+001 +1.1497e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   25 -6.3985e+001 +1.2000e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   26 -6.3985e+001 +1.2503e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   27 -6.3985e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   28 -6.3985e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   29 -6.3985e+001 +1.4011e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   30 -6.3985e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   31 -6.3985e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   32 -6.3985e+001 +1.5520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   33 -6.3985e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   34 -6.3985e+001 +1.6525e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   35 -6.3985e+001 +1.7028e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   36 -6.3985e+001 +1.7531e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   37 -6.3985e+001 +1.8033e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   38 -6.3985e+001 +1.8536e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   39 -5.3229e+001 +9.4874e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   40 -5.3229e+001 +9.9901e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   41 -5.3229e+001 +1.0493e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
   42 -5.3229e+001 +1.0995e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   43 -5.3229e+001 +1.1498e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   44 -5.3229e+001 +1.2001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   45 -5.3229e+001 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   46 -5.3229e+001 +1.3006e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   47 -5.3229e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   48 -5.3229e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   49 -5.3229e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   50 -5.3229e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   51 -5.3229e+001 +1.5520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   52 -5.3229e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   53 -5.3229e+001 +1.6525e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   54 -5.3229e+001 +1.7027e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   55 -5.3229e+001 +1.7530e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   56 -5.3229e+001 +1.8033e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   57 -5.3229e+001 +1.8535e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   58 -4.2472e+001 +9.4884e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   59 -4.2472e+001 +9.9910e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   60 -4.2472e+001 +1.0494e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   61 -4.2472e+001 +1.0996e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   62 -4.2472e+001 +1.1499e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   63 -4.2472e+001 +1.2001e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   64 -4.2472e+001 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   65 -4.2472e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   66 -4.2472e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   67 -4.2472e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   68 -4.2472e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   69 -4.2472e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   70 -4.2472e+001 +1.5519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   71 -4.2472e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   72 -4.2472e+001 +1.6525e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   73 -4.2472e+001 +1.7027e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   74 -4.2472e+001 +1.7530e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   75 -4.2472e+001 +1.8032e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   76 -4.2472e+001 +1.8535e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   77 -3.1716e+001 +9.4894e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   78 -3.1716e+001 +9.9919e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   79 -3.1716e+001 +1.0494e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   80 -3.1716e+001 +1.0997e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   81 -3.1716e+001 +1.1499e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   82 -3.1716e+001 +1.2002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   83 -3.1716e+001 +1.2504e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   84 -3.1716e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   85 -3.1716e+001 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   86 -3.1716e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   87 -3.1716e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   88 -3.1716e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   89 -3.1716e+001 +1.5519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   90 -3.1716e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   91 -3.1716e+001 +1.6524e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   92 -3.1716e+001 +1.7027e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   93 -3.1716e+001 +1.7529e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   94 -3.1716e+001 +1.8032e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   95 -3.1716e+001 +1.8534e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   96 -2.0960e+001 +9.4903e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   97 -2.0960e+001 +9.9927e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   98 -2.0960e+001 +1.0495e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   99 -2.0960e+001 +1.0997e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  100 -2.0960e+001 +1.1500e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  101 -2.0960e+001 +1.2002e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
  102 -2.0960e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  103 -2.0960e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  104 -2.0960e+001 +1.3510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  105 -2.0960e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  106 -2.0960e+001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  107 -2.0960e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  108 -2.0960e+001 +1.5519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  109 -2.0960e+001 +1.6022e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  110 -2.0960e+001 +1.6524e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  111 -2.0960e+001 +1.7026e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  112 -2.0960e+001 +1.7529e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  113 -2.0960e+001 +1.8031e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  114 -2.0960e+001 +1.8534e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  115 -1.0203e+001 +9.4913e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  116 -1.0203e+001 +9.9936e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  117 -1.0203e+001 +1.0496e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  118 -1.0203e+001 +1.0998e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  119 -1.0203e+001 +1.1501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  120 -1.0203e+001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  121 -1.0203e+001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  122 -1.0203e+001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  123 -1.0203e+001 +1.3510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  124 -1.0203e+001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  125 -1.0203e+001 +1.4515e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  126 -1.0203e+001 +1.5017e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  127 -1.0203e+001 +1.5519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  128 -1.0203e+001 +1.6021e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  129 -1.0203e+001 +1.6524e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  130 -1.0203e+001 +1.7026e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  131 -1.0203e+001 +1.7528e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  132 -1.0203e+001 +1.8031e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  133 -1.0203e+001 +1.8533e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  134 -7.8174e-001 +9.4919e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  135 -7.8168e-001 +9.9941e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  136 -7.8163e-001 +1.0496e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  137 -7.8157e-001 +1.0999e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  138 -7.8151e-001 +1.1501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  139 -7.8146e-001 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  140 -7.8140e-001 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  141 -7.8135e-001 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  142 -7.8129e-001 +1.3510e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  143 -7.8124e-001 +1.4012e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  144 -7.8118e-001 +1.4514e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  145 -7.8113e-001 +1.5016e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  146 -7.8107e-001 +1.5518e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  147 -7.8101e-001 +1.6021e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  148 -7.8096e-001 +1.6523e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  149 -7.8090e-001 +1.7025e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  150 -7.8085e-001 +1.7527e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  151 -7.8079e-001 +1.8029e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  152 -7.8074e-001 +1.8532e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  153 +8.6399e+000 +9.4925e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  154 +8.6400e+000 +9.9946e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  155 +8.6402e+000 +1.0497e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  156 +8.6403e+000 +1.0999e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  157 +8.6404e+000 +1.1501e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  158 +8.6405e+000 +1.2003e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  159 +8.6406e+000 +1.2505e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  160 +8.6407e+000 +1.3007e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
  161 +8.6408e+000 +1.3509e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```

162	+8.6409e+000	+1.4011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
163	+8.6410e+000	+1.4513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
164	+8.6412e+000	+1.5016e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
165	+8.6413e+000	+1.5518e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
166	+8.6414e+000	+1.6020e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
167	+8.6415e+000	+1.6522e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
168	+8.6416e+000	+1.7024e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
169	+8.6417e+000	+1.7526e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
170	+8.6418e+000	+1.8028e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
171	+8.6419e+000	+1.8530e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
172	+1.8062e+001	+9.4932e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
173	+1.8062e+001	+9.9951e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
174	+1.8062e+001	+1.0497e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
175	+1.8062e+001	+1.0999e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
176	+1.8062e+001	+1.1501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
177	+1.8062e+001	+1.2003e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
178	+1.8063e+001	+1.2505e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
179	+1.8063e+001	+1.3007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
180	+1.8063e+001	+1.3509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
181	+1.8063e+001	+1.4011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
182	+1.8063e+001	+1.4513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
183	+1.8063e+001	+1.5015e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
184	+1.8064e+001	+1.5517e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
185	+1.8064e+001	+1.6019e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
186	+1.8064e+001	+1.6521e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
187	+1.8064e+001	+1.7023e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
188	+1.8064e+001	+1.7525e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
189	+1.8064e+001	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
190	+1.8065e+001	+1.8529e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
191	+2.7483e+001	+9.4938e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
192	+2.7483e+001	+9.9956e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
193	+2.7484e+001	+1.0497e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
194	+2.7484e+001	+1.0999e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
195	+2.7484e+001	+1.1501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
196	+2.7484e+001	+1.2003e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
197	+2.7485e+001	+1.2505e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
198	+2.7485e+001	+1.3007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
199	+2.7485e+001	+1.3509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
200	+2.7485e+001	+1.4011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
201	+2.7486e+001	+1.4512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
202	+2.7486e+001	+1.5014e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
203	+2.7486e+001	+1.5516e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
204	+2.7486e+001	+1.6018e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
205	+2.7486e+001	+1.6520e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
206	+2.7487e+001	+1.7022e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
207	+2.7487e+001	+1.7524e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
208	+2.7487e+001	+1.8026e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
209	+2.7487e+001	+1.8527e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
210	+3.6905e+001	+9.4944e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
211	+3.6905e+001	+9.9962e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
212	+3.6905e+001	+1.0498e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
213	+3.6906e+001	+1.1000e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
214	+3.6906e+001	+1.1501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
215	+3.6906e+001	+1.2003e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
216	+3.6907e+001	+1.2505e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
217	+3.6907e+001	+1.3007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
218	+3.6907e+001	+1.3508e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
219	+3.6907e+001	+1.4010e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
220	+3.6908e+001	+1.4512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
221	+3.6908e+001	+1.5014e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

222	+3.6908e+001	+1.5515e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
223	+3.6909e+001	+1.6017e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
224	+3.6909e+001	+1.6519e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
225	+3.6909e+001	+1.7021e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
226	+3.6909e+001	+1.7522e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
227	+3.6910e+001	+1.8024e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
228	+3.6910e+001	+1.8526e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
229	+4.6327e+001	+9.4950e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
230	+4.6327e+001	+9.9967e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
231	+4.6327e+001	+1.0498e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
232	+4.6328e+001	+1.1000e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
233	+4.6328e+001	+1.1502e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
234	+4.6328e+001	+1.2003e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
235	+4.6329e+001	+1.2505e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
236	+4.6329e+001	+1.3006e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
237	+4.6329e+001	+1.3508e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
238	+4.6330e+001	+1.4010e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
239	+4.6330e+001	+1.4511e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
240	+4.6330e+001	+1.5013e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
241	+4.6331e+001	+1.5515e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
242	+4.6331e+001	+1.6016e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
243	+4.6331e+001	+1.6518e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
244	+4.6332e+001	+1.7020e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
245	+4.6332e+001	+1.7521e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
246	+4.6332e+001	+1.8023e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
247	+4.6333e+001	+1.8524e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
248	+5.5748e+001	+9.4956e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
249	+5.5749e+001	+9.9972e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
250	+5.5749e+001	+1.0499e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
251	+5.5750e+001	+1.1000e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
252	+5.5750e+001	+1.1502e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
253	+5.5750e+001	+1.2003e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
254	+5.5751e+001	+1.2505e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
255	+5.5751e+001	+1.3006e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
256	+5.5751e+001	+1.3508e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
257	+5.5752e+001	+1.4009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
258	+5.5752e+001	+1.4511e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
259	+5.5753e+001	+1.5012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
260	+5.5753e+001	+1.5514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
261	+5.5753e+001	+1.6015e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
262	+5.5754e+001	+1.6517e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
263	+5.5754e+001	+1.7018e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
264	+5.5755e+001	+1.7520e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
265	+5.5755e+001	+1.8021e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
266	+5.5755e+001	+1.8523e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
267	+6.5170e+001	+9.4963e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
268	+6.5170e+001	+9.9977e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
269	+6.5171e+001	+1.0499e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
270	+6.5171e+001	+1.1000e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
271	+6.5172e+001	+1.1502e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
272	+6.5172e+001	+1.2003e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
273	+6.5173e+001	+1.2505e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
274	+6.5173e+001	+1.3006e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
275	+6.5174e+001	+1.3507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
276	+6.5174e+001	+1.4009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
277	+6.5174e+001	+1.4510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
278	+6.5175e+001	+1.5012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
279	+6.5175e+001	+1.5513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
280	+6.5176e+001	+1.6015e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
281	+6.5176e+001	+1.6516e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

282	+6.5177e+001	+1.7017e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
283	+6.5177e+001	+1.7519e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
284	+6.5177e+001	+1.8020e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
285	+6.5178e+001	+1.8522e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
286	+7.4592e+001	+9.4969e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
287	+7.4592e+001	+9.9982e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
288	+7.4593e+001	+1.0500e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
289	+7.4593e+001	+1.1001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
290	+7.4594e+001	+1.1502e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
291	+7.4594e+001	+1.2003e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
292	+7.4595e+001	+1.2505e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
293	+7.4595e+001	+1.3006e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
294	+7.4596e+001	+1.3507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
295	+7.4596e+001	+1.4009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
296	+7.4597e+001	+1.4510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
297	+7.4597e+001	+1.5011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
298	+7.4598e+001	+1.5512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
299	+7.4598e+001	+1.6014e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
300	+7.4599e+001	+1.6515e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
301	+7.4599e+001	+1.7016e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
302	+7.4600e+001	+1.7518e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
303	+7.4600e+001	+1.8019e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
304	+7.4601e+001	+1.8520e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
305	+8.4013e+001	+9.4975e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
306	+8.4014e+001	+9.9987e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
307	+8.4014e+001	+1.0500e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
308	+8.4015e+001	+1.1001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
309	+8.4016e+001	+1.1502e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
310	+8.4016e+001	+1.2003e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
311	+8.4017e+001	+1.2505e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
312	+8.4017e+001	+1.3006e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
313	+8.4018e+001	+1.3507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
314	+8.4018e+001	+1.4008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
315	+8.4019e+001	+1.4509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
316	+8.4019e+001	+1.5010e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
317	+8.4020e+001	+1.5512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
318	+8.4021e+001	+1.6013e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
319	+8.4021e+001	+1.6514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
320	+8.4022e+001	+1.7015e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
321	+8.4022e+001	+1.7516e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
322	+8.4023e+001	+1.8018e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
323	+8.4023e+001	+1.8519e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
324	+9.3435e+001	+9.4981e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
325	+9.3436e+001	+9.9992e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
326	+9.3436e+001	+1.0500e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
327	+9.3437e+001	+1.1001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
328	+9.3437e+001	+1.1502e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
329	+9.3438e+001	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
330	+9.3439e+001	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
331	+9.3439e+001	+1.3006e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
332	+9.3440e+001	+1.3507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
333	+9.3440e+001	+1.4008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
334	+9.3441e+001	+1.4509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
335	+9.3442e+001	+1.5010e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
336	+9.3442e+001	+1.5511e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
337	+9.3443e+001	+1.6012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
338	+9.3443e+001	+1.6513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
339	+9.3444e+001	+1.7014e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
340	+9.3445e+001	+1.7515e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
341	+9.3445e+001	+1.8016e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+00

342	+9.3446e+001	+1.8517e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
343	+1.0286e+002	+9.4988e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
344	+1.0286e+002	+9.9997e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
345	+1.0286e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
346	+1.0286e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
347	+1.0286e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
348	+1.0286e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
349	+1.0286e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
350	+1.0286e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
351	+1.0286e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
352	+1.0286e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
353	+1.0286e+002	+1.4508e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
354	+1.0286e+002	+1.5009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
355	+1.0286e+002	+1.5510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
356	+1.0286e+002	+1.6011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
357	+1.0287e+002	+1.6512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
358	+1.0287e+002	+1.7013e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
359	+1.0287e+002	+1.7514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
360	+1.0287e+002	+1.8015e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
361	+1.0287e+002	+1.8516e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
362	+1.1170e+002	+1.8500e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
363	+1.1228e+002	+9.4994e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
364	+1.1228e+002	+1.0000e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
365	+1.1228e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
366	+1.1228e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
367	+1.1228e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
368	+1.1228e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
369	+1.1228e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
370	+1.1228e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
371	+1.1228e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
372	+1.1229e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
373	+1.1229e+002	+1.4508e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
374	+1.1229e+002	+1.5009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
375	+1.1229e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
376	+1.1229e+002	+1.6010e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
377	+1.1229e+002	+1.6511e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
378	+1.1229e+002	+1.7012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
379	+1.1229e+002	+1.7513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
380	+1.1229e+002	+1.8014e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
381	+1.1688e+002	+1.8511e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
382	+1.2170e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
383	+1.2170e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
384	+1.2170e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
385	+1.2170e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
386	+1.2170e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
387	+1.2170e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
388	+1.2171e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
389	+1.2171e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+00
390	+1.2171e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+0
391	+1.2171e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+0
392	+1.2171e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
393	+1.2171e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
394	+1.2171e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
395	+1.2171e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
396	+1.2171e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
397	+1.2171e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
398	+1.2171e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
399	+1.2171e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
400	+1.2171e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
401	+1.2295e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

402	+1.2419e+002	+1.8924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
403	+1.2524e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
404	+1.2524e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
405	+1.2524e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
406	+1.2524e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
407	+1.2525e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
408	+1.2525e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
409	+1.2525e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
410	+1.2525e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
411	+1.2525e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
412	+1.2525e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
413	+1.2525e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
414	+1.2525e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
415	+1.2525e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
416	+1.2525e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
417	+1.2525e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
418	+1.2525e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
419	+1.2525e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
420	+1.2525e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
421	+1.2525e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
422	+1.2525e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
423	+1.2543e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
424	+1.2631e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
425	+1.2666e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
426	+1.2737e+002	+1.8924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
427	+1.2790e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
428	+1.2843e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
429	+1.2879e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
430	+1.2879e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
431	+1.2879e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
432	+1.2879e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
433	+1.2879e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
434	+1.2879e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
435	+1.2879e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
436	+1.2879e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
437	+1.2879e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
438	+1.2879e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
439	+1.2879e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
440	+1.2879e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
441	+1.2879e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
442	+1.2879e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
443	+1.2879e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
444	+1.2879e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
445	+1.2879e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
446	+1.2879e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
447	+1.2879e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
448	+1.2879e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
449	+1.2914e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
450	+1.2950e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
451	+1.2968e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
452	+1.3038e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
453	+1.3056e+002	+1.8924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
454	+1.3056e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
455	+1.3145e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
456	+1.3161e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
457	+1.3162e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
458	+1.3232e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
459	+1.3233e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
460	+1.3233e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
461	+1.3233e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

462	+1.3233e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
463	+1.3233e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
464	+1.3233e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
465	+1.3233e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
466	+1.3233e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
467	+1.3233e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
468	+1.3233e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
469	+1.3233e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
470	+1.3233e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
471	+1.3233e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
472	+1.3233e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
473	+1.3233e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
474	+1.3233e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
475	+1.3233e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
476	+1.3233e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
477	+1.3233e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
478	+1.3233e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
479	+1.3268e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
480	+1.3285e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
481	+1.3304e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
482	+1.3321e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
483	+1.3374e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
484	+1.3375e+002	+1.8924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
485	+1.3409e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
486	+1.3410e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
487	+1.3445e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
488	+1.3480e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
489	+1.3498e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
490	+1.3516e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
491	+1.3532e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
492	+1.3585e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
493	+1.3586e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
494	+1.3587e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
495	+1.3587e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
496	+1.3587e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
497	+1.3587e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
498	+1.3587e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
499	+1.3587e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
500	+1.3587e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
501	+1.3587e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
502	+1.3587e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
503	+1.3587e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
504	+1.3587e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
505	+1.3587e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
506	+1.3587e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
507	+1.3587e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
508	+1.3587e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
509	+1.3587e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
510	+1.3587e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
511	+1.3587e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
512	+1.3587e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
513	+1.3587e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
514	+1.3587e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
515	+1.3640e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
516	+1.3656e+002	+2.0979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
517	+1.3658e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
518	+1.3675e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
519	+1.3692e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
520	+1.3693e+002	+1.8924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
521	+1.3729e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

522	+1.3746e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
523	+1.3764e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
524	+1.3780e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
525	+1.3798e+002	+2.0979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
526	+1.3799e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
527	+1.3799e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
528	+1.3852e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
529	+1.3853e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
530	+1.3878e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
531	+1.3904e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
532	+1.3904e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
533	+1.3906e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
534	+1.3938e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
535	+1.3940e+002	+2.0979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
536	+1.3941e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
537	+1.3941e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
538	+1.3941e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
539	+1.3941e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
540	+1.3941e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
541	+1.3941e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
542	+1.3941e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
543	+1.3941e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
544	+1.3941e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
545	+1.3941e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
546	+1.3941e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
547	+1.3941e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
548	+1.3941e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
549	+1.3941e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
550	+1.3941e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
551	+1.3941e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
552	+1.3941e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
553	+1.3941e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
554	+1.3941e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
555	+1.3941e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
556	+1.3959e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
557	+1.3976e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
558	+1.4010e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
559	+1.4012e+002	+1.8924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
560	+1.4012e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
561	+1.4012e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
562	+1.4027e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
563	+1.4029e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
564	+1.4047e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
565	+1.4065e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
566	+1.4082e+002	+2.0979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
567	+1.4083e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
568	+1.4117e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
569	+1.4117e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
570	+1.4118e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
571	+1.4118e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
572	+1.4151e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
573	+1.4153e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
574	+1.4154e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
575	+1.4171e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
576	+1.4189e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
577	+1.4206e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
578	+1.4223e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
579	+1.4224e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
580	+1.4225e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
581	+1.4225e+002	+2.0979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

582	+1.4260e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
583	+1.4278e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
584	+1.4291e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
585	+1.4294e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
586	+1.4295e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
587	+1.4295e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
588	+1.4295e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
589	+1.4295e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
590	+1.4295e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
591	+1.4295e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
592	+1.4295e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
593	+1.4295e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
594	+1.4295e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
595	+1.4295e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
596	+1.4295e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
597	+1.4295e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
598	+1.4295e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
599	+1.4295e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
600	+1.4295e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
601	+1.4295e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
602	+1.4296e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
603	+1.4296e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
604	+1.4296e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
605	+1.4296e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
606	+1.4296e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
607	+1.4312e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
608	+1.4330e+002	+1.8924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
609	+1.4331e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
610	+1.4331e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
611	+1.4348e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
612	+1.4366e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
613	+1.4366e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
614	+1.4367e+002	+2.0979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
615	+1.4384e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
616	+1.4384e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
617	+1.4402e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
618	+1.4402e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
619	+1.4420e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
620	+1.4437e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
621	+1.4437e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
622	+1.4438e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
623	+1.4455e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
624	+1.4473e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
625	+1.4473e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
626	+1.4491e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
627	+1.4509e+002	+2.0979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
628	+1.4509e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
629	+1.4527e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
630	+1.4544e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
631	+1.4562e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
632	+1.4580e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
633	+1.4644e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
634	+1.4646e+002	+1.5508e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
635	+1.4648e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
636	+1.4648e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
637	+1.4649e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
638	+1.4649e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
639	+1.4649e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
640	+1.4649e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
641	+1.4649e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

642	+1.4649e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
643	+1.4649e+002	+1.6010e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
644	+1.4649e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
645	+1.4649e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
646	+1.4649e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
647	+1.4649e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
648	+1.4649e+002	+1.8924e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
649	+1.4649e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
650	+1.4649e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
651	+1.4649e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
652	+1.4650e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
653	+1.4650e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
654	+1.4650e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
655	+1.4650e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
656	+1.4650e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
657	+1.4650e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
658	+1.4650e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
659	+1.4650e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
660	+1.4650e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
661	+1.4650e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
662	+1.4650e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
663	+1.4651e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
664	+1.4651e+002	+2.0978e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
665	+1.4651e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
666	+1.4651e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
667	+1.4651e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
668	+1.4652e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
669	+1.4797e+002	+1.5508e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
670	+1.4797e+002	+1.6010e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
671	+1.4797e+002	+1.6512e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
672	+1.4797e+002	+1.7013e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
673	+1.4797e+002	+1.7515e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
674	+1.4797e+002	+1.8017e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
675	+1.4797e+002	+1.8297e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
676	+1.4811e+002	+1.8512e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
677	+1.4812e+002	+1.8718e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
678	+1.4812e+002	+1.8923e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
679	+1.4812e+002	+1.9129e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
680	+1.4813e+002	+1.9334e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
681	+1.4813e+002	+1.9540e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
682	+1.4813e+002	+1.9745e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
683	+1.4814e+002	+1.9951e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
684	+1.4814e+002	+2.0156e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
685	+1.4815e+002	+2.0362e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
686	+1.4815e+002	+2.0567e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
687	+1.4815e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
688	+1.4816e+002	+2.0978e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
689	+1.4816e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
690	+1.4816e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
691	+1.4817e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
692	+1.4817e+002	+2.1800e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
693	+1.4974e+002	+1.8511e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
694	+1.4975e+002	+1.8717e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
695	+1.4976e+002	+1.8922e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
696	+1.4976e+002	+1.9128e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
697	+1.4976e+002	+1.9333e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
698	+1.4977e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
699	+1.4977e+002	+1.9745e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
700	+1.4978e+002	+1.9950e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
701	+1.4979e+002	+2.0156e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000

702	+1.4979e+002	+2.0361e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
703	+1.4979e+002	+2.0567e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
704	+1.4980e+002	+2.0773e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
705	+1.4980e+002	+2.0978e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
706	+1.4981e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
707	+1.4981e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
708	+1.4982e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
709	+1.4982e+002	+2.1801e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
710	+1.5003e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
711	+1.5003e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
712	+1.5003e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
713	+1.5003e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
714	+1.5004e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
715	+1.5004e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
716	+1.5004e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
717	+1.5004e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
718	+1.5004e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
719	+1.5004e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
720	+1.5004e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
721	+1.5004e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
722	+1.5138e+002	+1.8510e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
723	+1.5138e+002	+1.8716e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
724	+1.5139e+002	+1.8921e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
725	+1.5140e+002	+1.9127e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
726	+1.5140e+002	+1.9333e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
727	+1.5141e+002	+1.9538e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
728	+1.5141e+002	+1.9744e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
729	+1.5142e+002	+1.9950e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
730	+1.5143e+002	+2.0155e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
731	+1.5143e+002	+2.0361e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
732	+1.5144e+002	+2.0567e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
733	+1.5145e+002	+2.0772e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
734	+1.5145e+002	+2.0978e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
735	+1.5146e+002	+1.6010e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
736	+1.5146e+002	+1.6512e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
737	+1.5146e+002	+1.7013e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
738	+1.5146e+002	+1.7515e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
739	+1.5146e+002	+1.8017e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
740	+1.5146e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
741	+1.5146e+002	+2.1389e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
742	+1.5147e+002	+1.5508e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
743	+1.5147e+002	+1.8297e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
744	+1.5147e+002	+2.1595e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
745	+1.5148e+002	+2.1801e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
746	+1.5350e+002	+1.8514e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
747	+1.5351e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
748	+1.5356e+002	+1.7511e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
749	+1.5356e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
750	+1.5357e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
751	+1.5357e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
752	+1.5357e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
753	+1.5357e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
754	+1.5357e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
755	+1.5357e+002	+1.6010e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
756	+1.5357e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
757	+1.5357e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
758	+1.5358e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
759	+1.5358e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
760	+1.5358e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
761	+1.5358e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000

762	+1.5358e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
763	+1.5358e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
764	+1.5358e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
765	+1.5359e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
766	+1.5575e+002	+1.8925e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
767	+1.5575e+002	+1.8720e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
768	+1.5575e+002	+1.9130e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
769	+1.5576e+002	+1.9335e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
770	+1.5576e+002	+1.9541e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+00
771	+1.5577e+002	+1.9746e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+00
772	+1.5578e+002	+1.9952e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
773	+1.5578e+002	+2.0157e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
774	+1.5579e+002	+2.0363e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
775	+1.5579e+002	+2.0568e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
776	+1.5580e+002	+2.0774e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
777	+1.5580e+002	+2.0979e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
778	+1.5581e+002	+2.1184e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
779	+1.5582e+002	+2.1390e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
780	+1.5583e+002	+2.1801e+002	+0.0000e+000	+2.1650e+002	100000 +0.0000e+000
781	+1.5704e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
782	+1.5710e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
783	+1.5710e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
784	+1.5710e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
785	+1.5710e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
786	+1.5711e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
787	+1.5711e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
788	+1.5711e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
789	+1.5711e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
790	+1.5711e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
791	+1.5711e+002	+1.8512e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
792	+1.5712e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
793	+1.5712e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
794	+1.5712e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
795	+1.5712e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
796	+1.5712e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
797	+1.5712e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
798	+1.5713e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
799	+1.5713e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
800	+1.5713e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
801	+1.6010e+002	+1.8723e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
802	+1.6010e+002	+1.8928e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
803	+1.6011e+002	+1.9133e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
804	+1.6011e+002	+1.9338e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
805	+1.6012e+002	+1.9543e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
806	+1.6012e+002	+1.9749e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
807	+1.6013e+002	+1.9954e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
808	+1.6013e+002	+2.0159e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
809	+1.6014e+002	+2.0364e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
810	+1.6015e+002	+2.0569e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
811	+1.6015e+002	+2.0775e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
812	+1.6015e+002	+2.0980e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
813	+1.6016e+002	+2.1185e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
814	+1.6057e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
815	+1.6064e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
816	+1.6064e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
817	+1.6064e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
818	+1.6064e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
819	+1.6065e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
820	+1.6065e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+00
821	+1.6065e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+0

822	+1.6065e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
823	+1.6065e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
824	+1.6065e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
825	+1.6066e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
826	+1.6066e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
827	+1.6066e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
828	+1.6066e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
829	+1.6066e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
830	+1.6067e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
831	+1.6067e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
832	+1.6067e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
833	+1.6067e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
834	+1.6091e+002	+2.1513e+002	+0.0000e+000	+2.1650e+002	100000 +0.0000e+000
835	+1.6410e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
836	+1.6418e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
837	+1.6418e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
838	+1.6418e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
839	+1.6418e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
840	+1.6418e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
841	+1.6419e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
842	+1.6419e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
843	+1.6419e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
844	+1.6419e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
845	+1.6420e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
846	+1.6420e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
847	+1.6420e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
848	+1.6420e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
849	+1.6420e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
850	+1.6421e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
851	+1.6421e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
852	+1.6421e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
853	+1.6421e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
854	+1.6421e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
855	+1.6445e+002	+1.8726e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
856	+1.6446e+002	+1.8931e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
857	+1.6446e+002	+1.9136e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
858	+1.6446e+002	+1.9341e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
859	+1.6447e+002	+1.9546e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
860	+1.6448e+002	+1.9751e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
861	+1.6448e+002	+1.9956e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
862	+1.6449e+002	+2.0161e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
863	+1.6449e+002	+2.0366e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
864	+1.6449e+002	+2.0571e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
865	+1.6450e+002	+2.0776e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
866	+1.6451e+002	+2.0980e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
867	+1.6521e+002	+2.1271e+002	+0.0000e+000	+2.1650e+002	100000 +0.0000e+000
868	+1.6763e+002	+1.8296e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+00
869	+1.6771e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+0
870	+1.6772e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+0
871	+1.6772e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+0
872	+1.6772e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
873	+1.6772e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
874	+1.6773e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
875	+1.6773e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
876	+1.6773e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
877	+1.6773e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
878	+1.6774e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
879	+1.6774e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
880	+1.6774e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000
881	+1.6774e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000 +0.0000e+000

882	+1.6774e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
883	+1.6775e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
884	+1.6775e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
885	+1.6775e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
886	+1.6776e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
887	+1.6776e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
888	+1.6880e+002	+1.8738e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
889	+1.6881e+002	+1.8934e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
890	+1.6881e+002	+1.9139e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
891	+1.6882e+002	+1.9344e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
892	+1.6882e+002	+1.9548e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
893	+1.6883e+002	+1.9753e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
894	+1.6883e+002	+1.9958e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
895	+1.6884e+002	+2.0163e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
896	+1.6884e+002	+2.0367e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
897	+1.6885e+002	+2.0572e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
898	+1.6885e+002	+2.0777e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
899	+1.7057e+002	+2.0979e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
900	+1.7125e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
901	+1.7126e+002	+1.6510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
902	+1.7126e+002	+1.7011e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
903	+1.7126e+002	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
904	+1.7126e+002	+1.8012e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
905	+1.7127e+002	+1.4507e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
906	+1.7127e+002	+1.5008e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
907	+1.7127e+002	+1.5509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
908	+1.7127e+002	+1.6009e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
909	+1.7128e+002	+1.2504e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
910	+1.7128e+002	+1.3005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
911	+1.7128e+002	+1.3506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
912	+1.7128e+002	+1.4007e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
913	+1.7129e+002	+1.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
914	+1.7129e+002	+1.1002e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
915	+1.7129e+002	+1.1503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
916	+1.7129e+002	+1.2004e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
917	+1.7130e+002	+9.5000e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
918	+1.7130e+002	+1.0001e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
919	+1.7316e+002	+1.8733e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
920	+1.7316e+002	+1.8938e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
921	+1.7317e+002	+1.9142e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
922	+1.7317e+002	+1.9346e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
923	+1.7318e+002	+1.9551e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
924	+1.7318e+002	+1.9755e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
925	+1.7318e+002	+1.9960e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
926	+1.7319e+002	+2.0164e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
927	+1.7319e+002	+2.0369e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
928	+1.7320e+002	+2.0573e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
929	+1.7439e+002	+2.0768e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
930	+1.7668e+002	+1.6993e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
931	+1.7668e+002	+1.7493e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
932	+1.7668e+002	+1.7993e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
933	+1.7668e+002	+1.8492e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
934	+1.7669e+002	+1.5495e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
935	+1.7669e+002	+1.5994e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
936	+1.7669e+002	+1.6494e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
937	+1.7670e+002	+1.3496e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
938	+1.7670e+002	+1.3996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
939	+1.7670e+002	+1.4495e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
940	+1.7670e+002	+1.4995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
941	+1.7671e+002	+1.1497e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

942	+1.7671e+002	+1.1997e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
943	+1.7671e+002	+1.2497e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
944	+1.7671e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
945	+1.7672e+002	+9.9987e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
946	+1.7672e+002	+1.0498e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
947	+1.7672e+002	+1.0998e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
948	+1.7673e+002	+9.4991e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
949	+1.7751e+002	+1.8737e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
950	+1.7752e+002	+1.8941e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
951	+1.7752e+002	+1.9145e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
952	+1.7753e+002	+1.9349e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
953	+1.7753e+002	+1.9553e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
954	+1.7753e+002	+1.9758e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
955	+1.7754e+002	+1.9962e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
956	+1.7754e+002	+2.0166e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
957	+1.7754e+002	+2.0370e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
958	+1.7797e+002	+2.0568e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
959	+1.8184e+002	+2.0352e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
960	+1.8187e+002	+1.8740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
961	+1.8187e+002	+1.8944e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
962	+1.8188e+002	+1.9148e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
963	+1.8188e+002	+1.9352e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
964	+1.8188e+002	+1.9556e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
965	+1.8189e+002	+1.9760e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
966	+1.8189e+002	+1.9964e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
967	+1.8189e+002	+2.0168e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
968	+1.8210e+002	+1.7474e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
969	+1.8210e+002	+1.7973e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
970	+1.8210e+002	+1.8471e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
971	+1.8211e+002	+1.5979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
972	+1.8211e+002	+1.6477e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
973	+1.8211e+002	+1.6976e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
974	+1.8212e+002	+1.4483e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
975	+1.8212e+002	+1.4982e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
976	+1.8212e+002	+1.5480e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
977	+1.8213e+002	+1.2489e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
978	+1.8213e+002	+1.2988e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
979	+1.8213e+002	+1.3486e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
980	+1.8213e+002	+1.3985e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
981	+1.8214e+002	+1.0994e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
982	+1.8214e+002	+1.1492e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
983	+1.8214e+002	+1.1991e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
984	+1.8215e+002	+9.4981e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
985	+1.8215e+002	+9.9966e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
986	+1.8215e+002	+1.0495e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
987	+1.8515e+002	+2.0168e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
988	+1.8622e+002	+1.8540e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
989	+1.8622e+002	+1.8743e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
990	+1.8623e+002	+1.8947e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
991	+1.8623e+002	+1.9151e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
992	+1.8623e+002	+1.9355e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
993	+1.8624e+002	+1.9558e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
994	+1.8624e+002	+1.9762e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
995	+1.8752e+002	+1.7953e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
996	+1.8752e+002	+1.8451e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
997	+1.8753e+002	+1.6461e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
998	+1.8753e+002	+1.6959e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
999	+1.8753e+002	+1.7456e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1000	+1.8754e+002	+1.4969e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1001	+1.8754e+002	+1.5466e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

1002	+1.8754e+002	+1.5964e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1003	+1.8755e+002	+1.2979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1004	+1.8755e+002	+1.3476e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1005	+1.8755e+002	+1.3974e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1006	+1.8755e+002	+1.4471e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1007	+1.8756e+002	+1.1984e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1008	+1.8756e+002	+1.2482e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1009	+1.8757e+002	+9.9946e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1010	+1.8757e+002	+1.0492e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1011	+1.8757e+002	+1.0989e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1012	+1.8757e+002	+1.1487e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1013	+1.8758e+002	+9.4972e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1014	+1.8876e+002	+1.9966e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
1015	+1.9058e+002	+1.8543e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1016	+1.9058e+002	+1.8747e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1017	+1.9058e+002	+1.8950e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1018	+1.9058e+002	+1.9154e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1019	+1.9059e+002	+1.9357e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1020	+1.9059e+002	+1.9561e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1021	+1.9244e+002	+1.9760e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
1022	+1.9295e+002	+1.7437e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1023	+1.9295e+002	+1.7934e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1024	+1.9295e+002	+1.8430e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1025	+1.9296e+002	+1.5452e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1026	+1.9296e+002	+1.5948e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1027	+1.9296e+002	+1.6445e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1028	+1.9296e+002	+1.6941e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1029	+1.9297e+002	+1.3963e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1030	+1.9297e+002	+1.4459e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1031	+1.9297e+002	+1.4956e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1032	+1.9298e+002	+1.2474e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1033	+1.9298e+002	+1.2971e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1034	+1.9298e+002	+1.3467e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1035	+1.9299e+002	+1.0985e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1036	+1.9299e+002	+1.1482e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1037	+1.9299e+002	+1.1978e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1038	+1.9300e+002	+9.4963e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1039	+1.9300e+002	+9.9926e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1040	+1.9300e+002	+1.0489e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1041	+1.9493e+002	+1.8547e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1042	+1.9493e+002	+1.8751e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1043	+1.9493e+002	+1.8954e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1044	+1.9494e+002	+1.9157e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1045	+1.9494e+002	+1.9360e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1046	+1.9609e+002	+1.9561e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
1047	+1.9837e+002	+1.7419e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1048	+1.9837e+002	+1.7914e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1049	+1.9837e+002	+1.8409e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1050	+1.9838e+002	+1.5933e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1051	+1.9838e+002	+1.6428e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1052	+1.9838e+002	+1.6924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1053	+1.9839e+002	+1.4448e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1054	+1.9839e+002	+1.4943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1055	+1.9839e+002	+1.5438e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1056	+1.9840e+002	+1.2962e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1057	+1.9840e+002	+1.3457e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1058	+1.9840e+002	+1.3952e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1059	+1.9841e+002	+1.1476e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1060	+1.9841e+002	+1.1971e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1061	+1.9841e+002	+1.2467e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

1062	+1.9842e+002	+1.0486e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1063	+1.9842e+002	+1.0981e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1064	+1.9843e+002	+9.4953e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1065	+1.9843e+002	+9.9906e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1066	+1.9929e+002	+1.8551e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1067	+1.9929e+002	+1.8754e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1068	+1.9929e+002	+1.8957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1069	+1.9929e+002	+1.9160e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1070	+1.9962e+002	+1.9366e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
1071	+2.0351e+002	+1.9148e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
1072	+2.0364e+002	+1.8757e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1073	+2.0364e+002	+1.8960e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1074	+2.0368e+002	+1.8550e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1075	+2.0379e+002	+1.7894e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1076	+2.0379e+002	+1.8388e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1077	+2.0380e+002	+1.6412e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1078	+2.0380e+002	+1.6906e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1079	+2.0380e+002	+1.7400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1080	+2.0381e+002	+1.5424e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1081	+2.0381e+002	+1.5918e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1082	+2.0382e+002	+1.3447e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1083	+2.0382e+002	+1.3941e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1084	+2.0382e+002	+1.4435e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1085	+2.0382e+002	+1.4930e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1086	+2.0383e+002	+1.2459e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1087	+2.0383e+002	+1.2953e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1088	+2.0384e+002	+1.0977e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1089	+2.0384e+002	+1.1471e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1090	+2.0384e+002	+1.1965e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1091	+2.0385e+002	+9.4944e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1092	+2.0385e+002	+9.9885e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1093	+2.0385e+002	+1.0483e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1094	+2.0704e+002	+1.8947e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
1095	+2.0921e+002	+1.8368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1096	+2.0922e+002	+1.6889e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1097	+2.0922e+002	+1.7382e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1098	+2.0922e+002	+1.7875e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1099	+2.0923e+002	+1.5903e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1100	+2.0923e+002	+1.6396e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1101	+2.0924e+002	+1.4424e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1102	+2.0924e+002	+1.4917e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1103	+2.0924e+002	+1.5410e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1104	+2.0925e+002	+1.2945e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1105	+2.0925e+002	+1.3438e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1106	+2.0925e+002	+1.3930e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1107	+2.0926e+002	+1.1465e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1108	+2.0926e+002	+1.1958e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1109	+2.0926e+002	+1.2452e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1110	+2.0927e+002	+1.0479e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1111	+2.0927e+002	+1.0972e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1112	+2.0928e+002	+9.4935e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1113	+2.0928e+002	+9.9865e+001	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1114	+2.1074e+002	+1.8742e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
1115	+2.1082e+002	+1.8550e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1116	+2.1428e+002	+1.8547e+002	+0.0000e+000	+2.1650e+002	100000	+0.0000e+000
1117	+2.1464e+002	+1.7363e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1118	+2.1464e+002	+1.7855e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1119	+2.1464e+002	+1.8347e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1120	+2.1465e+002	+1.5887e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1121	+2.1465e+002	+1.6379e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

```
1122 +2.1465e+002 +1.6871e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1123 +2.1466e+002 +1.4904e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1124 +2.1466e+002 +1.5396e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1125 +2.1467e+002 +1.3428e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1126 +2.1467e+002 +1.3920e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1127 +2.1467e+002 +1.4412e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1128 +2.1468e+002 +1.2444e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1129 +2.1468e+002 +1.2936e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1130 +2.1469e+002 +1.0968e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1131 +2.1469e+002 +1.1460e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1132 +2.1469e+002 +1.1952e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1133 +2.1470e+002 +9.9844e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1134 +2.1470e+002 +1.0476e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1135 +2.1471e+002 +9.4925e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1136 +2.1807e+002 +1.8334e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1137 +2.2006e+002 +1.7835e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1138 +2.2007e+002 +1.6363e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1139 +2.2007e+002 +1.6854e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1140 +2.2007e+002 +1.7345e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1141 +2.2008e+002 +1.5381e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1142 +2.2008e+002 +1.5872e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1143 +2.2009e+002 +1.4400e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1144 +2.2009e+002 +1.4890e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1145 +2.2010e+002 +1.2927e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1146 +2.2010e+002 +1.3418e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1147 +2.2010e+002 +1.3909e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1148 +2.2011e+002 +1.1946e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1149 +2.2011e+002 +1.2436e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1150 +2.2012e+002 +1.0473e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1151 +2.2012e+002 +1.0964e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1152 +2.2012e+002 +1.1455e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1153 +2.2013e+002 +9.4916e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1154 +2.2013e+002 +9.9824e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1155 +2.2548e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1156 +2.2549e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1157 +2.2549e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1158 +2.2549e+002 +1.7816e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1159 +2.2550e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1160 +2.2550e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1161 +2.2551e+002 +1.4388e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1162 +2.2551e+002 +1.4877e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1163 +2.2551e+002 +1.5367e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1164 +2.2552e+002 +1.3408e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1165 +2.2552e+002 +1.3898e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1166 +2.2553e+002 +1.2429e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1167 +2.2553e+002 +1.2919e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1168 +2.2554e+002 +1.0960e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1169 +2.2554e+002 +1.1450e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1170 +2.2554e+002 +1.1939e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1171 +2.2555e+002 +9.9804e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1172 +2.2555e+002 +1.0470e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1173 +2.2556e+002 +9.4907e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1174 +2.3590e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1175 +2.3590e+002 +1.7816e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1176 +2.3590e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1177 +2.3591e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1178 +2.3591e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1179 +2.3592e+002 +1.4878e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1180 +2.3592e+002 +1.5367e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1181 +2.3592e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
1182 +2.3593e+002 +1.3409e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1183 +2.3593e+002 +1.3898e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1184 +2.3593e+002 +1.4388e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1185 +2.3594e+002 +1.2429e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1186 +2.3594e+002 +1.2919e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1187 +2.3595e+002 +1.0961e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1188 +2.3595e+002 +1.1450e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1189 +2.3595e+002 +1.1940e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1190 +2.3596e+002 +9.4916e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1191 +2.3596e+002 +9.9812e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1192 +2.3596e+002 +1.0471e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1193 +2.4631e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1194 +2.4632e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1195 +2.4632e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1196 +2.4632e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1197 +2.4633e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1198 +2.4633e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1199 +2.4633e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1200 +2.4634e+002 +1.3899e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1201 +2.4634e+002 +1.4388e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1202 +2.4634e+002 +1.4878e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1203 +2.4635e+002 +1.2438e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1204 +2.4635e+002 +1.2928e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1205 +2.4635e+002 +1.3409e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1206 +2.4636e+002 +1.0961e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1207 +2.4636e+002 +1.1451e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1208 +2.4636e+002 +1.1940e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1209 +2.4637e+002 +9.4925e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1210 +2.4637e+002 +9.9821e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1211 +2.4637e+002 +1.0472e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1212 +2.5673e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1213 +2.5673e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1214 +2.5673e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1215 +2.5673e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1216 +2.5674e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1217 +2.5674e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1218 +2.5674e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1219 +2.5675e+002 +1.4389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1220 +2.5675e+002 +1.4878e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1221 +2.5676e+002 +1.2431e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1222 +2.5676e+002 +1.2920e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1223 +2.5676e+002 +1.3410e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1224 +2.5676e+002 +1.3899e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1225 +2.5677e+002 +1.0962e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1226 +2.5677e+002 +1.1452e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1227 +2.5677e+002 +1.1941e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1228 +2.5678e+002 +9.4934e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1229 +2.5678e+002 +9.9830e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1230 +2.5678e+002 +1.0472e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1231 +2.6714e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1232 +2.6714e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1233 +2.6715e+002 +1.5857e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1234 +2.6715e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1235 +2.6715e+002 +1.6836e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1236 +2.6715e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1237 +2.6716e+002 +1.4389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1238 +2.6716e+002 +1.4879e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1239 +2.6716e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1240 +2.6717e+002 +1.2431e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1241 +2.6717e+002 +1.2921e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
1242 +2.6717e+002 +1.3410e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1243 +2.6717e+002 +1.3900e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1244 +2.6718e+002 +1.0963e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1245 +2.6718e+002 +1.1452e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1246 +2.6718e+002 +1.1942e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1247 +2.6719e+002 +9.4944e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1248 +2.6719e+002 +9.9838e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1249 +2.6719e+002 +1.0473e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1250 +2.7755e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1251 +2.7756e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1252 +2.7756e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1253 +2.7756e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1254 +2.7757e+002 +1.4879e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1255 +2.7757e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1256 +2.7757e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1257 +2.7757e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1258 +2.7758e+002 +1.2921e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1259 +2.7758e+002 +1.3411e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1260 +2.7758e+002 +1.3900e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1261 +2.7758e+002 +1.4389e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1262 +2.7759e+002 +1.0964e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1263 +2.7759e+002 +1.1453e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1264 +2.7759e+002 +1.1942e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1265 +2.7759e+002 +1.2432e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1266 +2.7760e+002 +9.4953e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1267 +2.7760e+002 +9.9847e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1268 +2.7760e+002 +1.0474e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1269 +2.8797e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1270 +2.8797e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1271 +2.8797e+002 +1.8305e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1272 +2.8798e+002 +1.5368e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1273 +2.8798e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1274 +2.8798e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1275 +2.8798e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1276 +2.8799e+002 +1.2922e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1277 +2.8799e+002 +1.3411e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1278 +2.8799e+002 +1.3900e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1279 +2.8799e+002 +1.4390e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1280 +2.8799e+002 +1.4879e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1281 +2.8800e+002 +1.0964e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1282 +2.8800e+002 +1.1454e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1283 +2.8800e+002 +1.1943e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1284 +2.8800e+002 +1.2432e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1285 +2.8801e+002 +9.4962e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1286 +2.8801e+002 +9.9856e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1287 +2.8801e+002 +1.0475e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1288 +2.9838e+002 +1.8304e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1289 +2.9839e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1290 +2.9839e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1291 +2.9839e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1292 +2.9839e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1293 +2.9839e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1294 +2.9840e+002 +1.3412e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1295 +2.9840e+002 +1.3901e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1296 +2.9840e+002 +1.4390e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1297 +2.9840e+002 +1.4879e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1298 +2.9840e+002 +1.5369e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1299 +2.9841e+002 +1.1454e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1300 +2.9841e+002 +1.1944e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1301 +2.9841e+002 +1.2433e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+00
```



```
1302 +2.9841e+002 +1.2922e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1303 +2.9842e+002 +9.4972e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1304 +2.9842e+002 +9.9865e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1305 +2.9842e+002 +1.0476e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1306 +2.9842e+002 +1.0965e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1307 +3.0880e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1308 +3.0880e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1309 +3.0880e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1310 +3.0880e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1311 +3.0880e+002 +1.8304e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1312 +3.0881e+002 +1.3901e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1313 +3.0881e+002 +1.4390e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1314 +3.0881e+002 +1.4880e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1315 +3.0881e+002 +1.5369e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1316 +3.0881e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1317 +3.0882e+002 +1.1455e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1318 +3.0882e+002 +1.1944e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1319 +3.0882e+002 +1.2433e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1320 +3.0882e+002 +1.2923e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1321 +3.0882e+002 +1.3412e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1322 +3.0883e+002 +9.4981e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1323 +3.0883e+002 +9.9873e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1324 +3.0883e+002 +1.0476e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1325 +3.0883e+002 +1.0966e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1326 +3.1921e+002 +1.7815e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1327 +3.1921e+002 +1.8304e+002 +0.0000e+000 +2.1650e+002 100000 +0.0000e+000
1328 +3.1922e+002 +1.4880e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1329 +3.1922e+002 +1.5369e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1330 +3.1922e+002 +1.5858e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1331 +3.1922e+002 +1.6347e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1332 +3.1922e+002 +1.6837e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1333 +3.1922e+002 +1.7326e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1334 +3.1923e+002 +1.0967e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1335 +3.1923e+002 +1.1456e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1336 +3.1923e+002 +1.1945e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1337 +3.1923e+002 +1.2434e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1338 +3.1923e+002 +1.2923e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1339 +3.1923e+002 +1.3412e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1340 +3.1923e+002 +1.3902e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1341 +3.1923e+002 +1.4391e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1342 +3.1924e+002 +9.4990e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1343 +3.1924e+002 +9.9882e+001 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1344 +3.1924e+002 +1.0477e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
ELEMENT     1288
    1    20    21     2     1     0     0     0     0     3     4 +1.0000e+000
 0   0
    2    21    22     3     2     0     0     0     0     3     4 +1.0000e+00
 0   0
    3    22    23     4     3     0     0     0     0     3     4 +1.0000e+6
 0   0
    4    23    24     5     4     0     0     0     0     3     4 +1.0000e+000
 0   0
    5    24    25     6     5     0     0     0     0     3     4 +1.0000e+000
 0   0
    6    25    26     7     6     0     0     0     0     3     4 +1.0000e+000
 0   0
    7    26    27     8     7     0     0     0     0     3     4 +1.0000e+000
 0   0
    8    27    28     9     8     0     0     0     0     3     4 +1.0000e+000
 0   0
```

9	28	29	10	9	0	0	0	0	3	4	+1.0000e+000
0	0										
10	29	30	11	10	0	0	0	0	3	4	+1.0000e+000
0	0										
11	30	31	12	11	0	0	0	0	3	4	+1.0000e+000
0	0										
12	31	32	13	12	0	0	0	0	3	4	+1.0000e+000
0	0										
13	32	33	14	13	0	0	0	0	3	4	+1.0000e+000
0	0										
14	33	34	15	14	0	0	0	0	3	4	+1.0000e+000
0	0										
15	34	35	16	15	0	0	0	0	3	4	+1.0000e+000
0	0										
16	35	36	17	16	0	0	0	0	3	4	+1.0000e+000
0	0										
17	36	37	18	17	0	0	0	0	3	4	+1.0000e+000
0	0										
18	37	38	19	18	0	0	0	0	3	4	+1.0000e+000
0	0										
19	39	40	21	20	0	0	0	0	3	4	+1.0000e+000
0	0										
20	40	41	22	21	0	0	0	0	3	4	+1.0000e+000
0	0										
21	41	42	23	22	0	0	0	0	3	4	+1.0000e+000
0	0										
22	42	43	24	23	0	0	0	0	3	4	+1.0000e+000
0	0										
23	43	44	25	24	0	0	0	0	3	4	+1.0000e+000
0	0										
24	44	45	26	25	0	0	0	0	3	4	+1.0000e+000
0	0										
25	45	46	27	26	0	0	0	0	3	4	+1.0000e+000
0	0										
26	46	47	28	27	0	0	0	0	3	4	+1.0000e+000
0	0										
27	47	48	29	28	0	0	0	0	3	4	+1.0000e+000
0	0										
28	48	49	30	29	0	0	0	0	3	4	+1.0000e+000
0	0										
29	49	50	31	30	0	0	0	0	3	4	+1.0000e+000
0	0										
30	50	51	32	31	0	0	0	0	3	4	+1.0000e+000
0	0										
31	51	52	33	32	0	0	0	0	3	4	+1.0000e+000
0	0										
32	52	53	34	33	0	0	0	0	3	4	+1.0000e+000
0	0										
33	53	54	35	34	0	0	0	0	3	4	+1.0000e+000
0	0										
34	54	55	36	35	0	0	0	0	3	4	+1.0000e+000
0	0										
35	55	56	37	36	0	0	0	0	3	4	+1.0000e+000
0	0										
36	56	57	38	37	0	0	0	0	3	4	+1.0000e+000
0	0										
37	58	59	40	39	0	0	0	0	3	4	+1.0000e+000
0	0										
38	59	60	41	40	0	0	0	0	3	4	+1.0000e+000
0	0										

39	60	61	42	41	0	0	0	0	3	4	+1.0000e+000
0	0										
40	61	62	43	42	0	0	0	0	3	4	+1.0000e+000
0	0										
41	62	63	44	43	0	0	0	0	3	4	+1.0000e+000
0	0										
42	63	64	45	44	0	0	0	0	3	4	+1.0000e+000
0	0										
43	64	65	46	45	0	0	0	0	3	4	+1.0000e+000
0	0										
44	65	66	47	46	0	0	0	0	3	4	+1.0000e+000
0	0										
45	66	67	48	47	0	0	0	0	3	4	+1.0000e+000
0	0										
46	67	68	49	48	0	0	0	0	3	4	+1.0000e+000
0	0										
47	68	69	50	49	0	0	0	0	3	4	+1.0000e+000
0	0										
48	69	70	51	50	0	0	0	0	3	4	+1.0000e+000
0	0										
49	70	71	52	51	0	0	0	0	3	4	+1.0000e+000
0	0										
50	71	72	53	52	0	0	0	0	3	4	+1.0000e+000
0	0										
51	72	73	54	53	0	0	0	0	3	4	+1.0000e+000
0	0										
52	73	74	55	54	0	0	0	0	3	4	+1.0000e+000
0	0										
53	74	75	56	55	0	0	0	0	3	4	+1.0000e+000
0	0										
54	75	76	57	56	0	0	0	0	3	4	+1.0000e+000
0	0										
55	77	78	59	58	0	0	0	0	3	4	+1.0000e+000
0	0										
56	78	79	60	59	0	0	0	0	3	4	+1.0000e+000
0	0										
57	79	80	61	60	0	0	0	0	3	4	+1.0000e+000
0	0										
58	80	81	62	61	0	0	0	0	3	4	+1.0000e+000
0	0										
59	81	82	63	62	0	0	0	0	3	4	+1.0000e+000
0	0										
60	82	83	64	63	0	0	0	0	3	4	+1.0000e+000
0	0										
61	83	84	65	64	0	0	0	0	3	4	+1.0000e+000
0	0										
62	84	85	66	65	0	0	0	0	3	4	+1.0000e+000
0	0										
63	85	86	67	66	0	0	0	0	3	4	+1.0000e+000
0	0										
64	86	87	68	67	0	0	0	0	3	4	+1.0000e+000
0	0										
65	87	88	69	68	0	0	0	0	3	4	+1.0000e+000
0	0										
66	88	89	70	69	0	0	0	0	3	4	+1.0000e+000
0	0										
67	89	90	71	70	0	0	0	0	3	4	+1.0000e+000
0	0										
68	90	91	72	71	0	0	0	0	3	4	+1.0000e+000
0	0										

69	91	92	73	72	0	0	0	0	3	4	+1.0000e+000
0	0										
70	92	93	74	73	0	0	0	0	3	4	+1.0000e+000
0	0										
71	93	94	75	74	0	0	0	0	3	4	+1.0000e+000
0	0										
72	94	95	76	75	0	0	0	0	3	4	+1.0000e+000
0	0										
73	96	97	78	77	0	0	0	0	3	4	+1.0000e+000
0	0										
74	97	98	79	78	0	0	0	0	3	4	+1.0000e+000
0	0										
75	98	99	80	79	0	0	0	0	3	4	+1.0000e+000
0	0										
76	99	100	81	80	0	0	0	0	3	4	+1.0000e+000
0	0										
77	100	101	82	81	0	0	0	0	3	4	+1.0000e+000
0	0										
78	101	102	83	82	0	0	0	0	3	4	+1.0000e+000
0	0										
79	102	103	84	83	0	0	0	0	3	4	+1.0000e+000
0	0										
80	103	104	85	84	0	0	0	0	3	4	+1.0000e+000
0	0										
81	104	105	86	85	0	0	0	0	3	4	+1.0000e+000
0	0										
82	105	106	87	86	0	0	0	0	3	4	+1.0000e+000
0	0										
83	106	107	88	87	0	0	0	0	3	4	+1.0000e+000
0	0										
84	107	108	89	88	0	0	0	0	3	4	+1.0000e+000
0	0										
85	108	109	90	89	0	0	0	0	3	4	+1.0000e+000
0	0										
86	109	110	91	90	0	0	0	0	3	4	+1.0000e+000
0	0										
87	110	111	92	91	0	0	0	0	3	4	+1.0000e+000
0	0										
88	111	112	93	92	0	0	0	0	3	4	+1.0000e+000
0	0										
89	112	113	94	93	0	0	0	0	3	4	+1.0000e+000
0	0										
90	113	114	95	94	0	0	0	0	3	4	+1.0000e+000
0	0										
91	115	116	97	96	0	0	0	0	3	4	+1.0000e+000
0	0										
92	116	117	98	97	0	0	0	0	3	4	+1.0000e+000
0	0										
93	117	118	99	98	0	0	0	0	3	4	+1.0000e+000
0	0										
94	118	119	100	99	0	0	0	0	3	4	+1.0000e+000
0	0										
95	119	120	101	100	0	0	0	0	3	4	+1.0000e+000
0	0										
96	120	121	102	101	0	0	0	0	3	4	+1.0000e+000
0	0										
97	121	122	103	102	0	0	0	0	3	4	+1.0000e+000
0	0										
98	122	123	104	103	0	0	0	0	3	4	+1.0000e+000
0	0										

99	123	124	105	104	0	0	0	0	3	4	+1.0000e+000
0	0										
100	124	125	106	105	0	0	0	0	3	4	+1.0000e+000
0	0										
101	125	126	107	106	0	0	0	0	3	4	+1.0000e+000
0	0										
102	126	127	108	107	0	0	0	0	3	4	+1.0000e+000
0	0										
103	127	128	109	108	0	0	0	0	3	4	+1.0000e+000
0	0										
104	128	129	110	109	0	0	0	0	3	4	+1.0000e+000
0	0										
105	129	130	111	110	0	0	0	0	3	4	+1.0000e+000
0	0										
106	130	131	112	111	0	0	0	0	3	4	+1.0000e+000
0	0										
107	131	132	113	112	0	0	0	0	3	4	+1.0000e+000
0	0										
108	132	133	114	113	0	0	0	0	3	4	+1.0000e+000
0	0										
109	134	135	116	115	0	0	0	0	3	4	+1.0000e+000
0	0										
110	135	136	117	116	0	0	0	0	3	4	+1.0000e+000
0	0										
111	136	137	118	117	0	0	0	0	3	4	+1.0000e+000
0	0										
112	137	138	119	118	0	0	0	0	3	4	+1.0000e+000
0	0										
113	138	139	120	119	0	0	0	0	3	4	+1.0000e+000
0	0										
114	139	140	121	120	0	0	0	0	3	4	+1.0000e+000
0	0										
115	140	141	122	121	0	0	0	0	3	4	+1.0000e+000
0	0										
116	141	142	123	122	0	0	0	0	3	4	+1.0000e+000
0	0										
117	142	143	124	123	0	0	0	0	3	4	+1.0000e+000
0	0										
118	143	144	125	124	0	0	0	0	3	4	+1.0000e+000
0	0										
119	144	145	126	125	0	0	0	0	3	4	+1.0000e+000
0	0										
120	145	146	127	126	0	0	0	0	3	4	+1.0000e+000
0	0										
121	146	147	128	127	0	0	0	0	3	4	+1.0000e+000
0	0										
122	147	148	129	128	0	0	0	0	3	4	+1.0000e+000
0	0										
123	148	149	130	129	0	0	0	0	3	4	+1.0000e+000
0	0										
124	149	150	131	130	0	0	0	0	3	4	+1.0000e+000
0	0										
125	150	151	132	131	0	0	0	0	3	4	+1.0000e+000
0	0										
126	151	152	133	132	0	0	0	0	3	4	+1.0000e+000
0	0										
127	153	154	135	134	0	0	0	0	3	4	+1.0000e+000
0	0										
128	154	155	136	135	0	0	0	0	3	4	+1.0000e+000
0	0										

129	155	156	137	136	0	0	0	0	3	4	+1.0000e+000
0	0										
130	156	157	138	137	0	0	0	0	3	4	+1.0000e+000
0	0										
131	157	158	139	138	0	0	0	0	3	4	+1.0000e+000
0	0										
132	158	159	140	139	0	0	0	0	3	4	+1.0000e+000
0	0										
133	159	160	141	140	0	0	0	0	3	4	+1.0000e+000
0	0										
134	160	161	142	141	0	0	0	0	3	4	+1.0000e+000
0	0										
135	161	162	143	142	0	0	0	0	3	4	+1.0000e+000
0	0										
136	162	163	144	143	0	0	0	0	3	4	+1.0000e+000
0	0										
137	163	164	145	144	0	0	0	0	3	4	+1.0000e+000
0	0										
138	164	165	146	145	0	0	0	0	3	4	+1.0000e+000
0	0										
139	165	166	147	146	0	0	0	0	3	4	+1.0000e+000
0	0										
140	166	167	148	147	0	0	0	0	3	4	+1.0000e+000
0	0										
141	167	168	149	148	0	0	0	0	3	4	+1.0000e+000
0	0										
142	168	169	150	149	0	0	0	0	3	4	+1.0000e+000
0	0										
143	169	170	151	150	0	0	0	0	3	4	+1.0000e+000
0	0										
144	170	171	152	151	0	0	0	0	3	4	+1.0000e+000
0	0										
145	172	173	154	153	0	0	0	0	3	4	+1.0000e+000
0	0										
146	173	174	155	154	0	0	0	0	3	4	+1.0000e+000
0	0										
147	174	175	156	155	0	0	0	0	3	4	+1.0000e+000
0	0										
148	175	176	157	156	0	0	0	0	3	4	+1.0000e+000
0	0										
149	176	177	158	157	0	0	0	0	3	4	+1.0000e+000
0	0										
150	177	178	159	158	0	0	0	0	3	4	+1.0000e+000
0	0										
151	178	179	160	159	0	0	0	0	3	4	+1.0000e+000
0	0										
152	179	180	161	160	0	0	0	0	3	4	+1.0000e+000
0	0										
153	180	181	162	161	0	0	0	0	3	4	+1.0000e+000
0	0										
154	181	182	163	162	0	0	0	0	3	4	+1.0000e+000
0	0										
155	182	183	164	163	0	0	0	0	3	4	+1.0000e+000
0	0										
156	183	184	165	164	0	0	0	0	3	4	+1.0000e+000
0	0										
157	184	185	166	165	0	0	0	0	3	4	+1.0000e+000
0	0										
158	185	186	167	166	0	0	0	0	3	4	+1.0000e+000
0	0										

159	186	187	168	167	0	0	0	0	3	4	+1.0000e+000
0	0										
160	187	188	169	168	0	0	0	0	3	4	+1.0000e+000
0	0										
161	188	189	170	169	0	0	0	0	3	4	+1.0000e+000
0	0										
162	189	190	171	170	0	0	0	0	3	4	+1.0000e+000
0	0										
163	191	192	173	172	0	0	0	0	3	4	+1.0000e+000
0	0										
164	192	193	174	173	0	0	0	0	3	4	+1.0000e+000
0	0										
165	193	194	175	174	0	0	0	0	3	4	+1.0000e+000
0	0										
166	194	195	176	175	0	0	0	0	3	4	+1.0000e+000
0	0										
167	195	196	177	176	0	0	0	0	3	4	+1.0000e+000
0	0										
168	196	197	178	177	0	0	0	0	3	4	+1.0000e+000
0	0										
169	197	198	179	178	0	0	0	0	3	4	+1.0000e+000
0	0										
170	198	199	180	179	0	0	0	0	3	4	+1.0000e+000
0	0										
171	199	200	181	180	0	0	0	0	3	4	+1.0000e+000
0	0										
172	200	201	182	181	0	0	0	0	3	4	+1.0000e+000
0	0										
173	201	202	183	182	0	0	0	0	3	4	+1.0000e+000
0	0										
174	202	203	184	183	0	0	0	0	3	4	+1.0000e+000
0	0										
175	203	204	185	184	0	0	0	0	3	4	+1.0000e+000
0	0										
176	204	205	186	185	0	0	0	0	3	4	+1.0000e+000
0	0										
177	205	206	187	186	0	0	0	0	3	4	+1.0000e+000
0	0										
178	206	207	188	187	0	0	0	0	3	4	+1.0000e+000
0	0										
179	207	208	189	188	0	0	0	0	3	4	+1.0000e+000
0	0										
180	208	209	190	189	0	0	0	0	3	4	+1.0000e+000
0	0										
181	210	211	192	191	0	0	0	0	3	4	+1.0000e+000
0	0										
182	211	212	193	192	0	0	0	0	3	4	+1.0000e+000
0	0										
183	212	213	194	193	0	0	0	0	3	4	+1.0000e+000
0	0										
184	213	214	195	194	0	0	0	0	3	4	+1.0000e+000
0	0										
185	214	215	196	195	0	0	0	0	3	4	+1.0000e+000
0	0										
186	215	216	197	196	0	0	0	0	3	4	+1.0000e+000
0	0										
187	216	217	198	197	0	0	0	0	3	4	+1.0000e+000
0	0										
188	217	218	199	198	0	0	0	0	3	4	+1.0000e+000
0	0										

189	218	219	200	199	0	0	0	0	3	4	+1.0000e+000
0	0										
190	219	220	201	200	0	0	0	0	3	4	+1.0000e+000
0	0										
191	220	221	202	201	0	0	0	0	3	4	+1.0000e+000
0	0										
192	221	222	203	202	0	0	0	0	3	4	+1.0000e+000
0	0										
193	222	223	204	203	0	0	0	0	3	4	+1.0000e+00
0	0										
194	223	224	205	204	0	0	0	0	3	4	+1.0000e+00
0	0										
195	224	225	206	205	0	0	0	0	3	4	+1.0000e+000
0	0										
196	225	226	207	206	0	0	0	0	3	4	+1.0000e+000
0	0										
197	226	227	208	207	0	0	0	0	3	4	+1.0000e+000
0	0										
198	227	228	209	208	0	0	0	0	3	4	+1.0000e+000
0	0										
199	229	230	211	210	0	0	0	0	3	4	+1.0000e+000
0	0										
200	230	231	212	211	0	0	0	0	3	4	+1.0000e+000
0	0										
201	231	232	213	212	0	0	0	0	3	4	+1.0000e+000
0	0										
202	232	233	214	213	0	0	0	0	3	4	+1.0000e+000
0	0										
203	233	234	215	214	0	0	0	0	3	4	+1.0000e+000
0	0										
204	234	235	216	215	0	0	0	0	3	4	+1.0000e+000
0	0										
205	235	236	217	216	0	0	0	0	3	4	+1.0000e+000
0	0										
206	236	237	218	217	0	0	0	0	3	4	+1.0000e+000
0	0										
207	237	238	219	218	0	0	0	0	3	4	+1.0000e+000
0	0										
208	238	239	220	219	0	0	0	0	3	4	+1.0000e+000
0	0										
209	239	240	221	220	0	0	0	0	3	4	+1.0000e+000
0	0										
210	240	241	222	221	0	0	0	0	3	4	+1.0000e+000
0	0										
211	241	242	223	222	0	0	0	0	3	4	+1.0000e+000
0	0										
212	242	243	224	223	0	0	0	0	3	4	+1.0000e+000
0	0										
213	243	244	225	224	0	0	0	0	3	4	+1.0000e+000
0	0										
214	244	245	226	225	0	0	0	0	3	4	+1.0000e+000
0	0										
215	245	246	227	226	0	0	0	0	3	4	+1.0000e+000
0	0										
216	246	247	228	227	0	0	0	0	3	4	+1.0000e+000
0	0										
217	248	249	230	229	0	0	0	0	3	4	+1.0000e+000
0	0										
218	249	250	231	230	0	0	0	0	3	4	+1.0000e+00
0	0										

219	250	251	232	231	0	0	0	0	3	4	+1.0000e+000
0	0										
220	251	252	233	232	0	0	0	0	3	4	+1.0000e+000
0	0										
221	252	253	234	233	0	0	0	0	3	4	+1.0000e+000
0	0										
222	253	254	235	234	0	0	0	0	3	4	+1.0000e+000
0	0										
223	254	255	236	235	0	0	0	0	3	4	+1.0000e+000
0	0										
224	255	256	237	236	0	0	0	0	3	4	+1.0000e+000
0	0										
225	256	257	238	237	0	0	0	0	3	4	+1.0000e+000
0	0										
226	257	258	239	238	0	0	0	0	3	4	+1.0000e+000
0	0										
227	258	259	240	239	0	0	0	0	3	4	+1.0000e+000
0	0										
228	259	260	241	240	0	0	0	0	3	4	+1.0000e+000
0	0										
229	260	261	242	241	0	0	0	0	3	4	+1.0000e+000
0	0										
230	261	262	243	242	0	0	0	0	3	4	+1.0000e+000
0	0										
231	262	263	244	243	0	0	0	0	3	4	+1.0000e+000
0	0										
232	263	264	245	244	0	0	0	0	3	4	+1.0000e+000
0	0										
233	264	265	246	245	0	0	0	0	3	4	+1.0000e+000
0	0										
234	265	266	247	246	0	0	0	0	3	4	+1.0000e+000
0	0										
235	267	268	249	248	0	0	0	0	3	4	+1.0000e+000
0	0										
236	268	269	250	249	0	0	0	0	3	4	+1.0000e+000
0	0										
237	269	270	251	250	0	0	0	0	3	4	+1.0000e+000
0	0										
238	270	271	252	251	0	0	0	0	3	4	+1.0000e+000
0	0										
239	271	272	253	252	0	0	0	0	3	4	+1.0000e+000
0	0										
240	272	273	254	253	0	0	0	0	3	4	+1.0000e+000
0	0										
241	273	274	255	254	0	0	0	0	3	4	+1.0000e+000
0	0										
242	274	275	256	255	0	0	0	0	3	4	+1.0000e+00
0	0										
243	275	276	257	256	0	0	0	0	3	4	+1.0000e+
0	0										
244	276	277	258	257	0	0	0	0	3	4	+1.0000e+000
0	0										
245	277	278	259	258	0	0	0	0	3	4	+1.0000e+000
0	0										
246	278	279	260	259	0	0	0	0	3	4	+1.0000e+000
0	0										
247	279	280	261	260	0	0	0	0	3	4	+1.0000e+000
0	0										
248	280	281	262	261	0	0	0	0	3	4	+1.0000e+000
0	0										

249	281	282	263	262	0	0	0	0	3	4	+1.0000e+000
0	0										
250	282	283	264	263	0	0	0	0	3	4	+1.0000e+000
0	0										
251	283	284	265	264	0	0	0	0	3	4	+1.0000e+000
0	0										
252	284	285	266	265	0	0	0	0	3	4	+1.0000e+000
0	0										
253	286	287	268	267	0	0	0	0	3	4	+1.0000e+000
0											
254	287	288	269	268	0	0	0	0	3	4	+1.0000e+000
0	0										
255	288	289	270	269	0	0	0	0	3	4	+1.0000e+000
0	0										
256	289	290	271	270	0	0	0	0	3	4	+1.0000e+000
0	0										
257	290	291	272	271	0	0	0	0	3	4	+1.0000e+000
0	0										
258	291	292	273	272	0	0	0	0	3	4	+1.0000e+000
0	0										
259	292	293	274	273	0	0	0	0	3	4	+1.0000e+000
0	0										
260	293	294	275	274	0	0	0	0	3	4	+1.0000e+000
0	0										
261	294	295	276	275	0	0	0	0	3	4	+1.0000e+000
0	0										
262	295	296	277	276	0	0	0	0	3	4	+1.0000e+000
0	0										
263	296	297	278	277	0	0	0	0	3	4	+1.0000e+000
0	0										
264	297	298	279	278	0	0	0	0	3	4	+1.0000e+000
0	0										
265	298	299	280	279	0	0	0	0	3	4	+1.0000e+000
0	0										
266	299	300	281	280	0	0	0	0	3	4	+1.0000e+000
0	0										
267	300	301	282	281	0	0	0	0	3	4	+1.0000e+000
0	0										
268	301	302	283	282	0	0	0	0	3	4	+1.0000e+000
0	0										
269	302	303	284	283	0	0	0	0	3	4	+1.0000e+000
0	0										
270	303	304	285	284	0	0	0	0	3	4	+1.0000e+000
0	0										
271	305	306	287	286	0	0	0	0	3	4	+1.0000e+000
0	0										
272	306	307	288	287	0	0	0	0	3	4	+1.0000e+000
0	0										
273	307	308	289	288	0	0	0	0	3	4	+1.0000e+000
0	0										
274	308	309	290	289	0	0	0	0	3	4	+1.0000e+000
0	0										
275	309	310	291	290	0	0	0	0	3	4	+1.0000e+000
0	0										
276	310	311	292	291	0	0	0	0	3	4	+1.0000e+000
0	0										
277	311	312	293	292	0	0	0	0	3	4	+1.0000e+000
0	0										
278	312	313	294	293	0	0	0	0	3	4	+1.0000e+000
0											

279	313	314	295	294	0	0	0	0	3	4	+1.0000e+000
0	0										
280	314	315	296	295	0	0	0	0	3	4	+1.0000e+000
0	0										
281	315	316	297	296	0	0	0	0	3	4	+1.0000e+000
0	0										
282	316	317	298	297	0	0	0	0	3	4	+1.0000e+000
0	0										
283	317	318	299	298	0	0	0	0	3	4	+1.0000e+000
0	0										
284	318	319	300	299	0	0	0	0	3	4	+1.0000e+000
0	0										
285	319	320	301	300	0	0	0	0	3	4	+1.0000e+000
0	0										
286	320	321	302	301	0	0	0	0	3	4	+1.0000e+000
0	0										
287	321	322	303	302	0	0	0	0	3	4	+1.0000e+000
0	0										
288	322	323	304	303	0	0	0	0	3	4	+1.0000e+000
0	0										
289	324	325	306	305	0	0	0	0	3	4	+1.0000e+000
0	0										
290	325	326	307	306	0	0	0	0	3	4	+1.0000e+000
0	0										
291	326	327	308	307	0	0	0	0	3	4	+1.0000e+000
0	0										
292	327	328	309	308	0	0	0	0	3	4	+1.0000e+000
0	0										
293	328	329	310	309	0	0	0	0	3	4	+1.0000e+000
0	0										
294	329	330	311	310	0	0	0	0	3	4	+1.0000e+000
0	0										
295	330	331	312	311	0	0	0	0	3	4	+1.0000e+000
0	0										
296	331	332	313	312	0	0	0	0	3	4	+1.0000e+000
0	0										
297	332	333	314	313	0	0	0	0	3	4	+1.0000e+000
0	0										
298	333	334	315	314	0	0	0	0	3	4	+1.0000e+000
0	0										
299	334	335	316	315	0	0	0	0	3	4	+1.0000e+000
0	0										
300	335	336	317	316	0	0	0	0	3	4	+1.0000e+000
0	0										
301	336	337	318	317	0	0	0	0	3	4	+1.0000e+000
0	0										
302	337	338	319	318	0	0	0	0	3	4	+1.0000e+000
0	0										
303	338	339	320	319	0	0	0	0	3	4	+1.0000e+000
0											
304	339	340	321	320	0	0	0	0	3	4	+1.0000e+000
0	0										
305	340	341	322	321	0	0	0	0	3	4	+1.0000e+000
0	0										
306	341	342	323	322	0	0	0	0	3	4	+1.0000e+000
0	0										
307	343	344	325	324	0	0	0	0	3	4	+1.0000e+000
0	0										
308	344	345	326	325	0	0	0	0	3	4	+1.0000e+000
0	0										

309	345	346	327	326	0	0	0	0	3	4	+1.0000e+000
0	0										
310	346	347	328	327	0	0	0	0	3	4	+1.0000e+000
0	0										
311	347	348	329	328	0	0	0	0	3	4	+1.0000e+000
0	0										
312	348	349	330	329	0	0	0	0	3	4	+1.0000e+000
0	0										
313	349	350	331	330	0	0	0	0	3	4	+1.0000e+000
0	0										
314	350	351	332	331	0	0	0	0	3	4	+1.0000e+000
0	0										
315	351	352	333	332	0	0	0	0	3	4	+1.0000e+000
0	0										
316	352	353	334	333	0	0	0	0	3	4	+1.0000e+000
0	0										
317	353	354	335	334	0	0	0	0	3	4	+1.0000e+000
0	0										
318	354	355	336	335	0	0	0	0	3	4	+1.0000e+000
0	0										
319	355	356	337	336	0	0	0	0	3	4	+1.0000e+000
0	0										
320	356	357	338	337	0	0	0	0	3	4	+1.0000e+000
0	0										
321	357	358	339	338	0	0	0	0	3	4	+1.0000e+000
0	0										
322	358	359	340	339	0	0	0	0	3	4	+1.0000e+000
0	0										
323	359	360	341	340	0	0	0	0	3	4	+1.0000e+000
0	0										
324	360	361	342	341	0	0	0	0	3	4	+1.0000e+000
0	0										
325	363	364	344	343	0	0	0	0	3	4	+1.0000e+000
0	0										
326	364	365	345	344	0	0	0	0	3	4	+1.0000e+000
0	0										
327	365	366	346	345	0	0	0	0	3	4	+1.0000e+000
0	0										
328	366	367	347	346	0	0	0	0	3	4	+1.0000e+000
0	0										
329	367	368	348	347	0	0	0	0	3	4	+1.0000e+000
0	0										
330	368	369	349	348	0	0	0	0	3	4	+1.0000e+000
0	0										
331	369	370	350	349	0	0	0	0	3	4	+1.0000e+000
0	0										
332	370	371	351	350	0	0	0	0	3	4	+1.0000e+000
0	0										
333	371	372	352	351	0	0	0	0	3	4	+1.0000e+000
0	0										
334	372	373	353	352	0	0	0	0	3	4	+1.0000e+000
0	0										
335	373	374	354	353	0	0	0	0	3	4	+1.0000e+000
0	0										
336	374	375	355	354	0	0	0	0	3	4	+1.0000e+000
0	0										
337	375	376	356	355	0	0	0	0	3	4	+1.0000e+000
0	0										
338	376	377	357	356	0	0	0	0	3	4	+1.0000e+000
0	0										

339	377	378	358	357	0	0	0	0	3	4	+1.0000e+000
0	0										
340	378	379	359	358	0	0	0	0	3	4	+1.0000e+000
0	0										
341	379	380	360	359	0	0	0	0	3	4	+1.0000e+000
0	0										
342	361	360	380	362	0	0	0	0	3	4	+1.0000e+000
0	0										
343	362	380	381	0	0	0	0	0	3	3	+1.0000e+000
0	0										
344	382	383	364	363	0	0	0	0	3	4	+1.0000e+000
0	0										
345	383	384	365	364	0	0	0	0	3	4	+1.0000e+000
0	0										
346	384	385	366	365	0	0	0	0	3	4	+1.0000e+000
0	0										
347	385	386	367	366	0	0	0	0	3	4	+1.0000e+000
0	0										
348	386	387	368	367	0	0	0	0	3	4	+1.0000e+000
0	0										
349	387	388	369	368	0	0	0	0	3	4	+1.0000e+000
0	0										
350	388	389	370	369	0	0	0	0	3	4	+1.0000e+000
0	0										
351	389	390	371	370	0	0	0	0	3	4	+1.0000e+000
0	0										
352	390	391	372	371	0	0	0	0	3	4	+1.0000e+000
0	0										
353	391	392	373	372	0	0	0	0	3	4	+1.0000e+000
0	0										
354	392	393	374	373	0	0	0	0	3	4	+1.0000e+000
0	0										
355	393	394	375	374	0	0	0	0	3	4	+1.0000e+000
0	0										
356	394	395	376	375	0	0	0	0	3	4	+1.0000e+000
0	0										
357	395	396	377	376	0	0	0	0	3	4	+1.0000e+000
0	0										
358	396	397	378	377	0	0	0	0	3	4	+1.0000e+000
0	0										
359	397	398	379	378	0	0	0	0	3	4	+1.0000e+000
0	0										
360	398	399	380	379	0	0	0	0	3	4	+1.0000e+000
0	0										
361	381	380	399	0	0	0	0	0	3	3	+1.0000e+000
0	0										
362	381	399	400	0	0	0	0	0	3	3	+1.0000e+000
0	0										
363	383	382	403	404	0	0	0	0	3	4	+1.0000e+000
0	0										
364	384	383	404	405	0	0	0	0	3	4	+1.0000e+000
0	0										
365	385	384	405	406	0	0	0	0	3	4	+1.0000e+000
0	0										
366	386	385	406	407	0	0	0	0	3	4	+1.0000e+000
0	0										
367	387	386	407	408	0	0	0	0	3	4	+1.0000e+000
0	0										
368	388	387	408	409	0	0	0	0	3	4	+1.0000e+000
0	0										

369	389	388	409	410	0	0	0	0	3	4	+1.0000e+000	
0	0											
370	390	389	410	411	0	0	0	0	3	4	+1.0000e+000	
0	0											
371	391	390	411	412	0	0	0	0	3	4	+1.0000e+000	
0	0											
372	392	391	412	413	0	0	0	0	3	4	+1.0000e+000	
0	0											
373	393	392	413	414	0	0	0	0	3	4	+1.0000e+000	
0	0											
374	394	393	414	415	0	0	0	0	3	4	+1.0000e+000	
0	0											
375	395	394	415	416	0	0	0	0	4	4	+1.0000e+000	
0	0											
376	396	395	416	417	0	0	0	0	4	4	+1.0000e+000	
0	0											
377	397	396	417	418	0	0	0	0	4	4	+1.0000e+000	
0	0											
378	398	397	418	419	0	0	0	0	4	4	+1.0000e+000	
0	0											
379	399	398	419	420	0	0	0	0	4	4	+1.0000e+000	
0	0											
380	399	420	421	0	0	0	0	0	4	3	+1.0000e+000	
0	0											
381	400	399	421	422	0	0	0	0	4	9	+1.0000e+000	
0	0											
382	401	400	422	424	0	0	0	0	1	9	+1.0000e+000	
0	0											
383	402	401	424	426	0	0	0	0	1	9	+1.0000e+000	
0	0											
384	423	402	426	428	0	0	0	0	1	9	+1.0000e+000	
0	0											
385	404	403	429	430	0	0	0	0	3	4	+1.0000e+000	
0	0											
386	405	404	430	431	0	0	0	0	3	4	+1.0000e+000	
0	0											
387	406	405	431	432	0	0	0	0	3	4	+1.0000e+000	
0	0											
388	407	406	432	433	0	0	0	0	3	4	+1.0000e+000	
0	0											
389	408	407	433	434	0	0	0	0	3	4	+1.0000e+000	
0	0											
390	409	408	434	435	0	0	0	0	3	4	+1.0000e+000	
0	0											
391	410	409	435	436	0	0	0	0	3	4	+1.0000e+000	
0	0											
392	411	410	436	437	0	0	0	0	3	4	+1.0000e+000	
0	0											
393	412	411	437	438	0	0	0	0	3	4	+1.0000e+000	
0	0											
394	413	412	438	439	0	0	0	0	3	4	+1.0000e+000	
0	0											
395	414	413	439	440	0	0	0	0	3	4	+1.0000e+000	
0	0											
396	415	414	440	441	0	0	0	0	3	4	+1.0000e+000	
0	0											
397	416	415	441	442	0	0	0	0	3	4	+1.0000e+000	
0	0											
398	417	416	442	443	0	0	0	0	3	4	+1.0000e+000	
0	0											

399	418	417	443	444	0	0	0	0	3	4	+1.0000e+000	
0	0											
400	419	418	444	445	0	0	0	0	3	4	+1.0000e+000	
0	0											
401	420	419	445	446	0	0	0	0	3	4	+1.0000e+000	
0	0											
402	421	420	446	447	0	0	0	0	3	4	+1.0000e+000	
0	0											
403	422	421	447	448	0	0	0	0	1	4	+1.0000e+000	
0	0											
404	424	422	448	451	0	0	0	0	1	9	+1.0000e+000	
0	0											
405	425	423	428	450	0	0	0	0	1	9	+1.0000e+000	
0	0											
406	426	424	451	453	0	0	0	0	1	9	+1.0000e+000	
0	0											
407	427	425	450	454	0	0	0	0	1	9	+1.0000e+000	
0	0											
408	428	426	453	455	0	0	0	0	1	9	+1.0000e+000	
0	0											
409	449	427	454	457	0	0	0	0	1	9	+1.0000e+000	
0	0											
410	450	428	455	478	0	0	0	0	1	9	+1.0000e+000	
0	0											
411	430	429	459	460	0	0	0	0	3	4	+1.0000e+000	
0	0											
412	431	430	460	461	0	0	0	0	3	4	+1.0000e+000	
0	0											
413	432	431	461	462	0	0	0	0	3	4	+1.0000e+000	
0	0											
414	433	432	462	463	0	0	0	0	3	4	+1.0000e+000	
0	0											
415	434	433	463	464	0	0	0	0	3	4	+1.0000e+000	
0	0											
416	435	434	464	465	0	0	0	0	3	4	+1.0000e+000	
0	0											
417	436	435	465	466	0	0	0	0	3	4	+1.0000e+000	
0	0											
418	437	436	466	467	0	0	0	0	3	4	+1.0000e+000	
0	0											
419	438	437	467	468	0	0	0	0	3	4	+1.0000e+000	
0	0											
420	439	438	468	469	0	0	0	0	3	4	+1.0000e+000	
0	0											
421	440	439	469	470	0	0	0	0	3	4	+1.0000e+000	
0	0											
422	441	440	470	471	0	0	0	0	3	4	+1.0000e+000	
0	0											
423	442	441	471	472	0	0	0	0	3	4	+1.0000e+000	
0	0											
424	443	442	472	473	0	0	0	0	3	4	+1.0000e+000	
0	0											
425	444	443	473	474	0	0	0	0	3	4	+1.0000e+000	
0	0											
426	445	444	474	475	0	0	0	0	3	4	+1.0000e+000	
0	0											
427	446	445	475	476	0	0	0	0	3	4	+1.0000e+000	
0	0											
428	447	446	476	458	0	0	0	0	3	4	+1.0000e+000	
0	0											

429	448	447	458	477	0	0	0	0	1	4	+1.0000e+000	
0	0											
430	452	449	457	479	0	0	0	0	1	9	+1.0000e+000	
0	0											
431	451	448	477	481	0	0	0	0	1	9	+1.0000e+000	
0	0											
432	454	450	478	482	0	0	0	0	1	9	+1.0000e+000	
0	0											
433	453	451	481	484	0	0	0	0	1	9	+1.0000e+00	
0	0											
434	456	452	479	483	0	0	0	0	1	9	+1.0000e+00	
0	0											
435	457	454	482	486	0	0	0	0	1	9	+1.0000e+000	
0	0											
436	455	453	484	487	0	0	0	0	1	9	+1.0000e+000	
0	0											
437	480	456	483	488	0	0	0	0	1	9	+1.0000e+000	
0	0											
438	479	457	486	489	0	0	0	0	1	9	+1.0000e+000	
0	0											
439	478	455	487	490	0	0	0	0	1	9	+1.0000e+000	
0	0											
440	458	476	511	492	0	0	0	0	3	4	+1.0000e+000	
0	0											
441	477	458	492	512	0	0	0	0	1	4	+1.0000e+000	
0	0											
442	460	459	494	495	0	0	0	0	3	4	+1.0000e+000	
0	0											
443	461	460	495	496	0	0	0	0	3	4	+1.0000e+000	
0	0											
444	462	461	496	497	0	0	0	0	3	4	+1.0000e+000	
0	0											
445	463	462	497	498	0	0	0	0	3	4	+1.0000e+000	
0	0											
446	464	463	498	499	0	0	0	0	3	4	+1.0000e+000	
0	0											
447	465	464	499	500	0	0	0	0	3	4	+1.0000e+000	
0	0											
448	466	465	500	501	0	0	0	0	3	4	+1.0000e+000	
0	0											
449	467	466	501	502	0	0	0	0	3	4	+1.0000e+000	
0	0											
450	468	467	502	503	0	0	0	0	3	4	+1.0000e+000	
0	0											
451	469	468	503	504	0	0	0	0	3	4	+1.0000e+000	
0	0											
452	470	469	504	505	0	0	0	0	3	4	+1.0000e+000	
0	0											
453	471	470	505	506	0	0	0	0	3	4	+1.0000e+000	
0	0											
454	472	471	506	507	0	0	0	0	3	4	+1.0000e+000	
0	0											
455	473	472	507	508	0	0	0	0	3	4	+1.0000e+000	
0	0											
456	474	473	508	509	0	0	0	0	3	4	+1.0000e+000	
0	0											
457	475	474	509	510	0	0	0	0	3	4	+1.0000e+000	
0	0											
458	476	475	510	511	0	0	0	0	3	4	+1.0000e+00	
0	0											

459	482	478	490	513	0	0	0	0	1	9	+1.0000e+000	
0	0											
460	483	479	489	514	0	0	0	0	1	9	+1.0000e+000	
0	0											
461	485	480	488	493	0	0	0	0	1	9	+1.0000e+000	
0	0											
462	481	477	512	515	0	0	0	0	1	9	+1.0000e+000	
0	0											
463	486	482	513	517	0	0	0	0	1	9	+1.0000e+000	
0	0											
464	484	481	515	520	0	0	0	0	1	9	+1.0000e+000	
0	0											
465	488	483	514	518	0	0	0	0	1	9	+1.0000e+000	
0	0											
466	491	485	493	519	0	0	0	0	1	9	+1.0000e+000	
0	0											
467	487	484	520	522	0	0	0	0	1	9	+1.0000e+000	
0	0											
468	489	486	517	521	0	0	0	0	1	9	+1.0000e+000	
0	0											
469	490	487	522	526	0	0	0	0	1	9	+1.0000e+000	
0	0											
470	493	488	518	523	0	0	0	0	1	9	+1.0000e+000	
0	0											
471	514	489	521	527	0	0	0	0	1	9	+1.0000e+000	
0	0											
472	516	491	519	525	0	0	0	0	1	9	+1.0000e+000	
0	0											
473	513	490	526	529	0	0	0	0	1	9	+1.0000e+000	
0	0											
474	519	493	523	528	0	0	0	0	1	9	+1.0000e+000	
0	0											
475	518	514	527	530	0	0	0	0	1	9	+1.0000e+000	
0	0											
476	517	513	529	533	0	0	0	0	1	9	+1.0000e+000	
0	0											
477	492	511	553	534	0	0	0	0	3	4	+1.0000e+000	
0	0											
478	512	492	534	554	0	0	0	0	1	4	+1.0000e+000	
0	0											
479	495	494	536	537	0	0	0	0	3	4	+1.0000e+000	
0	0											
480	496	495	537	538	0	0	0	0	3	4	+1.0000e+000	
0	0											
481	497	496	538	539	0	0	0	0	3	4	+1.0000e+000	
0	0											
482	498	497	539	540	0	0	0	0	3	4	+1.0000e+000	
0	0											
483	499	498	540	541	0	0	0	0	3	4	+1.0000e+0	
0	0											
484	500	499	541	542	0	0	0	0	3	4	+1.0000e+00	
0	0											
485	501	500	542	543	0	0	0	0	3	4	+1.0000e+000	
0	0											
486	502	501	543	544	0	0	0	0	3	4	+1.0000e+000	
0	0											
487	503	502	544	545	0	0	0	0	3	4	+1.0000e+000	
0	0											
488	504	503	545	546	0	0	0	0	3	4	+1.0000e+000	
0	0											

489	505	504	546	547	0	0	0	0	3	4	+1.0000e+000
0	0										
490	506	505	547	548	0	0	0	0	3	4	+1.0000e+000
0	0										
491	507	506	548	549	0	0	0	0	3	4	+1.0000e+000
0	0										
492	508	507	549	550	0	0	0	0	3	4	+1.0000e+000
0	0										
493	509	508	550	551	0	0	0	0	3	4	+1.0000e+000
0	0										
494	510	509	551	552	0	0	0	0	3	4	+1.0000e+000
0	0										
495	511	510	552	553	0	0	0	0	3	4	+1.0000e+000
0	0										
496	524	516	525	531	0	0	0	0	1	9	+1.0000e+000
0	0										
497	515	512	554	557	0	0	0	0	1	9	+1.0000e+000
0	0										
498	523	518	530	555	0	0	0	0	1	9	+1.0000e+000
0	0										
499	521	517	533	556	0	0	0	0	1	9	+1.0000e+000
0	0										
500	525	519	528	535	0	0	0	0	1	9	+1.0000e+000
0	0										
501	520	515	557	559	0	0	0	0	1	9	+1.0000e+000
0	0										
502	522	520	559	564	0	0	0	0	1	9	+1.0000e+000
0	0										
503	527	521	556	560	0	0	0	0	1	9	+1.0000e+000
0	0										
504	528	523	555	561	0	0	0	0	1	9	+1.0000e+000
0	0										
505	532	524	531	558	0	0	0	0	1	9	+1.0000e+000
0	0										
506	531	525	535	563	0	0	0	0	1	9	+1.0000e+000
0	0										
507	526	522	564	567	0	0	0	0	1	9	+1.0000e+000
0	0										
508	530	527	560	565	0	0	0	0	1	9	+1.0000e+000
0	0										
509	529	526	567	570	0	0	0	0	1	9	+1.0000e+000
0	0										
510	535	528	561	566	0	0	0	0	1	9	+1.0000e+000
0	0										
511	555	530	565	571	0	0	0	0	1	9	+1.0000e+000
0	0										
512	533	529	570	574	0	0	0	0	1	9	+1.0000e+000
0	0										
513	558	531	563	568	0	0	0	0	1	9	+1.0000e+000
0	0										
514	562	532	558	569	0	0	0	0	1	9	+1.0000e+000
0	0										
515	563	535	566	573	0	0	0	0	1	9	+1.0000e+000
0	0										
516	556	533	574	576	0	0	0	0	1	9	+1.0000e+000
0	0										
517	561	555	571	575	0	0	0	0	1	9	+1.0000e+000
0	0										
518	560	556	576	580	0	0	0	0	1	9	+1.0000e+000
0	0										

519	569	558	568	577	0	0	0	0	1	9	+1.0000e+000
0	0										
520	534	553	599	584	0	0	0	0	3	4	+1.0000e+000
0	0										
521	554	534	584	600	0	0	0	0	1	4	+1.0000e+000
0	0										
522	541	540	586	587	0	0	0	0	3	4	+1.0000e+000
0	0										
523	542	541	587	588	0	0	0	0	3	4	+1.0000e+000
0	0										
524	543	542	588	589	0	0	0	0	3	4	+1.0000e+000
0	0										
525	544	543	589	590	0	0	0	0	3	4	+1.0000e+000
0	0										
526	545	544	590	591	0	0	0	0	3	4	+1.0000e+000
0	0										
527	546	545	591	592	0	0	0	0	3	4	+1.0000e+000
0	0										
528	547	546	592	593	0	0	0	0	3	4	+1.0000e+000
0	0										
529	548	547	593	594	0	0	0	0	3	4	+1.0000e+000
0	0										
530	549	548	594	595	0	0	0	0	3	4	+1.0000e+000
0	0										
531	550	549	595	596	0	0	0	0	3	4	+1.0000e+000
0	0										
532	551	550	596	597	0	0	0	0	3	4	+1.0000e+000
0	0										
533	552	551	597	598	0	0	0	0	3	4	+1.0000e+000
0	0										
534	553	552	598	599	0	0	0	0	3	4	+1.0000e+000
0	0										
535	566	561	575	581	0	0	0	0	1	9	+1.0000e+000
0	0										
536	537	536	602	603	0	0	0	0	3	4	+1.0000e+000
0	0										
537	538	537	603	604	0	0	0	0	3	4	+1.0000e+000
0	0										
538	539	538	604	605	0	0	0	0	3	4	+1.0000e+000
0	0										
539	540	539	605	586	0	0	0	0	3	4	+1.0000e+000
0	0										
540	572	562	569	578	0	0	0	0	1	9	+1.0000e+000
0	0										
541	557	554	600	607	0	0	0	0	1	9	+1.0000e+000
0	0										
542	568	563	573	579	0	0	0	0	1	9	+1.0000e+000
0	0										
543	565	560	580	582	0	0	0	0	1	9	+1.0000e+000
0	0										
544	559	557	607	608	0	0	0	0	1	9	+1.0000e+000
0	0										
545	564	559	608	611	0	0	0	0	1	9	+1.0000e+000
0	0										
546	573	566	581	583	0	0	0	0	1	9	+1.0000e+000
0	0										
547	571	565	582	606	0	0	0	0	1	9	+1.0000e+000
0	0										
548	578	569	577	585	0	0	0	0	1	9	+1.0000e+000
0	0										

549	577	568	579	601	0	0	0	0	1	9	+1.0000e+000
0	0										
550	567	564	611	612	0	0	0	0	1	9	+1.0000e+000
0	0										
551	575	571	606	609	0	0	0	0	1	9	+1.0000e+000
0	0										
552	570	567	612	615	0	0	0	0	1	9	+1.0000e+000
0	0										
553	579	573	583	610	0	0	0	0	1	9	+1.0000e+000
0	0										
554	574	570	615	617	0	0	0	0	1	9	+1.0000e+000
0	0										
555	581	575	609	614	0	0	0	0	1	9	+1.0000e+000
0	0										
556	585	577	601	613	0	0	0	0	1	9	+1.0000e+000
0	0										
557	576	574	617	619	0	0	0	0	1	9	+1.0000e+000
0	0										
558	601	579	610	616	0	0	0	0	1	9	+1.0000e+000
0	0										
559	580	576	619	620	0	0	0	0	1	9	+1.0000e+000
0	0										
560	583	581	614	618	0	0	0	0	1	9	+1.0000e+000
0	0										
561	582	580	620	623	0	0	0	0	1	9	+1.0000e+000
0	0										
562	610	583	618	622	0	0	0	0	1	9	+1.0000e+000
0	0										
563	613	601	616	621	0	0	0	0	1	9	+1.0000e+000
0	0										
564	606	582	623	624	0	0	0	0	1	9	+1.0000e+000
0	0										
565	609	606	624	626	0	0	0	0	1	9	+1.0000e+000
0	0										
566	616	610	622	625	0	0	0	0	1	9	+1.0000e+000
0	0										
567	614	609	626	627	0	0	0	0	1	9	+1.0000e+000
0	0										
568	621	616	625	628	0	0	0	0	1	9	+1.0000e+000
0	0										
569	618	614	627	629	0	0	0	0	1	9	+1.0000e+000
0	0										
570	584	599	635	633	0	0	0	0	3	4	+1.0000e+000
0	0										
571	600	584	633	636	0	0	0	0	1	4	+1.0000e+000
0	0										
572	589	588	637	638	0	0	0	0	3	4	+1.0000e+000
0	0										
573	590	589	638	639	0	0	0	0	3	4	+1.0000e+000
0	0										
574	591	590	639	640	0	0	0	0	3	4	+1.0000e+000
0	0										
575	592	591	640	641	0	0	0	0	3	4	+1.0000e+000
0	0										
576	593	592	641	642	0	0	0	0	3	4	+1.0000e+000
0	0										
577	594	593	642	634	0	0	0	0	3	4	+1.0000e+000
0	0										
578	595	594	634	643	0	0	0	0	3	4	+1.0000e+000
0	0										

579	595	643	644	596	0	0	0	0	3	4	+1.0000e+000
0	0										
580	597	596	644	645	0	0	0	0	3	4	+1.0000e+000
0	0										
581	598	597	645	646	0	0	0	0	3	4	+1.0000e+000
0	0										
582	599	598	646	635	0	0	0	0	3	4	+1.0000e+000
0	0										
583	607	600	636	647	0	0	0	0	1	9	+1.0000e+000
0	0										
584	586	605	655	656	0	0	0	0	3	4	+1.0000e+000
0	0										
585	587	586	656	657	0	0	0	0	3	4	+1.0000e+000
0	0										
586	588	587	657	637	0	0	0	0	3	4	+1.0000e+000
0	0										
587	603	602	652	653	0	0	0	0	3	4	+1.0000e+000
0	0										
588	604	603	653	654	0	0	0	0	3	4	+1.0000e+000
0	0										
589	605	604	654	655	0	0	0	0	3	4	+1.0000e+000
0	0										
590	622	618	629	630	0	0	0	0	1	9	+1.0000e+000
0	0										
591	608	607	647	648	0	0	0	0	1	9	+1.0000e+000
0	0										
592	611	608	648	649	0	0	0	0	1	9	+1.0000e+000
0	0										
593	612	611	649	650	0	0	0	0	1	9	+1.0000e+000
0	0										
594	625	622	630	631	0	0	0	0	1	9	+1.0000e+000
0	0										
595	615	612	650	651	0	0	0	0	1	9	+1.0000e+000
0	0										
596	617	615	651	658	0	0	0	0	1	9	+1.0000e+000
0	0										
597	619	617	658	659	0	0	0	0	1	9	+1.0000e+000
0	0										
598	628	625	631	632	0	0	0	0	1	9	+1.0000e+000
0	0										
599	620	619	659	660	0	0	0	0	1	9	+1.0000e+000
0	0										
600	620	660	661	623	0	0	0	0	1	4	+1.0000e+000
0	0										
601	623	661	662	624	0	0	0	0	1	4	+1.0000e+000
0	0										
602	626	624	662	663	0	0	0	0	1	9	+1.0000e+000
0	0										
603	627	626	663	664	0	0	0	0	1	9	+1.0000e+000
0	0										
604	627	664	665	629	0	0	0	0	1	4	+1.0000e+000
0	0										
605	629	665	666	630	0	0	0	0	1	4	+1.0000e+000
0	0										
606	631	630	666	667	0	0	0	0	1	9	+1.0000e+000
0	0										
607	632	631	667	668	0	0	0	0	1	9	+1.0000e+000
0	0										
608	635	674	675	633	0	0	0	0	3	4	+1.0000e+000
0	0										

609	642	669	634	0	0	0	0	0	3	3	+1.0000e+000
0	0										
610	643	634	669	670	0	0	0	0	3	4	+1.0000e+000
0	0										
611	635	646	673	674	0	0	0	0	3	4	+1.0000e+000
0	0										
612	643	670	671	644	0	0	0	0	3	4	+1.0000e+000
0	0										
613	645	644	671	672	0	0	0	0	3	4	+1.0000e+000
0	0										
614	646	645	672	673	0	0	0	0	3	4	+1.0000e+000
0	0										
615	633	675	676	636	0	0	0	0	1	4	+1.0000e+000
0	0										
616	677	647	636	676	0	0	0	0	1	4	+1.0000e+000
0	0										
617	647	677	678	648	0	0	0	0	1	4	+1.0000e+000
0	0										
618	648	678	679	649	0	0	0	0	1	4	+1.0000e+000
0	0										
619	680	650	649	679	0	0	0	0	1	4	+1.0000e+000
0	0										
620	681	651	650	680	0	0	0	0	1	4	+1.0000e+000
0	0										
621	651	681	682	658	0	0	0	0	1	4	+1.0000e+000
0	0										
622	658	682	683	659	0	0	0	0	1	4	+1.0000e+000
0	0										
623	684	660	659	683	0	0	0	0	1	4	+1.0000e+000
0	0										
624	685	661	660	684	0	0	0	0	1	4	+1.0000e+000
0	0										
625	661	685	686	662	0	0	0	0	1	4	+1.0000e+000
0	0										
626	662	686	687	663	0	0	0	0	1	4	+1.0000e+000
0	0										
627	688	664	663	687	0	0	0	0	1	4	+1.0000e+000
0	0										
628	689	665	664	688	0	0	0	0	1	4	+1.0000e+000
0	0										
629	690	666	665	689	0	0	0	0	1	4	+1.0000e+000
0	0										
630	666	690	691	667	0	0	0	0	1	4	+1.0000e+000
0	0										
631	667	691	692	668	0	0	0	0	1	4	+1.0000e+000
0	0										
632	640	639	710	711	0	0	0	0	3	4	+1.0000e+000
0	0										
633	641	640	711	712	0	0	0	0	3	4	+1.0000e+000
0	0										
634	642	641	712	713	0	0	0	0	3	4	+1.0000e+000
0	0										
635	642	713	669	0	0	0	0	0	3	3	+1.0000e+000
0	0										
636	637	657	719	720	0	0	0	0	3	4	+1.0000e+000
0	0										
637	638	637	720	721	0	0	0	0	3	4	+1.0000e+000
0	0										
638	639	638	721	710	0	0	0	0	3	4	+1.0000e+000
0	0										

639	653	652	714	715	0	0	0	0	3	4	+1.0000e+000
0	0										
640	654	653	715	716	0	0	0	0	3	4	+1.0000e+000
0	0										
641	655	654	716	717	0	0	0	0	3	4	+1.0000e+000
0	0										
642	656	655	717	718	0	0	0	0	3	4	+1.0000e+000
0	0										
643	657	656	718	719	0	0	0	0	3	4	+1.0000e+000
0	0										
644	675	693	676	0	0	0	0	0	4	3	+1.0000e+000
0	0										
645	694	677	676	693	0	0	0	0	1	4	+1.0000e+000
0	0										
646	695	678	677	694	0	0	0	0	1	4	+1.0000e+000
0	0										
647	696	679	678	695	0	0	0	0	1	4	+1.0000e+000
0	0										
648	697	680	679	696	0	0	0	0	1	4	+1.0000e+000
0	0										
649	698	681	680	697	0	0	0	0	1	4	+1.0000e+000
0	0										
650	699	682	681	698	0	0	0	0	1	4	+1.0000e+000
0	0										
651	700	683	682	699	0	0	0	0	1	4	+1.0000e+000
0	0										
652	701	684	683	700	0	0	0	0	1	4	+1.0000e+000
0	0										
653	702	685	684	701	0	0	0	0	1	4	+1.0000e+000
0	0										
654	703	686	685	702	0	0	0	0	1	4	+1.0000e+000
0	0										
655	704	687	686	703	0	0	0	0	1	4	+1.0000e+000
0	0										
656	705	688	687	704	0	0	0	0	1	4	+1.0000e+000
0	0										
657	706	689	688	705	0	0	0	0	1	4	+1.0000e+000
0	0										
658	707	690	689	706	0	0	0	0	1	4	+1.0000e+000
0	0										
659	708	691	690	707	0	0	0	0	1	4	+1.0000e+000
0	0										
660	709	692	691	708	0	0	0	0	1	4	+1.0000e+000
0	0										
661	736	671	670	735	0	0	0	0	4	4	+1.0000e+000
0	0										
662	737	672	671	736	0	0	0	0	4	4	+1.0000e+000
0	0										
663	738	673	672	737	0	0	0	0	4	4	+1.0000e+000
0	0										
664	739	674	673	738	0	0	0	0	4	4	+1.0000e+000
0	0										
665	742	669	713	0	0	0	0	0	3	3	+1.0000e+000
0	0										
666	735	670	669	742	0	0	0	0	4	4	+1.0000e+000
0	0										
667	739	743	675	674	0	0	0	0	4	4	+1.0000e+000
0	0										
668	693	675	743	0	0	0	0	0	4	3	+1.0000e+000
0	0										

669	723	694	693	722	0	0	0	0	1	4	+1.0000e+000
0	0										
670	724	695	694	723	0	0	0	0	1	4	+1.0000e+000
0	0										
671	725	696	695	724	0	0	0	0	1	4	+1.0000e+000
0	0										
672	726	697	696	725	0	0	0	0	1	4	+1.0000e+000
0	0										
673	727	698	697	726	0	0	0	0	1	4	+1.0000e+00
0	0										
674	728	699	698	727	0	0	0	0	1	4	+1.0000e+00
0	0										
675	729	700	699	728	0	0	0	0	1	4	+1.0000e+000
0	0										
676	730	701	700	729	0	0	0	0	1	4	+1.0000e+000
0	0										
677	693	743	722	0	0	0	0	0	4	3	+1.0000e+000
0	0										
678	731	702	701	730	0	0	0	0	1	4	+1.0000e+000
0	0										
679	732	703	702	731	0	0	0	0	1	4	+1.0000e+000
0	0										
680	733	704	703	732	0	0	0	0	1	4	+1.0000e+000
0	0										
681	734	705	704	733	0	0	0	0	1	4	+1.0000e+000
0	0										
682	740	706	705	734	0	0	0	0	1	4	+1.0000e+000
0	0										
683	741	707	706	740	0	0	0	0	1	4	+1.0000e+000
0	0										
684	744	708	707	741	0	0	0	0	1	4	+1.0000e+000
0	0										
685	745	709	708	744	0	0	0	0	1	4	+1.0000e+000
0	0										
686	711	710	750	751	0	0	0	0	3	4	+1.0000e+000
0	0										
687	712	711	751	752	0	0	0	0	3	4	+1.0000e+000
0	0										
688	713	712	752	753	0	0	0	0	3	4	+1.0000e+000
0	0										
689	713	753	742	0	0	0	0	0	3	3	+1.0000e+000
0	0										
690	710	721	764	750	0	0	0	0	3	4	+1.0000e+000
0	0										
691	716	715	758	759	0	0	0	0	3	4	+1.0000e+000
0	0										
692	717	716	759	760	0	0	0	0	3	4	+1.0000e+000
0	0										
693	718	717	760	761	0	0	0	0	3	4	+1.0000e+000
0	0										
694	719	718	761	762	0	0	0	0	3	4	+1.0000e+000
0	0										
695	720	719	762	763	0	0	0	0	3	4	+1.0000e+000
0	0										
696	721	720	763	764	0	0	0	0	3	4	+1.0000e+000
0	0										
697	715	714	765	758	0	0	0	0	3	4	+1.0000e+000
0	0										
698	722	743	747	746	0	0	0	0	3	4	+1.0000e+00
0	0										

699	749	739	738	748	0	0	0	0	3	4	+1.0000e+000
0	0										
700	743	739	749	747	0	0	0	0	3	4	+1.0000e+000
0	0										
701	735	742	754	755	0	0	0	0	3	4	+1.0000e+000
0	0										
702	756	736	735	755	0	0	0	0	3	4	+1.0000e+000
0	0										
703	736	756	757	737	0	0	0	0	3	4	+1.0000e+000
0	0										
704	737	757	748	738	0	0	0	0	3	4	+1.0000e+000
0	0										
705	742	753	754	0	0	0	0	0	3	3	+1.0000e+000
0	0										
706	722	746	767	723	0	0	0	0	2	4	+1.0000e+000
0	0										
707	723	767	766	724	0	0	0	0	2	4	+1.0000e+000
0	0										
708	725	724	766	768	0	0	0	0	2	4	+1.0000e+000
0	0										
709	726	725	768	769	0	0	0	0	2	4	+1.0000e+000
0	0										
710	727	726	769	770	0	0	0	0	2	4	+1.0000e+000
0	0										
711	728	727	770	771	0	0	0	0	2	4	+1.0000e+000
0	0										
712	729	728	771	772	0	0	0	0	2	4	+1.0000e+000
0	0										
713	730	729	772	773	0	0	0	0	2	4	+1.0000e+000
0	0										
714	731	730	773	774	0	0	0	0	2	4	+1.0000e+000
0	0										
715	732	731	774	775	0	0	0	0	2	4	+1.0000e+000
0	0										
716	733	732	775	776	0	0	0	0	2	4	+1.0000e+000
0	0										
717	734	733	776	777	0	0	0	0	2	4	+1.0000e+000
0	0										
718	740	734	777	778	0	0	0	0	2	4	+1.0000e+000
0	0										
719	741	740	778	779	0	0	0	0	2	4	+1.0000e+000
0	0										
720	744	741	779	0	0	0	0	0	2	3	+1.0000e+000
0	0										
721	780	744	779	0	0	0	0	0	2	3	+1.0000e+000
0	0										
722	744	780	745	0	0	0	0	0	2	3	+1.0000e+000
0	0										
723	747	749	785	781	0	0	0	0	3	4	+1.0000e+
0	0										
724	746	747	781	791	0	0	0	0	3	4	+1.0000e+000
0	0										
725	746	791	767	0	0	0	0	0	2	3	+1.0000e+000
0	0										
726	757	783	784	748	0	0	0	0	3	4	+1.0000e+000
0	0										
727	748	784	785	749	0	0	0	0	3	4	+1.0000e+000
0	0										
728	756	782	783	757	0	0	0	0	3	4	+1.0000e+000
0	0										

729	752	751	786	787	0	0	0	0	3	4	+1.0000e+000
0	0										
730	753	752	787	788	0	0	0	0	3	4	+1.0000e+000
0	0										
731	754	753	788	789	0	0	0	0	3	4	+1.0000e+000
0	0										
732	754	789	790	755	0	0	0	0	3	4	+1.0000e+000
0	0										
733	755	790	782	756	0	0	0	0	3	4	+1.0000e+000
0	0										
734	750	764	796	797	0	0	0	0	3	4	+1.0000e+000
0	0										
735	751	750	797	786	0	0	0	0	3	4	+1.0000e+000
0	0										
736	761	760	792	793	0	0	0	0	3	4	+1.0000e+000
0	0										
737	762	761	793	794	0	0	0	0	3	4	+1.0000e+000
0	0										
738	763	762	794	795	0	0	0	0	3	4	+1.0000e+000
0	0										
739	764	763	795	796	0	0	0	0	3	4	+1.0000e+000
0	0										
740	758	765	798	799	0	0	0	0	3	4	+1.0000e+000
0	0										
741	759	758	799	800	0	0	0	0	3	4	+1.0000e+000
0	0										
742	760	759	800	792	0	0	0	0	3	4	+1.0000e+000
0	0										
743	767	791	801	0	0	0	0	0	2	3	+1.0000e+000
0	0										
744	767	801	802	766	0	0	0	0	2	4	+1.0000e+000
0	0										
745	768	766	802	803	0	0	0	0	2	4	+1.0000e+000
0	0										
746	769	768	803	804	0	0	0	0	2	4	+1.0000e+000
0	0										
747	770	769	804	805	0	0	0	0	2	4	+1.0000e+000
0	0										
748	771	770	805	806	0	0	0	0	2	4	+1.0000e+000
0	0										
749	772	771	806	807	0	0	0	0	2	4	+1.0000e+000
0	0										
750	773	772	807	808	0	0	0	0	2	4	+1.0000e+000
0	0										
751	774	773	808	809	0	0	0	0	2	4	+1.0000e+000
0	0										
752	775	774	809	810	0	0	0	0	2	4	+1.0000e+000
0	0										
753	776	775	810	811	0	0	0	0	2	4	+1.0000e+000
0	0										
754	777	776	811	812	0	0	0	0	2	4	+1.0000e+000
0	0										
755	778	777	812	813	0	0	0	0	2	4	+1.0000e+000
0	0										
756	779	778	813	834	0	0	0	0	2	4	+1.0000e+000
0	0										
757	780	779	834	0	0	0	0	0	2	3	+1.0000e+000
0	0										
758	781	785	817	814	0	0	0	0	3	4	+1.0000e+000
0	0										

759	791	781	814	818	0	0	0	0	3	4	+1.0000e+000
0	0										
760	784	783	815	816	0	0	0	0	3	4	+1.0000e+000
0	0										
761	785	784	816	817	0	0	0	0	3	4	+1.0000e+000
0	0										
762	782	790	823	824	0	0	0	0	3	4	+1.0000e+000
0	0										
763	783	782	824	815	0	0	0	0	3	4	+1.0000e+000
0	0										
764	791	818	801	0	0	0	0	0	2	3	+1.0000e+000
0	0										
765	787	786	819	820	0	0	0	0	3	4	+1.0000e+000
0	0										
766	788	787	820	821	0	0	0	0	3	4	+1.0000e+000
0	0										
767	789	788	821	822	0	0	0	0	3	4	+1.0000e+000
0	0										
768	790	789	822	823	0	0	0	0	3	4	+1.0000e+000
0	0										
769	786	797	829	819	0	0	0	0	3	4	+1.0000e+000
0	0										
770	794	793	825	826	0	0	0	0	3	4	+1.0000e+000
0	0										
771	795	794	826	827	0	0	0	0	3	4	+1.0000e+000
0	0										
772	796	795	827	828	0	0	0	0	3	4	+1.0000e+000
0	0										
773	797	796	828	829	0	0	0	0	3	4	+1.0000e+000
0	0										
774	792	800	832	833	0	0	0	0	3	4	+1.0000e+000
0	0										
775	793	792	833	825	0	0	0	0	3	4	+1.0000e+000
0	0										
776	799	798	830	831	0	0	0	0	3	4	+1.0000e+000
0	0										
777	800	799	831	832	0	0	0	0	3	4	+1.0000e+000
0	0										
778	801	818	855	0	0	0	0	0	2	3	+1.0000e+000
0	0										
779	802	801	855	856	0	0	0	0	2	4	+1.0000e+000
0	0										
780	803	802	856	857	0	0	0	0	2	4	+1.0000e+000
0	0										
781	804	803	857	858	0	0	0	0	2	4	+1.0000e+000
0	0										
782	805	804	858	859	0	0	0	0	2	4	+1.0000e+000
0	0										
783	806	805	859	860	0	0	0	0	2	4	+1.0000e+000
0	0										
784	807	806	860	861	0	0	0	0	2	4	+1.0000e+000
0	0										
785	808	807	861	862	0	0	0	0	2	4	+1.0000e+000
0	0										
786	809	808	862	863	0	0	0	0	2	4	+1.0000e+000
0	0										
787	810	809	863	864	0	0	0	0	2	4	+1.0000e+000
0	0										
788	811	810	864	865	0	0	0	0	2	4	+1.0000e+000
0	0										

789	812	811	865	866	0	0	0	0	2	4	+1.0000e+000
0	0										
790	814	817	839	835	0	0	0	0	3	4	+1.0000e+000
0	0										
791	818	814	835	840	0	0	0	0	3	4	+1.0000e+000
0	0										
792	815	824	836	837	0	0	0	0	3	4	+1.0000e+000
0	0										
793	816	815	837	838	0	0	0	0	3	4	+1.0000e+000
0	0										
794	817	816	838	839	0	0	0	0	3	4	+1.0000e+000
0	0										
795	821	820	841	842	0	0	0	0	3	4	+1.0000e+000
0	0										
796	822	821	842	843	0	0	0	0	3	4	+1.0000e+000
0	0										
797	823	822	843	844	0	0	0	0	3	4	+1.0000e+000
0	0										
798	824	823	844	836	0	0	0	0	3	4	+1.0000e+000
0	0										
799	819	829	848	849	0	0	0	0	3	4	+1.0000e+000
0	0										
800	820	819	849	841	0	0	0	0	3	4	+1.0000e+000
0	0										
801	827	826	845	846	0	0	0	0	3	4	+1.0000e+000
0	0										
802	828	827	846	847	0	0	0	0	3	4	+1.0000e+000
0	0										
803	829	828	847	848	0	0	0	0	3	4	+1.0000e+000
0	0										
804	825	833	853	854	0	0	0	0	3	4	+1.0000e+000
0	0										
805	826	825	854	845	0	0	0	0	3	4	+1.0000e+000
0	0										
806	831	830	850	851	0	0	0	0	3	4	+1.0000e+000
0	0										
807	832	831	851	852	0	0	0	0	3	4	+1.0000e+000
0	0										
808	833	832	852	853	0	0	0	0	3	4	+1.0000e+000
0	0										
809	818	840	855	0	0	0	0	0	2	3	+1.0000e+000
0	0										
810	813	812	866	867	0	0	0	0	2	4	+1.0000e+000
0	0										
811	834	813	867	0	0	0	0	0	2	3	+1.0000e+000
0	0										
812	840	835	868	869	0	0	0	0	3	4	+1.0000e+000
0	0										
813	835	839	873	868	0	0	0	0	3	4	+1.0000e+000
0	0										
814	855	840	869	0	0	0	0	0	2	3	+1.0000e+000
0	0										
815	837	836	870	871	0	0	0	0	3	4	+1.0000e+000
0	0										
816	838	837	871	872	0	0	0	0	3	4	+1.0000e+000
0	0										
817	839	838	872	873	0	0	0	0	3	4	+1.0000e+000
0	0										
818	836	844	877	870	0	0	0	0	3	4	+1.0000e+000
0	0										

819	842	841	874	875	0	0	0	0	3	4	+1.0000e+000
0	0										
820	843	842	875	876	0	0	0	0	3	4	+1.0000e+000
0	0										
821	844	843	876	877	0	0	0	0	3	4	+1.0000e+000
0	0										
822	841	849	882	874	0	0	0	0	3	4	+1.0000e+000
0	0										
823	846	845	878	879	0	0	0	0	3	4	+1.0000e+000
0	0										
824	847	846	879	880	0	0	0	0	3	4	+1.0000e+000
0	0										
825	848	847	880	881	0	0	0	0	3	4	+1.0000e+000
0	0										
826	849	848	881	882	0	0	0	0	3	4	+1.0000e+000
0	0										
827	845	854	885	878	0	0	0	0	3	4	+1.0000e+000
0	0										
828	853	852	883	884	0	0	0	0	3	4	+1.0000e+000
0	0										
829	854	853	884	885	0	0	0	0	3	4	+1.0000e+000
0	0										
830	851	850	886	887	0	0	0	0	3	4	+1.0000e+000
0	0										
831	852	851	887	883	0	0	0	0	3	4	+1.0000e+000
0	0										
832	855	869	888	0	0	0	0	0	2	3	+1.0000e+000
0	0										
833	856	855	888	889	0	0	0	0	2	4	+1.0000e+000
0	0										
834	857	856	889	890	0	0	0	0	2	4	+1.0000e+000
0	0										
835	858	857	890	891	0	0	0	0	2	4	+1.0000e+000
0	0										
836	859	858	891	892	0	0	0	0	2	4	+1.0000e+000
0	0										
837	860	859	892	893	0	0	0	0	2	4	+1.0000e+000
0	0										
838	861	860	893	894	0	0	0	0	2	4	+1.0000e+000
0	0										
839	862	861	894	895	0	0	0	0	2	4	+1.0000e+000
0	0										
840	863	862	895	896	0	0	0	0	2	4	+1.0000e+000
0	0										
841	864	863	896	897	0	0	0	0	2	4	+1.0000e+000
0	0										
842	865	864	897	898	0	0	0	0	2	4	+1.0000e+000
0	0										
843	866	865	898	899	0	0	0	0	2	4	+1.0000e+000
0	0										
844	867	866	899	0	0	0	0	0	2	3	+1.0000e+000
0	0										
845	868	873	904	0	0	0	0	0	3	3	+1.0000e+000
0	0										
846	869	868	904	900	0	0	0	0	3	9	+1.0000e+000
0	0										
847	888	869	900	0	0	0	0	0	2	3	+1.0000e+000
0	0										
848	871	870	901	902	0	0	0	0	3	4	+1.0000e+000
0	0										

849	872	871	902	903	0	0	0	0	3	4	+1.0000e+000
0	0										
850	873	872	903	904	0	0	0	0	3	4	+1.0000e+000
0	0										
851	870	877	908	901	0	0	0	0	3	4	+1.0000e+000
0	0										
852	875	874	905	906	0	0	0	0	3	4	+1.0000e+000
0	0										
853	876	875	906	907	0	0	0	0	3	4	+1.0000e+000
0	0										
854	877	876	907	908	0	0	0	0	3	4	+1.0000e+000
0	0										
855	874	882	912	905	0	0	0	0	3	4	+1.0000e+000
0	0										
856	880	879	909	910	0	0	0	0	3	4	+1.0000e+000
0	0										
857	881	880	910	911	0	0	0	0	3	4	+1.0000e+000
0	0										
858	882	881	911	912	0	0	0	0	3	4	+1.0000e+000
0	0										
859	878	885	915	916	0	0	0	0	3	4	+1.0000e+000
0	0										
860	879	878	916	909	0	0	0	0	3	4	+1.0000e+000
0	0										
861	884	883	913	914	0	0	0	0	3	4	+1.0000e+000
0	0										
862	885	884	914	915	0	0	0	0	3	4	+1.0000e+000
0	0										
863	883	887	918	913	0	0	0	0	3	4	+1.0000e+000
0	0										
864	887	886	917	918	0	0	0	0	3	4	+1.0000e+000
0	0										
865	900	919	888	0	0	0	0	0	2	3	+1.0000e+000
0	0										
866	889	888	919	920	0	0	0	0	2	4	+1.0000e+000
0	0										
867	890	889	920	921	0	0	0	0	2	4	+1.0000e+000
0	0										
868	891	890	921	922	0	0	0	0	2	4	+1.0000e+000
0	0										
869	892	891	922	923	0	0	0	0	2	4	+1.0000e+000
0	0										
870	893	892	923	924	0	0	0	0	2	4	+1.0000e+000
0	0										
871	894	893	924	925	0	0	0	0	2	4	+1.0000e+000
0	0										
872	895	894	925	926	0	0	0	0	2	4	+1.0000e+000
0	0										
873	896	895	926	927	0	0	0	0	2	4	+1.0000e+000
0	0										
874	897	896	927	928	0	0	0	0	2	4	+1.0000e+000
0	0										
875	898	897	928	929	0	0	0	0	2	4	+1.0000e+000
0	0										
876	899	898	929	0	0	0	0	0	2	3	+1.0000e+000
0	0										
877	900	904	932	933	0	0	0	0	3	4	+1.0000e+000
0	0										
878	919	900	933	0	0	0	0	0	2	3	+1.0000e+000
0	0										

879	903	902	930	931	0	0	0	0	3	4	+1.0000e+000
0	0										
880	904	903	931	932	0	0	0	0	3	4	+1.0000e+000
0	0										
881	901	908	935	936	0	0	0	0	3	4	+1.0000e+000
0	0										
882	902	901	936	930	0	0	0	0	3	4	+1.0000e+000
0	0										
883	908	907	934	935	0	0	0	0	3	4	+1.0000e+000
0	0										
884	905	912	938	939	0	0	0	0	3	4	+1.0000e+000
0	0										
885	906	905	939	940	0	0	0	0	3	4	+1.0000e+000
0	0										
886	907	906	940	934	0	0	0	0	3	4	+1.0000e+000
0	0										
887	912	911	937	938	0	0	0	0	3	4	+1.0000e+000
0	0										
888	909	916	942	943	0	0	0	0	3	4	+1.0000e+000
0	0										
889	910	909	943	944	0	0	0	0	3	4	+1.0000e+000
0	0										
890	911	910	944	937	0	0	0	0	3	4	+1.0000e+000
0	0										
891	916	915	941	942	0	0	0	0	3	4	+1.0000e+000
0	0										
892	913	918	945	946	0	0	0	0	3	4	+1.0000e+000
0	0										
893	914	913	946	947	0	0	0	0	3	4	+1.0000e+000
0	0										
894	915	914	947	941	0	0	0	0	3	4	+1.0000e+000
0	0										
895	918	917	948	945	0	0	0	0	3	4	+1.0000e+000
0	0										
896	933	949	919	0	0	0	0	0	2	3	+1.0000e+000
0	0										
897	920	919	949	950	0	0	0	0	2	4	+1.0000e+000
0	0										
898	921	920	950	951	0	0	0	0	2	4	+1.0000e+000
0	0										
899	922	921	951	952	0	0	0	0	2	4	+1.0000e+000
0	0										
900	923	922	952	953	0	0	0	0	2	4	+1.0000e+000
0	0										
901	924	923	953	954	0	0	0	0	2	4	+1.0000e+000
0	0										
902	925	924	954	955	0	0	0	0	2	4	+1.0000e+000
0	0										
903	926	925	955	956	0	0	0	0	2	4	+1.0000e+000
0	0										
904	927	926	956	957	0	0	0	0	2	4	+1.0000e+000
0	0										
905	928	927	957	958	0	0	0	0	2	4	+1.0000e+000
0	0										
906	929	928	958	0	0	0	0	0	2	3	+1.0000e+000
0	0										
907	932	931	968	969	0	0	0	0	3	4	+1.0000e+000
0	0										
908	933	932	969	970	0	0	0	0	3	4	+1.0000e+000
0	0										

909	933	970	949	0	0	0	0	0	2	3	+1.0000e+000
0	0										
910	930	936	972	973	0	0	0	0	3	4	+1.0000e+000
0	0										
911	931	930	973	968	0	0	0	0	3	4	+1.0000e+000
0	0										
912	936	935	971	972	0	0	0	0	3	4	+1.0000e+000
0	0										
913	934	940	975	976	0	0	0	0	3	4	+1.0000e+000
0	0										
914	935	934	976	971	0	0	0	0	3	4	+1.0000e+000
0	0										
915	940	939	974	975	0	0	0	0	3	4	+1.0000e+000
0	0										
916	937	944	978	979	0	0	0	0	3	4	+1.0000e+000
0	0										
917	938	937	979	980	0	0	0	0	3	4	+1.0000e+000
0	0										
918	939	938	980	974	0	0	0	0	3	4	+1.0000e+000
0	0										
919	944	943	977	978	0	0	0	0	3	4	+1.0000e+000
0	0										
920	941	947	981	982	0	0	0	0	3	4	+1.0000e+000
0	0										
921	942	941	982	983	0	0	0	0	3	4	+1.0000e+000
0	0										
922	943	942	983	977	0	0	0	0	3	4	+1.0000e+000
0	0										
923	945	948	984	985	0	0	0	0	3	4	+1.0000e+000
0	0										
924	946	945	985	986	0	0	0	0	3	4	+1.0000e+000
0	0										
925	947	946	986	981	0	0	0	0	3	4	+1.0000e+000
0	0										
926	958	957	959	0	0	0	0	0	2	3	+1.0000e+000
0	0										
927	950	949	960	961	0	0	0	0	2	4	+1.0000e+000
0	0										
928	951	950	961	962	0	0	0	0	2	4	+1.0000e+000
0	0										
929	952	951	962	963	0	0	0	0	2	4	+1.0000e+000
0	0										
930	953	952	963	964	0	0	0	0	2	4	+1.0000e+000
0	0										
931	954	953	964	965	0	0	0	0	2	4	+1.0000e+000
0	0										
932	955	954	965	966	0	0	0	0	2	4	+1.0000e+000
0	0										
933	956	955	966	967	0	0	0	0	2	4	+1.0000e+000
0	0										
934	957	956	967	959	0	0	0	0	2	4	+1.0000e+000
0	0										
935	970	960	949	0	0	0	0	0	2	3	+1.0000e+000
0	0										
936	959	967	987	0	0	0	0	0	2	3	+1.0000e+000
0	0										
937	970	988	960	0	0	0	0	0	2	3	+1.0000e+000
0	0										
938	960	988	989	0	0	0	0	0	2	3	+1.0000e+000
0	0										

939	961	960	989	990	0	0	0	0	2	4	+1.0000e+000
0	0										
940	962	961	990	991	0	0	0	0	2	4	+1.0000e+000
0	0										
941	963	962	991	992	0	0	0	0	2	4	+1.0000e+000
0	0										
942	964	963	992	993	0	0	0	0	2	4	+1.0000e+000
0	0										
943	965	964	993	994	0	0	0	0	2	4	+1.0000e+000
0	0										
944	970	969	995	996	0	0	0	0	3	4	+1.0000e+000
0	0										
945	996	988	970	0	0	0	0	0	2	3	+1.0000e+000
0	0										
946	968	973	998	999	0	0	0	0	3	4	+1.0000e+000
0	0										
947	969	968	999	995	0	0	0	0	3	4	+1.0000e+000
0	0										
948	973	972	997	998	0	0	0	0	3	4	+1.0000e+000
0	0										
949	971	976	1001	1002	0	0	0	0	3	4	+1.0000e+000
0	0										
950	972	971	1002	997	0	0	0	0	3	4	+1.0000e+000
0	0										
951	976	975	1000	1001	0	0	0	0	3	4	+1.0000e+000
0	0										
952	974	980	1005	1006	0	0	0	0	3	4	+1.0000e+000
0	0										
953	975	974	1006	1000	0	0	0	0	3	4	+1.0000e+000
0	0										
954	979	978	1003	1004	0	0	0	0	3	4	+1.0000e+000
0	0										
955	980	979	1004	1005	0	0	0	0	3	4	+1.0000e+000
0	0										
956	977	983	1007	1008	0	0	0	0	3	4	+1.0000e+000
0	0										
957	978	977	1008	1003	0	0	0	0	3	4	+1.0000e+000
0	0										
958	981	986	1010	1011	0	0	0	0	3	4	+1.0000e+000
0	0										
959	982	981	1011	1012	0	0	0	0	3	4	+1.0000e+000
0	0										
960	983	982	1012	1007	0	0	0	0	3	4	+1.0000e+000
0	0										
961	986	985	1009	1010	0	0	0	0	3	4	+1.0000e+000
0	0										
962	985	984	1013	1009	0	0	0	0	3	4	+1.0000e+000
0	0										
963	966	965	994	1014	0	0	0	0	2	4	+1.0000e+
0	0										
964	967	966	1014	987	0	0	0	0	2	4	+1.0000e+000
0	0										
965	996	1015	988	0	0	0	0	0	2	3	+1.0000e+000
0	0										
966	989	988	1015	1016	0	0	0	0	2	4	+1.0000e+000
0	0										
967	990	989	1016	1017	0	0	0	0	2	4	+1.0000e+000
0	0										
968	991	990	1017	1018	0	0	0	0	2	4	+1.0000e+000
0	0										

```
 969   992   991  1018  1019     0     0     0     0     2     4 +1.0000e+000
   0     0
 970   993   992  1019  1020     0     0     0     0     2     4 +1.0000e+000
   0     0
 971   994   993  1020  1021     0     0     0     0     2     4 +1.0000e+000
   0     0
 972  1014   994  1021     0     0     0     0     0     2     3 +1.0000e+000
   0     0
 973   995   999  1022  1023     0     0     0     0     3     4 +1.0000e+000
   0     0
 974   996   995  1023  1024     0     0     0     0     3     4 +1.0000e+000
   0     0
 975   996  1024  1015     0     0     0     0     0     2     3 +1.0000e+000
   0     0
 976   997  1002  1026  1027     0     0     0     0     3     4 +1.0000e+000
   0     0
 977   998   997  1027  1028     0     0     0     0     3     4 +1.0000e+000
   0     0
 978   999   998  1028  1022     0     0     0     0     3     4 +1.0000e+000
   0     0
 979  1002  1001  1025  1026     0     0     0     0     3     4 +1.0000e+000
   0     0
 980  1000  1006  1030  1031     0     0     0     0     3     4 +1.0000e+000
   0     0
 981  1001  1000  1031  1025     0     0     0     0     3     4 +1.0000e+000
   0     0
 982  1006  1005  1029  1030     0     0     0     0     3     4 +1.0000e+000
   0     0
 983  1003  1008  1032  1033     0     0     0     0     3     4 +1.0000e+000
   0     0
 984  1004  1003  1033  1034     0     0     0     0     3     4 +1.0000e+000
   0     0
 985  1005  1004  1034  1029     0     0     0     0     3     4 +1.0000e+000
   0     0
 986  1007  1012  1036  1037     0     0     0     0     3     4 +1.0000e+000
   0     0
 987  1008  1007  1037  1032     0     0     0     0     3     4 +1.0000e+000
   0     0
 988  1012  1011  1035  1036     0     0     0     0     3     4 +1.0000e+000
   0     0
 989  1009  1013  1038  1039     0     0     0     0     3     4 +1.0000e+000
   0     0
 990  1010  1009  1039  1040     0     0     0     0     3     4 +1.0000e+000
   0     0
 991  1011  1010  1040  1035     0     0     0     0     3     4 +1.0000e+000
   0     0
 992  1015  1024  1041     0     0     0     0     0     2     3 +1.0000e+000
   0     0
 993  1016  1015  1041  1042     0     0     0     0     2     4 +1.0000e+000
   0     0
 994  1017  1016  1042  1043     0     0     0     0     2     4 +1.0000e+000
   0     0
 995  1018  1017  1043  1044     0     0     0     0     2     4 +1.0000e+000
   0     0
 996  1019  1018  1044  1045     0     0     0     0     2     4 +1.0000e+000
   0     0
 997  1019  1045  1046  1020     0     0     0     0     2     4 +1.0000e+000
   0     0
 998  1020  1046  1021     0     0     0     0     0     2     3 +1.0000e+000
   0
```



```
 999  1023  1022  1047  1048     0     0     0     0     3     4 +1.0000e+000
   0     0
1000  1024  1023  1048  1049     0     0     0     0     3     4 +1.0000e+000
   0     0
1001  1041  1024  1049     0     0     0     0     0     2     3 +1.0000e+000
   0     0
1002  1022  1028  1052  1047     0     0     0     0     3     4 +1.0000e+000
   0     0
1003  1027  1026  1050  1051     0     0     0     0     3     4 +1.0000e+000
   0     0
1004  1028  1027  1051  1052     0     0     0     0     3     4 +1.0000e+000
   0     0
1005  1025  1031  1054  1055     0     0     0     0     3     4 +1.0000e+000
   0     0
1006  1026  1025  1055  1050     0     0     0     0     3     4 +1.0000e+000
   0     0
1007  1031  1030  1053  1054     0     0     0     0     3     4 +1.0000e+000
   0     0
1008  1029  1034  1057  1058     0     0     0     0     3     4 +1.0000e+000
   0     0
1009  1030  1029  1058  1053     0     0     0     0     3     4 +1.0000e+000
   0     0
1010  1034  1033  1056  1057     0     0     0     0     3     4 +1.0000e+000
   0     0
1011  1032  1037  1060  1061     0     0     0     0     3     4 +1.0000e+000
   0     0
1012  1033  1032  1061  1056     0     0     0     0     3     4 +1.0000e+000
   0     0
1013  1037  1036  1059  1060     0     0     0     0     3     4 +1.0000e+000
   0     0
1014  1035  1040  1062  1063     0     0     0     0     3     4 +1.0000e+000
   0     0
1015  1036  1035  1063  1059     0     0     0     0     3     4 +1.0000e+000
   0     0
1016  1039  1038  1064  1065     0     0     0     0     3     4 +1.0000e+000
   0     0
1017  1040  1039  1065  1062     0     0     0     0     3     4 +1.0000e+000
   0     0
1018  1041  1049  1066     0     0     0     0     0     2     3 +1.0000e+000
   0     0
1019  1042  1041  1066  1067     0     0     0     0     2     4 +1.0000e+000
   0     0
1020  1043  1042  1067  1068     0     0     0     0     2     4 +1.0000e+000
   0     0
1021  1044  1043  1068  1069     0     0     0     0     2     4 +1.0000e+000
   0     0
1022  1045  1044  1069  1070     0     0     0     0     2     4 +1.0000e+000
   0     0
1023  1046  1045  1070     0     0     0     0     0     2     3 +1.0000e+000
   0     0
1024  1049  1048  1075  1076     0     0     0     0     3     4 +1.0000e+000
   0     0
1025  1049  1076  1066     0     0     0     0     0     2     3 +1.0000e+000
   0     0
1026  1047  1052  1078  1079     0     0     0     0     3     4 +1.0000e+000
   0     0
1027  1048  1047  1079  1075     0     0     0     0     3     4 +1.0000e+000
   0     0
1028  1052  1051  1077  1078     0     0     0     0     3     4 +1.0000e+000
   0     0
```



```
1029  1050  1055  1080  1081     0     0     0     0     3     4 +1.0000e+000
   0     0
1030  1051  1050  1081  1077     0     0     0     0     3     4 +1.0000e+000
   0     0
1031  1053  1058  1083  1084     0     0     0     0     3     4 +1.0000e+000
   0     0
1032  1054  1053  1084  1085     0     0     0     0     3     4 +1.0000e+000
   0     0
1033  1055  1054  1085  1080     0     0     0     0     3     4 +1.0000e+000
   0     0
1034  1058  1057  1082  1083     0     0     0     0     3     4 +1.0000e+000
   0     0
1035  1056  1061  1086  1087     0     0     0     0     3     4 +1.0000e+000
   0     0
1036  1057  1056  1087  1082     0     0     0     0     3     4 +1.0000e+000
   0     0
1037  1059  1063  1088  1089     0     0     0     0     3     4 +1.0000e+000
   0     0
1038  1060  1059  1089  1090     0     0     0     0     3     4 +1.0000e+000
   0     0
1039  1061  1060  1090  1086     0     0     0     0     3     4 +1.0000e+000
   0     0
1040  1062  1065  1092  1093     0     0     0     0     3     4 +1.0000e+000
   0     0
1041  1063  1062  1093  1088     0     0     0     0     3     4 +1.0000e+000
   0     0
1042  1065  1064  1091  1092     0     0     0     0     3     4 +1.0000e+000
   0     0
1043  1069  1071  1070     0     0     0     0     0     2     3 +1.0000e+000
   0     0
1044  1068  1067  1072  1073     0     0     0     0     2     4 +1.0000e+000
   0     0
1045  1069  1068  1073  1071     0     0     0     0     2     4 +1.0000e+000
   0     0
1046  1066  1074  1072  1067     0     0     0     0     2     4 +1.0000e+000
   0     0
1047  1066  1076  1074     0     0     0     0     0     2     3 +1.0000e+000
   0     0
1048  1071  1073  1094     0     0     0     0     0     2     3 +1.0000e+000
   0     0
1049  1075  1079  1097  1098     0     0     0     0     3     4 +1.0000e+000
   0     0
1050  1076  1075  1098  1095     0     0     0     0     3     4 +1.0000e+000
   0     0
1051  1079  1078  1096  1097     0     0     0     0     3     4 +1.0000e+000
   0     0
1052  1077  1081  1099  1100     0     0     0     0     3     4 +1.0000e+000
   0     0
1053  1078  1077  1100  1096     0     0     0     0     3     4 +1.0000e+000
   0     0
1054  1080  1085  1102  1103     0     0     0     0     3     4 +1.0000e+000
   0     0
1055  1081  1080  1103  1099     0     0     0     0     3     4 +1.0000e+000
   0     0
1056  1085  1084  1101  1102     0     0     0     0     3     4 +1.0000e+000
   0     0
1057  1082  1087  1104  1105     0     0     0     0     3     4 +1.0000e+000
   0     0
1058  1083  1082  1105  1106     0     0     0     0     3     4 +1.0000e+000
   0     0
```



```
1059  1084  1083  1106  1101     0     0     0     0     3     4 +1.0000e+000
   0     0
1060  1086  1090  1108  1109     0     0     0     0     3     4 +1.0000e+000
   0     0
1061  1087  1086  1109  1104     0     0     0     0     3     4 +1.0000e+000
   0     0
1062  1090  1089  1107  1108     0     0     0     0     3     4 +1.0000e+000
   0     0
1063  1088  1093  1110  1111     0     0     0     0     3     4 +1.0000e+000
   0     0
1064  1089  1088  1111  1107     0     0     0     0     3     4 +1.0000e+000
   0     0
1065  1092  1091  1112  1113     0     0     0     0     3     4 +1.0000e+000
   0     0
1066  1093  1092  1113  1110     0     0     0     0     3     4 +1.0000e+000
   0     0
1067  1072  1114  1094  1073     0     0     0     0     2     4 +1.0000e+000
   0     0
1068  1114  1072  1074  1115     0     0     0     0     2     4 +1.0000e+000
   0     0
1069  1076  1095  1115  1074     0     0     0     0     2     4 +1.0000e+000
   0     0
1070  1095  1098  1118  1119     0     0     0     0     3     4 +1.0000e+000
   0     0
1071  1115  1095  1119  1116     0     0     0     0     2     4 +1.0000e+000
   0     0
1072  1098  1097  1117  1118     0     0     0     0     3     4 +1.0000e+000
   0     0
1073  1096  1100  1121  1122     0     0     0     0     3     4 +1.0000e+000
   0     0
1074  1097  1096  1122  1117     0     0     0     0     3     4 +1.0000e+000
   0     0
1075  1100  1099  1120  1121     0     0     0     0     3     4 +1.0000e+000
   0     0
1076  1099  1103  1124  1120     0     0     0     0     3     4 +1.0000e+000
   0     0
1077  1103  1102  1123  1124     0     0     0     0     3     4 +1.0000e+000
   0     0
1078  1101  1106  1126  1127     0     0     0     0     3     4 +1.0000e+000
   0     0
1079  1102  1101  1127  1123     0     0     0     0     3     4 +1.0000e+000
   0     0
1080  1106  1105  1125  1126     0     0     0     0     3     4 +1.0000e+000
   0     0
1081  1104  1109  1128  1129     0     0     0     0     3     4 +1.0000e+000
   0     0
1082  1105  1104  1129  1125     0     0     0     0     3     4 +1.0000e+000
   0     0
1083  1107  1111  1130  1131     0     0     0     0     3     4 +1.0000e+000
   0     0
1084  1108  1107  1131  1132     0     0     0     0     3     4 +1.0000e+000
   0     0
1085  1109  1108  1132  1128     0     0     0     0     3     4 +1.0000e+000
   0     0
1086  1110  1113  1133  1134     0     0     0     0     3     4 +1.0000e+000
   0     0
1087  1111  1110  1134  1130     0     0     0     0     3     4 +1.0000e+000
   0     0
1088  1113  1112  1135  1133     0     0     0     0     3     4 +1.0000e+000
   0     0
```

```
1089  1114  1115  1116     0     0     0     0     0     2     3 +1.0000e+000
0   0
1090  1136  1116  1119     0     0     0     0     0     2     3 +1.0000e+000
0   0
1091  1119  1118  1137  1136     0     0     0     0     3     4 +1.0000e+000
0   0
1092  1117  1122  1139  1140     0     0     0     0     3     4 +1.0000e+000
0   0
1093  1118  1117  1140  1137     0     0     0     0     3     4 +1.0000e+000
0   0
1094  1122  1121  1138  1139     0     0     0     0     3     4 +1.0000e+000
0   0
1095  1120  1124  1141  1142     0     0     0     0     3     4 +1.0000e+000
0   0
1096  1121  1120  1142  1138     0     0     0     0     3     4 +1.0000e+000
0   0
1097  1123  1127  1143  1144     0     0     0     0     3     4 +1.0000e+000
0   0
1098  1124  1123  1144  1141     0     0     0     0     3     4 +1.0000e+000
0   0
1099  1125  1129  1145  1146     0     0     0     0     3     4 +1.0000e+000
0   0
1100  1126  1125  1146  1147     0     0     0     0     3     4 +1.0000e+000
0   0
1101  1127  1126  1147  1143     0     0     0     0     3     4 +1.0000e+000
0   0
1102  1128  1132  1148  1149     0     0     0     0     3     4 +1.0000e+000
0   0
1103  1129  1128  1149  1145     0     0     0     0     3     4 +1.0000e+000
0   0
1104  1130  1134  1150  1151     0     0     0     0     3     4 +1.0000e+000
0   0
1105  1131  1130  1151  1152     0     0     0     0     3     4 +1.0000e+000
0   0
1106  1132  1131  1152  1148     0     0     0     0     3     4 +1.0000e+000
0   0
1107  1133  1135  1153  1154     0     0     0     0     3     4 +1.0000e+000
0   0
1108  1134  1133  1154  1150     0     0     0     0     3     4 +1.0000e+000
0   0
1109  1137  1158  1155  1136     0     0     0     0     3     4 +1.0000e+000
0   0
1110  1137  1140  1157  1158     0     0     0     0     3     4 +1.0000e+000
0   0
1111  1140  1139  1156  1157     0     0     0     0     3     4 +1.0000e+000
0   0
1112  1138  1142  1159  1160     0     0     0     0     3     4 +1.0000e+000
0   0
1113  1139  1138  1160  1156     0     0     0     0     3     4 +1.0000e+000
0   0
1114  1141  1144  1162  1163     0     0     0     0     3     4 +1.0000e+000
0   0
1115  1142  1141  1163  1159     0     0     0     0     3     4 +1.0000e+000
0   0
1116  1144  1143  1161  1162     0     0     0     0     3     4 +1.0000e+000
0   0
1117  1143  1147  1165  1161     0     0     0     0     3     4 +1.0000e+000
0   0
1118  1147  1146  1164  1165     0     0     0     0     3     4 +1.0000e+000
0   0
```



```
1119  1145  1149  1166  1167     0     0     0     0     3     4 +1.0000e+000
0   0
1120  1146  1145  1167  1164     0     0     0     0     3     4 +1.0000e+000
0   0
1121  1148  1152  1169  1170     0     0     0     0     3     4 +1.0000e+000
0   0
1122  1149  1148  1170  1166     0     0     0     0     3     4 +1.0000e+000
0   0
1123  1152  1151  1168  1169     0     0     0     0     3     4 +1.0000e+000
0   0
1124  1150  1154  1171  1172     0     0     0     0     3     4 +1.0000e+000
0   0
1125  1151  1150  1172  1168     0     0     0     0     3     4 +1.0000e+000
0   0
1126  1154  1153  1173  1171     0     0     0     0     3     4 +1.0000e+000
0   0
1127  1155  1158  1175  1176     0     0     0     0     3     4 +1.0000e+000
0   0
1128  1158  1157  1174  1175     0     0     0     0     3     4 +1.0000e+000
0   0
1129  1156  1160  1177  1178     0     0     0     0     3     4 +1.0000e+000
0   0
1130  1157  1156  1178  1174     0     0     0     0     3     4 +1.0000e+000
0   0
1131  1159  1163  1180  1181     0     0     0     0     3     4 +1.0000e+000
0   0
1132  1160  1159  1181  1177     0     0     0     0     3     4 +1.0000e+000
0   0
1133  1163  1162  1179  1180     0     0     0     0     3     4 +1.0000e+000
0   0
1134  1161  1165  1183  1184     0     0     0     0     3     4 +1.0000e+000
0   0
1135  1162  1161  1184  1179     0     0     0     0     3     4 +1.0000e+000
0   0
1136  1165  1164  1182  1183     0     0     0     0     3     4 +1.0000e+000
0   0
1137  1164  1167  1186  1182     0     0     0     0     3     4 +1.0000e+000
0   0
1138  1167  1166  1185  1186     0     0     0     0     3     4 +1.0000e+000
0   0
1139  1166  1170  1189  1185     0     0     0     0     3     4 +1.0000e+000
0   0
1140  1169  1168  1187  1188     0     0     0     0     3     4 +1.0000e+000
0   0
1141  1170  1169  1188  1189     0     0     0     0     3     4 +1.0000e+000
0   0
1142  1168  1172  1192  1187     0     0     0     0     3     4 +1.0000e+000
0   0
1143  1171  1173  1190  1191     0     0     0     0     3     4 +1.0000e+000
0   0
1144  1172  1171  1191  1192     0     0     0     0     3     4 +1.0000e+000
0   0
1145  1174  1178  1194  1195     0     0     0     0     3     4 +1.0000e+000
0   0
1146  1175  1174  1195  1196     0     0     0     0     3     4 +1.0000e+000
0   0
1147  1176  1175  1196  1193     0     0     0     0     3     4 +1.0000e+000
0   0
1148  1177  1181  1198  1199     0     0     0     0     3     4 +1.0000e+000
0   0
```



```
1149  1178  1177  1199  1194     0     0     0     0     3     4 +1.0000e+000
0   0
1150  1181  1180  1197  1198     0     0     0     0     3     4 +1.0000e+000
0   0
1151  1179  1184  1201  1202     0     0     0     0     3     4 +1.0000e+000
0   0
1152  1180  1179  1202  1197     0     0     0     0     3     4 +1.0000e+000
0   0
1153  1184  1183  1200  1201     0     0     0     0     3     4 +1.0000e+00
0   0
1154  1182  1186  1204  1205     0     0     0     0     3     4 +1.0000e+0
0   0
1155  1183  1182  1205  1200     0     0     0     0     3     4 +1.0000e+000
0   0
1156  1186  1185  1203  1204     0     0     0     0     3     4 +1.0000e+000
0   0
1157  1185  1189  1208  1203     0     0     0     0     3     4 +1.0000e+000
0   0
1158  1188  1187  1206  1207     0     0     0     0     3     4 +1.0000e+000
0   0
1159  1189  1188  1207  1208     0     0     0     0     3     4 +1.0000e+000
0   0
1160  1187  1192  1211  1206     0     0     0     0     3     4 +1.0000e+000
0   0
1161  1191  1190  1209  1210     0     0     0     0     3     4 +1.0000e+000
0   0
1162  1192  1191  1210  1211     0     0     0     0     3     4 +1.0000e+000
0   0
1163  1193  1196  1214  1215     0     0     0     0     3     4 +1.0000e+000
0   0
1164  1195  1194  1212  1213     0     0     0     0     3     4 +1.0000e+000
0   0
1165  1196  1195  1213  1214     0     0     0     0     3     4 +1.0000e+000
0   0
1166  1194  1199  1218  1212     0     0     0     0     3     4 +1.0000e+000
0   0
1167  1198  1197  1216  1217     0     0     0     0     3     4 +1.0000e+000
0   0
1168  1199  1198  1217  1218     0     0     0     0     3     4 +1.0000e+000
0   0
1169  1197  1202  1220  1216     0     0     0     0     3     4 +1.0000e+000
0   0
1170  1202  1201  1219  1220     0     0     0     0     3     4 +1.0000e+000
0   0
1171  1200  1205  1223  1224     0     0     0     0     3     4 +1.0000e+000
0   0
1172  1201  1200  1224  1219     0     0     0     0     3     4 +1.0000e+000
0   0
1173  1204  1203  1221  1222     0     0     0     0     3     4 +1.0000e+000
0   0
1174  1205  1204  1222  1223     0     0     0     0     3     4 +1.0000e+000
0   0
1175  1203  1208  1227  1221     0     0     0     0     3     4 +1.0000e+000
0   0
1176  1207  1206  1225  1226     0     0     0     0     3     4 +1.0000e+000
0   0
1177  1208  1207  1226  1227     0     0     0     0     3     4 +1.0000e+000
0   0
1178  1206  1211  1230  1225     0     0     0     0     3     4 +1.0000e+000
0   0
```



```
1179  1210  1209  1228  1229     0     0     0     0     3     4 +1.0000e+000
0   0
1180  1211  1210  1229  1230     0     0     0     0     3     4 +1.0000e+000
0   0
1181  1215  1214  1231  1232     0     0     0     0     3     4 +1.0000e+000
0   0
1182  1212  1218  1234  1235     0     0     0     0     3     4 +1.0000e+000
0   0
1183  1213  1212  1235  1236     0     0     0     0     3     4 +1.0000e+000
0   0
1184  1214  1213  1236  1231     0     0     0     0     3     4 +1.0000e+000
0   0
1185  1218  1217  1233  1234     0     0     0     0     3     4 +1.0000e+000
0   0
1186  1216  1220  1238  1239     0     0     0     0     3     4 +1.0000e+000
0   0
1187  1217  1216  1239  1233     0     0     0     0     3     4 +1.0000e+000
0   0
1188  1220  1219  1237  1238     0     0     0     0     3     4 +1.0000e+000
0   0
1189  1219  1224  1243  1237     0     0     0     0     3     4 +1.0000e+000
0   0
1190  1222  1221  1240  1241     0     0     0     0     3     4 +1.0000e+000
0   0
1191  1223  1222  1241  1242     0     0     0     0     3     4 +1.0000e+000
0   0
1192  1224  1223  1242  1243     0     0     0     0     3     4 +1.0000e+000
0   0
1193  1221  1227  1246  1240     0     0     0     0     3     4 +1.0000e+000
0   0
1194  1226  1225  1244  1245     0     0     0     0     3     4 +1.0000e+000
0   0
1195  1227  1226  1245  1246     0     0     0     0     3     4 +1.0000e+000
0   0
1196  1225  1230  1249  1244     0     0     0     0     3     4 +1.0000e+000
0   0
1197  1229  1228  1247  1248     0     0     0     0     3     4 +1.0000e+000
0   0
1198  1230  1229  1248  1249     0     0     0     0     3     4 +1.0000e+000
0   0
1199  1231  1236  1252  1253     0     0     0     0     3     4 +1.0000e+000
0   0
1200  1232  1231  1253  1250     0     0     0     0     3     4 +1.0000e+000
0   0
1201  1236  1235  1251  1252     0     0     0     0     3     4 +1.0000e+000
0   0
1202  1233  1239  1255  1256     0     0     0     0     3     4 +1.0000e+000
0   0
1203  1234  1233  1256  1257     0     0     0     0     3     4 +1.0000e+
0   0
1204  1235  1234  1257  1251     0     0     0     0     3     4 +1.0000e+00
0   0
1205  1239  1238  1254  1255     0     0     0     0     3     4 +1.0000e+000
0   0
1206  1237  1243  1260  1261     0     0     0     0     3     4 +1.0000e+000
0   0
1207  1238  1237  1261  1254     0     0     0     0     3     4 +1.0000e+000
0   0
1208  1242  1241  1258  1259     0     0     0     0     3     4 +1.0000e+000
0   0
```

```
1209  1243  1242  1259  1260     0     0     0     0     3     4 +1.0000e+000
0   0
1210  1240  1246  1264  1265     0     0     0     0     3     4 +1.0000e+000
0   0
1211  1241  1240  1265  1258     0     0     0     0     3     4 +1.0000e+000
0   0
1212  1245  1244  1262  1263     0     0     0     0     3     4 +1.0000e+000
0   0
1213  1246  1245  1263  1264     0     0     0     0     3     4 +1.0000e+000
0   0
1214  1244  1249  1268  1262     0     0     0     0     3     4 +1.0000e+000
0   0
1215  1248  1247  1266  1267     0     0     0     0     3     4 +1.0000e+000
0   0
1216  1249  1248  1267  1268     0     0     0     0     3     4 +1.0000e+000
0   0
1217  1250  1253  1270  1271     0     0     0     0     3     4 +1.0000e+000
0   0
1218  1253  1252  1269  1270     0     0     0     0     3     4 +1.0000e+000
0   0
1219  1251  1257  1274  1275     0     0     0     0     3     4 +1.0000e+000
0   0
1220  1252  1251  1275  1269     0     0     0     0     3     4 +1.0000e+000
0   0
1221  1256  1255  1272  1273     0     0     0     0     3     4 +1.0000e+000
0   0
1222  1257  1256  1273  1274     0     0     0     0     3     4 +1.0000e+000
0   0
1223  1254  1261  1279  1280     0     0     0     0     3     4 +1.0000e+000
0   0
1224  1255  1254  1280  1272     0     0     0     0     3     4 +1.0000e+000
0   0
1225  1259  1258  1276  1277     0     0     0     0     3     4 +1.0000e+000
0   0
1226  1260  1259  1277  1278     0     0     0     0     3     4 +1.0000e+000
0   0
1227  1261  1260  1278  1279     0     0     0     0     3     4 +1.0000e+000
0   0
1228  1258  1265  1284  1276     0     0     0     0     3     4 +1.0000e+000
0   0
1229  1263  1262  1281  1282     0     0     0     0     3     4 +1.0000e+000
0   0
1230  1264  1263  1282  1283     0     0     0     0     3     4 +1.0000e+000
0   0
1231  1265  1264  1283  1284     0     0     0     0     3     4 +1.0000e+000
0   0
1232  1262  1268  1287  1281     0     0     0     0     3     4 +1.0000e+000
0   0
1233  1267  1266  1285  1286     0     0     0     0     3     4 +1.0000e+000
0   0
1234  1268  1267  1286  1287     0     0     0     0     3     4 +1.0000e+000
0   0
1235  1269  1275  1291  1292     0     0     0     0     3     4 +1.0000e+000
0   0
1236  1270  1269  1292  1293     0     0     0     0     3     4 +1.0000e+000
0   0
1237  1271  1270  1293  1288     0     0     0     0     3     4 +1.0000e+000
0   0
1238  1274  1273  1289  1290     0     0     0     0     3     4 +1.0000e+000
0   0
```



```
1239  1275  1274  1290  1291     0     0     0     0     3     4 +1.0000e+000
0   0
1240  1272  1280  1297  1298     0     0     0     0     3     4 +1.0000e+000
0   0
1241  1273  1272  1298  1289     0     0     0     0     3     4 +1.0000e+000
0   0
1242  1278  1277  1294  1295     0     0     0     0     3     4 +1.0000e+000
0   0
1243  1279  1278  1295  1296     0     0     0     0     3     4 +1.0000e+000
0   0
1244  1280  1279  1296  1297     0     0     0     0     3     4 +1.0000e+000
0   0
1245  1276  1284  1301  1302     0     0     0     0     3     4 +1.0000e+000
0   0
1246  1277  1276  1302  1294     0     0     0     0     3     4 +1.0000e+000
0   0
1247  1283  1282  1299  1300     0     0     0     0     3     4 +1.0000e+000
0   0
1248  1284  1283  1300  1301     0     0     0     0     3     4 +1.0000e+000
0   0
1249  1281  1287  1305  1306     0     0     0     0     3     4 +1.0000e+000
0   0
1250  1282  1281  1306  1299     0     0     0     0     3     4 +1.0000e+000
0   0
1251  1286  1285  1303  1304     0     0     0     0     3     4 +1.0000e+000
0   0
1252  1287  1286  1304  1305     0     0     0     0     3     4 +1.0000e+000
0   0
1253  1288  1293  1310  1311     0     0     0     0     3     4 +1.0000e+000
0   0
1254  1291  1290  1307  1308     0     0     0     0     3     4 +1.0000e+000
0   0
1255  1292  1291  1308  1309     0     0     0     0     3     4 +1.0000e+000
0   0
1256  1293  1292  1309  1310     0     0     0     0     3     4 +1.0000e+000
0   0
1257  1289  1298  1315  1316     0     0     0     0     3     4 +1.0000e+000
0   0
1258  1290  1289  1316  1307     0     0     0     0     3     4 +1.0000e+000
0   0
1259  1296  1295  1312  1313     0     0     0     0     3     4 +1.0000e+000
0   0
1260  1297  1296  1313  1314     0     0     0     0     3     4 +1.0000e+000
0   0
1261  1298  1297  1314  1315     0     0     0     0     3     4 +1.0000e+000
0   0
1262  1294  1302  1320  1321     0     0     0     0     3     4 +1.0000e+000
0   0
1263  1295  1294  1321  1312     0     0     0     0     3     4 +1.0000e+000
0   0
1264  1300  1299  1317  1318     0     0     0     0     3     4 +1.0000e+000
0   0
1265  1301  1300  1318  1319     0     0     0     0     3     4 +1.0000e+000
0   0
1266  1302  1301  1319  1320     0     0     0     0     3     4 +1.0000e+000
0   0
1267  1299  1306  1325  1317     0     0     0     0     3     4 +1.0000e+000
0   0
1268  1304  1303  1322  1323     0     0     0     0     3     4 +1.0000e+000
0   0
```



```
1269  1305  1304  1323  1324     0     0     0     0     3     4 +1.0000e+000
0   0
1270  1306  1305  1324  1325     0     0     0     0     3     4 +1.0000e+000
0   0
1271  1311  1310  1326  1327     0     0     0     0     3     4 +1.0000e+000
0   0
1272  1307  1316  1330  1331     0     0     0     0     3     4 +1.0000e+000
0   0
1273  1308  1307  1331  1332     0     0     0     0     3     4 +1.0000e+000
0   0
1274  1309  1308  1332  1333     0     0     0     0     3     4 +1.0000e+000
0   0
1275  1310  1309  1333  1326     0     0     0     0     3     4 +1.0000e+000
0   0
1276  1315  1314  1328  1329     0     0     0     0     3     4 +1.0000e+000
0   0
1277  1316  1315  1329  1330     0     0     0     0     3     4 +1.0000e+000
0   0
1278  1312  1321  1339  1340     0     0     0     0     3     4 +1.0000e+000
0   0
1279  1313  1312  1340  1341     0     0     0     0     3     4 +1.0000e+000
0   0
1280  1314  1313  1341  1328     0     0     0     0     3     4 +1.0000e+000
0   0
1281  1317  1325  1334  1335     0     0     0     0     3     4 +1.0000e+000
0   0
1282  1318  1317  1335  1336     0     0     0     0     3     4 +1.0000e+000
0   0
1283  1319  1318  1336  1337     0     0     0     0     3     4 +1.0000e+000
0   0
1284  1320  1319  1337  1338     0     0     0     0     3     4 +1.0000e+000
0   0
1285  1321  1320  1338  1339     0     0     0     0     3     4 +1.0000e+000
0   0
1286  1323  1322  1342  1343     0     0     0     0     3     4 +1.0000e+000
0   0
1287  1324  1323  1343  1344     0     0     0     0     3     4 +1.0000e+000
0   0
1288  1325  1324  1344  1334     0     0     0     0     3     4 +1.0000e+000
0   0
POLE            0
FLUX            1
    1     7
    1 +1.5385e+002 +2.1807e+002 +1.7455e+002 +2.0620e+002
    1 +1.7455e+002 +2.0620e+002 +1.8308e+002 +2.0196e+002
    1 +1.8308e+002 +2.0196e+002 +1.9158e+002 +1.9645e+002
    1 +1.9158e+002 +1.9645e+002 +2.0243e+002 +1.9071e+002
    1 +2.0243e+002 +1.9071e+002 +2.0490e+002 +1.8966e+002
    1 +2.0490e+002 +1.8966e+002 +2.2018e+002 +1.8126e+002
    1 +2.2018e+002 +1.8126e+002 +3.2488e+002 +1.8116e+002
DENSITY
+1.0000e+000 +1.0000e+000
WATERTABLE      1
    1     1 +1.0000e+000
    1 +1.5871e+002 +2.1649e+002 +2.9980e+002 +2.1649e+002
qBOUNDARY       0
MATLCOLOR       4
    1     0   255   255
    2   255   255     0
    3   128   255   128
```



```
    4   255     0     0
```

SEEP/W Input and Output Files

Transition Section

```
FILEINFO
SEEPH 4.22
TITLE



8/19/2004
4:20:35 PM
ANALYSIS
     1      1 +6.2400e+001     1     0
CONVERGE
   200 +1.0000e-004 +1.0000e+000 +1.1000e+000 +1.0000e-004
TIME          10 +0.0000e+000 +1.0000e+000 +0.0000e+000 +1.5000e+000    10
1     1
     1 +1.0000e-002 +1.0000e-002     1
     2 +5.0000e-002 +6.0000e-002     1
     3 +2.2500e+000 +2.3100e+000     1
     4 +3.3750e+000 +5.6850e+000     1
     5 +5.8625e+000 +1.0748e+001     1
     6 +7.5938e+000 +1.8341e+001     1
     7 +1.1391e+001 +2.9732e+001     1
     8 +1.7086e+001 +4.6818e+001     1
     9 +2.5629e+001 +7.2447e+001     1
    10 +3.8443e+001 +1.1089e+002     1
MATERIAL       4
     1     5     1 +1.0000e-001 +0.0000e+000
     2     5     2 +1.0000e-001 +0.0000e+000
     3     4     3 +1.0000e-001 +0.0000e+000
     4     7     0 +1.0000e+000 +0.0000e+000
KFUNCTION      7
     1     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-1 cm/sec
-1.0000e+000 +2.8341e+000
+0.0000e+000 +2.8341e+002
+1.0000e+001 +2.8341e+002
     2     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-2
-1.0000e+000 +2.8340e-002
+0.0000e+000 +2.8340e+001
+1.0000e+001 +2.8340e+001
     4     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-4
-1.0000e+000 +2.8339e-003
+0.0000e+000 +2.8339e-001
+1.0000e+001 +2.8339e-001
     5     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-5cm/sec
-1.0000e+000 +2.8340e-004
+0.0000e+000 +2.8340e-002
+1.0000e+001 +2.8340e-002
     6     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-6
-1.0000e+000 +2.8340e-005
+0.0000e+000 +2.8341e-003
+1.0000e+001 +2.8341e-003
     7     3 +0.0000e+000 +1.5300e+000    13 -2.0000e+003 +4.0000e+002     0
1e-7cm/sec
-1.0000e+000 +2.8340e-006
+0.0000e+000 +2.8340e-004
```



```
+1.0000e+001 +2.8340e-004
SFUNCTION      3
     1     4 +0.0000e+000 +1.5300e+000
Fissure
-2.0000e+000 +1.0000e-001
-1.0000e+000 +1.0000e-001
+0.0000e+000 +1.0000e-001
+1.0000e+001 +1.0000e-001
     2     2 +0.0000e+000 +1.5300e+000

+0.0000e+000 +1.0000e-003
+1.0000e+001 +1.0000e-003
     3     2 +0.0000e+000 +1.5300e+000
Common Fill
+0.0000e+000 +3.0000e-001
+1.0000e+001 +3.0000e-001
BFUNCTION      0
MFUNCTION      0
NODE        1515
     1 -9.1576e+001 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
     2 -9.1576e+001 +1.1610e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     3 -9.1576e+001 +1.2050e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     4 -9.1576e+001 +1.2491e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     5 -9.1576e+001 +1.2931e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     6 -9.1576e+001 +1.3371e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     7 -9.1576e+001 +1.3811e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     8 -9.1576e+001 +1.4251e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
     9 -9.1576e+001 +1.4691e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    10 -9.1576e+001 +1.5132e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    11 -9.1576e+001 +1.5572e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    12 -9.1576e+001 +1.6012e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    13 -9.1576e+001 +1.6452e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    14 -9.1576e+001 +1.6893e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    15 -9.1576e+001 +1.7333e+002 +0.0000e+000 +0.0000e+000 200200 +0.0000e+000
    16 -9.1576e+001 +1.7773e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    17 -9.1576e+001 +1.8213e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    18 -9.1576e+001 +1.8653e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    19 -9.1576e+001 +1.9093e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    20 -8.3945e+001 +1.8654e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    21 -8.3945e+001 +1.9094e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    22 -8.3944e+001 +1.7333e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    23 -8.3944e+001 +1.7773e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    24 -8.3944e+001 +1.8213e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    25 -8.3943e+001 +1.6013e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    26 -8.3943e+001 +1.6453e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    27 -8.3943e+001 +1.6893e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    28 -8.3942e+001 +1.4692e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    29 -8.3942e+001 +1.5132e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    30 -8.3942e+001 +1.5572e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    31 -8.3941e+001 +1.3371e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    32 -8.3941e+001 +1.3811e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    33 -8.3941e+001 +1.4252e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    34 -8.3940e+001 +1.2051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    35 -8.3940e+001 +1.2491e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    36 -8.3940e+001 +1.2931e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    37 -8.3939e+001 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    38 -8.3939e+001 +1.1610e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    39 -7.6313e+001 +1.8654e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
    42 -7.6312e+001 +1.8214e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    43 -7.6311e+001 +1.7334e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    44 -7.6310e+001 +1.6453e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    45 -7.6310e+001 +1.6893e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    46 -7.6309e+001 +1.6013e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    47 -7.6308e+001 +1.5132e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    48 -7.6308e+001 +1.5573e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    49 -7.6307e+001 +1.4692e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    50 -7.6306e+001 +1.4252e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    51 -7.6305e+001 +1.3371e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    52 -7.6305e+001 +1.3812e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    53 -7.6304e+001 +1.2931e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    54 -7.6303e+001 +1.2051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    55 -7.6303e+001 +1.2491e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    56 -7.6302e+001 +1.1610e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    57 -7.6301e+001 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    58 -6.8682e+001 +1.9895e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    59 -6.8681e+001 +1.8655e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    60 -6.8680e+001 +1.8215e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    61 -6.8679e+001 +1.7774e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    62 -6.8678e+001 +1.7334e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    63 -6.8677e+001 +1.6894e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    64 -6.8676e+001 +1.6453e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    65 -6.8675e+001 +1.6013e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    66 -6.8674e+001 +1.5573e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    67 -6.8673e+001 +1.5133e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    68 -6.8672e+001 +1.4692e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    69 -6.8671e+001 +1.4252e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    70 -6.8670e+001 +1.3812e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    71 -6.8669e+001 +1.3371e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    72 -6.8668e+001 +1.2931e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    73 -6.8667e+001 +1.2491e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    74 -6.8666e+001 +1.2051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    75 -6.8665e+001 +1.1610e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    76 -6.8664e+001 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    77 -6.1051e+001 +1.9896e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    78 -6.1049e+001 +1.8655e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    79 -6.1048e+001 +1.8215e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    80 -6.1047e+001 +1.7775e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    81 -6.1046e+001 +1.7334e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    82 -6.1044e+001 +1.6894e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    83 -6.1043e+001 +1.6454e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    84 -6.1042e+001 +1.6013e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    85 -6.1040e+001 +1.5573e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    86 -6.1039e+001 +1.5133e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    87 -6.1037e+001 +1.4693e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    88 -6.1036e+001 +1.4252e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    89 -6.1035e+001 +1.3812e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    90 -6.1034e+001 +1.3372e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    91 -6.1032e+001 +1.2931e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    92 -6.1031e+001 +1.2491e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    93 -6.1029e+001 +1.2051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    94 -6.1028e+001 +1.1610e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    95 -6.1027e+001 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    96 -5.3419e+001 +1.9896e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    97 -5.3418e+001 +1.8656e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    98 -5.3416e+001 +1.8215e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
    99 -5.3415e+001 +1.7775e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   100 -5.3413e+001 +1.7335e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   101 -5.3411e+001 +1.6895e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
   102 -5.3410e+001 +1.6454e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   103 -5.3408e+001 +1.6014e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   104 -5.3406e+001 +1.5573e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   105 -5.3404e+001 +1.5133e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   106 -5.3403e+001 +1.4693e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   107 -5.3401e+001 +1.4252e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   108 -5.3400e+001 +1.3812e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   109 -5.3398e+001 +1.3372e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   110 -5.3396e+001 +1.2931e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   111 -5.3395e+001 +1.2491e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   112 -5.3393e+001 +1.2051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   113 -5.3391e+001 +1.1611e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   114 -5.3389e+001 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   115 -4.5788e+001 +1.9897e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   116 -4.5786e+001 +1.8656e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   117 -4.5784e+001 +1.8216e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   118 -4.5782e+001 +1.7776e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   119 -4.5780e+001 +1.7335e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   120 -4.5778e+001 +1.6895e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   121 -4.5776e+001 +1.6454e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   122 -4.5774e+001 +1.6014e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   123 -4.5772e+001 +1.5574e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   124 -4.5770e+001 +1.5133e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   125 -4.5768e+001 +1.4693e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   126 -4.5766e+001 +1.4253e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   127 -4.5764e+001 +1.3812e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   128 -4.5762e+001 +1.3372e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   129 -4.5760e+001 +1.2932e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   130 -4.5758e+001 +1.2491e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   131 -4.5756e+001 +1.2051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   132 -4.5754e+001 +1.1611e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   133 -4.5752e+001 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   134 -3.8157e+001 +1.9897e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   135 -3.8154e+001 +1.8657e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   136 -3.8152e+001 +1.8216e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   137 -3.8150e+001 +1.7776e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   138 -3.8147e+001 +1.7336e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   139 -3.8145e+001 +1.6895e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   140 -3.8143e+001 +1.6455e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   141 -3.8140e+001 +1.6015e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   142 -3.8138e+001 +1.5574e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   143 -3.8136e+001 +1.5134e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   144 -3.8133e+001 +1.4693e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   145 -3.8131e+001 +1.4253e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   146 -3.8129e+001 +1.3813e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   147 -3.8126e+001 +1.3372e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   148 -3.8124e+001 +1.2932e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   149 -3.8122e+001 +1.2491e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   150 -3.8119e+001 +1.2051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   151 -3.8117e+001 +1.1611e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   152 -3.8115e+001 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   153 -3.0525e+001 +1.9898e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   154 -3.0523e+001 +1.8657e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   155 -3.0520e+001 +1.8217e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   156 -3.0517e+001 +1.7776e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   157 -3.0515e+001 +1.7336e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   158 -3.0512e+001 +1.6896e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
   159 -3.0509e+001 +1.6455e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```

41 -7.6312e+001 +1.7774e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000

161 -3.0504e+001 +1.5574e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000

162	-3.0501e+001	+1.5134e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
163	-3.0499e+001	+1.4693e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
164	-3.0496e+001	+1.4253e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
165	-3.0493e+001	+1.3813e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
166	-3.0491e+001	+1.3372e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
167	-3.0488e+001	+1.2932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
168	-3.0485e+001	+1.2491e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
169	-3.0483e+001	+1.2051e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
170	-3.0480e+001	+1.1611e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
171	-3.0477e+001	+1.1170e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
172	-2.2894e+001	+1.9098e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
173	-2.2891e+001	+1.8658e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
174	-2.2888e+001	+1.8217e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
175	-2.2885e+001	+1.7777e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
176	-2.2882e+001	+1.7337e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
177	-2.2879e+001	+1.6896e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
178	-2.2876e+001	+1.6456e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
179	-2.2873e+001	+1.6015e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
180	-2.2870e+001	+1.5575e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
181	-2.2867e+001	+1.5134e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
182	-2.2864e+001	+1.4694e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
183	-2.2861e+001	+1.4253e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
184	-2.2858e+001	+1.3813e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
185	-2.2855e+001	+1.3372e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
186	-2.2852e+001	+1.2932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
187	-2.2849e+001	+1.2492e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
188	-2.2846e+001	+1.2051e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
189	-2.2843e+001	+1.1611e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
190	-2.2840e+001	+1.1170e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
191	-1.5263e+001	+1.9099e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
192	-1.5259e+001	+1.8658e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
193	-1.5256e+001	+1.8218e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
194	-1.5253e+001	+1.7777e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
195	-1.5249e+001	+1.7337e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
196	-1.5246e+001	+1.6896e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
197	-1.5243e+001	+1.6456e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
198	-1.5239e+001	+1.6015e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
199	-1.5236e+001	+1.5575e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
200	-1.5233e+001	+1.5135e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
201	-1.5229e+001	+1.4694e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
202	-1.5226e+001	+1.4254e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
203	-1.5223e+001	+1.3813e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
204	-1.5219e+001	+1.3373e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
205	-1.5216e+001	+1.2932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
206	-1.5213e+001	+1.2492e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
207	-1.5209e+001	+1.2051e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
208	-1.5206e+001	+1.1611e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
209	-1.5203e+001	+1.1170e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
210	-7.6314e+000	+1.9099e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
211	-7.6277e+000	+1.8659e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
212	-7.6240e+000	+1.8218e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
213	-7.6204e+000	+1.7778e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
214	-7.6167e+000	+1.7337e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
215	-7.6130e+000	+1.6897e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
216	-7.6094e+000	+1.6456e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
217	-7.6057e+000	+1.6016e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
218	-7.6020e+000	+1.5575e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
219	-7.5984e+000	+1.5135e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
220	-7.5947e+000	+1.4694e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
221	-7.5911e+000	+1.4254e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

222	-7.5874e+000	+1.3813e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
223	-7.5837e+000	+1.3373e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
224	-7.5800e+000	+1.2932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
225	-7.5764e+000	+1.2492e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
226	-7.5727e+000	+1.2051e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
227	-7.5691e+000	+1.1611e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
228	-7.5654e+000	+1.1170e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
229	+0.0000e+000	+1.9100e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
230	+3.9974e-003	+1.8659e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
231	+7.9949e-003	+1.8219e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
232	+1.1992e-002	+1.7778e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
233	+1.5990e-002	+1.7338e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
234	+1.9987e-002	+1.6897e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
235	+2.3985e-002	+1.6457e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
236	+2.7982e-002	+1.6016e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
237	+3.1980e-002	+1.5576e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
238	+3.5977e-002	+1.5135e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
239	+3.9974e-002	+1.4695e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
240	+4.3972e-002	+1.4254e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
241	+4.7969e-002	+1.3813e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
242	+5.1967e-002	+1.3373e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
243	+5.5964e-002	+1.2932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
244	+5.9962e-002	+1.2492e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
245	+6.3959e-002	+1.2051e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
246	+6.7956e-002	+1.1611e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
247	+7.1954e-002	+1.1170e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
248	+7.8750e+000	+1.9138e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
249	+7.8773e+000	+1.8695e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
250	+7.8797e+000	+1.8252e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
251	+7.8820e+000	+1.7810e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
252	+7.8844e+000	+1.7367e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
253	+7.8867e+000	+1.6924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
254	+7.8890e+000	+1.6482e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
255	+7.8914e+000	+1.6039e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
256	+7.8937e+000	+1.5596e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
257	+7.8961e+000	+1.5153e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
258	+7.8984e+000	+1.4711e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
259	+7.9007e+000	+1.4268e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
260	+7.9031e+000	+1.3826e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
261	+7.9054e+000	+1.3383e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
262	+7.9078e+000	+1.2940e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
263	+7.9101e+000	+1.2497e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
264	+7.9124e+000	+1.2055e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
265	+7.9148e+000	+1.1612e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
266	+7.9171e+000	+1.1169e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
267	+1.5750e+001	+1.9175e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
268	+1.5751e+001	+1.8285e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
269	+1.5751e+001	+1.8730e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
270	+1.5752e+001	+1.7841e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
271	+1.5753e+001	+1.6951e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
272	+1.5753e+001	+1.7396e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
273	+1.5754e+001	+1.6506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
274	+1.5755e+001	+1.5617e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
275	+1.5755e+001	+1.6061e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
276	+1.5756e+001	+1.5172e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
277	+1.5757e+001	+1.4282e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
278	+1.5757e+001	+1.4727e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
279	+1.5758e+001	+1.3838e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
280	+1.5759e+001	+1.3393e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
281	+1.5760e+001	+1.2503e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

282	+1.5760e+001	+1.2948e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
283	+1.5761e+001	+1.2058e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
284	+1.5762e+001	+1.1169e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
285	+1.5762e+001	+1.1614e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
286	+2.3687e+001	+1.1168e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
287	+2.3688e+001	+1.1615e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
288	+2.3689e+001	+1.2062e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
289	+2.3610e+001	+1.2509e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
290	+2.3611e+001	+1.2956e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
291	+2.3612e+001	+1.3403e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
292	+2.3613e+001	+1.3850e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
293	+2.3614e+001	+1.4296e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
294	+2.3615e+001	+1.4743e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
295	+2.3616e+001	+1.5190e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
296	+2.3617e+001	+1.5637e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
297	+2.3618e+001	+1.6084e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
298	+2.3619e+001	+1.6531e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
299	+2.3620e+001	+1.6978e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
300	+2.3621e+001	+1.7425e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
301	+2.3622e+001	+1.7872e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
302	+2.3623e+001	+1.8319e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
303	+2.3624e+001	+1.8766e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
304	+2.3625e+001	+1.9213e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
305	+3.1453e+001	+1.1168e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
306	+3.1455e+001	+1.1617e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
307	+3.1458e+001	+1.2066e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
308	+3.1461e+001	+1.2515e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
309	+3.1463e+001	+1.2964e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
310	+3.1466e+001	+1.3413e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
311	+3.1468e+001	+1.3862e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
312	+3.1471e+001	+1.4311e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
313	+3.1474e+001	+1.4760e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
314	+3.1476e+001	+1.5209e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
315	+3.1479e+001	+1.5658e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
316	+3.1482e+001	+1.6107e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
317	+3.1484e+001	+1.6556e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
318	+3.1487e+001	+1.7005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
319	+3.1490e+001	+1.7454e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
320	+3.1492e+001	+1.7903e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
321	+3.1495e+001	+1.8352e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
322	+3.1497e+001	+1.8801e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
323	+3.1500e+001	+1.9250e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
324	+3.9298e+001	+1.1167e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
325	+3.9302e+001	+1.1618e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
326	+3.9306e+001	+1.2069e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
327	+3.9311e+001	+1.2520e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
328	+3.9315e+001	+1.2972e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
329	+3.9319e+001	+1.3423e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
330	+3.9324e+001	+1.3874e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
331	+3.9328e+001	+1.4325e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
332	+3.9332e+001	+1.4776e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
333	+3.9336e+001	+1.5227e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
334	+3.9341e+001	+1.5678e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
335	+3.9345e+001	+1.6129e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
336	+3.9349e+001	+1.6581e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
337	+3.9354e+001	+1.7032e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
338	+3.9358e+001	+1.7483e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
339	+3.9362e+001	+1.7934e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
340	+3.9366e+001	+1.8385e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
341	+3.9371e+001	+1.8836e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

342	+3.9375e+001	+1.9288e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
343	+4.7143e+001	+1.1166e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
344	+4.7149e+001	+1.1620e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
345	+4.7155e+001	+1.2073e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
346	+4.7161e+001	+1.2526e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
347	+4.7167e+001	+1.2979e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
348	+4.7173e+001	+1.3433e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
349	+4.7179e+001	+1.3886e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
350	+4.7185e+001	+1.4339e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
351	+4.7190e+001	+1.4792e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
352	+4.7196e+001	+1.5246e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
353	+4.7202e+001	+1.5699e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
354	+4.7208e+001	+1.6152e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
355	+4.7214e+001	+1.6605e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
356	+4.7220e+001	+1.7059e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
357	+4.7226e+001	+1.7512e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
358	+4.7232e+001	+1.7965e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
359	+4.7238e+001	+1.8418e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
360	+4.7244e+001	+1.8872e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
361	+4.7250e+001	+1.9325e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
362	+5.4988e+001	+1.1166e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
363	+5.4996e+001	+1.1621e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
364	+5.5003e+001	+1.2076e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
365	+5.5011e+001	+1.2532e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
366	+5.5019e+001	+1.2987e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
367	+5.5026e+001	+1.3443e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
368	+5.5034e+001	+1.3898e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
369	+5.5041e+001	+1.4353e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
370	+5.5049e+001	+1.4809e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
371	+5.5057e+001	+1.5264e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
372	+5.5064e+001	+1.5720e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
373	+5.5072e+001	+1.6175e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
374	+5.5079e+001	+1.6630e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
375	+5.5087e+001	+1.7086e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
376	+5.5095e+001	+1.7541e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
377	+5.5102e+001	+1.7996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
378	+5.5110e+001	+1.8452e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
379	+5.5117e+001	+1.8907e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
380	+5.5125e+001	+1.9363e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
381	+6.2833e+001	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
382	+6.2842e+001	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
383	+6.2852e+001	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
384	+6.2861e+001	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
385	+6.2870e+001	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
386	+6.2880e+001	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
387	+6.2889e+001	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
388	+6.2898e+001	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
389	+6.2907e+001	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
390	+6.2917e+001	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
391	+6.2926e+001	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
392	+6.2935e+001	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
393	+6.2944e+001	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
394	+6.2954e+001	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
395	+6.2963e+001	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
396	+6.2972e+001	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
397	+6.2981e+001	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
398	+6.2991e+001	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
399	+6.3000e+001	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
400	+6.6482e+001	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
401	+6.9964e+001	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

402	+7.0883e+001	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
403	+7.0892e+001	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
404	+7.0900e+001	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
405	+7.0909e+001	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
406	+7.0917e+001	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
407	+7.0926e+001	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
408	+7.0934e+001	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
409	+7.0942e+001	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
410	+7.0951e+001	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
411	+7.0960e+001	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
412	+7.0968e+001	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
413	+7.0976e+001	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
414	+7.0985e+001	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
415	+7.0993e+001	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
416	+7.1002e+001	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
417	+7.1010e+001	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
418	+7.1019e+001	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
419	+7.1027e+001	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
420	+7.1036e+001	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
421	+7.3446e+001	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
422	+7.4020e+001	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
423	+7.6929e+001	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
424	+7.7005e+001	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
425	+7.8933e+001	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
426	+7.8941e+001	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
427	+7.8949e+001	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
428	+7.8956e+001	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
429	+7.8964e+001	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
430	+7.8972e+001	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
431	+7.8979e+001	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
432	+7.8987e+001	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
433	+7.8995e+001	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
434	+7.9002e+001	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
435	+7.9010e+001	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
436	+7.9018e+001	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
437	+7.9025e+001	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
438	+7.9033e+001	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
439	+7.9041e+001	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
440	+7.9048e+001	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
441	+7.9056e+001	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
442	+7.9064e+001	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
443	+7.9071e+001	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
444	+7.9998e+001	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
445	+8.0411e+001	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
446	+8.1559e+001	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
447	+8.2374e+001	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
448	+8.3893e+001	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
449	+8.4046e+001	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
450	+8.5959e+001	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
451	+8.6533e+001	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
452	+8.6983e+001	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
453	+8.6990e+001	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
454	+8.6997e+001	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
455	+8.7004e+001	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
456	+8.7011e+001	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
457	+8.7018e+001	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
458	+8.7024e+001	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
459	+8.7031e+001	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
460	+8.7038e+001	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
461	+8.7045e+001	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

462	+8.7052e+001	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
463	+8.7059e+001	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
464	+8.7066e+001	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
465	+8.7073e+001	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
466	+8.7080e+001	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
467	+8.7087e+001	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
468	+8.7093e+001	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
469	+8.7100e+001	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
470	+8.7107e+001	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
471	+8.7375e+001	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
472	+8.8944e+001	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
473	+8.9821e+001	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
474	+8.9837e+001	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
475	+9.0857e+001	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
476	+9.1087e+001	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
477	+9.1508e+001	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
478	+9.1928e+001	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
479	+9.3076e+001	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
480	+9.3995e+001	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
481	+9.4339e+001	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
482	+9.4913e+001	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
483	+9.5033e+001	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
484	+9.5039e+001	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
485	+9.5045e+001	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
486	+9.5051e+001	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
487	+9.5058e+001	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
488	+9.5064e+001	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
489	+9.5066e+001	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
490	+9.5070e+001	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
491	+9.5076e+001	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
492	+9.5082e+001	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
493	+9.5088e+001	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
494	+9.5094e+001	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
495	+9.5100e+001	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
496	+9.5106e+001	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
497	+9.5112e+001	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
498	+9.5118e+001	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
499	+9.5125e+001	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
500	+9.5131e+001	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
501	+9.5137e+001	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
502	+9.5143e+001	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
503	+9.6482e+001	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
504	+9.6635e+001	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
505	+9.7056e+001	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
506	+9.7821e+001	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
507	+9.7898e+001	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
508	+9.8128e+001	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
509	+9.8969e+001	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
510	+9.9046e+001	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
511	+9.9620e+001	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
512	+1.0088e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
513	+1.0184e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
514	+1.0111e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
515	+1.0130e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
516	+1.0146e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
517	+1.0261e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
518	+1.0303e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
519	+1.0308e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
520	+1.0309e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
521	+1.0309e+002	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

522	+1.0310e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
523	+1.0311e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
524	+1.0311e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
525	+1.0311e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
526	+1.0312e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
527	+1.0313e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
528	+1.0313e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
529	+1.0314e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
530	+1.0314e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
531	+1.0315e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
532	+1.0315e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
533	+1.0316e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
534	+1.0316e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
535	+1.0317e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
536	+1.0317e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
537	+1.0318e+002	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
538	+1.0387e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
539	+1.0394e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
540	+1.0410e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
541	+1.0417e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
542	+1.0479e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
543	+1.0501e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
544	+1.0517e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
545	+1.0559e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
546	+1.0616e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
547	+1.0643e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
548	+1.0685e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
549	+1.0700e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
550	+1.0708e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
551	+1.0716e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
552	+1.0815e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
553	+1.0827e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
554	+1.0857e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
555	+1.0892e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
556	+1.0900e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
557	+1.0915e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
558	+1.0984e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
559	+1.1007e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
560	+1.1014e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
561	+1.1098e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
562	+1.1113e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
563	+1.1114e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
564	+1.1114e+002	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
565	+1.1114e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
566	+1.1115e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
567	+1.1115e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
568	+1.1116e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
569	+1.1116e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
570	+1.1117e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
571	+1.1117e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
572	+1.1117e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
573	+1.1118e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
574	+1.1118e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
575	+1.1119e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
576	+1.1119e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
577	+1.1120e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
578	+1.1120e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
579	+1.1121e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
580	+1.1121e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
581	+1.1121e+002	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

582	+1.1141e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
583	+1.1156e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
584	+1.1171e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
585	+1.1175e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
586	+1.1213e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
587	+1.1221e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
588	+1.1271e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
589	+1.1282e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
590	+1.1297e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
591	+1.1385e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
592	+1.1313e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
593	+1.1320e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
594	+1.1370e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
595	+1.1385e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
596	+1.1412e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
597	+1.1420e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
598	+1.1454e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
599	+1.1470e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
600	+1.1496e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
601	+1.1512e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
602	+1.1519e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
603	+1.1569e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
604	+1.1604e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
605	+1.1611e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
606	+1.1619e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
607	+1.1663e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
608	+1.1711e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
609	+1.1718e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
610	+1.1768e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
611	+1.1810e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
612	+1.1918e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
613	+1.1919e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
614	+1.1919e+002	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
615	+1.1919e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
616	+1.1920e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
617	+1.1920e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
618	+1.1921e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
619	+1.1921e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
620	+1.1921e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
621	+1.1922e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
622	+1.1922e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
623	+1.1922e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
624	+1.1923e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
625	+1.1923e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
626	+1.1924e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
627	+1.1924e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
628	+1.1924e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
629	+1.1925e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
630	+1.1925e+002	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
631	+1.1925e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
632	+1.1925e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
633	+1.1925e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
634	+1.1925e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
635	+1.1925e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
636	+1.1925e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
637	+1.1925e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
638	+1.1925e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
639	+1.1925e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
640	+1.1925e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
641	+1.1925e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

642	+1.1925e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
643	+1.1925e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
644	+1.1925e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
645	+1.2032e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
646	+1.2082e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
647	+1.2132e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
648	+1.2139e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
649	+1.2181e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
650	+1.2231e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
651	+1.2239e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
652	+1.2246e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
653	+1.2281e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
654	+1.2331e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
655	+1.2338e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
656	+1.2354e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
657	+1.2388e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
658	+1.2396e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
659	+1.2438e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
660	+1.2438e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
661	+1.2461e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
662	+1.2488e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
663	+1.2538e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
664	+1.2537e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
665	+1.2545e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
666	+1.2553e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
667	+1.2568e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
668	+1.2579e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
669	+1.2629e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
670	+1.2637e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
671	+1.2675e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
672	+1.2679e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
673	+1.2694e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
674	+1.2709e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
675	+1.2723e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
676	+1.2724e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
677	+1.2724e+002	+1.2088e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
678	+1.2724e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
679	+1.2725e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
680	+1.2725e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
681	+1.2725e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
682	+1.2725e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
683	+1.2726e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
684	+1.2726e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
685	+1.2726e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
686	+1.2727e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
687	+1.2727e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
688	+1.2727e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
689	+1.2727e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
690	+1.2728e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
691	+1.2728e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
692	+1.2728e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
693	+1.2729e+002	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
694	+1.2736e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
695	+1.2751e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
696	+1.2836e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
697	+1.2843e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
698	+1.2866e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
699	+1.2935e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
700	+1.2951e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
701	+1.2958e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

702	+1.2993e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
703	+1.2996e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
704	+1.3023e+002	+2.1211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
705	+1.3035e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
706	+1.3134e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
707	+1.3142e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
708	+1.3149e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
709	+1.3165e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
710	+1.3207e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
711	+1.3234e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
712	+1.3291e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
713	+1.3318e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
714	+1.3333e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
715	+1.3346e+002	+2.1210e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
716	+1.3349e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
717	+1.3371e+002	+2.1071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
718	+1.3433e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
719	+1.3440e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
720	+1.3456e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
721	+1.3463e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
722	+1.3528e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
723	+1.3529e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
724	+1.3529e+002	+1.2088e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
725	+1.3529e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
726	+1.3529e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
727	+1.3529e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
728	+1.3530e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
729	+1.3530e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
730	+1.3530e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
731	+1.3530e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
732	+1.3530e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
733	+1.3531e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
734	+1.3531e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
735	+1.3531e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
736	+1.3531e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
737	+1.3532e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
738	+1.3532e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
739	+1.3532e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
740	+1.3532e+002	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
741	+1.3548e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
742	+1.3598e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
743	+1.3639e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
744	+1.3670e+002	+2.1209e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
745	+1.3696e+002	+2.1070e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
746	+1.3704e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
747	+1.3728e+002	+2.0932e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
748	+1.3739e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
749	+1.3746e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
750	+1.3762e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
751	+1.3888e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
752	+1.3945e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
753	+1.3953e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
754	+1.3961e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
755	+1.3993e+002	+2.1209e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
756	+1.4021e+002	+2.1069e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
757	+1.4037e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
758	+1.4046e+002	+2.0930e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
759	+1.4060e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
760	+1.4068e+002	+2.0793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
761	+1.4144e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

762	+1.4187e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
763	+1.4202e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
764	+1.4282e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
765	+1.4316e+002	+2.1208e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
766	+1.4333e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
767	+1.4333e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
768	+1.4334e+002	+1.2088e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
769	+1.4334e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
770	+1.4334e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
771	+1.4334e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
772	+1.4334e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
773	+1.4334e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
774	+1.4334e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
775	+1.4335e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
776	+1.4335e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
777	+1.4335e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
778	+1.4335e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
779	+1.4335e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
780	+1.4335e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
781	+1.4335e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
782	+1.4335e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
783	+1.4336e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
784	+1.4336e+002	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
785	+1.4343e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
786	+1.4346e+002	+2.1067e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
787	+1.4359e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
788	+1.4373e+002	+2.0928e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
789	+1.4396e+002	+2.0790e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
790	+1.4416e+002	+2.0654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
791	+1.4451e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
792	+1.4542e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
793	+1.4604e+002	+2.1350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
794	+1.4639e+002	+2.1207e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
795	+1.4657e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
796	+1.4671e+002	+2.1066e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
797	+1.4699e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
798	+1.4700e+002	+2.0926e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
799	+1.4725e+002	+2.0787e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
800	+1.4741e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
801	+1.4746e+002	+2.0650e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
802	+1.4764e+002	+2.0514e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
803	+1.4925e+002	+2.1350e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
804	+1.4940e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
805	+1.4948e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
806	+1.4956e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
807	+1.4963e+002	+2.1206e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
808	+1.4996e+002	+2.1064e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
809	+1.5027e+002	+2.0924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
810	+1.5054e+002	+2.0784e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
811	+1.5077e+002	+2.0646e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
812	+1.5096e+002	+2.0510e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
813	+1.5113e+002	+2.0375e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
814	+1.5138e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
815	+1.5138e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
816	+1.5138e+002	+1.2088e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
817	+1.5138e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
818	+1.5138e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
819	+1.5139e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
820	+1.5139e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
821	+1.5139e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

822	+1.5139e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
823	+1.5139e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
824	+1.5139e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
825	+1.5139e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
826	+1.5139e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
827	+1.5139e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
828	+1.5139e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
829	+1.5139e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
830	+1.5139e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
831	+1.5139e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
832	+1.5139e+002	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
833	+1.5197e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
834	+1.5254e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
835	+1.5286e+002	+2.1206e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
836	+1.5321e+002	+2.1063e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
837	+1.5354e+002	+2.0921e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
838	+1.5382e+002	+2.0781e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
839	+1.5407e+002	+2.0643e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
840	+1.5429e+002	+2.0506e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
841	+1.5445e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
842	+1.5446e+002	+2.0370e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
843	+1.5461e+002	+2.0236e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
844	+1.5553e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
845	+1.5646e+002	+2.1061e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
846	+1.5688e+002	+2.0919e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
847	+1.5694e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
848	+1.5711e+002	+2.0779e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
849	+1.5738e+002	+2.0639e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
850	+1.5761e+002	+2.0501e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
851	+1.5780e+002	+2.0365e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
852	+1.5796e+002	+2.0230e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
853	+1.5809e+002	+2.0096e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
854	+1.5851e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
855	+1.5943e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
856	+1.5943e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
857	+1.5943e+002	+1.2088e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
858	+1.5943e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
859	+1.5943e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
860	+1.5943e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
861	+1.5943e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
862	+1.5943e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
863	+1.5943e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
864	+1.5943e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
865	+1.5943e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
866	+1.5943e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
867	+1.5943e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
868	+1.5943e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
869	+1.5943e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
870	+1.5943e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
871	+1.5943e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
872	+1.5943e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
873	+1.5943e+002	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
874	+1.6007e+002	+2.0917e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
875	+1.6039e+002	+2.0776e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
876	+1.6068e+002	+2.0636e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
877	+1.6093e+002	+2.0497e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
878	+1.6114e+002	+2.0360e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
879	+1.6132e+002	+2.0224e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
880	+1.6146e+002	+2.0090e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
881	+1.6149e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

882	+1.6157e+002	+1.9957e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
883	+1.6368e+002	+2.0773e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
884	+1.6398e+002	+2.0632e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
885	+1.6425e+002	+2.0493e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
886	+1.6448e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
887	+1.6448e+002	+2.0355e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
888	+1.6468e+002	+2.0219e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
889	+1.6484e+002	+2.0084e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
890	+1.6496e+002	+1.9950e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
891	+1.6505e+002	+1.9818e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
892	+1.6729e+002	+2.0629e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
893	+1.6746e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
894	+1.6746e+002	+1.9480e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
895	+1.6747e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
896	+1.6747e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
897	+1.6747e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
898	+1.6747e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
899	+1.6747e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
900	+1.6747e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
901	+1.6747e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
902	+1.6747e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
903	+1.6748e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
904	+1.6748e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
905	+1.6748e+002	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
906	+1.6748e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
907	+1.6748e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
908	+1.6748e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
909	+1.6748e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
910	+1.6748e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
911	+1.6748e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
912	+1.6757e+002	+2.0489e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
913	+1.6782e+002	+2.0350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
914	+1.6804e+002	+2.0213e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
915	+1.6821e+002	+2.0077e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
916	+1.6836e+002	+1.9943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
917	+1.6846e+002	+1.9810e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
918	+1.6854e+002	+1.9679e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
919	+1.7009e+002	+2.0484e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
920	+1.7116e+002	+2.0345e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
921	+1.7139e+002	+2.0207e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
922	+1.7159e+002	+2.0071e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
923	+1.7175e+002	+1.9936e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
924	+1.7188e+002	+1.9802e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
925	+1.7196e+002	+1.9670e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
926	+1.7202e+002	+1.9539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
927	+1.7450e+002	+2.0340e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
928	+1.7475e+002	+2.0201e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
929	+1.7496e+002	+2.0064e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
930	+1.7514e+002	+1.9929e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
931	+1.7529e+002	+1.9794e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
932	+1.7539e+002	+1.9661e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
933	+1.7546e+002	+1.9530e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
934	+1.7550e+002	+1.8485e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
935	+1.7550e+002	+1.8943e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
936	+1.7550e+002	+1.9400e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
937	+1.7551e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
938	+1.7551e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
939	+1.7551e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
940	+1.7551e+002	+1.7113e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
941	+1.7551e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

942	+1.7551e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
943	+1.7552e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
944	+1.7552e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
945	+1.7552e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
946	+1.7552e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
947	+1.7552e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
948	+1.7553e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
949	+1.7553e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
950	+1.7553e+002	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
951	+1.7553e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
952	+1.7553e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
953	+1.7811e+002	+2.0196e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
954	+1.7834e+002	+2.0058e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
955	+1.7854e+002	+1.9921e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
956	+1.7870e+002	+1.9786e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
957	+1.7882e+002	+1.9653e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
958	+1.7891e+002	+1.9521e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
959	+1.7896e+002	+1.9263e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
960	+1.7896e+002	+1.9390e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
961	+1.8018e+002	+1.8944e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
962	+1.8036e+002	+1.8481e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
963	+1.8047e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
964	+1.8048e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
965	+1.8048e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
966	+1.8048e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
967	+1.8048e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
968	+1.8048e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
969	+1.8048e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
970	+1.8049e+002	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
971	+1.8049e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
972	+1.8049e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
973	+1.8049e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
974	+1.8049e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
975	+1.8049e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
976	+1.8049e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
977	+1.8050e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
978	+1.8050e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
979	+1.8171e+002	+2.0051e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
980	+1.8193e+002	+1.9914e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
981	+1.8211e+002	+1.9779e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
982	+1.8225e+002	+1.9644e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
983	+1.8236e+002	+1.9511e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
984	+1.8243e+002	+1.9128e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
985	+1.8243e+002	+1.9380e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
986	+1.8531e+002	+1.8481e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
987	+1.8532e+002	+1.9987e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
988	+1.8544e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
989	+1.8544e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
990	+1.8544e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
991	+1.8545e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
992	+1.8545e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
993	+1.8545e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
994	+1.8545e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
995	+1.8545e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
996	+1.8545e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
997	+1.8546e+002	+1.1165e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
998	+1.8546e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
999	+1.8546e+002	+1.2080e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1000	+1.8546e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1001	+1.8546e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

1002	+1.8546e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1003	+1.8546e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1004	+1.8552e+002	+1.9771e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1005	+1.8568e+002	+1.9636e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1006	+1.8580e+002	+1.9502e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1007	+1.8589e+002	+1.9370e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1008	+1.8590e+002	+1.8989e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1009	+1.8893e+002	+1.9763e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1010	+1.8911e+002	+1.9627e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1011	+1.8925e+002	+1.9493e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1012	+1.8926e+002	+1.8856e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1013	+1.8934e+002	+1.9082e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1014	+1.8936e+002	+1.9360e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1015	+1.9026e+002	+1.8481e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1016	+1.9041e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1017	+1.9041e+002	+1.6198e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1018	+1.9041e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1019	+1.9041e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1020	+1.9041e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1021	+1.9041e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1022	+1.9042e+002	+1.2995e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1023	+1.9042e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1024	+1.9042e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1025	+1.9042e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1026	+1.9042e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1027	+1.9042e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1028	+1.9043e+002	+1.1166e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1029	+1.9043e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1030	+1.9043e+002	+1.2081e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1031	+1.9043e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1032	+1.9254e+002	+1.9619e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1033	+1.9270e+002	+1.9484e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1034	+1.9282e+002	+1.8711e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1035	+1.9282e+002	+1.9082e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1036	+1.9282e+002	+1.9350e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1037	+1.9538e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1038	+1.9538e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1039	+1.9538e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1040	+1.9538e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1041	+1.9538e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1042	+1.9538e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1043	+1.9538e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1044	+1.9538e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1045	+1.9539e+002	+1.1166e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1046	+1.9539e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1047	+1.9539e+002	+1.2081e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1048	+1.9539e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1049	+1.9539e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1050	+1.9539e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1051	+1.9539e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1052	+1.9539e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1053	+1.9614e+002	+1.9474e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1054	+1.9629e+002	+1.8572e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1055	+1.9629e+002	+1.8810e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1056	+1.9629e+002	+1.9077e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1057	+1.9629e+002	+1.9340e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1058	+1.9975e+002	+1.9339e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1059	+2.0034e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1060	+2.0034e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1061	+2.0034e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

1062	+2.0035e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1063	+2.0035e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1064	+2.0035e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1065	+2.0035e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1066	+2.0035e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1067	+2.0035e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1068	+2.0035e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1069	+2.0035e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1070	+2.0035e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1071	+2.0036e+002	+1.1166e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1072	+2.0036e+002	+1.1623e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1073	+2.0036e+002	+1.2081e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1074	+2.0036e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1075	+2.0056e+002	+1.9873e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1076	+2.0138e+002	+1.8815e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1077	+2.0219e+002	+1.8557e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1078	+2.0300e+002	+1.8300e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1079	+2.0531e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1080	+2.0531e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1081	+2.0531e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1082	+2.0531e+002	+1.7570e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1083	+2.0531e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1084	+2.0532e+002	+1.1166e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1085	+2.0532e+002	+1.1624e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1086	+2.0532e+002	+1.2081e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1087	+2.0532e+002	+1.2538e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1088	+2.0532e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1089	+2.0532e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1090	+2.0532e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1091	+2.0532e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1092	+2.0532e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1093	+2.0532e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1094	+2.0532e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1095	+2.0541e+002	+1.9387e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1096	+2.0559e+002	+1.9056e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1097	+2.0577e+002	+1.8884e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1098	+2.0595e+002	+1.8552e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1099	+2.0613e+002	+1.8300e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1100	+2.0925e+002	+1.8300e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1101	+2.0970e+002	+1.8546e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1102	+2.1016e+002	+1.8793e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1103	+2.1028e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1104	+2.1028e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1105	+2.1028e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1106	+2.1028e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1107	+2.1028e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1108	+2.1028e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1109	+2.1028e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1110	+2.1028e+002	+1.7569e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1111	+2.1028e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1112	+2.1029e+002	+1.1166e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1113	+2.1029e+002	+1.1624e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1114	+2.1029e+002	+1.2081e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1115	+2.1029e+002	+1.2539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1116	+2.1029e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1117	+2.1029e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1118	+2.1029e+002	+1.3910e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1119	+2.1061e+002	+1.9039e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1120	+2.1106e+002	+1.9285e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1121	+2.1238e+002	+1.8300e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

1122	+2.1346e+002	+1.8541e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1123	+2.1455e+002	+1.8781e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1124	+2.1524e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1125	+2.1524e+002	+1.7569e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1126	+2.1524e+002	+1.8027e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1127	+2.1525e+002	+1.2081e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1128	+2.1525e+002	+1.2539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1129	+2.1525e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1130	+2.1525e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1131	+2.1525e+002	+1.3911e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1132	+2.1525e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1133	+2.1525e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1134	+2.1525e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1135	+2.1525e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1136	+2.1525e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1137	+2.1525e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1138	+2.1526e+002	+1.1167e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1139	+2.1526e+002	+1.1624e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1140	+2.1550e+002	+1.8300e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1141	+2.1563e+002	+1.9022e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1142	+2.1672e+002	+1.9263e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1143	+2.1722e+002	+1.8535e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1144	+2.1863e+002	+1.8300e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1145	+2.1894e+002	+1.8778e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1146	+2.2021e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1147	+2.2021e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1148	+2.2021e+002	+1.6655e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1149	+2.2021e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1150	+2.2021e+002	+1.7569e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1151	+2.2021e+002	+1.8026e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1152	+2.2022e+002	+1.1167e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1153	+2.2022e+002	+1.1624e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1154	+2.2022e+002	+1.2081e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1155	+2.2022e+002	+1.2539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1156	+2.2022e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1157	+2.2022e+002	+1.3453e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1158	+2.2022e+002	+1.3911e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1159	+2.2022e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1160	+2.2022e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1161	+2.2022e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1162	+2.2066e+002	+1.9005e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1163	+2.2098e+002	+1.8529e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1164	+2.2175e+002	+1.8300e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1165	+2.2238e+002	+1.9240e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1166	+2.2333e+002	+1.8759e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1167	+2.2473e+002	+1.8524e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1168	+2.2488e+002	+1.8300e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1169	+2.2518e+002	+1.2539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1170	+2.2518e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1171	+2.2518e+002	+1.3454e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1172	+2.2518e+002	+1.3911e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1173	+2.2518e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1174	+2.2518e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1175	+2.2518e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1176	+2.2518e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1177	+2.2518e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1178	+2.2518e+002	+1.6654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1179	+2.2518e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1180	+2.2518e+002	+1.7569e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1181	+2.2518e+002	+1.8026e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

1182	+2.2519e+002	+1.1167e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1183	+2.2519e+002	+1.1624e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1184	+2.2519e+002	+1.2082e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1185	+2.2568e+002	+1.8988e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1186	+2.2772e+002	+1.8748e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1187	+2.2800e+002	+1.8300e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1188	+2.2803e+002	+1.9218e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1189	+2.2849e+002	+1.8518e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1190	+2.3015e+002	+1.1167e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1191	+2.3015e+002	+1.1624e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1192	+2.3015e+002	+1.2082e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1193	+2.3015e+002	+1.2539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1194	+2.3015e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1195	+2.3015e+002	+1.3454e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1196	+2.3015e+002	+1.3911e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1197	+2.3015e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1198	+2.3015e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1199	+2.3015e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1200	+2.3015e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1201	+2.3015e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1202	+2.3015e+002	+1.6654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1203	+2.3015e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1204	+2.3015e+002	+1.7569e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1205	+2.3015e+002	+1.8026e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1206	+2.3070e+002	+1.8971e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1207	+2.3211e+002	+1.8736e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1208	+2.3225e+002	+1.8513e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1209	+2.3369e+002	+1.9195e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1210	+2.3511e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1211	+2.3511e+002	+1.6654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1212	+2.3511e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1213	+2.3511e+002	+1.7569e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1214	+2.3511e+002	+1.8026e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1215	+2.3512e+002	+1.1167e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1216	+2.3512e+002	+1.1625e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1217	+2.3512e+002	+1.2082e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1218	+2.3512e+002	+1.2539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1219	+2.3512e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1220	+2.3512e+002	+1.3454e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1221	+2.3512e+002	+1.3911e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1222	+2.3512e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1223	+2.3512e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1224	+2.3512e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1225	+2.3512e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1226	+2.3573e+002	+1.8954e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1227	+2.3650e+002	+1.8725e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1228	+2.3934e+002	+1.9173e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1229	+2.4000e+002	+1.1168e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1230	+2.4000e+002	+1.1625e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1231	+2.4000e+002	+1.2082e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1232	+2.4000e+002	+1.2539e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1233	+2.4000e+002	+1.2996e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1234	+2.4000e+002	+1.3454e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1235	+2.4000e+002	+1.3911e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1236	+2.4000e+002	+1.4368e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1237	+2.4000e+002	+1.4825e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1238	+2.4000e+002	+1.5283e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1239	+2.4000e+002	+1.5740e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1240	+2.4000e+002	+1.6197e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1241	+2.4000e+002	+1.6654e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

1242	+2.4000e+002	+1.7112e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1243	+2.4000e+002	+1.7569e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1244	+2.4000e+002	+1.8026e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1245	+2.4075e+002	+1.8938e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1246	+2.4500e+002	+1.8680e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1247	+2.4500e+002	+1.9150e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1248	+2.4501e+002	+1.6802e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1249	+2.4501e+002	+1.7272e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1250	+2.4501e+002	+1.7741e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1251	+2.4501e+002	+1.8211e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1252	+2.4502e+002	+1.4924e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1253	+2.4502e+002	+1.5394e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1254	+2.4502e+002	+1.5863e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1255	+2.4502e+002	+1.6333e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1256	+2.4503e+002	+1.3515e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1257	+2.4503e+002	+1.3985e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1258	+2.4503e+002	+1.4454e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1259	+2.4504e+002	+1.1637e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1260	+2.4504e+002	+1.2107e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1261	+2.4504e+002	+1.2576e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1262	+2.4504e+002	+1.3046e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1263	+2.4505e+002	+1.1168e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1264	+2.5145e+002	+1.9151e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1265	+2.5146e+002	+1.7273e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1266	+2.5146e+002	+1.7742e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1267	+2.5146e+002	+1.8212e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1268	+2.5146e+002	+1.8681e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1269	+2.5147e+002	+1.5864e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1270	+2.5147e+002	+1.6333e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1271	+2.5147e+002	+1.6803e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1272	+2.5148e+002	+1.3985e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1273	+2.5148e+002	+1.4455e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1274	+2.5148e+002	+1.4925e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1275	+2.5148e+002	+1.5394e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1276	+2.5149e+002	+1.2107e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1277	+2.5149e+002	+1.2577e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1278	+2.5149e+002	+1.3046e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1279	+2.5149e+002	+1.3516e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1280	+2.5150e+002	+1.1168e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1281	+2.5150e+002	+1.1638e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1282	+2.5791e+002	+1.8212e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1283	+2.5791e+002	+1.8682e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1284	+2.5791e+002	+1.9151e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1285	+2.5792e+002	+1.5864e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1286	+2.5792e+002	+1.6334e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1287	+2.5792e+002	+1.6804e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1288	+2.5792e+002	+1.7273e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1289	+2.5792e+002	+1.7743e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1290	+2.5793e+002	+1.3986e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1291	+2.5793e+002	+1.4455e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1292	+2.5793e+002	+1.4925e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1293	+2.5793e+002	+1.5395e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1294	+2.5794e+002	+1.2107e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1295	+2.5794e+002	+1.2577e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1296	+2.5794e+002	+1.3047e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1297	+2.5794e+002	+1.3516e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1298	+2.5795e+002	+1.1168e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1299	+2.5795e+002	+1.1638e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1300	+2.6436e+002	+1.8683e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1301	+2.6436e+002	+1.9152e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000

1302	+2.6437e+002	+1.6804e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1303	+2.6437e+002	+1.7274e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1304	+2.6437e+002	+1.7743e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1305	+2.6437e+002	+1.8213e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1306	+2.6438e+002	+1.4926e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1307	+2.6438e+002	+1.5395e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1308	+2.6438e+002	+1.5865e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1309	+2.6438e+002	+1.6335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1310	+2.6439e+002	+1.2578e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1311	+2.6439e+002	+1.3047e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1312	+2.6439e+002	+1.3517e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1313	+2.6439e+002	+1.3986e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1314	+2.6439e+002	+1.4456e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1315	+2.6440e+002	+1.1169e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1316	+2.6440e+002	+1.1638e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1317	+2.6440e+002	+1.2108e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1318	+2.7082e+002	+1.7744e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1319	+2.7082e+002	+1.8214e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1320	+2.7082e+002	+1.8683e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1321	+2.7082e+002	+1.9153e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1322	+2.7083e+002	+1.4926e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1323	+2.7083e+002	+1.5396e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1324	+2.7083e+002	+1.5865e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1325	+2.7083e+002	+1.6335e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1326	+2.7083e+002	+1.6805e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1327	+2.7083e+002	+1.7274e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1328	+2.7084e+002	+1.3048e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1329	+2.7084e+002	+1.3517e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1330	+2.7084e+002	+1.3987e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1331	+2.7084e+002	+1.4457e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1332	+2.7085e+002	+1.1169e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1333	+2.7085e+002	+1.1639e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1334	+2.7085e+002	+1.2108e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1335	+2.7085e+002	+1.2578e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1336	+2.7727e+002	+1.8214e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1337	+2.7727e+002	+1.8684e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1338	+2.7727e+002	+1.9154e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1339	+2.7728e+002	+1.5866e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1340	+2.7728e+002	+1.6336e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1341	+2.7728e+002	+1.6805e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1342	+2.7728e+002	+1.7275e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1343	+2.7728e+002	+1.7745e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1344	+2.7729e+002	+1.3048e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1345	+2.7729e+002	+1.3518e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1346	+2.7729e+002	+1.3987e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1347	+2.7729e+002	+1.4457e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1348	+2.7729e+002	+1.4927e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1349	+2.7729e+002	+1.5396e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1350	+2.7730e+002	+1.1169e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1351	+2.7730e+002	+1.1639e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1352	+2.7730e+002	+1.2109e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1353	+2.7730e+002	+1.2578e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1354	+2.8373e+002	+1.6336e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1355	+2.8373e+002	+1.6806e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1356	+2.8373e+002	+1.7276e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1357	+2.8373e+002	+1.7745e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1358	+2.8373e+002	+1.8215e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1359	+2.8373e+002	+1.8685e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000
1360	+2.8373e+002	+1.9154e+002	+0.0000e+000	+2.1350e+002	100000	+0.0000e+000
1361	+2.8374e+002	+1.3048e+002	+0.0000e+000	+0.0000e+000	000000	+0.0000e+000

```
1362 +2.8374e+002 +1.3518e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1363 +2.8374e+002 +1.3988e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1364 +2.8374e+002 +1.4457e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1365 +2.8374e+002 +1.4927e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1366 +2.8374e+002 +1.5397e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1367 +2.8374e+002 +1.5867e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1368 +2.8375e+002 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1369 +2.8375e+002 +1.1639e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1370 +2.8375e+002 +1.2109e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1371 +2.8375e+002 +1.2579e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1372 +2.9018e+002 +1.7276e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1373 +2.9018e+002 +1.7746e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1374 +2.9018e+002 +1.8216e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1375 +2.9018e+002 +1.8685e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1376 +2.9018e+002 +1.9155e+002 +0.0000e+000 +2.1350e+002 100000 +0.0000e+000
1377 +2.9019e+002 +1.3988e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1378 +2.9019e+002 +1.4458e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1379 +2.9019e+002 +1.4928e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1380 +2.9019e+002 +1.5398e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1381 +2.9019e+002 +1.5867e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1382 +2.9019e+002 +1.6337e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1383 +2.9019e+002 +1.6807e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1384 +2.9020e+002 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1385 +2.9020e+002 +1.1640e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1386 +2.9020e+002 +1.2109e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1387 +2.9020e+002 +1.2579e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1388 +2.9020e+002 +1.3049e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1389 +2.9020e+002 +1.3519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1390 +2.9663e+002 +1.8686e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1391 +2.9663e+002 +1.9156e+002 +0.0000e+000 +2.1350e+002 100000 +0.0000e+000
1392 +2.9664e+002 +1.4459e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1393 +2.9664e+002 +1.4928e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1394 +2.9664e+002 +1.5398e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1395 +2.9664e+002 +1.5868e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1396 +2.9664e+002 +1.6338e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1397 +2.9664e+002 +1.6807e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1398 +2.9664e+002 +1.7277e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1399 +2.9664e+002 +1.7747e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1400 +2.9664e+002 +1.8216e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1401 +2.9665e+002 +1.1170e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1402 +2.9665e+002 +1.1640e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1403 +2.9665e+002 +1.2110e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1404 +2.9665e+002 +1.2579e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1405 +2.9665e+002 +1.3049e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1406 +2.9665e+002 +1.3519e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1407 +2.9665e+002 +1.3989e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1408 +3.0309e+002 +1.5868e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1409 +3.0309e+002 +1.6338e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1410 +3.0309e+002 +1.6808e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1411 +3.0309e+002 +1.7278e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1412 +3.0309e+002 +1.7747e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1413 +3.0309e+002 +1.8217e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1414 +3.0309e+002 +1.8687e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1415 +3.0309e+002 +1.9157e+002 +0.0000e+000 +2.1350e+002 100000 +0.0000e+000
1416 +3.0310e+002 +1.1171e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1417 +3.0310e+002 +1.1640e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1418 +3.0310e+002 +1.2110e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1419 +3.0310e+002 +1.2580e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1420 +3.0310e+002 +1.3050e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1421 +3.0310e+002 +1.3520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
1422 +3.0310e+002 +1.3989e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1423 +3.0310e+002 +1.4459e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1424 +3.0310e+002 +1.4929e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1425 +3.0310e+002 +1.5399e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1426 +3.0954e+002 +1.7278e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1427 +3.0954e+002 +1.7748e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1428 +3.0954e+002 +1.8218e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1429 +3.0954e+002 +1.8688e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1430 +3.0954e+002 +1.9157e+002 +0.0000e+000 +2.1350e+002 100000 +0.0000e+000
1431 +3.0955e+002 +1.1171e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1432 +3.0955e+002 +1.1641e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1433 +3.0955e+002 +1.2111e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1434 +3.0955e+002 +1.2580e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1435 +3.0955e+002 +1.3050e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1436 +3.0955e+002 +1.3520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1437 +3.0955e+002 +1.3990e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1438 +3.0955e+002 +1.4460e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1439 +3.0955e+002 +1.4929e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1440 +3.0955e+002 +1.5399e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1441 +3.0955e+002 +1.5869e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1442 +3.0955e+002 +1.6339e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1443 +3.0955e+002 +1.6808e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1444 +3.1599e+002 +1.9158e+002 +0.0000e+000 +2.1350e+002 100000 +0.0000e+000
1445 +3.1600e+002 +1.2111e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1446 +3.1600e+002 +1.2581e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1447 +3.1600e+002 +1.3051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1448 +3.1600e+002 +1.3520e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1449 +3.1600e+002 +1.3990e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1450 +3.1600e+002 +1.4460e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1451 +3.1600e+002 +1.4930e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1452 +3.1600e+002 +1.5400e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1453 +3.1600e+002 +1.5870e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1454 +3.1600e+002 +1.6339e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1455 +3.1600e+002 +1.6809e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1456 +3.1600e+002 +1.7279e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1457 +3.1600e+002 +1.7749e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1458 +3.1600e+002 +1.8218e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1459 +3.1600e+002 +1.8688e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1460 +3.1601e+002 +1.1171e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1461 +3.1601e+002 +1.1641e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1462 +3.2245e+002 +1.2111e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1463 +3.2245e+002 +1.2581e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1464 +3.2245e+002 +1.3051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1465 +3.2245e+002 +1.3521e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1466 +3.2245e+002 +1.3991e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1467 +3.2245e+002 +1.4460e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1468 +3.2245e+002 +1.4930e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1469 +3.2245e+002 +1.5400e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1470 +3.2245e+002 +1.5870e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1471 +3.2245e+002 +1.6340e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1472 +3.2245e+002 +1.6810e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1473 +3.2245e+002 +1.7279e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1474 +3.2245e+002 +1.7749e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1475 +3.2245e+002 +1.8219e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1476 +3.2245e+002 +1.8689e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1477 +3.2245e+002 +1.9159e+002 +0.0000e+000 +2.1350e+002 100000 +0.0000e+000
1478 +3.2246e+002 +1.1172e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1479 +3.2246e+002 +1.1641e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1480 +3.2890e+002 +1.5401e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1481 +3.2890e+002 +1.5871e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
```



```
1482 +3.2890e+002 +1.6340e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1483 +3.2890e+002 +1.6810e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1484 +3.2890e+002 +1.7280e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1485 +3.2890e+002 +1.7750e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1486 +3.2890e+002 +1.8220e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1487 +3.2890e+002 +1.8690e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1488 +3.2890e+002 +1.9160e+002 +2.1350e+002 100000 +0.0000e+000
1489 +3.2891e+002 +1.1172e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1490 +3.2891e+002 +1.1642e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1491 +3.2891e+002 +1.2112e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1492 +3.2891e+002 +1.2582e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1493 +3.2891e+002 +1.3051e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1494 +3.2891e+002 +1.3521e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1495 +3.2891e+002 +1.3991e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1496 +3.2891e+002 +1.4461e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1497 +3.2891e+002 +1.4931e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1498 +3.3536e+002 +1.1172e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1499 +3.3536e+002 +1.1642e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1500 +3.3536e+002 +1.2112e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1501 +3.3536e+002 +1.2582e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1502 +3.3536e+002 +1.3052e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1503 +3.3536e+002 +1.3522e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1504 +3.3536e+002 +1.3992e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1505 +3.3536e+002 +1.4462e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1506 +3.3536e+002 +1.4931e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1507 +3.3536e+002 +1.5401e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1508 +3.3536e+002 +1.5871e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1509 +3.3536e+002 +1.6341e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1510 +3.3536e+002 +1.6811e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1511 +3.3536e+002 +1.7281e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1512 +3.3536e+002 +1.7751e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1513 +3.3536e+002 +1.8221e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1514 +3.3536e+002 +1.8690e+002 +0.0000e+000 +0.0000e+000 000000 +0.0000e+000
1515 +3.3536e+002 +1.9160e+002 +0.0000e+000 +2.1350e+002 100000 +0.0000e+000
ELEMENT    1426
   1   21   19   18   20    0    0    0    0    3    9 +1.0000e+000
 0   0
   2   23   16   15   22    0    0    0    0    3    9 +1.0000e+000
 0   0
   3   24   17   16   23    0    0    0    0    3    9 +1.0000e+000
 0   0
   4   20   18   17   24    0    0    0    0    3    9 +1.0000e+000
 0   0
   5   26   13   12   25    0    0    0    0    3    9 +1.0000e+000
 0   0
   6   27   14   13   26    0    0    0    0    3    9 +1.0000e+000
 0   0
   7   22   15   14   27    0    0    0    0    3    9 +1.0000e+000
 0   0
   8   29   10    9   28    0    0    0    0    3    9 +1.0000e+000
 0   0
   9   30   11   10   29    0    0    0    0    3    9 +1.0000e+000
 0   0
  10   25   12   11   30    0    0    0    0    3    9 +1.0000e+000
 0   0
  11   32    7    6   31    0    0    0    0    3    9 +1.0000e+000
 0   0
  12   33    8    7   32    0    0    0    0    3    9 +1.0000e+000
 0   0
  13   28    9    8   33    0    0    0    0    3    9 +1.0000e+000
```



```
 0   0
  14   35    4    3   34    0    0    0    0    3    9 +1.0000e+000
 0   0
  15   36    5    4   35    0    0    0    0    3    9 +1.0000e+000
 0   0
  16   31    6    5   36    0    0    0    0    3    9 +1.0000e+000
 0   0
  17   30    2    1   37    0    0    0    0    3    9 +1.0000e+000
 0   0
  18   34    3    2   38    0    0    0    0    3    9 +1.0000e+000
 0   0
  19   40   21   20   39    0    0    0    0    3    9 +1.0000e+000
 0   0
  20   39   20   24   42    0    0    0    0    3    9 +1.0000e+000
 0   0
  21   42   24   23   41    0    0    0    0    3    9 +1.0000e+000
 0   0
  22   41   23   22   43    0    0    0    0    3    9 +1.0000e+000
 0   0
  23   43   22   27   45    0    0    0    0    3    9 +1.0000e+000
 0   0
  24   45   27   26   44    0    0    0    0    3    9 +1.0000e+000
 0   0
  25   44   26   25   46    0    0    0    0    3    9 +1.0000e+000
 0   0
  26   46   25   30   48    0    0    0    0    3    9 +1.0000e+000
 0   0
  27   48   30   29   47    0    0    0    0    3    9 +1.0000e+000
 0   0
  28   47   29   28   49    0    0    0    0    3    9 +1.0000e+000
 0   0
  29   49   28   33   50    0    0    0    0    3    9 +1.0000e+000
 0   0
  30   52   32   31   51    0    0    0    0    3    9 +1.0000e+000
 0   0
  31   50   33   32   52    0    0    0    0    3    9 +1.0000e+000
 0   0
  32   51   31   36   53    0    0    0    0    3    9 +1.0000e+000
 0   0
  33   55   35   34   54    0    0    0    0    3    9 +1.0000e+000
 0   0
  34   53   36   35   55    0    0    0    0    3    9 +1.0000e+000
 0   0
  35   54   34   38   56    0    0    0    0    3    9 +1.0000e+000
 0   0
  36   56   38   37   57    0    0    0    0    3    9 +1.0000e+000
 0   0
  37   58   40   39   59    0    0    0    0    3    9 +1.0000e+000
 0   0
  38   59   39   42   60    0    0    0    0    3    9 +1.0000e+000
 0   0
  39   60   42   41   61    0    0    0    0    3    9 +1.0000e+000
 0   0
  40   61   41   43   62    0    0    0    0    3    9 +1.0000e+000
 0   0
  41   62   43   45   63    0    0    0    0    3    9 +1.0000e+000
 0   0
  42   63   45   44   64    0    0    0    0    3    9 +1.0000e+000
 0   0
  43   64   44   46   65    0    0    0    0    3    9 +1.0000e+000
```

0	0										
44	65	46	48	66	0	0	0	0	3	9	+1.0000e+000
0	0										
45	66	48	47	67	0	0	0	0	3	9	+1.0000e+000
0	0										
46	67	47	49	68	0	0	0	0	3	9	+1.0000e+000
0	0										
47	68	49	50	69	0	0	0	0	3	9	+1.0000e+000
0	0										
48	69	50	52	70	0	0	0	0	3	9	+1.0000e+000
0	0										
49	70	52	51	71	0	0	0	0	3	9	+1.0000e+000
0	0										
50	71	51	53	72	0	0	0	0	3	9	+1.0000e+000
0	0										
51	72	53	55	73	0	0	0	0	3	9	+1.0000e+000
0	0										
52	73	55	54	74	0	0	0	0	3	9	+1.0000e+000
0	0										
53	74	54	56	75	0	0	0	0	3	9	+1.0000e+000
0	0										
54	75	56	57	76	0	0	0	0	3	9	+1.0000e+000
0	0										
55	77	58	59	78	0	0	0	0	3	9	+1.0000e+000
0	0										
56	78	59	60	79	0	0	0	0	3	9	+1.0000e+000
0	0										
57	79	60	61	80	0	0	0	0	3	9	+1.0000e+000
0	0										
58	80	61	62	81	0	0	0	0	3	9	+1.0000e+000
0	0										
59	81	62	63	82	0	0	0	0	3	9	+1.0000e+000
0	0										
60	82	63	64	83	0	0	0	0	3	9	+1.0000e+000
0	0										
61	83	64	65	84	0	0	0	0	3	9	+1.0000e+000
0	0										
62	84	65	66	85	0	0	0	0	3	9	+1.0000e+000
0	0										
63	85	66	67	86	0	0	0	0	3	9	+1.0000e+000
0	0										
64	86	67	68	87	0	0	0	0	3	9	+1.0000e+000
0	0										
65	87	68	69	88	0	0	0	0	3	9	+1.0000e+000
0	0										
66	88	69	70	89	0	0	0	0	3	9	+1.0000e+000
0	0										
67	89	70	71	90	0	0	0	0	3	9	+1.0000e+000
0	0										
68	90	71	72	91	0	0	0	0	3	9	+1.0000e+000
0	0										
69	91	72	73	92	0	0	0	0	3	9	+1.0000e+000
0	0										
70	92	73	74	93	0	0	0	0	3	9	+1.0000e+000
0	0										
71	93	74	75	94	0	0	0	0	3	9	+1.0000e+000
0	0										
72	94	75	76	95	0	0	0	0	3	9	+1.0000e+000
0	0										
73	96	77	78	97	0	0	0	0	3	9	+1.0000e+000

0	0										
74	97	78	79	98	0	0	0	0	3	9	+1.0000e+000
0	0										
75	98	79	80	99	0	0	0	0	3	9	+1.0000e+000
0	0										
76	99	80	81	100	0	0	0	0	3	9	+1.0000e+000
0	0										
77	100	81	82	101	0	0	0	0	3	9	+1.0000e+000
0	0										
78	101	82	83	102	0	0	0	0	3	9	+1.0000e+000
0	0										
79	102	83	84	103	0	0	0	0	3	9	+1.0000e+000
0	0										
80	103	84	85	104	0	0	0	0	3	9	+1.0000e+000
0	0										
81	104	85	86	105	0	0	0	0	3	9	+1.0000e+000
0	0										
82	105	86	87	106	0	0	0	0	3	9	+1.0000e+000
0	0										
83	106	87	88	107	0	0	0	0	3	9	+1.0000e+000
0	0										
84	107	88	89	108	0	0	0	0	3	9	+1.0000e+000
0	0										
85	108	89	90	109	0	0	0	0	3	9	+1.0000e+000
0	0										
86	109	90	91	110	0	0	0	0	3	9	+1.0000e+000
0	0										
87	110	91	92	111	0	0	0	0	3	9	+1.0000e+000
0	0										
88	111	92	93	112	0	0	0	0	3	9	+1.0000e+000
0	0										
89	112	93	94	113	0	0	0	0	3	9	+1.0000e+000
0	0										
90	113	94	95	114	0	0	0	0	3	9	+1.0000e+000
0	0										
91	115	96	97	116	0	0	0	0	3	9	+1.0000e+000
0	0										
92	116	97	98	117	0	0	0	0	3	9	+1.0000e+000
0	0										
93	117	98	99	118	0	0	0	0	3	9	+1.0000e+000
0	0										
94	118	99	100	119	0	0	0	0	3	9	+1.0000e+000
0	0										
95	119	100	101	120	0	0	0	0	3	9	+1.0000e+000
0	0										
96	120	101	102	121	0	0	0	0	3	9	+1.0000e+000
0	0										
97	121	102	103	122	0	0	0	0	3	9	+1.0000e+000
0	0										
98	122	103	104	123	0	0	0	0	3	9	+1.0000e+000
0	0										
99	123	104	105	124	0	0	0	0	3	9	+1.0000e+000
0	0										
100	124	105	106	125	0	0	0	0	3	9	+1.0000e+000
0	0										
101	125	106	107	126	0	0	0	0	3	9	+1.0000e+000
0	0										
102	126	107	108	127	0	0	0	0	3	9	+1.0000e+000
0	0										
103	127	108	109	128	0	0	0	0	3	9	+1.0000e+000

0	0										
104	128	109	110	129	0	0	0	0	3	9	+1.0000e+000
0	0										
105	129	110	111	130	0	0	0	0	3	9	+1.0000e+000
0	0										
106	130	111	112	131	0	0	0	0	3	9	+1.0000e+000
0	0										
107	131	112	113	132	0	0	0	0	3	9	+1.0000e+000
0	0										
108	132	113	114	133	0	0	0	0	3	9	+1.0000e+000
0	0										
109	134	115	116	135	0	0	0	0	3	9	+1.0000e+000
0	0										
110	135	116	117	136	0	0	0	0	3	9	+1.0000e+000
0	0										
111	136	117	118	137	0	0	0	0	3	9	+1.0000e+000
0	0										
112	137	118	119	138	0	0	0	0	3	9	+1.0000e+000
0	0										
113	138	119	120	139	0	0	0	0	3	9	+1.0000e+000
0	0										
114	139	120	121	140	0	0	0	0	3	9	+1.0000e+000
0	0										
115	140	121	122	141	0	0	0	0	3	9	+1.0000e+000
0	0										
116	141	122	123	142	0	0	0	0	3	9	+1.0000e+000
0	0										
117	142	123	124	143	0	0	0	0	3	9	+1.0000e+000
0	0										
118	143	124	125	144	0	0	0	0	3	9	+1.0000e+000
0	0										
119	144	125	126	145	0	0	0	0	3	9	+1.0000e+000
0	0										
120	145	126	127	146	0	0	0	0	3	9	+1.0000e+000
0	0										
121	146	127	128	147	0	0	0	0	3	9	+1.0000e+000
0	0										
122	147	128	129	148	0	0	0	0	3	9	+1.0000e+000
0	0										
123	148	129	130	149	0	0	0	0	3	9	+1.0000e+000
0	0										
124	149	130	131	150	0	0	0	0	3	9	+1.0000e+000
0	0										
125	150	131	132	151	0	0	0	0	3	9	+1.0000e+000
0	0										
126	151	132	133	152	0	0	0	0	3	9	+1.0000e+000
0	0										
127	153	134	135	154	0	0	0	0	3	9	+1.0000e+000
0	0										
128	154	135	136	155	0	0	0	0	3	9	+1.0000e+000
0	0										
129	155	136	137	156	0	0	0	0	3	9	+1.0000e+000
0	0										
130	156	137	138	157	0	0	0	0	3	9	+1.0000e+000
0	0										
131	157	138	139	158	0	0	0	0	3	9	+1.0000e+000
0	0										
132	158	139	140	159	0	0	0	0	3	9	+1.0000e+000
0	0										
133	159	140	141	160	0	0	0	0	3	9	+1.0000e+000

0	0										
134	160	141	142	161	0	0	0	0	3	9	+1.0000e+000
0	0										
135	161	142	143	162	0	0	0	0	3	9	+1.0000e+000
0	0										
136	162	143	144	163	0	0	0	0	3	9	+1.0000e+000
0	0										
137	163	144	145	164	0	0	0	0	3	9	+1.0000e+000
0	0										
138	164	145	146	165	0	0	0	0	3	9	+1.0000e+000
0	0										
139	165	146	147	166	0	0	0	0	3	9	+1.0000e+000
0	0										
140	166	147	148	167	0	0	0	0	3	9	+1.0000e+000
0	0										
141	167	148	149	168	0	0	0	0	3	9	+1.0000e+000
0	0										
142	168	149	150	169	0	0	0	0	3	9	+1.0000e+000
0	0										
143	169	150	151	170	0	0	0	0	3	9	+1.0000e+000
0	0										
144	170	151	152	171	0	0	0	0	3	9	+1.0000e+000
0	0										
145	172	153	154	173	0	0	0	0	3	9	+1.0000e+000
0	0										
146	173	154	155	174	0	0	0	0	3	9	+1.0000e+000
0	0										
147	174	155	156	175	0	0	0	0	3	9	+1.0000e+000
0	0										
148	175	156	157	176	0	0	0	0	3	9	+1.0000e+000
0	0										
149	176	157	158	177	0	0	0	0	3	9	+1.0000e+000
0	0										
150	177	158	159	178	0	0	0	0	3	9	+1.0000e+000
0	0										
151	178	159	160	179	0	0	0	0	3	9	+1.0000e+000
0	0										
152	179	160	161	180	0	0	0	0	3	9	+1.0000e+000
0	0										
153	180	161	162	181	0	0	0	0	3	9	+1.0000e+000
0	0										
154	181	162	163	182	0	0	0	0	3	9	+1.0000e+000
0	0										
155	182	163	164	183	0	0	0	0	3	9	+1.0000e+000
0	0										
156	183	164	165	184	0	0	0	0	3	9	+1.0000e+000
0	0										
157	184	165	166	185	0	0	0	0	3	9	+1.0000e+000
0	0										
158	185	166	167	186	0	0	0	0	3	9	+1.0000e+000
0	0										
159	186	167	168	187	0	0	0	0	3	9	+1.0000e+000
0	0										
160	187	168	169	188	0	0	0	0	3	9	+1.0000e+000
0	0										
161	188	169	170	189	0	0	0	0	3	9	+1.0000e+000
0	0										
162	189	170	171	190	0	0	0	0	3	9	+1.0000e+000
0	0										
163	191	172	173	192	0	0	0	0	3	9	+1.0000e+000

164	192	173	174	193	0	0	0	0	3	9	+1.0000e+000
165	193	174	175	194	0	0	0	0	3	9	+1.0000e+000
166	194	175	176	195	0	0	0	0	3	9	+1.0000e+000
167	195	176	177	196	0	0	0	0	3	9	+1.0000e+000
168	196	177	178	197	0	0	0	0	3	9	+1.0000e+000
169	197	178	179	198	0	0	0	0	3	9	+1.0000e+000
170	198	179	180	199	0	0	0	0	3	9	+1.0000e+000
171	199	180	181	200	0	0	0	0	3	9	+1.0000e+000
172	200	181	182	201	0	0	0	0	3	9	+1.0000e+000
173	201	182	183	202	0	0	0	0	3	9	+1.0000e+000
174	202	183	184	203	0	0	0	0	3	9	+1.0000e+000
175	203	184	185	204	0	0	0	0	3	9	+1.0000e+000
176	204	185	186	205	0	0	0	0	3	9	+1.0000e+000
177	205	186	187	206	0	0	0	0	3	9	+1.0000e+000
178	206	187	188	207	0	0	0	0	3	9	+1.0000e+000
179	207	188	189	208	0	0	0	0	3	9	+1.0000e+000
180	208	189	190	209	0	0	0	0	3	9	+1.0000e+000
181	210	191	192	211	0	0	0	0	3	9	+1.0000e+000
182	211	192	193	212	0	0	0	0	3	9	+1.0000e+000
183	212	193	194	213	0	0	0	0	3	9	+1.0000e+000
184	213	194	195	214	0	0	0	0	3	9	+1.0000e+000
185	214	195	196	215	0	0	0	0	3	9	+1.0000e+000
186	215	196	197	216	0	0	0	0	3	9	+1.0000e+000
187	216	197	198	217	0	0	0	0	3	9	+1.0000e+000
188	217	198	199	218	0	0	0	0	3	9	+1.0000e+000
189	218	199	200	219	0	0	0	0	3	9	+1.0000e+000
190	219	200	201	220	0	0	0	0	3	9	+1.0000e+000
191	220	201	202	221	0	0	0	0	3	9	+1.0000e+000
192	221	202	203	222	0	0	0	0	3	9	+1.0000e+000
193	222	203	204	223	0	0	0	0	3	9	+1.0000e+000

194	223	204	205	224	0	0	0	0	3	9	+1.0000e+000
195	224	205	206	225	0	0	0	0	3	9	+1.0000e+000
196	225	206	207	226	0	0	0	0	3	9	+1.0000e+000
197	226	207	208	227	0	0	0	0	3	9	+1.0000e+000
198	227	208	209	228	0	0	0	0	3	9	+1.0000e+000
199	229	210	211	230	0	0	0	0	3	9	+1.0000e+000
200	230	211	212	231	0	0	0	0	3	9	+1.0000e+000
201	231	212	213	232	0	0	0	0	3	9	+1.0000e+000
202	232	213	214	233	0	0	0	0	3	9	+1.0000e+000
203	233	214	215	234	0	0	0	0	3	9	+1.0000e+000
204	234	215	216	235	0	0	0	0	3	9	+1.0000e+000
205	235	216	217	236	0	0	0	0	3	9	+1.0000e+000
206	236	217	218	237	0	0	0	0	3	9	+1.0000e+000
207	237	218	219	238	0	0	0	0	3	9	+1.0000e+000
208	238	219	220	239	0	0	0	0	3	9	+1.0000e+000
209	239	220	221	240	0	0	0	0	3	9	+1.0000e+000
210	240	221	222	241	0	0	0	0	3	9	+1.0000e+000
211	241	222	223	242	0	0	0	0	3	9	+1.0000e+000
212	242	223	224	243	0	0	0	0	3	9	+1.0000e+000
213	243	224	225	244	0	0	0	0	3	9	+1.0000e+000
214	244	225	226	245	0	0	0	0	3	9	+1.0000e+000
215	245	226	227	246	0	0	0	0	3	9	+1.0000e+000
216	246	227	228	247	0	0	0	0	3	9	+1.0000e+000
217	248	229	230	249	0	0	0	0	3	9	+1.0000e+000
218	249	230	231	250	0	0	0	0	3	9	+1.0000e+000
219	250	231	232	251	0	0	0	0	3	9	+1.0000e+000
220	251	232	233	252	0	0	0	0	3	9	+1.0000e+000
221	252	233	234	253	0	0	0	0	3	9	+1.0000e+000
222	253	234	235	254	0	0	0	0	3	9	+1.0000e+000
223	254	235	236	255	0	0	0	0	3	9	+1.0000e+000

224	255	236	237	256	0	0	0	0	3	9	+1.0000e+000
225	256	237	238	257	0	0	0	0	3	9	+1.0000e+000
226	257	238	239	258	0	0	0	0	3	9	+1.0000e+000
227	258	239	240	259	0	0	0	0	3	9	+1.0000e+000
228	259	240	241	260	0	0	0	0	3	9	+1.0000e+000
229	260	241	242	261	0	0	0	0	3	9	+1.0000e+000
230	261	242	243	262	0	0	0	0	3	9	+1.0000e+000
231	262	243	244	263	0	0	0	0	3	9	+1.0000e+000
232	263	244	245	264	0	0	0	0	3	9	+1.0000e+000
233	264	245	246	265	0	0	0	0	3	9	+1.0000e+000
234	265	246	247	266	0	0	0	0	3	9	+1.0000e+000
235	267	248	249	269	0	0	0	0	3	9	+1.0000e+000
236	269	249	250	268	0	0	0	0	3	9	+1.0000e+000
237	268	250	251	270	0	0	0	0	3	9	+1.0000e+000
238	270	251	252	272	0	0	0	0	3	9	+1.0000e+000
239	272	252	253	271	0	0	0	0	3	9	+1.0000e+000
240	271	253	254	273	0	0	0	0	3	9	+1.0000e+000
241	273	254	255	275	0	0	0	0	3	9	+1.0000e+000
242	275	255	256	274	0	0	0	0	3	9	+1.0000e+000
243	274	256	257	276	0	0	0	0	3	9	+1.0000e+000
244	276	257	258	278	0	0	0	0	3	9	+1.0000e+000
245	278	258	259	277	0	0	0	0	3	9	+1.0000e+000
246	277	259	260	279	0	0	0	0	3	9	+1.0000e+000
247	279	260	261	280	0	0	0	0	3	9	+1.0000e+000
248	280	261	262	282	0	0	0	0	3	9	+1.0000e+000
249	282	262	263	281	0	0	0	0	3	9	+1.0000e+000
250	281	263	264	283	0	0	0	0	3	9	+1.0000e+000
251	283	264	265	285	0	0	0	0	3	9	+1.0000e+000
252	285	265	266	284	0	0	0	0	3	9	+1.0000e+000
253	288	283	285	287	0	0	0	0	3	9	+1.0000e+000

254	287	285	284	286	0	0	0	0	3	9	+1.0000e+000
255	289	281	283	288	0	0	0	0	3	9	+1.0000e+000
256	291	280	282	290	0	0	0	0	3	9	+1.0000e+000
257	290	282	281	289	0	0	0	0	3	9	+1.0000e+000
258	293	277	279	292	0	0	0	0	3	9	+1.0000e+000
259	292	279	280	291	0	0	0	0	3	9	+1.0000e+000
260	295	276	278	294	0	0	0	0	3	9	+1.0000e+000
261	294	278	277	293	0	0	0	0	3	9	+1.0000e+000
262	296	274	276	295	0	0	0	0	3	9	+1.0000e+000
263	298	273	275	297	0	0	0	0	3	9	+1.0000e+000
264	297	275	274	296	0	0	0	0	3	9	+1.0000e+000
265	299	271	273	298	0	0	0	0	3	9	+1.0000e+000
266	301	270	272	300	0	0	0	0	3	9	+1.0000e+000
267	302	268	270	301	0	0	0	0	3	9	+1.0000e+000
268	300	272	271	299	0	0	0	0	3	9	+1.0000e+000
269	304	267	269	303	0	0	0	0	3	9	+1.0000e+000
270	303	269	268	302	0	0	0	0	3	9	+1.0000e+000
271	306	287	286	305	0	0	0	0	3	9	+1.0000e+000
272	307	288	287	306	0	0	0	0	3	9	+1.0000e+000
273	308	289	288	307	0	0	0	0	3	9	+1.0000e+000
274	309	290	289	308	0	0	0	0	3	9	+1.0000e+000
275	310	291	290	309	0	0	0	0	3	9	+1.0000e+000
276	311	292	291	310	0	0	0	0	3	9	+1.0000e+000
277	312	293	292	311	0	0	0	0	3	9	+1.0000e+000
278	313	294	293	312	0	0	0	0	3	9	+1.0000e+000
279	314	295	294	313	0	0	0	0	3	9	+1.0000e+000
280	315	296	295	314	0	0	0	0	3	9	+1.0000e+000
281	316	297	296	315	0	0	0	0	3	9	+1.0000e+000
282	317	298	297	316	0	0	0	0	3	9	+1.0000e+000
283	318	299	298	317	0	0	0	0	3	9	+1.0000e+000

284	319	300	299	318	0	0	0	0	3	9	+1.0000e+000	0 0
285	320	301	300	319	0	0	0	0	3	9	+1.0000e+000	0 0
286	321	302	301	320	0	0	0	0	3	9	+1.0000e+000	0 0
287	322	303	302	321	0	0	0	0	3	9	+1.0000e+000	0 0
288	323	304	303	322	0	0	0	0	3	9	+1.0000e+000	0 0
289	325	306	305	324	0	0	0	0	3	9	+1.0000e+000	0 0
290	326	307	306	325	0	0	0	0	3	9	+1.0000e+000	0 0
291	327	308	307	326	0	0	0	0	3	9	+1.0000e+000	0 0
292	328	309	308	327	0	0	0	0	3	9	+1.0000e+000	0 0
293	329	310	309	328	0	0	0	0	3	9	+1.0000e+000	0 0
294	330	311	310	329	0	0	0	0	3	9	+1.0000e+000	0 0
295	331	312	311	330	0	0	0	0	3	9	+1.0000e+000	0 0
296	332	313	312	331	0	0	0	0	3	9	+1.0000e+000	0 0
297	333	314	313	332	0	0	0	0	3	9	+1.0000e+000	0 0
298	334	315	314	333	0	0	0	0	3	9	+1.0000e+000	0 0
299	335	316	315	334	0	0	0	0	3	9	+1.0000e+000	0 0
300	336	317	316	335	0	0	0	0	3	9	+1.0000e+000	0 0
301	337	318	317	336	0	0	0	0	3	9	+1.0000e+000	0 0
302	338	319	318	337	0	0	0	0	3	9	+1.0000e+000	0 0
303	339	320	319	338	0	0	0	0	3	9	+1.0000e+000	0 0
304	340	321	320	339	0	0	0	0	3	9	+1.0000e+000	0 0
305	341	322	321	340	0	0	0	0	3	9	+1.0000e+000	0 0
306	342	323	322	341	0	0	0	0	3	9	+1.0000e+000	0 0
307	344	325	324	343	0	0	0	0	3	9	+1.0000e+000	0 0
308	345	326	325	344	0	0	0	0	3	9	+1.0000e+000	0 0
309	346	327	326	345	0	0	0	0	3	9	+1.0000e+000	0 0
310	347	328	327	346	0	0	0	0	3	9	+1.0000e+000	0 0
311	348	329	328	347	0	0	0	0	3	9	+1.0000e+000	0 0
312	349	330	329	348	0	0	0	0	3	9	+1.0000e+000	0 0
313	350	331	330	349	0	0	0	0	3	9	+1.0000e+000	0 0

314	351	332	331	350	0	0	0	0	3	9	+1.0000e+000	0 0
315	352	333	332	351	0	0	0	0	3	9	+1.0000e+000	0 0
316	353	334	333	352	0	0	0	0	3	9	+1.0000e+000	0 0
317	354	335	334	353	0	0	0	0	3	9	+1.0000e+000	0 0
318	355	336	335	354	0	0	0	0	3	9	+1.0000e+000	0 0
319	356	337	336	355	0	0	0	0	3	9	+1.0000e+000	0 0
320	357	338	337	356	0	0	0	0	3	9	+1.0000e+000	0 0
321	358	339	338	357	0	0	0	0	3	9	+1.0000e+000	0 0
322	359	340	339	358	0	0	0	0	3	9	+1.0000e+000	0 0
323	360	341	340	359	0	0	0	0	3	9	+1.0000e+000	0 0
324	361	342	341	360	0	0	0	0	3	9	+1.0000e+000	0 0
325	363	344	343	362	0	0	0	0	3	9	+1.0000e+000	0 0
326	364	345	344	363	0	0	0	0	3	9	+1.0000e+000	0 0
327	365	346	345	364	0	0	0	0	3	9	+1.0000e+000	0 0
328	366	347	346	365	0	0	0	0	3	9	+1.0000e+000	0 0
329	367	348	347	366	0	0	0	0	3	9	+1.0000e+000	0 0
330	368	349	348	367	0	0	0	0	3	9	+1.0000e+000	0 0
331	369	350	349	368	0	0	0	0	3	9	+1.0000e+000	0 0
332	370	351	350	369	0	0	0	0	3	9	+1.0000e+000	0 0
333	371	352	351	370	0	0	0	0	3	9	+1.0000e+000	0 0
334	372	353	352	371	0	0	0	0	3	9	+1.0000e+000	0 0
335	373	354	353	372	0	0	0	0	3	9	+1.0000e+000	0 0
336	374	355	354	373	0	0	0	0	3	9	+1.0000e+000	0 0
337	375	356	355	374	0	0	0	0	3	9	+1.0000e+000	0 0
338	376	357	356	375	0	0	0	0	3	9	+1.0000e+000	0 0
339	377	358	357	376	0	0	0	0	3	9	+1.0000e+000	0 0
340	378	359	358	377	0	0	0	0	3	9	+1.0000e+000	0 0
341	379	360	359	378	0	0	0	0	3	9	+1.0000e+000	0 0
342	380	361	360	379	0	0	0	0	3	9	+1.0000e+000	0 0
343	382	363	362	381	0	0	0	0	3	9	+1.0000e+000	0 0

344	383	364	363	382	0	0	0	0	3	9	+1.0000e+000	0 0
345	384	365	364	383	0	0	0	0	3	9	+1.0000e+000	0 0
346	385	366	365	384	0	0	0	0	3	9	+1.0000e+000	0 0
347	386	367	366	385	0	0	0	0	3	9	+1.0000e+000	0 0
348	387	368	367	386	0	0	0	0	3	9	+1.0000e+000	0 0
349	388	369	368	387	0	0	0	0	3	9	+1.0000e+00	0 0
350	389	370	369	388	0	0	0	0	3	9	+1.0000e+000	0 0
351	390	371	370	389	0	0	0	0	3	9	+1.0000e+000	0 0
352	391	372	371	390	0	0	0	0	3	9	+1.0000e+000	0 0
353	392	373	372	391	0	0	0	0	3	9	+1.0000e+000	0 0
354	393	374	373	392	0	0	0	0	3	9	+1.0000e+000	0 0
355	394	375	374	393	0	0	0	0	3	9	+1.0000e+000	0 0
356	395	376	375	394	0	0	0	0	3	9	+1.0000e+000	0 0
357	396	377	376	395	0	0	0	0	3	9	+1.0000e+000	0 0
358	397	378	377	396	0	0	0	0	3	9	+1.0000e+000	0 0
359	398	379	378	397	0	0	0	0	3	9	+1.0000e+000	0 0
360	399	380	379	398	0	0	0	0	3	9	+1.0000e+000	0 0
361	382	381	402	403	0	0	0	0	3	9	+1.0000e+000	0 0
362	383	382	403	404	0	0	0	0	3	9	+1.0000e+000	0 0
363	384	383	404	405	0	0	0	0	3	9	+1.0000e+000	0 0
364	385	384	405	406	0	0	0	0	3	9	+1.0000e+000	0 0
365	386	385	406	407	0	0	0	0	3	9	+1.0000e+000	0 0
366	387	386	407	408	0	0	0	0	3	9	+1.0000e+000	0 0
367	388	387	408	409	0	0	0	0	3	9	+1.0000e+000	0 0
368	389	388	409	410	0	0	0	0	3	9	+1.0000e+000	0 0
369	390	389	410	411	0	0	0	0	3	9	+1.0000e+000	0 0
370	391	390	411	412	0	0	0	0	3	9	+1.0000e+000	0 0
371	392	391	412	413	0	0	0	0	3	9	+1.0000e+000	0 0
372	393	392	413	414	0	0	0	0	3	9	+1.0000e+000	0 0
373	394	393	414	415	0	0	0	0	3	9	+1.0000e+000	0 0

374	395	394	415	416	0	0	0	0	3	9	+1.0000e+000	0 0
375	396	395	416	417	0	0	0	0	3	9	+1.0000e+000	0 0
376	397	396	417	418	0	0	0	0	3	9	+1.0000e+000	0 0
377	398	397	418	419	0	0	0	0	3	9	+1.0000e+000	0 0
378	399	398	419	420	0	0	0	0	3	9	+1.0000e+000	0 0
379	400	399	420	422	0	0	0	0	1	9	+1.0000e+000	0 0
380	401	400	422	424	0	0	0	0	1	9	+1.0000e+000	0 0
381	403	402	425	426	0	0	0	0	3	9	+1.0000e+000	0 0
382	404	403	426	427	0	0	0	0	3	9	+1.0000e+000	0 0
383	405	404	427	428	0	0	0	0	3	9	+1.0000e+000	0 0
384	406	405	428	429	0	0	0	0	3	9	+1.0000e+000	0 0
385	407	406	429	430	0	0	0	0	3	9	+1.0000e+000	0 0
386	408	407	430	431	0	0	0	0	3	9	+1.0000e+000	0 0
387	409	408	431	432	0	0	0	0	3	9	+1.0000e+000	0 0
388	410	409	432	433	0	0	0	0	3	9	+1.0000e+000	0 0
389	411	410	433	434	0	0	0	0	3	9	+1.0000e+000	0 0
390	421	401	424	444	0	0	0	0	1	9	+1.0000e+000	0 0
391	412	411	434	435	0	0	0	0	3	9	+1.0000e+000	0 0
392	413	412	435	436	0	0	0	0	3	9	+1.0000e+000	0 0
393	414	413	436	437	0	0	0	0	3	9	+1.0000e+000	0 0
394	415	414	437	438	0	0	0	0	3	9	+1.0000e+000	0 0
395	416	415	438	439	0	0	0	0	3	9	+1.0000e+000	0 0
396	417	416	439	440	0	0	0	0	3	9	+1.0000e+000	0 0
397	418	417	440	441	0	0	0	0	3	9	+1.0000e+000	0 0
398	419	418	441	442	0	0	0	0	3	9	+1.0000e+0	0 0
399	420	419	442	443	0	0	0	0	3	9	+1.0000e+00	0 0
400	422	420	443	446	0	0	0	0	1	9	+1.0000e+000	0 0
401	423	421	444	447	0	0	0	0	1	9	+1.0000e+000	0 0
402	424	422	446	449	0	0	0	0	1	9	+1.0000e+000	0 0
403	445	423	447	450	0	0	0	0	1	9	+1.0000e+000	0 0

404	444	424	449	451	0	0	0	0	1	9	+1.0000e+000	0 0
405	426	425	452	453	0	0	0	0	3	9	+1.0000e+000	0 0
406	427	426	453	454	0	0	0	0	3	9	+1.0000e+000	0 0
407	428	427	454	455	0	0	0	0	3	9	+1.0000e+000	0 0
408	429	428	455	456	0	0	0	0	3	9	+1.0000e+000	0 0
409	430	429	456	457	0	0	0	0	3	9	+1.0000e+000	0 0
410	431	430	457	458	0	0	0	0	3	9	+1.0000e+000	0 0
411	432	431	458	459	0	0	0	0	3	9	+1.0000e+000	0 0
412	433	432	459	460	0	0	0	0	3	9	+1.0000e+000	0 0
413	434	433	460	461	0	0	0	0	3	9	+1.0000e+000	0 0
414	435	434	461	462	0	0	0	0	3	9	+1.0000e+000	0 0
415	436	435	462	463	0	0	0	0	3	9	+1.0000e+000	0 0
416	437	436	463	464	0	0	0	0	3	9	+1.0000e+000	0 0
417	438	437	464	465	0	0	0	0	3	9	+1.0000e+000	0 0
418	439	438	465	466	0	0	0	0	3	9	+1.0000e+000	0 0
419	440	439	466	467	0	0	0	0	3	9	+1.0000e+000	0 0
420	441	440	467	468	0	0	0	0	3	9	+1.0000e+000	0 0
421	442	441	468	469	0	0	0	0	3	9	+1.0000e+000	0 0
422	443	442	469	470	0	0	0	0	3	9	+1.0000e+000	0 0
423	446	443	470	474	0	0	0	0	1	9	+1.0000e+000	0 0
424	447	444	451	473	0	0	0	0	1	9	+1.0000e+000	0 0
425	448	445	450	472	0	0	0	0	1	9	+1.0000e+000	0 0
426	449	446	474	476	0	0	0	0	1	9	+1.0000e+000	0 0
427	450	447	473	477	0	0	0	0	1	9	+1.0000e+000	0 0
428	471	448	472	478	0	0	0	0	1	9	+1.0000e+000	0 0
429	451	449	476	479	0	0	0	0	1	9	+1.0000e+000	0 0
430	472	450	477	480	0	0	0	0	1	9	+1.0000e+000	0 0
431	473	451	479	489	0	0	0	0	1	9	+1.0000e+000	0 0
432	453	452	483	484	0	0	0	0	3	9	+1.0000e+000	0 0
433	454	453	484	485	0	0	0	0	3	9	+1.0000e+000	0 0

434	455	454	485	486	0	0	0	0	3	9	+1.0000e+000	0 0
435	456	455	486	487	0	0	0	0	3	9	+1.0000e+000	0 0
436	457	456	487	488	0	0	0	0	3	9	+1.0000e+000	0 0
437	458	457	488	490	0	0	0	0	3	9	+1.0000e+000	0 0
438	459	458	490	491	0	0	0	0	3	9	+1.0000e+000	0 0
439	460	459	491	492	0	0	0	0	3	9	+1.0000e+000	0 0
440	461	460	492	493	0	0	0	0	3	9	+1.0000e+000	0 0
441	462	461	493	494	0	0	0	0	3	9	+1.0000e+000	0 0
442	463	462	494	495	0	0	0	0	3	9	+1.0000e+000	0 0
443	464	463	495	496	0	0	0	0	3	9	+1.0000e+000	0 0
444	465	464	496	497	0	0	0	0	3	9	+1.0000e+000	0 0
445	466	465	497	498	0	0	0	0	3	9	+1.0000e+000	0 0
446	467	466	498	499	0	0	0	0	3	9	+1.0000e+000	0 0
447	468	467	499	500	0	0	0	0	3	9	+1.0000e+000	0 0
448	469	468	500	501	0	0	0	0	3	9	+1.0000e+000	0 0
449	470	469	501	502	0	0	0	0	3	9	+1.0000e+000	0 0
450	475	471	478	482	0	0	0	0	1	9	+1.0000e+000	0 0
451	474	470	502	504	0	0	0	0	1	9	+1.0000e+000	0 0
452	478	472	480	503	0	0	0	0	1	9	+1.0000e+000	0 0
453	477	473	489	505	0	0	0	0	1	9	+1.0000e+000	0 0
454	476	474	504	508	0	0	0	0	1	9	+1.0000e+000	0 0
455	481	475	482	507	0	0	0	0	1	9	+1.0000e+000	0 0
456	480	477	505	510	0	0	0	0	1	9	+1.0000e+000	0 0
457	479	476	508	511	0	0	0	0	1	9	+1.0000e+000	0 0
458	482	478	503	509	0	0	0	0	1	9	+1.0000e+000	0 0
459	489	479	511	514	0	0	0	0	1	9	+1.0000e+000	0 0
460	503	480	510	513	0	0	0	0	1	9	+1.0000e+000	0 0
461	506	481	507	512	0	0	0	0	1	9	+1.0000e+000	0 0
462	507	482	509	516	0	0	0	0	1	9	+1.0000e+000	0 0
463	505	489	514	517	0	0	0	0	1	9	+1.0000e+000	0 0

464	484	483	519	520	0	0	0	0	3	9	+1.0000e+000	0 0
465	485	484	520	521	0	0	0	0	3	9	+1.0000e+000	0 0
466	486	485	521	522	0	0	0	0	3	9	+1.0000e+000	0 0
467	487	486	522	523	0	0	0	0	3	9	+1.0000e+000	0 0
468	488	487	523	524	0	0	0	0	3	9	+1.0000e+000	0 0
469	490	488	524	525	0	0	0	0	3	9	+1.0000e+000	0 0
470	491	490	525	526	0	0	0	0	3	9	+1.0000e+000	0 0
471	492	491	526	527	0	0	0	0	3	9	+1.0000e+000	0 0
472	493	492	527	528	0	0	0	0	3	9	+1.0000e+000	0 0
473	494	493	528	529	0	0	0	0	3	9	+1.0000e+000	0 0
474	495	494	529	530	0	0	0	0	3	9	+1.0000e+000	0 0
475	496	495	530	531	0	0	0	0	3	9	+1.0000e+000	0 0
476	497	496	531	532	0	0	0	0	3	9	+1.0000e+000	0 0
477	498	497	532	533	0	0	0	0	3	9	+1.0000e+000	0 0
478	499	498	533	534	0	0	0	0	3	9	+1.0000e+000	0 0
479	500	499	534	535	0	0	0	0	3	9	+1.0000e+000	0 0
480	501	500	535	536	0	0	0	0	3	9	+1.0000e+000	0 0
481	502	501	536	537	0	0	0	0	3	9	+1.0000e+000	0 0
482	504	502	537	541	0	0	0	0	1	9	+1.0000e+000	0 0
483	509	503	513	518	0	0	0	0	1	9	+1.0000e+000	0 0
484	510	505	517	540	0	0	0	0	1	9	+1.0000e+000	0 0
485	515	506	512	538	0	0	0	0	1	9	+1.0000e+000	0 0
486	508	504	541	544	0	0	0	0	1	9	+1.0000e+000	0 0
487	512	507	516	539	0	0	0	0	1	9	+1.0000e+000	0 0
488	516	509	518	543	0	0	0	0	1	9	+1.0000e+000	0 0
489	511	508	544	546	0	0	0	0	1	9	+1.0000e+000	0 0
490	513	510	540	545	0	0	0	0	1	9	+1.0000e+000	0 0
491	514	511	546	551	0	0	0	0	1	9	+1.0000e+000	0 0
492	538	512	539	547	0	0	0	0	1	9	+1.0000e+000	0 0
493	518	513	545	550	0	0	0	0	1	9	+1.0000e+000	0 0

494	542	515	538	548	0	0	0	0	1	9	+1.0000e+000	0 0
495	539	516	543	549	0	0	0	0	1	9	+1.0000e+000	0 0
496	517	514	551	552	0	0	0	0	1	9	+1.0000e+000	0 0
497	543	518	550	554	0	0	0	0	1	9	+1.0000e+000	0 0
498	540	517	552	557	0	0	0	0	1	9	+1.0000e+000	0 0
499	548	538	547	555	0	0	0	0	1	9	+1.0000e+000	0 0
500	547	539	549	556	0	0	0	0	1	9	+1.0000e+000	0 0
501	520	519	562	563	0	0	0	0	3	9	+1.0000e+000	0 0
502	521	520	563	564	0	0	0	0	3	9	+1.0000e+000	0 0
503	522	521	564	566	0	0	0	0	3	9	+1.0000e+000	0 0
504	545	540	557	560	0	0	0	0	1	9	+1.0000e+000	0 0
505	523	522	566	567	0	0	0	0	3	9	+1.0000e+000	0 0
506	524	523	567	568	0	0	0	0	3	9	+1.0000e+000	0 0
507	525	524	568	569	0	0	0	0	3	9	+1.0000e+000	0 0
508	526	525	569	570	0	0	0	0	3	9	+1.0000e+000	0 0
509	527	526	570	571	0	0	0	0	3	9	+1.0000e+000	0 0
510	528	527	571	572	0	0	0	0	3	9	+1.0000e+000	0 0
511	529	528	572	573	0	0	0	0	3	9	+1.0000e+000	0 0
512	530	529	573	574	0	0	0	0	3	9	+1.0000e+000	0 0
513	531	530	574	575	0	0	0	0	3	9	+1.0000e+000	0 0
514	532	531	575	576	0	0	0	0	3	9	+1.0000e+000	0 0
515	533	532	576	577	0	0	0	0	3	9	+1.0000e+000	0 0
516	534	533	577	578	0	0	0	0	3	9	+1.0000e+000	0 0
517	535	534	578	579	0	0	0	0	3	9	+1.0000e+000	0 0
518	536	535	579	580	0	0	0	0	3	9	+1.0000e+000	0 0
519	537	536	580	581	0	0	0	0	3	9	+1.0000e+000	0 0
520	553	542	548	558	0	0	0	0	1	9	+1.0000e+000	0 0
521	541	537	581	584	0	0	0	0	1	9	+1.0000e+000	0 0
522	549	543	554	559	0	0	0	0	1	9	+1.0000e+000	0 0
523	544	541	584	587	0	0	0	0	1	9	+1.0000e+000	0 0

524	550	545	560	565	0	0	0	0	1	9	+1.0000e+000
525	555	547	556	561	0	0	0	0	1	9	+1.0000e+000
526	546	544	587	588	0	0	0	0	1	9	+1.0000e+000
527	558	548	555	582	0	0	0	0	1	9	+1.0000e+000
528	556	549	559	583	0	0	0	0	1	9	+1.0000e+000
529	554	550	565	586	0	0	0	0	1	9	+1.0000e+000
530	551	546	588	593	0	0	0	0	1	9	+1.0000e+000
531	552	551	593	594	0	0	0	0	1	9	+1.0000e+000
532	585	553	558	589	0	0	0	0	1	9	+1.0000e+000
533	559	554	586	592	0	0	0	0	1	9	+1.0000e+000
534	582	555	561	590	0	0	0	0	1	9	+1.0000e+000
535	561	556	583	591	0	0	0	0	1	9	+1.0000e+000
536	557	552	594	597	0	0	0	0	1	9	+1.0000e+000
537	589	558	582	595	0	0	0	0	1	9	+1.0000e+000
538	560	557	597	599	0	0	0	0	1	9	+1.0000e+000
539	583	559	592	596	0	0	0	0	1	9	+1.0000e+000
540	565	560	599	602	0	0	0	0	1	9	+1.0000e+000
541	590	561	591	598	0	0	0	0	1	9	+1.0000e+000
542	595	582	590	600	0	0	0	0	1	9	+1.0000e+000
543	591	583	596	601	0	0	0	0	1	9	+1.0000e+000
544	586	565	602	603	0	0	0	0	1	9	+1.0000e+000
545	592	586	603	606	0	0	0	0	1	9	+1.0000e+000
546	600	590	598	604	0	0	0	0	1	9	+1.0000e+000
547	598	591	601	605	0	0	0	0	1	9	+1.0000e+000
548	596	592	606	607	0	0	0	0	1	9	+1.0000e+000
549	563	562	612	613	0	0	0	0	3	9	+1.0000e+000
550	564	563	613	614	0	0	0	0	3	9	+1.0000e+000
551	566	564	614	615	0	0	0	0	3	9	+1.0000e+000
552	567	566	615	616	0	0	0	0	3	9	+1.0000e+000
553	568	567	616	617	0	0	0	0	3	9	+1.0000e+000

554	569	568	617	618	0	0	0	0	3	9	+1.0000e+000
555	570	569	618	619	0	0	0	0	3	9	+1.0000e+000
556	571	570	619	620	0	0	0	0	3	9	+1.0000e+000
557	572	571	620	621	0	0	0	0	3	9	+1.0000e+000
558	573	572	621	622	0	0	0	0	3	9	+1.0000e+000
559	574	573	622	623	0	0	0	0	3	9	+1.0000e+000
560	575	574	623	624	0	0	0	0	3	9	+1.0000e+000
561	576	575	624	625	0	0	0	0	3	9	+1.0000e+000
562	577	576	625	626	0	0	0	0	3	9	+1.0000e+000
563	578	577	626	627	0	0	0	0	3	9	+1.0000e+000
564	579	578	627	628	0	0	0	0	3	9	+1.0000e+000
565	580	579	628	629	0	0	0	0	3	9	+1.0000e+000
566	581	580	629	630	0	0	0	0	3	9	+1.0000e+000
567	584	581	630	631	0	0	0	0	1	9	+1.0000e+000
568	587	584	631	632	0	0	0	0	1	9	+1.0000e+000
569	601	596	607	609	0	0	0	0	1	9	+1.0000e+000
570	588	587	632	633	0	0	0	0	1	9	+1.0000e+000
571	604	598	605	608	0	0	0	0	1	9	+1.0000e+000
572	593	588	633	634	0	0	0	0	1	9	+1.0000e+000
573	594	593	634	635	0	0	0	0	1	9	+1.0000e+000
574	605	601	609	610	0	0	0	0	1	9	+1.0000e+000
575	597	594	635	636	0	0	0	0	1	9	+1.0000e+000
576	599	597	636	637	0	0	0	0	1	9	+1.0000e+000
577	602	599	637	638	0	0	0	0	1	9	+1.0000e+000
578	608	605	610	611	0	0	0	0	1	9	+1.0000e+000
579	603	602	638	639	0	0	0	0	1	9	+1.0000e+000
580	606	603	639	640	0	0	0	0	1	9	+1.0000e+000
581	607	606	640	641	0	0	0	0	1	9	+1.0000e+000
582	609	607	641	642	0	0	0	0	1	9	+1.0000e+000
583	610	609	642	643	0	0	0	0	1	9	+1.0000e+000

584	611	610	643	644	0	0	0	0	1	9	+1.0000e+000
585	644	643	646	645	0	0	0	0	1	9	+1.0000e+000
586	643	642	647	646	0	0	0	0	1	9	+1.0000e+000
587	642	641	649	647	0	0	0	0	1	9	+1.0000e+000
588	641	640	650	649	0	0	0	0	1	9	+1.0000e+000
589	640	639	653	650	0	0	0	0	1	9	+1.0000e+000
590	639	638	654	653	0	0	0	0	1	9	+1.0000e+000
591	645	646	651	648	0	0	0	0	1	9	+1.0000e+000
592	638	637	657	654	0	0	0	0	1	9	+1.0000e+000
593	637	636	659	657	0	0	0	0	1	9	+1.0000e+000
594	636	635	662	659	0	0	0	0	1	9	+1.0000e+000
595	646	647	655	651	0	0	0	0	1	9	+1.0000e+000
596	635	634	663	662	0	0	0	0	1	9	+1.0000e+000
597	634	633	668	663	0	0	0	0	1	9	+1.0000e+000
598	648	651	658	652	0	0	0	0	1	9	+1.0000e+000
599	633	632	669	668	0	0	0	0	1	9	+1.0000e+000
600	647	649	660	655	0	0	0	0	1	9	+1.0000e+000
601	632	631	672	669	0	0	0	0	1	9	+1.0000e+000
602	613	612	675	676	0	0	0	0	3	9	+1.0000e+000
603	614	613	676	677	0	0	0	0	3	9	+1.0000e+000
604	615	614	677	678	0	0	0	0	3	9	+1.0000e+000
605	616	615	678	679	0	0	0	0	3	9	+1.0000e+000
606	617	616	679	680	0	0	0	0	3	9	+1.0000e+000
607	618	617	680	681	0	0	0	0	3	9	+1.0000e+000
608	619	618	681	682	0	0	0	0	3	9	+1.0000e+000
609	620	619	682	683	0	0	0	0	3	9	+1.0000e+000
610	621	620	683	684	0	0	0	0	3	9	+1.0000e+000
611	622	621	684	685	0	0	0	0	3	9	+1.0000e+000
612	623	622	685	686	0	0	0	0	3	9	+1.0000e+000
613	624	623	686	687	0	0	0	0	3	9	+1.0000e+000

614	625	624	687	688	0	0	0	0	3	9	+1.0000e+000
615	626	625	688	689	0	0	0	0	3	9	+1.0000e+000
616	627	626	689	690	0	0	0	0	3	9	+1.0000e+000
617	628	627	690	691	0	0	0	0	3	9	+1.0000e+000
618	629	628	691	692	0	0	0	0	3	9	+1.0000e+000
619	630	629	692	693	0	0	0	0	3	9	+1.0000e+000
620	631	630	693	672	0	0	0	0	1	9	+1.0000e+000
621	649	650	664	660	0	0	0	0	1	9	+1.0000e+000
622	651	655	665	658	0	0	0	0	1	9	+1.0000e+000
623	652	658	666	656	0	0	0	0	1	9	+1.0000e+000
624	650	653	670	664	0	0	0	0	1	9	+1.0000e+000
625	653	654	694	670	0	0	0	0	1	9	+1.0000e+000
626	655	660	673	665	0	0	0	0	1	9	+1.0000e+000
627	656	666	674	661	0	0	0	0	1	9	+1.0000e+000
628	650	665	695	666	0	0	0	0	1	9	+1.0000e+000
629	654	657	696	694	0	0	0	0	1	9	+1.0000e+000
630	668	664	697	673	0	0	0	0	1	9	+1.0000e+000
631	657	659	699	696	0	0	0	0	1	9	+1.0000e+000
632	661	674	698	667	0	0	0	0	1	9	+1.0000e+000
633	659	662	705	699	0	0	0	0	1	9	+1.0000e+000
634	665	673	700	695	0	0	0	0	1	9	+1.0000e+000
635	666	695	701	674	0	0	0	0	1	9	+1.0000e+000
636	664	670	702	697	0	0	0	0	1	9	+1.0000e+000
637	667	698	704	671	0	0	0	0	1	9	+1.0000e+000
638	662	663	706	705	0	0	0	0	1	9	+1.0000e+000
639	663	668	711	706	0	0	0	0	1	9	+1.0000e+000
640	670	694	707	702	0	0	0	0	1	9	+1.0000e+000
641	673	697	708	700	0	0	0	0	1	9	+1.0000e+000
642	674	701	709	698	0	0	0	0	1	9	+1.0000e+000
643	668	669	714	711	0	0	0	0	1	9	+1.0000e+000

644	695	708	710	701	0	0	0	0	1	9	+1.0000e+000	0 0
645	671	704	715	703	0	0	0	0	2	9	+1.0000e+000	0 0
646	694	696	712	707	0	0	0	0	1	9	+1.0000e+000	0 0
647	669	672	718	714	0	0	0	0	1	9	+1.0000e+000	0 0
648	697	702	716	708	0	0	0	0	1	9	+1.0000e+000	0 0
649	672	693	740	718	0	0	0	0	1	9	+1.0000e+000	0 0
650	698	709	717	704	0	0	0	0	1	9	+1.0000e+000	0 0
651	676	675	722	723	0	0	0	0	3	9	+1.0000e+000	0 0
652	677	676	723	724	0	0	0	0	3	9	+1.0000e+000	0 0
653	678	677	724	725	0	0	0	0	3	9	+1.0000e+000	0 0
654	679	678	725	726	0	0	0	0	3	9	+1.0000e+000	0 0
655	680	679	726	727	0	0	0	0	3	9	+1.0000e+000	0 0
656	681	680	727	728	0	0	0	0	3	9	+1.0000e+000	0 0
657	682	681	728	729	0	0	0	0	3	9	+1.0000e+000	0 0
658	683	682	729	730	0	0	0	0	3	9	+1.0000e+000	0 0
659	684	683	730	731	0	0	0	0	3	9	+1.0000e+000	0 0
660	685	684	731	732	0	0	0	0	3	9	+1.0000e+000	0 0
661	686	685	732	733	0	0	0	0	3	9	+1.0000e+000	0 0
662	687	686	733	734	0	0	0	0	3	9	+1.0000e+000	0 0
663	688	687	734	735	0	0	0	0	3	9	+1.0000e+000	0 0
664	689	688	735	736	0	0	0	0	3	9	+1.0000e+000	0 0
665	690	689	736	737	0	0	0	0	3	9	+1.0000e+000	0 0
666	691	690	737	738	0	0	0	0	3	9	+1.0000e+000	0 0
667	692	691	738	739	0	0	0	0	3	9	+1.0000e+000	0 0
668	693	692	739	740	0	0	0	0	3	9	+1.0000e+000	0 0
669	696	699	719	712	0	0	0	0	1	9	+1.0000e+000	0 0
670	700	708	720	710	0	0	0	0	1	9	+1.0000e+000	0 0
671	701	710	721	709	0	0	0	0	1	9	+1.0000e+000	0 0
672	699	705	742	719	0	0	0	0	1	9	+1.0000e+000	0 0
673	702	707	741	716	0	0	0	0	1	9	+1.0000e+000	0 0

674	703	715	744	713	0	0	0	0	2	9	+1.0000e+000	0 0
675	704	717	745	715	0	0	0	0	2	9	+1.0000e+000	0 0
676	705	706	748	742	0	0	0	0	1	9	+1.0000e+000	0 0
677	708	716	746	720	0	0	0	0	1	9	+1.0000e+000	0 0
678	709	721	747	717	0	0	0	0	1	9	+1.0000e+000	0 0
679	707	712	749	741	0	0	0	0	1	9	+1.0000e+000	0 0
680	710	720	750	721	0	0	0	0	1	9	+1.0000e+000	0 0
681	706	711	751	748	0	0	0	0	1	9	+1.0000e+000	0 0
682	712	719	752	749	0	0	0	0	1	9	+1.0000e+000	0 0
683	711	714	757	751	0	0	0	0	1	9	+1.0000e+000	0 0
684	716	741	753	746	0	0	0	0	1	9	+1.0000e+000	0 0
685	713	744	755	743	0	0	0	0	2	9	+1.0000e+000	0 0
686	715	745	756	744	0	0	0	0	2	9	+1.0000e+000	0 0
687	717	747	758	745	0	0	0	0	2	9	+1.0000e+000	0 0
688	720	746	759	750	0	0	0	0	1	9	+1.0000e+000	0 0
689	714	718	762	757	0	0	0	0	1	9	+1.0000e+000	0 0
690	721	750	760	747	0	0	0	0	1	9	+1.0000e+000	0 0
691	719	742	761	752	0	0	0	0	1	9	+1.0000e+000	0 0
692	741	749	763	753	0	0	0	0	1	9	+1.0000e+000	0 0
693	718	740	764	762	0	0	0	0	1	9	+1.0000e+000	0 0
694	723	722	766	767	0	0	0	0	3	9	+1.0000e+000	0 0
695	724	723	767	768	0	0	0	0	3	9	+1.0000e+000	0 0
696	725	724	768	769	0	0	0	0	3	9	+1.0000e+000	0 0
697	726	725	769	770	0	0	0	0	3	9	+1.0000e+000	0 0
698	727	726	770	771	0	0	0	0	3	9	+1.0000e+000	0 0
699	728	727	771	772	0	0	0	0	3	9	+1.0000e+000	0 0
700	729	728	772	773	0	0	0	0	3	9	+1.0000e+000	0 0
701	730	729	773	774	0	0	0	0	3	9	+1.0000e+000	0 0
702	731	730	774	775	0	0	0	0	3	9	+1.0000e+000	0 0
703	732	731	775	776	0	0	0	0	3	9	+1.0000e+000	0 0

704	733	732	776	777	0	0	0	0	3	9	+1.0000e+000	0 0
705	734	733	777	778	0	0	0	0	3	9	+1.0000e+000	0 0
706	735	734	778	779	0	0	0	0	3	9	+1.0000e+000	0 0
707	736	735	779	780	0	0	0	0	3	9	+1.0000e+000	0 0
708	737	736	780	781	0	0	0	0	3	9	+1.0000e+000	0 0
709	738	737	781	782	0	0	0	0	3	9	+1.0000e+000	0 0
710	739	738	782	783	0	0	0	0	3	9	+1.0000e+000	0 0
711	740	739	783	784	0	0	0	0	3	9	+1.0000e+000	0 0
712	742	748	785	761	0	0	0	0	1	9	+1.0000e+000	0 0
713	743	755	765	754	0	0	0	0	2	9	+1.0000e+000	0 0
714	744	756	786	755	0	0	0	0	2	9	+1.0000e+000	0 0
715	746	753	787	759	0	0	0	0	1	9	+1.0000e+000	0 0
716	745	758	788	756	0	0	0	0	2	9	+1.0000e+000	0 0
717	747	760	789	758	0	0	0	0	2	9	+1.0000e+000	0 0
718	750	759	790	760	0	0	0	0	1	9	+1.0000e+000	0 0
719	749	752	791	763	0	0	0	0	1	9	+1.0000e+000	0 0
720	748	751	792	785	0	0	0	0	1	9	+1.0000e+000	0 0
721	754	765	794	764	0	0	0	0	2	9	+1.0000e+000	0 0
722	753	763	795	787	0	0	0	0	1	9	+1.0000e+000	0 0
723	751	757	800	792	0	0	0	0	1	9	+1.0000e+000	0 0
724	752	761	797	791	0	0	0	0	1	9	+1.0000e+000	0 0
725	755	786	796	765	0	0	0	0	2	9	+1.0000e+000	0 0
726	756	788	798	786	0	0	0	0	2	9	+1.0000e+000	0 0
727	758	789	799	788	0	0	0	0	2	9	+1.0000e+000	0 0
728	760	790	801	789	0	0	0	0	2	9	+1.0000e+000	0 0
729	759	787	802	790	0	0	0	0	1	9	+1.0000e+000	0 0
730	757	762	804	800	0	0	0	0	1	9	+1.0000e+000	0 0
731	761	785	805	797	0	0	0	0	1	9	+1.0000e+000	0 0
732	763	791	806	795	0	0	0	0	1	9	+1.0000e+000	0 0
733	764	794	807	793	0	0	0	0	2	9	+1.0000e+000	0 0

734	765	796	808	794	0	0	0	0	2	9	+1.0000e+000	0 0
735	762	784	832	804	0	0	0	0	1	9	+1.0000e+000	0 0
736	766	798	809	796	0	0	0	0	2	9	+1.0000e+000	0 0
737	788	799	810	798	0	0	0	0	2	9	+1.0000e+000	0 0
738	767	766	814	815	0	0	0	0	3	9	+1.0000e+000	0 0
739	768	767	815	816	0	0	0	0	3	9	+1.0000e+000	0 0
740	769	768	816	817	0	0	0	0	3	9	+1.0000e+000	0 0
741	770	769	817	818	0	0	0	0	3	9	+1.0000e+000	0 0
742	787	795	813	802	0	0	0	0	1	9	+1.0000e+000	0 0
743	771	770	818	819	0	0	0	0	3	9	+1.0000e+000	0 0
744	772	771	819	820	0	0	0	0	3	9	+1.0000e+000	0 0
745	773	772	820	821	0	0	0	0	3	9	+1.0000e+000	0 0
746	774	773	821	822	0	0	0	0	3	9	+1.0000e+000	0 0
747	775	774	822	823	0	0	0	0	3	9	+1.0000e+000	0 0
748	789	801	811	799	0	0	0	0	2	9	+1.0000e+000	0 0
749	776	775	823	824	0	0	0	0	3	9	+1.0000e+000	0 0
750	777	776	824	825	0	0	0	0	3	9	+1.0000e+000	0 0
751	778	777	825	826	0	0	0	0	3	9	+1.0000e+000	0 0
752	779	778	826	827	0	0	0	0	3	9	+1.0000e+000	0 0
753	780	779	827	828	0	0	0	0	3	9	+1.0000e+000	0 0
754	781	780	828	829	0	0	0	0	3	9	+1.0000e+000	0 0
755	782	781	829	830	0	0	0	0	3	9	+1.0000e+000	0 0
756	783	782	830	831	0	0	0	0	3	9	+1.0000e+000	0 0
757	784	783	831	832	0	0	0	0	3	9	+1.0000e+000	0 0
758	790	802	812	801	0	0	0	0	2	9	+1.0000e+000	0 0
759	785	792	833	805	0	0	0	0	1	9	+1.0000e+000	0 0
760	791	797	834	806	0	0	0	0	1	9	+1.0000e+000	0 0
761	793	807	835	803	0	0	0	0	2	9	+1.0000e+000	0 0
762	794	808	836	807	0	0	0	0	2	9	+1.0000e+000	0 0
763	792	800	841	833	0	0	0	0	1	9	+1.0000e+000	0 0

0	0											
764	796	809	837	808	0	0	0	0	2	9	+1.0000e+000	
0	0											
765	798	810	838	809	0	0	0	0	2	9	+1.0000e+000	
0	0											
766	795	806	843	813	0	0	0	0	1	9	+1.0000e+000	
0	0											
767	799	811	839	810	0	0	0	0	2	9	+1.0000e+000	
0	0											
768	801	812	840	811	0	0	0	0	2	9	+1.0000e+000	
0	0											
769	802	813	842	812	0	0	0	0	2	9	+1.0000e+000	
0	0											
770	797	805	844	834	0	0	0	0	1	9	+1.0000e+000	
0	0											
771	800	804	847	841	0	0	0	0	1	9	+1.0000e+000	
0	0											
772	807	836	845	835	0	0	0	0	2	9	+1.0000e+000	
0	0											
773	808	837	846	836	0	0	0	0	2	9	+1.0000e+000	
0	0											
774	809	838	848	837	0	0	0	0	2	9	+1.0000e+000	
0	0											
775	806	834	853	843	0	0	0	0	1	9	+1.0000e+000	
0	0											
776	810	839	849	838	0	0	0	0	2	9	+1.0000e+000	
0	0											
777	805	833	854	844	0	0	0	0	1	9	+1.0000e+000	
0	0											
778	811	840	850	839	0	0	0	0	2	9	+1.0000e+000	
0	0											
779	812	842	851	840	0	0	0	0	2	9	+1.0000e+000	
0	0											
780	804	832	873	847	0	0	0	0	1	9	+1.0000e+000	
0	0											
781	813	843	852	842	0	0	0	0	2	9	+1.0000e+000	
0	0											
782	815	814	855	856	0	0	0	0	3	9	+1.0000e+000	
0	0											
783	816	815	856	857	0	0	0	0	3	9	+1.0000e+000	
0	0											
784	817	816	857	858	0	0	0	0	3	9	+1.0000e+000	
0	0											
785	818	817	858	859	0	0	0	0	3	9	+1.0000e+000	
0	0											
786	819	818	859	860	0	0	0	0	3	9	+1.0000e+000	
0	0											
787	820	819	860	861	0	0	0	0	3	9	+1.0000e+000	
0	0											
788	821	820	861	862	0	0	0	0	3	9	+1.0000e+000	
0	0											
789	822	821	862	863	0	0	0	0	3	9	+1.0000e+000	
0	0											
790	823	822	863	864	0	0	0	0	3	9	+1.0000e+000	
0	0											
791	824	823	864	865	0	0	0	0	3	9	+1.0000e+000	
0	0											
792	825	824	865	866	0	0	0	0	3	9	+1.0000e+000	
0	0											
793	826	825	866	867	0	0	0	0	3	9	+1.0000e+000	

0	0											
794	827	826	867	868	0	0	0	0	3	9	+1.0000e+000	
0	0											
795	828	827	868	869	0	0	0	0	3	9	+1.0000e+000	
0	0											
796	829	828	869	870	0	0	0	0	3	9	+1.0000e+000	
0	0											
797	830	829	870	871	0	0	0	0	3	9	+1.0000e+000	
0	0											
798	831	830	871	872	0	0	0	0	3	9	+1.0000e+000	
0	0											
799	832	831	872	873	0	0	0	0	3	9	+1.0000e+000	
0	0											
800	836	846	874	845	0	0	0	0	2	9	+1.0000e+000	
0	0											
801	833	841	881	854	0	0	0	0	1	9	+1.0000e+000	
0	0											
802	837	848	875	846	0	0	0	0	2	9	+1.0000e+000	
0	0											
803	834	844	882	853	0	0	0	0	1	9	+1.0000e+000	
0	0											
804	838	849	876	848	0	0	0	0	2	9	+1.0000e+000	
0	0											
805	839	850	877	849	0	0	0	0	2	9	+1.0000e+000	
0	0											
806	840	851	878	850	0	0	0	0	2	9	+1.0000e+000	
0	0											
807	842	852	879	851	0	0	0	0	2	9	+1.0000e+000	
0	0											
808	843	853	880	852	0	0	0	0	2	9	+1.0000e+000	
0	0											
809	841	847	886	881	0	0	0	0	1	9	+1.0000e+000	
0	0											
810	846	875	883	874	0	0	0	0	2	9	+1.0000e+000	
0	0											
811	844	854	891	882	0	0	0	0	1	9	+1.0000e+000	
0	0											
812	848	876	884	875	0	0	0	0	2	9	+1.0000e+000	
0	0											
813	849	877	885	876	0	0	0	0	2	9	+1.0000e+000	
0	0											
814	850	878	887	877	0	0	0	0	2	9	+1.0000e+000	
0	0											
815	851	879	888	878	0	0	0	0	2	9	+1.0000e+000	
0	0											
816	852	880	889	879	0	0	0	0	2	9	+1.0000e+000	
0	0											
817	853	882	890	880	0	0	0	0	2	9	+1.0000e+000	
0	0											
818	847	873	894	886	0	0	0	0	1	9	+1.0000e+000	
0	0											
819	873	872	893	894	0	0	0	0	3	9	+1.0000e+000	
0	0											
820	865	864	895	896	0	0	0	0	3	9	+1.0000e+000	
0	0											
821	866	865	896	897	0	0	0	0	3	9	+1.0000e+000	
0	0											
822	867	866	897	898	0	0	0	0	3	9	+1.0000e+000	
0	0											
823	868	867	898	899	0	0	0	0	3	9	+1.0000e+000	

0	0											
824	869	868	899	900	0	0	0	0	3	9	+1.0000e+000	
0	0											
825	870	869	900	901	0	0	0	0	3	9	+1.0000e+000	
0	0											
826	871	870	901	902	0	0	0	0	3	9	+1.0000e+000	
0	0											
827	872	871	902	893	0	0	0	0	3	9	+1.0000e+000	
0	0											
828	856	855	903	904	0	0	0	0	3	9	+1.0000e+000	
0	0											
829	857	856	904	905	0	0	0	0	3	9	+1.0000e+000	
0	0											
830	858	857	905	906	0	0	0	0	3	9	+1.0000e+000	
0	0											
831	859	858	906	907	0	0	0	0	3	9	+1.0000e+000	
0	0											
832	860	859	907	908	0	0	0	0	3	9	+1.0000e+000	
0	0											
833	861	860	908	909	0	0	0	0	3	9	+1.0000e+000	
0	0											
834	862	861	909	910	0	0	0	0	3	9	+1.0000e+000	
0	0											
835	863	862	910	911	0	0	0	0	3	9	+1.0000e+000	
0	0											
836	864	863	911	895	0	0	0	0	3	9	+1.0000e+000	
0	0											
837	854	881	918	891	0	0	0	0	1	9	+1.0000e+000	
0	0											
838	875	884	892	883	0	0	0	0	2	9	+1.0000e+000	
0	0											
839	876	885	912	884	0	0	0	0	2	9	+1.0000e+000	
0	0											
840	877	887	913	885	0	0	0	0	2	9	+1.0000e+000	
0	0											
841	878	888	914	887	0	0	0	0	2	9	+1.0000e+000	
0	0											
842	879	889	915	888	0	0	0	0	2	9	+1.0000e+000	
0	0											
843	880	890	916	889	0	0	0	0	2	9	+1.0000e+000	
0	0											
844	882	891	917	890	0	0	0	0	2	9	+1.0000e+000	
0	0											
845	881	886	926	918	0	0	0	0	1	9	+1.0000e+000	
0	0											
846	884	912	919	892	0	0	0	0	2	9	+1.0000e+000	
0	0											
847	885	913	920	912	0	0	0	0	2	9	+1.0000e+000	
0	0											
848	887	914	921	913	0	0	0	0	2	9	+1.0000e+000	
0	0											
849	888	915	922	914	0	0	0	0	2	9	+1.0000e+000	
0	0											
850	889	916	923	915	0	0	0	0	2	9	+1.0000e+000	
0	0											
851	890	917	924	916	0	0	0	0	2	9	+1.0000e+000	
0	0											
852	891	918	925	917	0	0	0	0	2	9	+1.0000e+000	
0	0											
853	886	894	936	926	0	0	0	0	1	9	+1.0000e+000	

0	0											
854	912	920	927	919	0	0	0	0	2	9	+1.0000e+000	
0	0											
855	913	921	928	920	0	0	0	0	2	9	+1.0000e+000	
0	0											
856	893	902	934	935	0	0	0	0	3	9	+1.0000e+000	
0	0											
857	894	893	935	936	0	0	0	0	3	9	+1.0000e+000	
0	0											
858	897	896	937	938	0	0	0	0	3	9	+1.0000e+000	
0	0											
859	898	897	938	939	0	0	0	0	3	9	+1.0000e+000	
0	0											
860	899	898	939	940	0	0	0	0	3	9	+1.0000e+000	
0	0											
861	900	899	940	941	0	0	0	0	3	9	+1.0000e+000	
0	0											
862	901	900	941	942	0	0	0	0	3	9	+1.0000e+000	
0	0											
863	902	901	942	934	0	0	0	0	3	9	+1.0000e+000	
0	0											
864	895	911	946	947	0	0	0	0	3	9	+1.0000e+000	
0	0											
865	896	895	947	937	0	0	0	0	3	9	+1.0000e+000	
0	0											
866	909	908	943	944	0	0	0	0	3	9	+1.0000e+000	
0	0											
867	910	909	944	945	0	0	0	0	3	9	+1.0000e+000	
0	0											
868	911	910	945	946	0	0	0	0	3	9	+1.0000e+000	
0	0											
869	914	922	929	921	0	0	0	0	2	9	+1.0000e+000	
0	0											
870	904	903	948	949	0	0	0	0	3	9	+1.0000e+000	
0	0											
871	905	904	949	950	0	0	0	0	3	9	+1.0000e+000	
0	0											
872	906	905	950	951	0	0	0	0	3	9	+1.0000e+000	
0	0											
873	907	906	951	952	0	0	0	0	3	9	+1.0000e+000	
0	0											
874	908	907	952	943	0	0	0	0	3	9	+1.0000e+000	
0	0											
875	915	923	930	922	0	0	0	0	2	9	+1.0000e+000	
0	0											
876	916	924	931	923	0	0	0	0	2	9	+1.0000e+000	
0	0											
877	917	925	932	924	0	0	0	0	2	9	+1.0000e+000	
0	0											
878	918	926	933	925	0	0	0	0	2	9	+1.0000e+000	
0	0											
879	920	928	953	927	0	0	0	0	2	9	+1.0000e+000	
0	0											
880	921	929	954	928	0	0	0	0	2	9	+1.0000e+000	
0	0											
881	922	930	955	929	0	0	0	0	2	9	+1.0000e+000	
0	0											
882	923	931	956	930	0	0	0	0	2	9	+1.0000e+000	
0	0											
883	924	932	957	931	0	0	0	0	2	9	+1.0000e+000	

884	925	933	958	932	0	0	0	0	2	9	+1.0000e+000	0 0
885	926	936	960	933	0	0	0	0	2	9	+1.0000e+000	0 0
886	936	959	960	0	0	0	0	0	2	3	+1.0000e+000	0 0
887	959	936	935	961	0	0	0	0	3	4	+1.0000e+000	0 0
888	935	934	962	961	0	0	0	0	3	4	+1.0000e+000	0 0
889	934	942	963	962	0	0	0	0	3	4	+1.0000e+000	0 0
890	937	947	964	965	0	0	0	0	3	9	+1.0000e+000	0 0
891	938	937	965	966	0	0	0	0	3	9	+1.0000e+000	0 0
892	939	938	966	967	0	0	0	0	3	9	+1.0000e+000	0 0
893	940	939	967	968	0	0	0	0	3	9	+1.0000e+000	0 0
894	941	940	968	969	0	0	0	0	3	9	+1.0000e+000	0 0
895	942	941	969	963	0	0	0	0	3	9	+1.0000e+000	0 0
896	943	952	972	973	0	0	0	0	3	9	+1.0000e+000	0 0
897	944	943	973	974	0	0	0	0	3	9	+1.0000e+000	0 0
898	945	944	974	975	0	0	0	0	3	9	+1.0000e+000	0 0
899	946	945	975	976	0	0	0	0	3	9	+1.0000e+000	0 0
900	947	946	976	964	0	0	0	0	3	9	+1.0000e+000	0 0
901	951	950	970	971	0	0	0	0	3	9	+1.0000e+000	0 0
902	952	951	971	972	0	0	0	0	3	9	+1.0000e+000	0 0
903	949	948	977	978	0	0	0	0	3	9	+1.0000e+000	0 0
904	950	949	978	970	0	0	0	0	3	9	+1.0000e+000	0 0
905	928	954	979	953	0	0	0	0	2	9	+1.0000e+000	0 0
906	929	955	980	954	0	0	0	0	2	9	+1.0000e+000	0 0
907	930	956	981	955	0	0	0	0	2	9	+1.0000e+000	0 0
908	931	957	982	956	0	0	0	0	2	9	+1.0000e+000	0 0
909	932	958	983	957	0	0	0	0	2	9	+1.0000e+000	0 0
910	933	960	985	958	0	0	0	0	2	9	+1.0000e+000	0 0
911	959	961	984	0	0	0	0	0	3	3	+1.0000e+000	0 0
912	960	959	984	985	0	0	0	0	2	4	+1.0000e+000	0 0
913	954	980	987	979	0	0	0	0	2	9	+1.0000e+000	0 0

944	986	990	1021	1015	0	0	0	0	3	4	+1.0000e+000	0 0
945	988	996	1018	1019	0	0	0	0	3	9	+1.0000e+000	0 0
946	989	988	1019	1020	0	0	0	0	3	9	+1.0000e+000	0 0
947	990	989	1020	1021	0	0	0	0	3	9	+1.0000e+000	0 0
948	995	994	1016	1017	0	0	0	0	3	9	+1.0000e+000	0 0
949	996	995	1017	1018	0	0	0	0	3	9	+1.0000e+000	0 0
950	991	1003	1024	1025	0	0	0	0	3	9	+1.0000e+000	0 0
951	992	991	1025	1026	0	0	0	0	3	9	+1.0000e+000	0 0
952	993	992	1026	1027	0	0	0	0	3	9	+1.0000e+000	0 0
953	994	993	1027	1016	0	0	0	0	3	9	+1.0000e+000	0 0
954	1002	1001	1022	1023	0	0	0	0	3	9	+1.0000e+000	0 0
955	1003	1002	1023	1024	0	0	0	0	3	9	+1.0000e+000	0 0
956	998	997	1028	1029	0	0	0	0	3	9	+1.0000e+000	0 0
957	999	998	1029	1030	0	0	0	0	3	9	+1.0000e+000	0 0
958	1000	999	1030	1031	0	0	0	0	3	9	+1.0000e+000	0 0
959	1001	1000	1031	1022	0	0	0	0	3	9	+1.0000e+000	0 0
960	1004	1010	1032	1009	0	0	0	0	2	9	+1.0000e+000	0 0
961	1005	1011	1033	1010	0	0	0	0	2	9	+1.0000e+000	0 0
962	1006	1014	1036	1011	0	0	0	0	2	9	+1.0000e+000	0 0
963	1012	1015	1034	0	0	0	0	0	3	3	+1.0000e+000	0 0
964	1013	1012	1034	1035	0	0	0	0	2	4	+1.0000e+000	0 0
965	1014	1013	1035	1036	0	0	0	0	2	4	+1.0000e+000	0 0
966	1010	1033	1053	1032	0	0	0	0	2	9	+1.0000e+000	0 0
967	1011	1036	1057	1033	0	0	0	0	2	9	+1.0000e+000	0 0
968	1016	1027	1038	1039	0	0	0	0	3	9	+1.0000e+000	0 0
969	1017	1016	1039	1040	0	0	0	0	3	9	+1.0000e+000	0 0
970	1018	1017	1040	1041	0	0	0	0	3	9	+1.0000e+000	0 0
971	1019	1018	1041	1042	0	0	0	0	3	9	+1.0000e+000	0 0
972	1020	1019	1042	1043	0	0	0	0	3	9	+1.0000e+000	0 0
973	1021	1020	1043	1044	0	0	0	0	3	9	+1.0000e+000	0 0

914	955	981	1004	980	0	0	0	0	2	9	+1.0000e+000	0 0
915	956	982	1005	981	0	0	0	0	2	9	+1.0000e+000	0 0
916	957	983	1006	982	0	0	0	0	2	9	+1.0000e+000	0 0
917	958	985	1007	983	0	0	0	0	2	9	+1.0000e+000	0 0
918	962	963	990	986	0	0	0	0	3	4	+1.0000e+000	0 0
919	963	969	989	990	0	0	0	0	3	9	+1.0000e+000	0 0
920	969	968	988	989	0	0	0	0	3	9	+1.0000e+000	0 0
921	964	976	992	993	0	0	0	0	3	9	+1.0000e+000	0 0
922	965	964	993	994	0	0	0	0	3	9	+1.0000e+000	0 0
923	966	965	994	995	0	0	0	0	3	9	+1.0000e+000	0 0
924	967	966	995	996	0	0	0	0	3	9	+1.0000e+000	0 0
925	968	967	996	988	0	0	0	0	3	9	+1.0000e+000	0 0
926	976	975	991	992	0	0	0	0	3	9	+1.0000e+000	0 0
927	970	978	998	999	0	0	0	0	3	9	+1.0000e+000	0 0
928	971	970	999	1000	0	0	0	0	3	9	+1.0000e+000	0 0
929	972	971	1000	1001	0	0	0	0	3	9	+1.0000e+000	0 0
930	973	972	1001	1002	0	0	0	0	3	9	+1.0000e+000	0 0
931	974	973	1002	1003	0	0	0	0	3	9	+1.0000e+000	0 0
932	975	974	1003	991	0	0	0	0	3	9	+1.0000e+000	0 0
933	978	977	997	998	0	0	0	0	3	9	+1.0000e+000	0 0
934	961	962	986	1008	0	0	0	0	3	4	+1.0000e+000	0 0
935	984	961	1008	0	0	0	0	0	3	3	+1.0000e+000	0 0
936	985	984	1008	1007	0	0	0	0	2	4	+1.0000e+000	0 0
937	988	1004	1009	987	0	0	0	0	2	9	+1.0000e+000	0 0
938	981	1005	1010	1004	0	0	0	0	2	9	+1.0000e+000	0 0
939	982	1006	1011	1005	0	0	0	0	2	9	+1.0000e+000	0 0
940	983	1007	1014	1006	0	0	0	0	2	9	+1.0000e+000	0 0
941	1008	1012	1013	0	0	0	0	0	2	3	+1.0000e+000	0 0
942	1007	1008	1013	1014	0	0	0	0	2	4	+1.0000e+000	0 0
943	1012	1008	986	1015	0	0	0	0	3	4	+1.0000e+000	0 0

974	1027	1026	1037	1038	0	0	0	0	3	9	+1.0000e+000	0 0
975	1022	1031	1048	1049	0	0	0	0	3	9	+1.0000e+000	0 0
976	1023	1022	1049	1050	0	0	0	0	3	9	+1.0000e+000	0 0
977	1024	1023	1050	1051	0	0	0	0	3	9	+1.0000e+000	0 0
978	1025	1024	1051	1052	0	0	0	0	3	9	+1.0000e+000	0 0
979	1026	1025	1052	1037	0	0	0	0	3	9	+1.0000e+000	0 0
980	1029	1028	1045	1046	0	0	0	0	3	9	+1.0000e+000	0 0
981	1030	1029	1046	1047	0	0	0	0	3	9	+1.0000e+000	0 0
982	1031	1030	1047	1048	0	0	0	0	3	9	+1.0000e+000	0 0
983	1015	1021	1044	1054	0	0	0	0	3	4	+1.0000e+000	0 0
984	1034	1015	1054	0	0	0	0	0	3	3	+1.0000e+000	0 0
985	1034	1054	1055	0	0	0	0	0	2	3	+1.0000e+000	0 0
986	1035	1034	1055	1056	0	0	0	0	2	4	+1.0000e+000	0 0
987	1036	1035	1056	1057	0	0	0	0	2	4	+1.0000e+000	0 0
988	1033	1057	1058	1053	0	0	0	0	2	9	+1.0000e+000	0 0
989	1043	1042	1059	1060	0	0	0	0	3	9	+1.0000e+000	0 0
990	1044	1043	1060	1061	0	0	0	0	3	9	+1.0000e+000	0 0
991	1037	1052	1065	1066	0	0	0	0	3	9	+1.0000e+000	0 0
992	1038	1037	1066	1067	0	0	0	0	3	9	+1.0000e+000	0 0
993	1039	1038	1067	1068	0	0	0	0	3	9	+1.0000e+000	0 0
994	1040	1039	1068	1069	0	0	0	0	3	9	+1.0000e+000	0 0
995	1041	1040	1069	1070	0	0	0	0	3	9	+1.0000e+000	0 0
996	1042	1041	1070	1059	0	0	0	0	3	9	+1.0000e+000	0 0
997	1050	1049	1062	1063	0	0	0	0	3	9	+1.0000e+000	0 0
998	1051	1050	1063	1064	0	0	0	0	3	9	+1.0000e+000	0 0
999	1052	1051	1064	1065	0	0	0	0	3	9	+1.0000e+000	0 0
1000	1046	1045	1071	1072	0	0	0	0	3	9	+1.0000e+000	0 0
1001	1047	1046	1072	1073	0	0	0	0	3	9	+1.0000e+000	0 0
1002	1048	1047	1073	1074	0	0	0	0	3	9	+1.0000e+000	0 0
1003	1049	1048	1074	1062	0	0	0	0	3	9	+1.0000e+000	0 0

0	0										
1004	1057	1056	1075	1058	0	0	0	0	2	4	+1.0000e+000
0	0										
1005	1056	1055	1076	1075	0	0	0	0	2	4	+1.0000e+000
0	0										
1006	1078	1054	1044	1061	0	0	0	0	3	4	+1.0000e+000
0	0										
1007	1055	1054	1077	1076	0	0	0	0	2	4	+1.0000e+000
0	0										
1008	1077	1054	1078	0	0	0	0	0	2	3	+1.0000e+000
0	0										
1009	1058	1075	1096	1095	0	0	0	0	2	9	+1.0000e+000
0	0										
1010	1059	1070	1080	1081	0	0	0	0	3	9	+1.0000e+000
0	0										
1011	1060	1059	1081	1082	0	0	0	0	3	9	+1.0000e+000
0	0										
1012	1061	1060	1082	1083	0	0	0	0	3	9	+1.0000e+000
0	0										
1013	1070	1069	1079	1080	0	0	0	0	3	9	+1.0000e+000
0	0										
1014	1062	1074	1087	1088	0	0	0	0	3	9	+1.0000e+000
0	0										
1015	1063	1062	1088	1089	0	0	0	0	3	9	+1.0000e+000
0	0										
1016	1064	1063	1089	1090	0	0	0	0	3	9	+1.0000e+000
0	0										
1017	1065	1064	1090	1091	0	0	0	0	3	9	+1.0000e+000
0	0										
1018	1066	1065	1091	1092	0	0	0	0	3	9	+1.0000e+000
0	0										
1019	1067	1066	1092	1093	0	0	0	0	3	9	+1.0000e+000
0	0										
1020	1068	1067	1093	1094	0	0	0	0	3	9	+1.0000e+000
0	0										
1021	1069	1068	1094	1079	0	0	0	0	3	9	+1.0000e+000
0	0										
1022	1072	1071	1084	1085	0	0	0	0	3	9	+1.0000e+000
0	0										
1023	1073	1072	1085	1086	0	0	0	0	3	9	+1.0000e+000
0	0										
1024	1074	1073	1086	1087	0	0	0	0	3	9	+1.0000e+000
0	0										
1025	1075	1076	1097	1096	0	0	0	0	2	9	+1.0000e+000
0	0										
1026	1078	1061	1083	1099	0	0	0	0	3	4	+1.0000e+000
0	0										
1027	1076	1077	1098	1097	0	0	0	0	2	9	+1.0000e+000
0	0										
1028	1077	1078	1099	1098	0	0	0	0	2	9	+1.0000e+000
0	0										
1029	1079	1094	1106	1107	0	0	0	0	3	9	+1.0000e+000
0	0										
1030	1080	1079	1107	1108	0	0	0	0	3	9	+1.0000e+000
0	0										
1031	1081	1080	1108	1109	0	0	0	0	3	9	+1.0000e+000
0	0										
1032	1082	1081	1109	1110	0	0	0	0	3	9	+1.0000e+000
0	0										
1033	1083	1082	1110	1111	0	0	0	0	3	9	+1.0000e+000

0	0										
1034	1083	1111	1100	1099	0	0	0	0	3	4	+1.0000e+000
0	0										
1035	1092	1091	1103	1104	0	0	0	0	3	9	+1.0000e+000
0	0										
1036	1093	1092	1104	1105	0	0	0	0	3	9	+1.0000e+000
0	0										
1037	1094	1093	1105	1106	0	0	0	0	3	9	+1.0000e+000
0	0										
1038	1085	1084	1112	1113	0	0	0	0	3	9	+1.0000e+000
0	0										
1039	1086	1085	1113	1114	0	0	0	0	3	9	+1.0000e+000
0	0										
1040	1087	1086	1114	1115	0	0	0	0	3	9	+1.0000e+000
0	0										
1041	1088	1087	1115	1116	0	0	0	0	3	9	+1.0000e+000
0	0										
1042	1089	1088	1116	1117	0	0	0	0	3	9	+1.0000e+000
0	0										
1043	1090	1089	1117	1118	0	0	0	0	3	9	+1.0000e+000
0	0										
1044	1091	1090	1118	1103	0	0	0	0	3	9	+1.0000e+000
0	0										
1045	1098	1099	1100	1101	0	0	0	0	2	9	+1.0000e+000
0	0										
1046	1097	1098	1101	1102	0	0	0	0	2	9	+1.0000e+000
0	0										
1047	1096	1097	1102	1119	0	0	0	0	2	9	+1.0000e+000
0	0										
1048	1095	1096	1119	1120	0	0	0	0	2	9	+1.0000e+000
0	0										
1049	1100	1111	1121	0	0	0	0	0	3	3	+1.0000e+000
0	0										
1050	1101	1100	1121	1122	0	0	0	0	2	9	+1.0000e+000
0	0										
1051	1102	1101	1122	1123	0	0	0	0	2	9	+1.0000e+000
0	0										
1052	1110	1109	1124	1125	0	0	0	0	3	9	+1.0000e+000
0	0										
1053	1111	1110	1125	1126	0	0	0	0	3	9	+1.0000e+000
0	0										
1054	1103	1118	1131	1132	0	0	0	0	3	9	+1.0000e+000
0	0										
1055	1104	1103	1132	1133	0	0	0	0	3	9	+1.0000e+000
0	0										
1056	1105	1104	1133	1134	0	0	0	0	3	9	+1.0000e+000
0	0										
1057	1106	1105	1134	1135	0	0	0	0	3	9	+1.0000e+000
0	0										
1058	1107	1106	1135	1136	0	0	0	0	3	9	+1.0000e+000
0	0										
1059	1108	1107	1136	1137	0	0	0	0	3	9	+1.0000e+000
0	0										
1060	1109	1108	1137	1124	0	0	0	0	3	9	+1.0000e+000
0	0										
1061	1115	1114	1127	1128	0	0	0	0	3	9	+1.0000e+000
0	0										
1062	1116	1115	1128	1129	0	0	0	0	3	9	+1.0000e+000
0	0										
1063	1117	1116	1129	1130	0	0	0	0	3	9	+1.0000e+000

0	0										
1064	1118	1117	1130	1131	0	0	0	0	3	9	+1.0000e+000
0	0										
1065	1113	1112	1138	1139	0	0	0	0	3	9	+1.0000e+000
0	0										
1066	1114	1113	1139	1127	0	0	0	0	3	9	+1.0000e+000
0	0										
1067	1121	1111	1126	1140	0	0	0	0	3	4	+1.0000e+000
0	0										
1068	1119	1102	1123	1141	0	0	0	0	2	9	+1.0000e+000
0	0										
1069	1120	1119	1141	1142	0	0	0	0	2	9	+1.0000e+000
0	0										
1070	1122	1121	1140	1143	0	0	0	0	2	9	+1.0000e+000
0	0										
1071	1123	1122	1143	1145	0	0	0	0	2	9	+1.0000e+000
0	0										
1072	1141	1123	1145	1162	0	0	0	0	2	9	+1.0000e+000
0	0										
1073	1124	1137	1148	1149	0	0	0	0	3	9	+1.0000e+000
0	0										
1074	1125	1124	1149	1150	0	0	0	0	3	9	+1.0000e+000
0	0										
1075	1126	1125	1150	1151	0	0	0	0	3	9	+1.0000e+000
0	0										
1076	1144	1140	1126	1151	0	0	0	0	3	4	+1.0000e+000
0	0										
1077	1136	1135	1146	1147	0	0	0	0	3	9	+1.0000e+000
0	0										
1078	1137	1136	1147	1148	0	0	0	0	3	9	+1.0000e+000
0	0										
1079	1127	1139	1153	1154	0	0	0	0	3	9	+1.0000e+000
0	0										
1080	1128	1127	1154	1155	0	0	0	0	3	9	+1.0000e+000
0	0										
1081	1129	1128	1155	1156	0	0	0	0	3	9	+1.0000e+000
0	0										
1082	1130	1129	1156	1157	0	0	0	0	3	9	+1.0000e+000
0	0										
1083	1131	1130	1157	1158	0	0	0	0	3	9	+1.0000e+000
0	0										
1084	1132	1131	1158	1159	0	0	0	0	3	9	+1.0000e+000
0	0										
1085	1133	1132	1159	1160	0	0	0	0	3	9	+1.0000e+000
0	0										
1086	1134	1133	1160	1161	0	0	0	0	3	9	+1.0000e+000
0	0										
1087	1135	1134	1161	1146	0	0	0	0	3	9	+1.0000e+000
0	0										
1088	1139	1138	1152	1153	0	0	0	0	3	9	+1.0000e+000
0	0										
1089	1143	1140	1144	1163	0	0	0	0	2	9	+1.0000e+000
0	0										
1090	1142	1141	1162	1165	0	0	0	0	2	9	+1.0000e+000
0	0										
1091	1164	1144	1151	0	0	0	0	0	3	3	+1.0000e+000
0	0										
1092	1145	1143	1163	1166	0	0	0	0	2	9	+1.0000e+000
0	0										
1093	1163	1144	1164	1167	0	0	0	0	2	9	+1.0000e+000

0	0										
1094	1162	1145	1166	1185	0	0	0	0	2	9	+1.0000e+000
0	0										
1095	1146	1161	1175	1176	0	0	0	0	3	9	+1.0000e+000
0	0										
1096	1147	1146	1176	1177	0	0	0	0	3	9	+1.0000e+000
0	0										
1097	1148	1147	1177	1178	0	0	0	0	3	9	+1.0000e+000
0	0										
1098	1149	1148	1178	1179	0	0	0	0	3	9	+1.0000e+000
0	0										
1099	1150	1149	1179	1180	0	0	0	0	3	9	+1.0000e+000
0	0										
1100	1151	1150	1180	1181	0	0	0	0	3	9	+1.0000e+000
0	0										
1101	1151	1181	1168	1164	0	0	0	0	3	4	+1.0000e+000
0	0										
1102	1156	1155	1169	1170	0	0	0	0	3	9	+1.0000e+000
0	0										
1103	1157	1156	1170	1171	0	0	0	0	3	9	+1.0000e+000
0	0										
1104	1158	1157	1171	1172	0	0	0	0	3	9	+1.0000e+000
0	0										
1105	1159	1158	1172	1173	0	0	0	0	3	9	+1.0000e+000
0	0										
1106	1160	1159	1173	1174	0	0	0	0	3	9	+1.0000e+000
0	0										
1107	1161	1160	1174	1175	0	0	0	0	3	9	+1.0000e+000
0	0										
1108	1153	1152	1182	1183	0	0	0	0	3	9	+1.0000e+000
0	0										
1109	1154	1153	1183	1184	0	0	0	0	3	9	+1.0000e+000
0	0										
1110	1155	1154	1184	1169	0	0	0	0	3	9	+1.0000e+000
0	0										
1111	1165	1162	1185	1188	0	0	0	0	2	9	+1.0000e+000
0	0										
1112	1166	1163	1167	1186	0	0	0	0	2	9	+1.0000e+000
0	0										
1113	1167	1164	1168	1189	0	0	0	0	2	9	+1.0000e+000
0	0										
1114	1185	1166	1186	1206	0	0	0	0	2	9	+1.0000e+000
0	0										
1115	1187	1168	1181	1205	0	0	0	0	3	4	+1.0000e+000
0	0										
1116	1169	1184	1192	1193	0	0	0	0	3	9	+1.0000e+000
0	0										
1117	1170	1169	1193	1194	0	0	0	0	3	9	+1.0000e+000
0	0										
1118	1171	1170	1194	1195	0	0	0	0	3	9	+1.0000e+000
0	0										
1119	1172	1171	1195	1196	0	0	0	0	3	9	+1.0000e+000
0	0										
1120	1173	1172	1196	1197	0	0	0	0	3	9	+1.0000e+000
0	0										
1121	1174	1173	1197	1198	0	0	0	0	3	9	+1.0000e+000
0	0										
1122	1175	1174	1198	1199	0	0	0	0	3	9	+1.0000e+000
0	0										
1123	1176	1175	1199	1200	0	0	0	0	3	9	+1.0000e+000

1124	1177	1176	1200	1201	0	0	0	0	3	9	+1.0000e+000
1125	1178	1177	1201	1202	0	0	0	0	3	9	+1.0000e+000
1126	1179	1178	1202	1203	0	0	0	0	3	9	+1.0000e+000
1127	1180	1179	1203	1204	0	0	0	0	3	9	+1.0000e+000
1128	1181	1180	1204	1205	0	0	0	0	3	9	+1.0000e+000
9	1183	1182	1190	1191	0	0	0	0	3	9	+1.0000e+000
1130	1184	1183	1191	1192	0	0	0	0	3	9	+1.0000e+000
1131	1186	1167	1189	1207	0	0	0	0	2	9	+1.0000e+000
1132	1189	1168	1187	1208	0	0	0	0	2	9	+1.0000e+000
1133	1188	1185	1206	1209	0	0	0	0	2	9	+1.0000e+000
1134	1208	1187	1205	1214	0	0	0	0	3	4	+1.0000e+000
1135	1206	1186	1207	1226	0	0	0	0	2	9	+1.0000e+000
1136	1207	1189	1208	1227	0	0	0	0	2	9	+1.0000e+000
1137	1202	1201	1210	1211	0	0	0	0	3	9	+1.0000e+000
1138	1203	1202	1211	1212	0	0	0	0	3	9	+1.0000e+000
1139	1204	1203	1212	1213	0	0	0	0	3	9	+1.0000e+000
1140	1205	1204	1213	1214	0	0	0	0	3	9	+1.0000e+000
1141	1191	1190	1215	1216	0	0	0	0	3	9	+1.0000e+000
1142	1192	1191	1216	1217	0	0	0	0	3	9	+1.0000e+000
1143	1193	1192	1217	1218	0	0	0	0	3	9	+1.0000e+000
1144	1194	1193	1218	1219	0	0	0	0	3	9	+1.0000e+000
1145	1195	1194	1219	1220	0	0	0	0	3	9	+1.0000e+000
1146	1196	1195	1220	1221	0	0	0	0	3	9	+1.0000e+000
1147	1197	1196	1221	1222	0	0	0	0	3	9	+1.0000e+000
1148	1198	1197	1222	1223	0	0	0	0	3	9	+1.0000e+000
1149	1199	1198	1223	1224	0	0	0	0	3	9	+1.0000e+000
1150	1200	1199	1224	1225	0	0	0	0	3	9	+1.0000e+000
1151	1201	1200	1225	1210	0	0	0	0	3	9	+1.0000e+000
1152	1209	1206	1226	1228	0	0	0	0	2	9	+1.0000e+000
1153	1244	1227	1208	1214	0	0	0	0	3	4	+1.0000e+000

1154	1226	1207	1227	1245	0	0	0	0	2	9	+1.0000e+000
1155	1210	1225	1239	1240	0	0	0	0	3	9	+1.0000e+000
1156	1211	1210	1240	1241	0	0	0	0	3	9	+1.0000e+000
1157	1212	1211	1241	1242	0	0	0	0	3	9	+1.0000e+000
1158	1213	1212	1242	1243	0	0	0	0	3	9	+1.0000e+000
1159	1214	1213	1243	1244	0	0	0	0	3	9	+1.0000e+000
1160	1216	1215	1229	1230	0	0	0	0	3	9	+1.0000e+000
1161	1217	1216	1230	1231	0	0	0	0	3	9	+1.0000e+000
1162	1218	1217	1231	1232	0	0	0	0	3	9	+1.0000e+000
1163	1219	1218	1232	1233	0	0	0	0	3	9	+1.0000e+000
1164	1220	1219	1233	1234	0	0	0	0	3	9	+1.0000e+000
1165	1221	1220	1234	1235	0	0	0	0	3	9	+1.0000e+000
1166	1222	1221	1235	1236	0	0	0	0	3	9	+1.0000e+000
1167	1223	1222	1236	1237	0	0	0	0	3	9	+1.0000e+000
1168	1224	1223	1237	1238	0	0	0	0	3	9	+1.0000e+000
1169	1225	1224	1238	1239	0	0	0	0	3	9	+1.0000e+000
1170	1228	1226	1245	1247	0	0	0	0	2	9	+1.0000e+000
1171	1245	1227	1246	0	0	0	0	0	3	3	+1.0000e+000
1172	1244	1251	1246	1227	0	0	0	0	3	4	+1.0000e+000
1173	1241	1248	1249	1242	0	0	0	0	3	4	+1.0000e+000
1174	1243	1242	1249	1250	0	0	0	0	3	4	+1.0000e+000
1175	1244	1243	1250	1251	0	0	0	0	3	4	+1.0000e+000
1176	1253	1238	1237	1252	0	0	0	0	3	4	+1.0000e+000
1177	1239	1238	1253	1254	0	0	0	0	3	4	+1.0000e+000
1178	1239	1254	1255	1240	0	0	0	0	3	4	+1.0000e+000
1179	1240	1255	1248	1241	0	0	0	0	3	4	+1.0000e+000
1180	1257	1235	1234	1256	0	0	0	0	3	4	+1.0000e+000
1181	1258	1236	1235	1257	0	0	0	0	3	4	+1.0000e+000
1182	1252	1237	1236	1258	0	0	0	0	3	4	+1.0000e+000
1183	1231	1230	1259	1260	0	0	0	0	3	4	+1.0000e+000

1184	1232	1231	1260	1261	0	0	0	0	3	4	+1.0000e+000
1185	1233	1232	1261	1262	0	0	0	0	3	4	+1.0000e+000
1186	1256	1234	1233	1262	0	0	0	0	3	4	+1.0000e+000
1187	1229	1263	1259	1230	0	0	0	0	3	4	+1.0000e+000
1188	1247	1245	1246	0	0	0	0	0	3	3	+1.0000e+000
1189	1251	1267	1268	1246	0	0	0	0	3	9	+1.0000e+000
1190	1246	1268	1264	1247	0	0	0	0	3	9	+1.0000e+000
1191	1249	1265	1266	1250	0	0	0	0	3	9	+1.0000e+000
1192	1250	1266	1267	1251	0	0	0	0	3	9	+1.0000e+000
1193	1255	1270	1271	1248	0	0	0	0	3	9	+1.0000e+000
1194	1248	1271	1265	1249	0	0	0	0	3	9	+1.0000e+000
1195	1254	1269	1270	1255	0	0	0	0	3	9	+1.0000e+000
1196	1258	1273	1274	1252	0	0	0	0	3	9	+1.0000e+000
1197	1252	1274	1275	1253	0	0	0	0	3	9	+1.0000e+000
1198	1253	1275	1269	1254	0	0	0	0	3	9	+1.0000e+000
1199	1257	1272	1273	1258	0	0	0	0	3	9	+1.0000e+000
1200	1262	1278	1279	1256	0	0	0	0	3	9	+1.0000e+000
1201	1256	1279	1272	1257	0	0	0	0	3	9	+1.0000e+000
1202	1260	1276	1277	1261	0	0	0	0	3	9	+1.0000e+000
1203	1261	1277	1278	1262	0	0	0	0	3	9	+1.0000e+000
1204	1263	1280	1281	1259	0	0	0	0	3	9	+1.0000e+000
1205	1259	1281	1276	1260	0	0	0	0	3	9	+1.0000e+000
1206	1268	1283	1284	1264	0	0	0	0	3	9	+1.0000e+000
1207	1267	1282	1283	1268	0	0	0	0	3	9	+1.0000e+000
1208	1271	1287	1288	1265	0	0	0	0	3	9	+1.0000e+000
1209	1265	1288	1289	1266	0	0	0	0	3	9	+1.0000e+000
1210	1266	1289	1282	1267	0	0	0	0	3	9	+1.0000e+000
1211	1269	1285	1286	1270	0	0	0	0	3	9	+1.0000e+000
1212	1270	1286	1287	1271	0	0	0	0	3	9	+1.0000e+000
1213	1275	1293	1285	1269	0	0	0	0	3	9	+1.0000e+000

1214	1272	1290	1291	1273	0	0	0	0	3	9	+1.0000e+000
1215	1273	1291	1292	1274	0	0	0	0	3	9	+1.0000e+000
1216	1274	1292	1293	1275	0	0	0	0	3	9	+1.0000e+000
1217	1279	1297	1290	1272	0	0	0	0	3	9	+1.0000e+000
1218	1276	1294	1295	1277	0	0	0	0	3	9	+1.0000e+000
1219	1277	1295	1296	1278	0	0	0	0	3	9	+1.0000e+000
1220	1278	1296	1297	1279	0	0	0	0	3	9	+1.0000e+000
1221	1281	1299	1294	1276	0	0	0	0	3	9	+1.0000e+000
1222	1280	1298	1299	1281	0	0	0	0	3	9	+1.0000e+000
1223	1283	1300	1301	1284	0	0	0	0	3	9	+1.0000e+000
1224	1289	1304	1305	1282	0	0	0	0	3	9	+1.0000e+000
1225	1282	1305	1300	1283	0	0	0	0	3	9	+1.0000e+000
1226	1287	1302	1303	1288	0	0	0	0	3	9	+1.0000e+000
1227	1288	1303	1304	1289	0	0	0	0	3	9	+1.0000e+000
1228	1293	1307	1308	1285	0	0	0	0	3	9	+1.0000e+000
1229	1285	1308	1309	1286	0	0	0	0	3	9	+1.0000e+000
1230	1286	1309	1302	1287	0	0	0	0	3	9	+1.0000e+000
1231	1292	1306	1307	1293	0	0	0	0	3	9	+1.0000e+000
1232	1297	1312	1313	1290	0	0	0	0	3	9	+1.0000e+000
1233	1290	1313	1314	1291	0	0	0	0	3	9	+1.0000e+000
1234	1291	1314	1306	1292	0	0	0	0	3	9	+1.0000e+000
1235	1295	1310	1311	1296	0	0	0	0	3	9	+1.0000e+000
1236	1296	1311	1312	1297	0	0	0	0	3	9	+1.0000e+000
1237	1299	1316	1317	1294	0	0	0	0	3	9	+1.0000e+000
1238	1294	1317	1310	1295	0	0	0	0	3	9	+1.0000e+000
1239	1298	1315	1316	1299	0	0	0	0	3	9	+1.0000e+000
1240	1305	1319	1320	1300	0	0	0	0	3	9	+1.0000e+000
1241	1300	1320	1321	1301	0	0	0	0	3	9	+1.0000e+000
1242	1304	1318	1319	1305	0	0	0	0	3	9	+1.0000e+000
1243	1309	1325	1326	1302	0	0	0	0	3	9	+1.0000e+000

```
0  0
1244  1302  1326  1327  1303     0     0     0     0     3     9 +1.0000e+000
0  0
1245  1303  1327  1318  1304     0     0     0     0     3     9 +1.0000e+000
0  0
1246  1306  1322  1323  1307     0     0     0     0     3     9 +1.0000e+000
0  0
1247  1307  1323  1324  1308     0     0     0     0     3     9 +1.0000e+000
0  0
1248  1308  1324  1325  1309     0     0     0     0     3     9 +1.0000e+000
0  0
1249  1314  1331  1322  1306     0     0     0     0     3     9 +1.0000e+000
0  0
1250  1311  1328  1329  1312     0     0     0     0     3     9 +1.0000e+000
0  0
1251  1312  1329  1330  1313     0     0     0     0     3     9 +1.0000e+000
0  0
1252  1313  1330  1331  1314     0     0     0     0     3     9 +1.0000e+000
0  0
1253  1317  1334  1335  1310     0     0     0     0     3     9 +1.0000e+000
0  0
1254  1310  1335  1328  1311     0     0     0     0     3     9 +1.0000e+000
0  0
1255  1315  1332  1333  1316     0     0     0     0     3     9 +1.0000e+000
0  0
1256  1316  1333  1334  1317     0     0     0     0     3     9 +1.0000e+000
0  0
1257  1319  1336  1337  1320     0     0     0     0     3     9 +1.0000e+000
0  0
1258  1320  1337  1338  1321     0     0     0     0     3     9 +1.0000e+000
0  0
1259  1327  1342  1343  1318     0     0     0     0     3     9 +1.0000e+000
0  0
1260  1318  1343  1336  1319     0     0     0     0     3     9 +1.0000e+000
0  0
1261  1324  1339  1340  1325     0     0     0     0     3     9 +1.0000e+000
0  0
1262  1325  1340  1341  1326     0     0     0     0     3     9 +1.0000e+000
0  0
1263  1326  1341  1342  1327     0     0     0     0     3     9 +1.0000e+000
0  0
1264  1331  1347  1348  1322     0     0     0     0     3     9 +1.0000e+000
0  0
1265  1322  1348  1349  1323     0     0     0     0     3     9 +1.0000e+000
0  0
1266  1323  1349  1339  1324     0     0     0     0     3     9 +1.0000e+000
0  0
1267  1328  1344  1345  1329     0     0     0     0     3     9 +1.0000e+000
0  0
1268  1329  1345  1346  1330     0     0     0     0     3     9 +1.0000e+000
0  0
1269  1330  1346  1347  1331     0     0     0     0     3     9 +1.0000e+000
0  0
1270  1335  1353  1344  1328     0     0     0     0     3     9 +1.0000e+000
0  0
1271  1332  1350  1351  1333     0     0     0     0     3     9 +1.0000e+000
0  0
1272  1333  1351  1352  1334     0     0     0     0     3     9 +1.0000e+000
0  0
1273  1334  1352  1353  1335     0     0     0     0     3     9 +1.0000e+000
```



```
0  0
1274  1343  1357  1358  1336     0     0     0     0     3     9 +1.0000e+000
0  0
1275  1336  1358  1359  1337     0     0     0     0     3     9 +1.0000e+000
0  0
1276  1337  1359  1360  1338     0     0     0     0     3     9 +1.0000e+000
0  0
1277  1340  1354  1355  1341     0     0     0     0     3     9 +1.0000e+000
0  0
1278  1341  1355  1356  1342     0     0     0     0     3     9 +1.0000e+000
0  0
1279  1342  1356  1357  1343     0     0     0     0     3     9 +1.0000e+000
0  0
1280  1349  1366  1367  1339     0     0     0     0     3     9 +1.0000e+000
0  0
1281  1339  1367  1354  1340     0     0     0     0     3     9 +1.0000e+000
0  0
1282  1344  1361  1362  1345     0     0     0     0     3     9 +1.0000e+000
0  0
1283  1345  1362  1363  1346     0     0     0     0     3     9 +1.0000e+000
0  0
1284  1346  1363  1364  1347     0     0     0     0     3     9 +1.0000e+000
0  0
1285  1347  1364  1365  1348     0     0     0     0     3     9 +1.0000e+000
0  0
1286  1348  1365  1366  1349     0     0     0     0     3     9 +1.0000e+000
0  0
1287  1353  1371  1361  1344     0     0     0     0     3     9 +1.0000e+000
0  0
1288  1350  1368  1369  1351     0     0     0     0     3     9 +1.0000e+000
0  0
1289  1351  1369  1370  1352     0     0     0     0     3     9 +1.0000e+000
0  0
1290  1352  1370  1371  1353     0     0     0     0     3     9 +1.0000e+000
0  0
1291  1356  1372  1373  1357     0     0     0     0     3     9 +1.0000e+000
0  0
1292  1357  1373  1374  1358     0     0     0     0     3     9 +1.0000e+000
0  0
1293  1358  1374  1375  1359     0     0     0     0     3     9 +1.0000e+000
0  0
1294  1359  1375  1376  1360     0     0     0     0     3     9 +1.0000e+000
0  0
1295  1367  1381  1382  1354     0     0     0     0     3     9 +1.0000e+000
0  0
1296  1354  1382  1383  1355     0     0     0     0     3     9 +1.0000e+000
0  0
1297  1355  1383  1372  1356     0     0     0     0     3     9 +1.0000e+000
0  0
1298  1363  1377  1378  1364     0     0     0     0     3     9 +1.0000e+000
0  0
1299  1364  1378  1379  1365     0     0     0     0     3     9 +1.0000e+000
0  0
1300  1365  1379  1380  1366     0     0     0     0     3     9 +1.0000e+000
0  0
1301  1366  1380  1381  1367     0     0     0     0     3     9 +1.0000e+000
0  0
1302  1371  1387  1388  1361     0     0     0     0     3     9 +1.0000e+000
0  0
1303  1361  1388  1389  1362     0     0     0     0     3     9 +1.0000e+000
```



```
0  0
1304  1362  1389  1377  1363     0     0     0     0     3     9 +1.0000e+000
0  0
1305  1368  1384  1385  1369     0     0     0     0     3     9 +1.0000e+000
0  0
1306  1369  1385  1386  1370     0     0     0     0     3     9 +1.0000e+000
0  0
1307  1370  1386  1387  1371     0     0     0     0     3     9 +1.0000e+000
0  0
1308  1375  1390  1391  1376     0     0     0     0     3     9 +1.0000e+000
0  0
1309  1383  1397  1398  1372     0     0     0     0     3     9 +1.0000e+000
0  0
1310  1372  1398  1399  1373     0     0     0     0     3     9 +1.0000e+000
0  0
1311  1373  1399  1400  1374     0     0     0     0     3     9 +1.0000e+000
0  0
1312  1374  1400  1390  1375     0     0     0     0     3     9 +1.0000e+000
0  0
1313  1378  1392  1393  1379     0     0     0     0     3     9 +1.0000e+000
0  0
1314  1379  1393  1394  1380     0     0     0     0     3     9 +1.0000e+000
0  0
1315  1380  1394  1395  1381     0     0     0     0     3     9 +1.0000e+000
0  0
1316  1381  1395  1396  1382     0     0     0     0     3     9 +1.0000e+000
0  0
1317  1382  1396  1397  1383     0     0     0     0     3     9 +1.0000e+000
0  0
1318  1389  1406  1407  1377     0     0     0     0     3     9 +1.0000e+000
0  0
1319  1377  1407  1392  1378     0     0     0     0     3     9 +1.0000e+000
0  0
1320  1384  1401  1402  1385     0     0     0     0     3     9 +1.0000e+000
0  0
1321  1385  1402  1403  1386     0     0     0     0     3     9 +1.0000e+000
0  0
1322  1386  1403  1404  1387     0     0     0     0     3     9 +1.0000e+000
0  0
1323  1387  1404  1405  1388     0     0     0     0     3     9 +1.0000e+000
0  0
1324  1388  1405  1406  1389     0     0     0     0     3     9 +1.0000e+000
0  0
1325  1400  1413  1414  1390     0     0     0     0     3     9 +1.0000e+000
0  0
1326  1390  1414  1415  1391     0     0     0     0     3     9 +1.0000e+000
0  0
1327  1395  1408  1409  1396     0     0     0     0     3     9 +1.0000e+000
0  0
1328  1396  1409  1410  1397     0     0     0     0     3     9 +1.0000e+000
0  0
1329  1397  1410  1411  1398     0     0     0     0     3     9 +1.0000e+000
0  0
1330  1398  1411  1412  1399     0     0     0     0     3     9 +1.0000e+000
0  0
1331  1399  1412  1413  1400     0     0     0     0     3     9 +1.0000e+000
0  0
1332  1407  1422  1423  1392     0     0     0     0     3     9 +1.0000e+000
0  0
1333  1392  1423  1424  1393     0     0     0     0     3     9 +1.0000e+000
```



```
0  0
1334  1393  1424  1425  1394     0     0     0     0     3     9 +1.0000e+000
0  0
1335  1394  1425  1408  1395     0     0     0     0     3     9 +1.0000e+000
0  0
1336  1401  1416  1417  1402     0     0     0     0     3     9 +1.0000e+000
0  0
1337  1402  1417  1418  1403     0     0     0     0     3     9 +1.0000e+000
0  0
1338  1403  1418  1419  1404     0     0     0     0     3     9 +1.0000e+000
0  0
1339  1404  1419  1420  1405     0     0     0     0     3     9 +1.0000e+000
0  0
1340  1405  1420  1421  1406     0     0     0     0     3     9 +1.0000e+000
0  0
1341  1406  1421  1422  1407     0     0     0     0     3     9 +1.0000e+000
0  0
1342  1411  1426  1427  1412     0     0     0     0     3     9 +1.0000e+000
0  0
1343  1412  1427  1428  1413     0     0     0     0     3     9 +1.0000e+000
0  0
1344  1413  1428  1429  1414     0     0     0     0     3     9 +1.0000e+000
0  0
1345  1414  1429  1430  1415     0     0     0     0     3     9 +1.0000e+000
0  0
1346  1425  1440  1441  1408     0     0     0     0     3     9 +1.0000e+000
0  0
1347  1408  1441  1442  1409     0     0     0     0     3     9 +1.0000e+000
0  0
1348  1409  1442  1443  1410     0     0     0     0     3     9 +1.0000e+000
0  0
1349  1410  1443  1426  1411     0     0     0     0     3     9 +1.0000e+000
0  0
1350  1416  1431  1432  1417     0     0     0     0     3     9 +1.0000e+000
0  0
1351  1417  1432  1433  1418     0     0     0     0     3     9 +1.0000e+000
0  0
1352  1418  1433  1434  1419     0     0     0     0     3     9 +1.0000e+000
0  0
1353  1419  1434  1435  1420     0     0     0     0     3     9 +1.0000e+000
0  0
1354  1420  1435  1436  1421     0     0     0     0     3     9 +1.0000e+000
0  0
1355  1421  1436  1437  1422     0     0     0     0     3     9 +1.0000e+000
0  0
1356  1422  1437  1438  1423     0     0     0     0     3     9 +1.0000e+000
0  0
1357  1423  1438  1439  1424     0     0     0     0     3     9 +1.0000e+000
0  0
1358  1424  1439  1440  1425     0     0     0     0     3     9 +1.0000e+000
0  0
1359  1443  1455  1456  1426     0     0     0     0     3     9 +1.0000e+000
0  0
1360  1426  1456  1457  1427     0     0     0     0     3     9 +1.0000e+000
0  0
1361  1427  1457  1458  1428     0     0     0     0     3     9 +1.0000e+000
0  0
1362  1428  1458  1459  1429     0     0     0     0     3     9 +1.0000e+000
0  0
1363  1429  1459  1444  1430     0     0     0     0     3     9 +1.0000e+000
```

```
 0   0
1364  1433  1445  1446  1434     0     0     0     0     3     9 +1.0000e+000
 0   0
1365  1434  1446  1447  1435     0     0     0     0     3     9 +1.0000e+000
 0   0
1366  1435  1447  1448  1436     0     0     0     0     3     9 +1.0000e+000
 0   0
1367  1436  1448  1449  1437     0     0     0     0     3     9 +1.0000e+000
 0   0
1368  1437  1449  1450  1438     0     0     0     0     3     9 +1.0000e+000
 0   0
1369  1438  1450  1451  1439     0     0     0     0     3     9 +1.0000e+000
 0   0
1370  1439  1451  1452  1440     0     0     0     0     3     9 +1.0000e+000
 0   0
1371  1440  1452  1453  1441     0     0     0     0     3     9 +1.0000e+000
 0   0
1372  1441  1453  1454  1442     0     0     0     0     3     9 +1.0000e+000
 0   0
1373  1442  1454  1455  1443     0     0     0     0     3     9 +1.0000e+000
 0   0
1374  1431  1460  1461  1432     0     0     0     0     3     9 +1.0000e+000
 0   0
1375  1432  1461  1445  1433     0     0     0     0     3     9 +1.0000e+000
 0   0
1376  1459  1476  1477  1444     0     0     0     0     3     9 +1.0000e+000
 0   0
1377  1445  1462  1463  1446     0     0     0     0     3     9 +1.0000e+000
 0   0
1378  1446  1463  1464  1447     0     0     0     0     3     9 +1.0000e+000
 0   0
1379  1447  1464  1465  1448     0     0     0     0     3     9 +1.0000e+000
 0   0
1380  1448  1465  1466  1449     0     0     0     0     3     9 +1.0000e+000
 0   0
1381  1449  1466  1467  1450     0     0     0     0     3     9 +1.0000e+000
 0   0
1382  1450  1467  1468  1451     0     0     0     0     3     9 +1.0000e+000
 0   0
1383  1451  1468  1469  1452     0     0     0     0     3     9 +1.0000e+000
 0   0
1384  1452  1469  1470  1453     0     0     0     0     3     9 +1.0000e+000
 0   0
1385  1453  1470  1471  1454     0     0     0     0     3     9 +1.0000e+000
 0   0
1386  1454  1471  1472  1455     0     0     0     0     3     9 +1.0000e+000
 0   0
1387  1455  1472  1473  1456     0     0     0     0     3     9 +1.0000e+000
 0   0
1388  1456  1473  1474  1457     0     0     0     0     3     9 +1.0000e+000
 0   0
1389  1457  1474  1475  1458     0     0     0     0     3     9 +1.0000e+000
 0   0
1390  1458  1475  1476  1459     0     0     0     0     3     9 +1.0000e+000
 0   0
1391  1461  1479  1462  1445     0     0     0     0     3     9 +1.0000e+000
 0   0
1392  1460  1478  1479  1461     0     0     0     0     3     9 +1.0000e+000
 0   0
1393  1469  1480  1481  1470     0     0     0     0     3     9 +1.0000e+000
```



```
 0   0
1394  1470  1481  1482  1471     0     0     0     0     3     9 +1.0000e+000
 0   0
1395  1471  1482  1483  1472     0     0     0     0     3     9 +1.0000e+000
 0   0
1396  1472  1483  1484  1473     0     0     0     0     3     9 +1.0000e+000
 0   0
1397  1473  1484  1485  1474     0     0     0     0     3     9 +1.0000e+000
 0   0
1398  1474  1485  1486  1475     0     0     0     0     3     9 +1.0000e+000
 0   0
1399  1475  1486  1487  1476     0     0     0     0     3     9 +1.0000e+000
 0   0
1400  1476  1487  1488  1477     0     0     0     0     3     9 +1.0000e+000
 0   0
1401  1479  1490  1491  1462     0     0     0     0     3     9 +1.0000e+000
 0   0
1402  1462  1491  1492  1463     0     0     0     0     3     9 +1.0000e+000
 0   0
1403  1463  1492  1493  1464     0     0     0     0     3     9 +1.0000e+000
 0   0
1404  1464  1493  1494  1465     0     0     0     0     3     9 +1.0000e+000
 0   0
1405  1465  1494  1495  1466     0     0     0     0     3     9 +1.0000e+000
 0   0
1406  1466  1495  1496  1467     0     0     0     0     3     9 +1.0000e+000
 0   0
1407  1467  1496  1497  1468     0     0     0     0     3     9 +1.0000e+000
 0   0
1408  1468  1497  1498  1469     0     0     0     0     3     9 +1.0000e+000
 0   0
1409  1478  1489  1490  1479     0     0     0     0     3     9 +1.0000e+000
 0   0
1410  1497  1506  1507  1488     0     0     0     0     3     9 +1.0000e+000
 0   0
1411  1488  1507  1508  1481     0     0     0     0     3     9 +1.0000e+000
 0   0
1412  1481  1508  1509  1482     0     0     0     0     3     9 +1.0000e+000
 0   0
1413  1482  1509  1510  1483     0     0     0     0     3     9 +1.0000e+000
 0   0
1414  1483  1510  1511  1484     0     0     0     0     3     9 +1.0000e+000
 0   0
1415  1484  1511  1512  1485     0     0     0     0     3     9 +1.0000e+000
 0   0
1416  1485  1512  1513  1486     0     0     0     0     3     9 +1.0000e+000
 0   0
1417  1486  1513  1514  1487     0     0     0     0     3     9 +1.0000e+000
 0   0
1418  1487  1514  1515  1488     0     0     0     0     3     9 +1.0000e+000
 0   0
1419  1489  1498  1499  1490     0     0     0     0     3     9 +1.0000e+000
 0   0
1420  1490  1499  1500  1491     0     0     0     0     3     9 +1.0000e+000
 0   0
1421  1491  1500  1501  1492     0     0     0     0     3     9 +1.0000e+000
 0   0
1422  1492  1501  1502  1493     0     0     0     0     3     9 +1.0000e+000
 0   0
1423  1493  1502  1503  1494     0     0     0     0     3     9 +1.0000e+000
```



```
 0   0
1424  1494  1503  1504  1495     0     0     0     0     3     9 +1.0000e+000
 0   0
1425  1495  1504  1505  1496     0     0     0     0     3     9 +1.0000e+000
 0   0
1426  1496  1505  1506  1497     0     0     0     0     3     9 +1.0000e+000
 0   0
POLE              0
FLUX              0
DENSITY
+1.0000e+000 +1.0000e+000
WATERTABLE        0
qBOUNDARY         0
MATLCOLOR         4
    1   255   128    64
    2   255   255     0
    3   128   255   128
    4   255     0     0
```

E

8/19/2004
4:20:35 PM
0 +0.0000E+000 = Step Number, Elapsed time

Node#	Head	Flux(O)	Sum_Volume
1	+1.244929E+002	+0.000000E+000	+0.000000E+000
2	+1.161000E+002	-1.037053E+000	+0.000000E+000
3	+1.205000E+002	-6.816024E-001	+0.000000E+000
4	+1.249100E+002	-4.776263E-001	+0.000000E+000
5	+1.293100E+002	-3.668109E-001	+0.000000E+000
6	+1.337100E+002	-2.537223E-001	+0.000000E+000
7	+1.381100E+002	-2.739631E-003	+0.000000E+000
8	+1.390948E+002	+0.000000E+000	+0.000000E+000
9	+1.453377E+002	+0.000000E+000	+0.000000E+000
10	+1.485394E+002	+0.000000E+000	+0.000000E+000
11	+1.514699E+002	+0.000000E+000	+0.000000E+000
12	+1.538955E+002	+0.000000E+000	+0.000000E+000
13	+1.559345E+002	+0.000000E+000	+0.000000E+000
14	+1.576197E+002	+0.000000E+000	+0.000000E+000
15	+1.589687E+002	+0.000000E+000	+0.000000E+000
16	+1.600029E+002	+0.000000E+000	+0.000000E+000
17	+1.607341E+002	+0.000000E+000	+0.000000E+000
18	+1.611705E+002	+0.000000E+000	+0.000000E+000
19	+1.613160E+002	+0.000000E+000	+0.000000E+000
20	+1.612148E+002	+0.000000E+000	+0.000000E+000
21	+1.613597E+002	+0.000000E+000	+0.000000E+000
22	+1.590160E+002	+0.000000E+000	+0.000000E+000
23	+1.600484E+002	+0.000000E+000	+0.000000E+000
24	+1.607785E+002	+0.000000E+000	+0.000000E+000
25	+1.539592E+002	+0.000000E+000	+0.000000E+000
26	+1.559919E+002	+0.000000E+000	+0.000000E+000
27	+1.576693E+002	+0.000000E+000	+0.000000E+000
28	+1.451268E+002	+0.000000E+000	+0.000000E+000
29	+1.486694E+002	+0.000000E+000	+0.000000E+000
30	+1.515320E+002	+0.000000E+000	+0.000000E+000
31	+1.353733E+002	+0.000000E+000	+0.000000E+000
32	+1.386481E+002	+0.000000E+000	+0.000000E+000
33	+1.416611E+002	+0.000000E+000	+0.000000E+000
34	+1.242328E+002	+0.000000E+000	+0.000000E+000
35	+1.277899E+002	+0.000000E+000	+0.000000E+000
36	+1.315368E+002	+0.000000E+000	+0.000000E+000
37	+1.238896E+002	+0.000000E+000	+0.000000E+000
38	+1.227168E+002	+0.000000E+000	+0.000000E+000
39	+1.613455E+002	+0.000000E+000	+0.000000E+000
40	+1.614983E+002	+0.000000E+000	+0.000000E+000
41	+1.601865E+002	+0.000000E+000	+0.000000E+000
42	+1.609123E+002	+0.000000E+000	+0.000000E+000
43	+1.591603E+002	+0.000000E+000	+0.000000E+000
44	+1.561518E+002	+0.000000E+000	+0.000000E+000
45	+1.578180E+002	+0.000000E+000	+0.000000E+000
46	+1.541337E+002	+0.000000E+000	+0.000000E+000
47	+1.489564E+002	+0.000000E+000	+0.000000E+000
48	+1.517294E+002	+0.000000E+000	+0.000000E+000
49	+1.453138E+002	+0.000000E+000	+0.000000E+000
50	+1.428458E+002	+0.000000E+000	+0.000000E+000
51	+1.370082E+002	+0.000000E+000	+0.000000E+000
52	+1.400571E+002	+0.000000E+000	+0.000000E+000

53	+1.337614E+002	+0.000000E+000	+0.000000E+000
54	+1.279299E+002	+0.000000E+000	+0.000000E+000
55	+1.305803E+002	+0.000000E+000	+0.000000E+000
56	+1.266554E+002	+0.000000E+000	+0.000000E+000
57	+1.265861E+002	+0.000000E+000	+0.000000E+000
58	+1.617068E+002	+0.000000E+000	+0.000000E+000
59	+1.615634E+002	+0.000000E+000	+0.000000E+000
60	+1.611340E+002	+0.000000E+000	+0.000000E+000
61	+1.604129E+002	+0.000000E+000	+0.000000E+000
62	+1.593954E+002	+0.000000E+000	+0.000000E+000
63	+1.580691E+002	+0.000000E+000	+0.000000E+000
64	+1.564125E+002	+0.000000E+000	+0.000000E+000
65	+1.544351E+002	+0.000000E+000	+0.000000E+000
66	+1.520251E+002	+0.000000E+000	+0.000000E+000
67	+1.493528E+002	+0.000000E+000	+0.000000E+000
68	+1.463428E+002	+0.000000E+000	+0.000000E+000
69	+1.440216E+002	+0.000000E+000	+0.000000E+000
70	+1.414967E+002	+0.000000E+000	+0.000000E+000
71	+1.387540E+002	+0.000000E+000	+0.000000E+000
72	+1.359422E+002	+0.000000E+000	+0.000000E+000
73	+1.332823E+002	+0.000000E+000	+0.000000E+000
74	+1.311628E+002	+0.000000E+000	+0.000000E+000
75	+1.299820E+002	+0.000000E+000	+0.000000E+000
76	+1.296770E+002	+0.000000E+000	+0.000000E+000
77	+1.620892E+002	+0.000000E+000	+0.000000E+000
78	+1.618665E+002	+0.000000E+000	+0.000000E+000
79	+1.614412E+002	+0.000000E+000	+0.000000E+000
80	+1.607303E+002	+0.000000E+000	+0.000000E+000
81	+1.597236E+002	+0.000000E+000	+0.000000E+000
82	+1.584138E+002	+0.000000E+000	+0.000000E+000
83	+1.567829E+002	+0.000000E+000	+0.000000E+000
84	+1.548129E+002	+0.000000E+000	+0.000000E+000
85	+1.526168E+002	+0.000000E+000	+0.000000E+000
86	+1.492578E+002	+0.000000E+000	+0.000000E+000
87	+1.474058E+002	+0.000000E+000	+0.000000E+000
88	+1.453232E+002	+0.000000E+000	+0.000000E+000
89	+1.429870E+002	+0.000000E+000	+0.000000E+000
90	+1.405402E+002	+0.000000E+000	+0.000000E+000
91	+1.380853E+002	+0.000000E+000	+0.000000E+000
92	+1.358370E+002	+0.000000E+000	+0.000000E+000
93	+1.340678E+002	+0.000000E+000	+0.000000E+000
94	+1.330862E+002	+0.000000E+000	+0.000000E+000
95	+1.326745E+002	+0.000000E+000	+0.000000E+000
96	+1.623959E+002	+0.000000E+000	+0.000000E+000
97	+1.622551E+002	+0.000000E+000	+0.000000E+000
98	+1.618343E+002	+0.000000E+000	+0.000000E+000
99	+1.611333E+002	+0.000000E+000	+0.000000E+000
100	+1.601461E+002	+0.000000E+000	+0.000000E+000
101	+1.588578E+002	+0.000000E+000	+0.000000E+000
102	+1.572527E+002	+0.000000E+000	+0.000000E+000
103	+1.552930E+002	+0.000000E+000	+0.000000E+000
104	+1.531689E+002	+0.000000E+000	+0.000000E+000
105	+1.507829E+002	+0.000000E+000	+0.000000E+000
106	+1.486769E+002	+0.000000E+000	+0.000000E+000
107	+1.466572E+002	+0.000000E+000	+0.000000E+000
108	+1.445222E+002	+0.000000E+000	+0.000000E+000
109	+1.423258E+002	+0.000000E+000	+0.000000E+000
110	+1.401750E+002	+0.000000E+000	+0.000000E+000

113	+1.358036E+002	+0.000000E+000	+0.000000E+000
114	+1.354932E+002	+0.000000E+000	+0.000000E+000
115	+1.628667E+002	+0.000000E+000	+0.000000E+000
116	+1.627268E+002	+0.000000E+000	+0.000000E+000
117	+1.623126E+002	+0.000000E+000	+0.000000E+000
118	+1.616242E+002	+0.000000E+000	+0.000000E+000
119	+1.606553E+002	+0.000000E+000	+0.000000E+000
120	+1.593975E+002	+0.000000E+000	+0.000000E+000
121	+1.578085E+002	+0.000000E+000	+0.000000E+000
122	+1.559415E+002	+0.000000E+000	+0.000000E+000
123	+1.534095E+002	+0.000000E+000	+0.000000E+000
124	+1.517655E+002	+0.000000E+000	+0.000000E+000
125	+1.499694E+002	+0.000000E+000	+0.000000E+000
126	+1.480438E+002	+0.000000E+000	+0.000000E+000
127	+1.460765E+002	+0.000000E+000	+0.000000E+000
128	+1.440990E+002	+0.000000E+000	+0.000000E+000
129	+1.422065E+002	+0.000000E+000	+0.000000E+000
130	+1.405296E+002	+0.000000E+000	+0.000000E+000
131	+1.392254E+002	+0.000000E+000	+0.000000E+000
132	+1.384070E+002	+0.000000E+000	+0.000000E+000
133	+1.381301E+002	+0.000000E+000	+0.000000E+000
134	+1.634199E+002	+0.000000E+000	+0.000000E+000
135	+1.632818E+002	+0.000000E+000	+0.000000E+000
136	+1.628721E+002	+0.000000E+000	+0.000000E+000
137	+1.621961E+002	+0.000000E+000	+0.000000E+000
138	+1.612527E+002	+0.000000E+000	+0.000000E+000
139	+1.600338E+002	+0.000000E+000	+0.000000E+000
140	+1.584841E+002	+0.000000E+000	+0.000000E+000
141	+1.565857E+002	+0.000000E+000	+0.000000E+000
142	+1.544764E+002	+0.000000E+000	+0.000000E+000
143	+1.529568E+002	+0.000000E+000	+0.000000E+000
144	+1.512369E+002	+0.000000E+000	+0.000000E+000
145	+1.494530E+002	+0.000000E+000	+0.000000E+000
146	+1.476408E+002	+0.000000E+000	+0.000000E+000
147	+1.458581E+002	+0.000000E+000	+0.000000E+000
148	+1.441687E+002	+0.000000E+000	+0.000000E+000
149	+1.426986E+002	+0.000000E+000	+0.000000E+000
150	+1.415611E+002	+0.000000E+000	+0.000000E+000
151	+1.408443E+002	+0.000000E+000	+0.000000E+000
152	+1.406001E+002	+0.000000E+000	+0.000000E+000
153	+1.640558E+002	+0.000000E+000	+0.000000E+000
154	+1.639173E+002	+0.000000E+000	+0.000000E+000
155	+1.635129E+002	+0.000000E+000	+0.000000E+000
156	+1.628480E+002	+0.000000E+000	+0.000000E+000
157	+1.619304E+002	+0.000000E+000	+0.000000E+000
158	+1.607543E+002	+0.000000E+000	+0.000000E+000
159	+1.593233E+002	+0.000000E+000	+0.000000E+000
160	+1.571911E+002	+0.000000E+000	+0.000000E+000
161	+1.557491E+002	+0.000000E+000	+0.000000E+000
162	+1.541477E+002	+0.000000E+000	+0.000000E+000
163	+1.525344E+002	+0.000000E+000	+0.000000E+000
164	+1.508669E+002	+0.000000E+000	+0.000000E+000
165	+1.491971E+002	+0.000000E+000	+0.000000E+000
166	+1.475709E+002	+0.000000E+000	+0.000000E+000
167	+1.460672E+002	+0.000000E+000	+0.000000E+000
168	+1.447672E+002	+0.000000E+000	+0.000000E+000
169	+1.437667E+002	+0.000000E+000	+0.000000E+000
170	+1.431368E+002	+0.000000E+000	+0.000000E+000
171	+1.429221E+002	+0.000000E+000	+0.000000E+000
172	+1.647736E+002	+0.000000E+000	+0.000000E+000

173	+1.646341E+002	+0.000000E+000	+0.000000E+000
174	+1.642293E+002	+0.000000E+000	+0.000000E+000
175	+1.635792E+002	+0.000000E+000	+0.000000E+000
176	+1.626823E+002	+0.000000E+000	+0.000000E+000
177	+1.615662E+002	+0.000000E+000	+0.000000E+000
178	+1.601963E+002	+0.000000E+000	+0.000000E+000
179	+1.585994E+002	+0.000000E+000	+0.000000E+000
180	+1.569070E+002	+0.000000E+000	+0.000000E+000
181	+1.553922E+002	+0.000000E+000	+0.000000E+000
182	+1.538456E+002	+0.000000E+000	+0.000000E+000
183	+1.522836E+002	+0.000000E+000	+0.000000E+000
184	+1.507401E+002	+0.000000E+000	+0.000000E+000
185	+1.492576E+002	+0.000000E+000	+0.000000E+000
186	+1.479038E+002	+0.000000E+000	+0.000000E+000
187	+1.467473E+002	+0.000000E+000	+0.000000E+000
188	+1.459589E+002	+0.000000E+000	+0.000000E+000
189	+1.453023E+002	+0.000000E+000	+0.000000E+000
190	+1.451126E+002	+0.000000E+000	+0.000000E+000
191	+1.655764E+002	+0.000000E+000	+0.000000E+000
192	+1.654297E+002	+0.000000E+000	+0.000000E+000
193	+1.650211E+002	+0.000000E+000	+0.000000E+000
194	+1.643768E+002	+0.000000E+000	+0.000000E+000
195	+1.635231E+002	+0.000000E+000	+0.000000E+000
196	+1.623716E+002	+0.000000E+000	+0.000000E+000
197	+1.613469E+002	+0.000000E+000	+0.000000E+000
198	+1.595878E+002	+0.000000E+000	+0.000000E+000
199	+1.581119E+002	+0.000000E+000	+0.000000E+000
200	+1.566356E+002	+0.000000E+000	+0.000000E+000
201	+1.551629E+002	+0.000000E+000	+0.000000E+000
202	+1.536988E+002	+0.000000E+000	+0.000000E+000
203	+1.522651E+002	+0.000000E+000	+0.000000E+000
204	+1.509103E+002	+0.000000E+000	+0.000000E+000
205	+1.496810E+002	+0.000000E+000	+0.000000E+000
206	+1.486428E+002	+0.000000E+000	+0.000000E+000
207	+1.478503E+002	+0.000000E+000	+0.000000E+000
208	+1.473555E+002	+0.000000E+000	+0.000000E+000
209	+1.471872E+002	+0.000000E+000	+0.000000E+000
210	+1.664711E+002	+0.000000E+000	+0.000000E+000
211	+1.663042E+002	+0.000000E+000	+0.000000E+000
212	+1.658787E+002	+0.000000E+000	+0.000000E+000
213	+1.652473E+002	+0.000000E+000	+0.000000E+000
214	+1.644028E+002	+0.000000E+000	+0.000000E+000
215	+1.634160E+002	+0.000000E+000	+0.000000E+000
216	+1.616693E+002	+0.000000E+000	+0.000000E+000
217	+1.606852E+002	+0.000000E+000	+0.000000E+000
218	+1.592954E+002	+0.000000E+000	+0.000000E+000
219	+1.578808E+002	+0.000000E+000	+0.000000E+000
220	+1.564787E+002	+0.000000E+000	+0.000000E+000
221	+1.551815E+002	+0.000000E+000	+0.000000E+000
222	+1.537682E+002	+0.000000E+000	+0.000000E+000
223	+1.525215E+002	+0.000000E+000	+0.000000E+000
224	+1.514016E+002	+0.000000E+000	+0.000000E+000
225	+1.504634E+002	+0.000000E+000	+0.000000E+000
226	+1.497513E+002	+0.000000E+000	+0.000000E+000
227	+1.493089E+002	+0.000000E+000	+0.000000E+000
228	+1.491593E+002	+0.000000E+000	+0.000000E+000
229	+1.674918E+002	+0.000000E+000	+0.000000E+000
230	+1.672414E+002	+0.000000E+000	+0.000000E+000

```
111 +1.382474E+002 +0.000000E+000 +0.000000E+000
112 +1.367380E+002 +0.000000E+000 +0.000000E+000
```

```
231 +1.668033E+002 +0.000000E+000 +0.000000E+000
232 +1.661674E+002 +0.000000E+000 +0.000000E+000
```

233	+1.653773E+002	+0.000000E+000	+0.000000E+000
234	+1.643635E+002	+0.000000E+000	+0.000000E+000
235	+1.631965E+002	+0.000000E+000	+0.000000E+000
236	+1.618206E+002	+0.000000E+000	+0.000000E+000
237	+1.604717E+002	+0.000000E+000	+0.000000E+000
238	+1.591238E+002	+0.000000E+000	+0.000000E+000
239	+1.577921E+002	+0.000000E+000	+0.000000E+000
240	+1.564910E+002	+0.000000E+000	+0.000000E+000
241	+1.552466E+002	+0.000000E+000	+0.000000E+000
242	+1.540944E+002	+0.000000E+000	+0.000000E+000
243	+1.530682E+002	+0.000000E+000	+0.000000E+000
244	+1.522148E+002	+0.000000E+000	+0.000000E+000
245	+1.515708E+002	+0.000000E+000	+0.000000E+000
246	+1.511724E+002	+0.000000E+000	+0.000000E+000
247	+1.510409E+002	+0.000000E+000	+0.000000E+000
248	+1.686275E+002	+0.000000E+000	+0.000000E+000
249	+1.683812E+002	+0.000000E+000	+0.000000E+000
250	+1.678499E+002	+0.000000E+000	+0.000000E+000
251	+1.672474E+002	+0.000000E+000	+0.000000E+000
252	+1.664879E+002	+0.000000E+000	+0.000000E+000
253	+1.656981E+002	+0.000000E+000	+0.000000E+000
254	+1.643454E+002	+0.000000E+000	+0.000000E+000
255	+1.630352E+002	+0.000000E+000	+0.000000E+000
256	+1.617472E+002	+0.000000E+000	+0.000000E+000
257	+1.604489E+002	+0.000000E+000	+0.000000E+000
258	+1.591766E+002	+0.000000E+000	+0.000000E+000
259	+1.579417E+002	+0.000000E+000	+0.000000E+000
260	+1.567732E+002	+0.000000E+000	+0.000000E+000
261	+1.556949E+002	+0.000000E+000	+0.000000E+000
262	+1.547439E+002	+0.000000E+000	+0.000000E+000
263	+1.539564E+002	+0.000000E+000	+0.000000E+000
264	+1.533676E+002	+0.000000E+000	+0.000000E+000
265	+1.530033E+002	+0.000000E+000	+0.000000E+000
266	+1.528843E+002	+0.000000E+000	+0.000000E+000
267	+1.697670E+002	+0.000000E+000	+0.000000E+000
268	+1.695559E+002	+0.000000E+000	+0.000000E+000
269	+1.694154E+002	+0.000000E+000	+0.000000E+000
270	+1.683408E+002	+0.000000E+000	+0.000000E+000
271	+1.662885E+002	+0.000000E+000	+0.000000E+000
272	+1.676619E+002	+0.000000E+000	+0.000000E+000
273	+1.655816E+002	+0.000000E+000	+0.000000E+000
274	+1.630151E+002	+0.000000E+000	+0.000000E+000
275	+1.642776E+002	+0.000000E+000	+0.000000E+000
276	+1.617660E+002	+0.000000E+000	+0.000000E+000
277	+1.593682E+002	+0.000000E+000	+0.000000E+000
278	+1.605439E+002	+0.000000E+000	+0.000000E+000
279	+1.582639E+002	+0.000000E+000	+0.000000E+000
280	+1.572521E+002	+0.000000E+000	+0.000000E+000
281	+1.556354E+002	+0.000000E+000	+0.000000E+000
282	+1.563656E+002	+0.000000E+000	+0.000000E+000
283	+1.550911E+002	+0.000000E+000	+0.000000E+000
284	+1.546476E+002	+0.000000E+000	+0.000000E+000
285	+1.547572E+002	+0.000000E+000	+0.000000E+000
286	+1.563383E+002	+0.000000E+000	+0.000000E+000
287	+1.564391E+002	+0.000000E+000	+0.000000E+000
288	+1.567491E+002	+0.000000E+000	+0.000000E+000
289	+1.572549E+002	+0.000000E+000	+0.000000E+000
290	+1.579361E+002	+0.000000E+000	+0.000000E+000
291	+1.587673E+002	+0.000000E+000	+0.000000E+000
292	+1.597215E+002	+0.000000E+000	+0.000000E+000

293	+1.607697E+002	+0.000000E+000	+0.000000E+000
294	+1.618925E+002	+0.000000E+000	+0.000000E+000
295	+1.630668E+002	+0.000000E+000	+0.000000E+000
296	+1.642749E+002	+0.000000E+000	+0.000000E+000
297	+1.655094E+002	+0.000000E+000	+0.000000E+000
298	+1.667604E+002	+0.000000E+000	+0.000000E+000
299	+1.682606E+002	+0.000000E+000	+0.000000E+000
300	+1.687156E+002	+0.000000E+000	+0.000000E+000
301	+1.695300E+002	+0.000000E+000	+0.000000E+000
302	+1.700977E+002	+0.000000E+000	+0.000000E+000
303	+1.705707E+002	+0.000000E+000	+0.000000E+000
304	+1.709354E+002	+0.000000E+000	+0.000000E+000
305	+1.579629E+002	+0.000000E+000	+0.000000E+000
306	+1.580566E+002	+0.000000E+000	+0.000000E+000
307	+1.583458E+002	+0.000000E+000	+0.000000E+000
308	+1.588191E+002	+0.000000E+000	+0.000000E+000
309	+1.594583E+002	+0.000000E+000	+0.000000E+000
310	+1.602428E+002	+0.000000E+000	+0.000000E+000
311	+1.611462E+002	+0.000000E+000	+0.000000E+000
312	+1.621476E+002	+0.000000E+000	+0.000000E+000
313	+1.632242E+002	+0.000000E+000	+0.000000E+000
314	+1.643560E+002	+0.000000E+000	+0.000000E+000
315	+1.655282E+002	+0.000000E+000	+0.000000E+000
316	+1.667240E+002	+0.000000E+000	+0.000000E+000
317	+1.679491E+002	+0.000000E+000	+0.000000E+000
318	+1.688804E+002	+0.000000E+000	+0.000000E+000
319	+1.700853E+002	+0.000000E+000	+0.000000E+000
320	+1.707113E+002	+0.000000E+000	+0.000000E+000
321	+1.712788E+002	+0.000000E+000	+0.000000E+000
322	+1.717598E+002	+0.000000E+000	+0.000000E+000
323	+1.721373E+002	+0.000000E+000	+0.000000E+000
324	+1.595270E+002	+0.000000E+000	+0.000000E+000
325	+1.596130E+002	+0.000000E+000	+0.000000E+000
326	+1.598846E+002	+0.000000E+000	+0.000000E+000
327	+1.603298E+002	+0.000000E+000	+0.000000E+000
328	+1.609346E+002	+0.000000E+000	+0.000000E+000
329	+1.616774E+002	+0.000000E+000	+0.000000E+000
330	+1.625388E+002	+0.000000E+000	+0.000000E+000
331	+1.634971E+002	+0.000000E+000	+0.000000E+000
332	+1.645327E+002	+0.000000E+000	+0.000000E+000
333	+1.656275E+002	+0.000000E+000	+0.000000E+000
334	+1.667650E+002	+0.000000E+000	+0.000000E+000
335	+1.679368E+002	+0.000000E+000	+0.000000E+000
336	+1.690854E+002	+0.000000E+000	+0.000000E+000
337	+1.704160E+002	+0.000000E+000	+0.000000E+000
338	+1.714245E+002	+0.000000E+000	+0.000000E+000
339	+1.719049E+002	+0.000000E+000	+0.000000E+000
340	+1.724916E+002	+0.000000E+000	+0.000000E+000
341	+1.729820E+002	+0.000000E+000	+0.000000E+000
342	+1.733766E+002	+0.000000E+000	+0.000000E+000
343	+1.610305E+002	+0.000000E+000	+0.000000E+000
344	+1.611141E+002	+0.000000E+000	+0.000000E+000
345	+1.613718E+002	+0.000000E+000	+0.000000E+000
346	+1.617927E+002	+0.000000E+000	+0.000000E+000
347	+1.623657E+002	+0.000000E+000	+0.000000E+000
348	+1.630751E+002	+0.000000E+000	+0.000000E+000
349	+1.638992E+002	+0.000000E+000	+0.000000E+000
350	+1.648205E+002	+0.000000E+000	+0.000000E+000
351	+1.658205E+002	+0.000000E+000	+0.000000E+000
352	+1.668848E+002	+0.000000E+000	+0.000000E+000

353	+1.679943E+002	+0.000000E+000	+0.000000E+000
354	+1.691308E+002	+0.000000E+000	+0.000000E+000
355	+1.703055E+002	+0.000000E+000	+0.000000E+000
356	+1.714430E+002	+0.000000E+000	+0.000000E+000
357	+1.724491E+002	+0.000000E+000	+0.000000E+000
358	+1.731597E+002	+0.000000E+000	+0.000000E+000
359	+1.737286E+002	+0.000000E+000	+0.000000E+000
360	+1.742446E+002	+0.000000E+000	+0.000000E+000
361	+1.746523E+002	+0.000000E+000	+0.000000E+000
362	+1.624821E+002	+0.000000E+000	+0.000000E+000
363	+1.625620E+002	+0.000000E+000	+0.000000E+000
364	+1.628064E+002	+0.000000E+000	+0.000000E+000
365	+1.632891E+002	+0.000000E+000	+0.000000E+000
366	+1.637565E+002	+0.000000E+000	+0.000000E+000
367	+1.644359E+002	+0.000000E+000	+0.000000E+000
368	+1.652284E+002	+0.000000E+000	+0.000000E+000
369	+1.661176E+002	+0.000000E+000	+0.000000E+000
370	+1.670894E+002	+0.000000E+000	+0.000000E+000
371	+1.681235E+002	+0.000000E+000	+0.000000E+000
372	+1.692088E+002	+0.000000E+000	+0.000000E+000
373	+1.703292E+002	+0.000000E+000	+0.000000E+000
374	+1.714697E+002	+0.000000E+000	+0.000000E+000
375	+1.726492E+002	+0.000000E+000	+0.000000E+000
376	+1.738442E+002	+0.000000E+000	+0.000000E+000
377	+1.743410E+002	+0.000000E+000	+0.000000E+000
378	+1.749931E+002	+0.000000E+000	+0.000000E+000
379	+1.755414E+002	+0.000000E+000	+0.000000E+000
380	+1.759704E+002	+0.000000E+000	+0.000000E+000
381	+1.638833E+002	+0.000000E+000	+0.000000E+000
382	+1.639606E+002	+0.000000E+000	+0.000000E+000
383	+1.641955E+002	+0.000000E+000	+0.000000E+000
384	+1.645815E+002	+0.000000E+000	+0.000000E+000
385	+1.651070E+002	+0.000000E+000	+0.000000E+000
386	+1.657614E+002	+0.000000E+000	+0.000000E+000
387	+1.665268E+002	+0.000000E+000	+0.000000E+000
388	+1.673909E+002	+0.000000E+000	+0.000000E+000
389	+1.683345E+002	+0.000000E+000	+0.000000E+000
390	+1.693468E+002	+0.000000E+000	+0.000000E+000
391	+1.704091E+002	+0.000000E+000	+0.000000E+000
392	+1.715131E+002	+0.000000E+000	+0.000000E+000
393	+1.726435E+002	+0.000000E+000	+0.000000E+000
394	+1.737868E+002	+0.000000E+000	+0.000000E+000
395	+1.748544E+002	+0.000000E+000	+0.000000E+000
396	+1.755870E+002	+0.000000E+000	+0.000000E+000
397	+1.762894E+002	+0.000000E+000	+0.000000E+000
398	+1.768859E+002	+0.000000E+000	+0.000000E+000
399	+1.773285E+002	+0.000000E+000	+0.000000E+000
400	+1.790803E+002	+0.000000E+000	+0.000000E+000
401	+1.810367E+002	+0.000000E+000	+0.000000E+000
402	+1.652712E+002	+0.000000E+000	+0.000000E+000
403	+1.653470E+002	+0.000000E+000	+0.000000E+000
404	+1.655707E+002	+0.000000E+000	+0.000000E+000
405	+1.659390E+002	+0.000000E+000	+0.000000E+000
406	+1.664412E+002	+0.000000E+000	+0.000000E+000
407	+1.670683E+002	+0.000000E+000	+0.000000E+000
408	+1.678042E+002	+0.000000E+000	+0.000000E+000
409	+1.686382E+002	+0.000000E+000	+0.000000E+000
410	+1.695527E+002	+0.000000E+000	+0.000000E+000
411	+1.705375E+002	+0.000000E+000	+0.000000E+000
412	+1.715751E+002	+0.000000E+000	+0.000000E+000

413	+1.726577E+002	+0.000000E+000	+0.000000E+000
414	+1.737706E+002	+0.000000E+000	+0.000000E+000
415	+1.748914E+002	+0.000000E+000	+0.000000E+000
416	+1.760683E+002	+0.000000E+000	+0.000000E+000
417	+1.767215E+002	+0.000000E+000	+0.000000E+000
418	+1.776514E+002	+0.000000E+000	+0.000000E+000
419	+1.782432E+002	+0.000000E+000	+0.000000E+000
420	+1.787533E+002	+0.000000E+000	+0.000000E+000
421	+1.831203E+002	+0.000000E+000	+0.000000E+000
422	+1.806166E+002	+0.000000E+000	+0.000000E+000
423	+1.853053E+002	+0.000000E+000	+0.000000E+000
424	+1.826019E+002	+0.000000E+000	+0.000000E+000
425	+1.666136E+002	+0.000000E+000	+0.000000E+000
426	+1.666867E+002	+0.000000E+000	+0.000000E+000
427	+1.669814E+002	+0.000000E+000	+0.000000E+000
428	+1.672544E+002	+0.000000E+000	+0.000000E+000
429	+1.677370E+002	+0.000000E+000	+0.000000E+000
430	+1.683489E+002	+0.000000E+000	+0.000000E+000
431	+1.690518E+002	+0.000000E+000	+0.000000E+000
432	+1.698603E+002	+0.000000E+000	+0.000000E+000
433	+1.707498E+002	+0.000000E+000	+0.000000E+000
434	+1.717110E+002	+0.000000E+000	+0.000000E+000
435	+1.727277E+002	+0.000000E+000	+0.000000E+000
436	+1.737930E+002	+0.000000E+000	+0.000000E+000
437	+1.748888E+002	+0.000000E+000	+0.000000E+000
438	+1.760198E+002	+0.000000E+000	+0.000000E+000
439	+1.771122E+002	+0.000000E+000	+0.000000E+000
440	+1.785563E+002	+0.000000E+000	+0.000000E+000
441	+1.789010E+002	+0.000000E+000	+0.000000E+000
442	+1,796682E+002	+0.000000E+000	+0.000000E+000
443	+1.802297E+002	+0.000000E+000	+0.000000E+000
444	+1.846671E+002	+0.000000E+000	+0.000000E+000
445	+1.875544E+002	+0.000000E+000	+0.000000E+000
446	+1.821669E+002	+0.000000E+000	+0.000000E+000
447	+1.867936E+002	+0.000000E+000	+0.000000E+000
448	+1.898322E+002	+0.000000E+000	+0.000000E+000
449	+1.841813E+002	+0.000000E+000	+0.000000E+000
450	+1.889478E+002	+0.000000E+000	+0.000000E+000
451	+1.862348E+002	+0.000000E+000	+0.000000E+000
452	+1.679118E+002	+0.000000E+000	+0.000000E+000
453	+1.679821E+002	+0.000000E+000	+0.000000E+000
454	+1.681890E+002	+0.000000E+000	+0.000000E+000
455	+1.685295E+002	+0.000000E+000	+0.000000E+000
456	+1.689955E+002	+0.000000E+000	+0.000000E+000
457	+1.695800E+002	+0.000000E+000	+0.000000E+000
458	+1.702698E+002	+0.000000E+000	+0.000000E+000
459	+1.710567E+002	+0.000000E+000	+0.000000E+000
460	+1.719251E+002	+0.000000E+000	+0.000000E+000
461	+1.728669E+002	+0.000000E+000	+0.000000E+000
462	+1.738663E+002	+0.000000E+000	+0.000000E+000
463	+1.749167E+002	+0.000000E+000	+0.000000E+000
464	+1.760046E+002	+0.000000E+000	+0.000000E+000
465	+1.771205E+002	+0.000000E+000	+0.000000E+000
466	+1.782816E+002	+0.000000E+000	+0.000000E+000
467	+1.793970E+002	+0.000000E+000	+0.000000E+000
468	+1.802942E+002	+0.000000E+000	+0.000000E+000
469	+1.811189E+002	+0.000000E+000	+0.000000E+000
470	+1.817850E+002	+0.000000E+000	+0.000000E+000
471	+1.920760E+002	+0.000000E+000	+0.000000E+000
472	+1.911026E+002	+0.000000E+000	+0.000000E+000

473	+1.883104E+002	+0.000000E+000	+0.000000E+000
474	+1.837852E+002	+0.000000E+000	+0.000000E+000
475	+1.942618E+002	+0.000000E+000	+0.000000E+000
476	+1.858376E+002	+0.000000E+000	+0.000000E+000
477	+1.983745E+002	+0.000000E+000	+0.000000E+000
478	+1.932032E+002	+0.000000E+000	+0.000000E+000
479	+1.878876E+002	+0.000000E+000	+0.000000E+000
480	+1.924055E+002	+0.000000E+000	+0.000000E+000
481	+1.963551E+002	+0.000000E+000	+0.000000E+000
482	+1.952279E+002	+0.000000E+000	+0.000000E+000
483	+1.691669E+002	+0.000000E+000	+0.000000E+000
484	+1.692349E+002	+0.000000E+000	+0.000000E+000
485	+1.694353E+002	+0.000000E+000	+0.000000E+000
486	+1.697652E+002	+0.000000E+000	+0.000000E+000
487	+1.702175E+002	+0.000000E+000	+0.000000E+000
488	+1.707859E+002	+0.000000E+000	+0.000000E+000
489	+1.899096E+002	+0.000000E+000	+0.000000E+000
490	+1.714583E+002	+0.000000E+000	+0.000000E+000
491	+1.722274E+002	+0.000000E+000	+0.000000E+000
492	+1.730786E+002	+0.000000E+000	+0.000000E+000
493	+1.740043E+002	+0.000000E+000	+0.000000E+000
494	+1.749897E+002	+0.000000E+000	+0.000000E+000
495	+1.760290E+002	+0.000000E+000	+0.000000E+000
496	+1.771084E+002	+0.000000E+000	+0.000000E+000
497	+1.782267E+002	+0.000000E+000	+0.000000E+000
498	+1.793808E+002	+0.000000E+000	+0.000000E+000
499	+1.804780E+002	+0.000000E+000	+0.000000E+000
500	+1.816023E+002	+0.000000E+000	+0.000000E+000
501	+1.826532E+002	+0.000000E+000	+0.000000E+000
502	+1.834327E+002	+0.000000E+000	+0.000000E+000
503	+1.943565E+002	+0.000000E+000	+0.000000E+000
504	+1.855462E+002	+0.000000E+000	+0.000000E+000
505	+1.918739E+002	+0.000000E+000	+0.000000E+000
506	+1.983863E+002	+0.000000E+000	+0.000000E+000
507	+1.971564E+002	+0.000000E+000	+0.000000E+000
508	+1.876655E+002	+0.000000E+000	+0.000000E+000
509	+1.962166E+002	+0.000000E+000	+0.000000E+000
510	+1.937646E+002	+0.000000E+000	+0.000000E+000
511	+1.897066E+002	+0.000000E+000	+0.000000E+000
512	+1.989468E+002	+0.000000E+000	+0.000000E+000
513	+1.955523E+002	+0.000000E+000	+0.000000E+000
514	+1.916575E+002	+0.000000E+000	+0.000000E+000
515	+2.000972E+002	+0.000000E+000	+0.000000E+000
516	+1.979788E+002	+0.000000E+000	+0.000000E+000
517	+1.934841E+002	+0.000000E+000	+0.000000E+000
518	+1.972381E+002	+0.000000E+000	+0.000000E+000
519	+1.703801E+002	+0.000000E+000	+0.000000E+000
520	+1.704469E+002	+0.000000E+000	+0.000000E+000
521	+1.706418E+002	+0.000000E+000	+0.000000E+000
522	+1.709638E+002	+0.000000E+000	+0.000000E+000
523	+1.714046E+002	+0.000000E+000	+0.000000E+000
524	+1.719598E+002	+0.000000E+000	+0.000000E+000
525	+1.726167E+002	+0.000000E+000	+0.000000E+000
526	+1.733721E+002	+0.000000E+000	+0.000000E+000
527	+1.742182E+002	+0.000000E+000	+0.000000E+000
528	+1.751226E+002	+0.000000E+000	+0.000000E+000
529	+1.760978E+002	+0.000000E+000	+0.000000E+000
530	+1.771278E+002	+0.000000E+000	+0.000000E+000
531	+1.782027E+002	+0.000000E+000	+0.000000E+000
532	+1.793200E+002	+0.000000E+000	+0.000000E+000

533	+1.804691E+002	+0.000000E+000	+0.000000E+000
534	+1.816513E+002	+0.000000E+000	+0.000000E+000
535	+1.831383E+002	+0.000000E+000	+0.000000E+000
536	+1.841581E+002	+0.000000E+000	+0.000000E+000
537	+1.853886E+002	+0.000000E+000	+0.000000E+000
538	+2.005846E+002	+0.000000E+000	+0.000000E+000
539	+1.996037E+002	+0.000000E+000	+0.000000E+000
540	+1.952004E+002	+0.000000E+000	+0.000000E+000
541	+1.876187E+002	+0.000000E+000	+0.000000E+000
542	+2.016903E+002	+0.000000E+000	+0.000000E+000
543	+1.988223E+002	+0.000000E+000	+0.000000E+000
544	+1.898012E+002	+0.000000E+000	+0.000000E+000
545	+1.967971E+002	+0.000000E+000	+0.000000E+000
546	+1.918361E+002	+0.000000E+000	+0.000000E+000
547	+2.010848E+002	+0.000000E+000	+0.000000E+000
548	+2.020299E+002	+0.000000E+000	+0.000000E+000
549	+2.002829E+002	+0.000000E+000	+0.000000E+000
550	+1.982950E+002	+0.000000E+000	+0.000000E+000
551	+1.936078E+002	+0.000000E+000	+0.000000E+000
552	+1.952295E+002	+0.000000E+000	+0.000000E+000
553	+2.030188E+002	+0.000000E+000	+0.000000E+000
554	+1.997809E+002	+0.000000E+000	+0.000000E+000
555	+2.023885E+002	+0.000000E+000	+0.000000E+000
556	+2.016965E+002	+0.000000E+000	+0.000000E+000
557	+1.967152E+002	+0.000000E+000	+0.000000E+000
558	+2.032858E+002	+0.000000E+000	+0.000000E+000
559	+2.009928E+002	+0.000000E+000	+0.000000E+000
560	+1.980962E+002	+0.000000E+000	+0.000000E+000
561	+2.027484E+002	+0.000000E+000	+0.000000E+000
562	+1.715533E+002	+0.000000E+000	+0.000000E+000
563	+1.716185E+002	+0.000000E+000	+0.000000E+000
564	+1.718883E+002	+0.000000E+000	+0.000000E+000
565	+1.993975E+002	+0.000000E+000	+0.000000E+000
566	+1.721235E+002	+0.000000E+000	+0.000000E+000
567	+1.725547E+002	+0.000000E+000	+0.000000E+000
568	+1.731003E+002	+0.000000E+000	+0.000000E+000
569	+1.737471E+002	+0.000000E+000	+0.000000E+000
570	+1.744915E+002	+0.000000E+000	+0.000000E+000
571	+1.753178E+002	+0.000000E+000	+0.000000E+000
572	+1.762218E+002	+0.000000E+000	+0.000000E+000
573	+1.771885E+002	+0.000000E+000	+0.000000E+000
574	+1.782127E+002	+0.000000E+000	+0.000000E+000
575	+1.792843E+002	+0.000000E+000	+0.000000E+000
576	+1.804008E+002	+0.000000E+000	+0.000000E+000
577	+1.815559E+002	+0.000000E+000	+0.000000E+000
578	+1.827921E+002	+0.000000E+000	+0.000000E+000
579	+1.839754E+002	+0.000000E+000	+0.000000E+000
580	+1.856729E+002	+0.000000E+000	+0.000000E+000
581	+1.876752E+002	+0.000000E+000	+0.000000E+000
582	+2.034130E+002	+0.000000E+000	+0.000000E+000
583	+2.021527E+002	+0.000000E+000	+0.000000E+000
584	+1.902982E+002	+0.000000E+000	+0.000000E+000
585	+2.030198E+002	+0.000000E+000	+0.000000E+000
586	+2.006172E+002	+0.000000E+000	+0.000000E+000
587	+1.927257E+002	+0.000000E+000	+0.000000E+000
588	+1.943005E+002	+0.000000E+000	+0.000000E+000
589	+2.039146E+002	+0.000000E+000	+0.000000E+000
590	+2.036475E+002	+0.000000E+000	+0.000000E+000
591	+2.031454E+002	+0.000000E+000	+0.000000E+000
592	+2.017359E+002	+0.000000E+000	+0.000000E+000

593	+1.958496E+002	+0.000000E+000	+0.000000E+000
594	+1.970849E+002	+0.000000E+000	+0.000000E+000
595	+2.040428E+002	+0.000000E+000	+0.000000E+000
596	+2.027326E+002	+0.000000E+000	+0.000000E+000
597	+1.982961E+002	+0.000000E+000	+0.000000E+000
598	+2.039144E+002	+0.000000E+000	+0.000000E+000
599	+1.994502E+002	+0.000000E+000	+0.000000E+000
600	+2.041995E+002	+0.000000E+000	+0.000000E+000
601	+2.035757E+002	+0.000000E+000	+0.000000E+000
602	+2.005437E+002	+0.000000E+000	+0.000000E+000
603	+2.015752E+002	+0.000000E+000	+0.000000E+000
604	+2.043820E+002	+0.000000E+000	+0.000000E+000
605	+2.042128E+002	+0.000000E+000	+0.000000E+000
606	+2.025213E+002	+0.000000E+000	+0.000000E+000
607	+2.033548E+002	+0.000000E+000	+0.000000E+000
608	+2.045836E+002	+0.000000E+000	+0.000000E+000
609	+2.040403E+002	+0.000000E+000	+0.000000E+000
610	+2.045418E+002	+0.000000E+000	+0.000000E+000
611	+2.048831E+002	+0.000000E+000	+0.000000E+000
612	+1.726868E+002	+0.000000E+000	+0.000000E+000
613	+1.727589E+002	+0.000000E+000	+0.000000E+000
614	+1.729374E+002	+0.000000E+000	+0.000000E+000
615	+1.732458E+002	+0.000000E+000	+0.000000E+000
616	+1.736716E+002	+0.000000E+000	+0.000000E+000
617	+1.742081E+002	+0.000000E+000	+0.000000E+000
618	+1.748488E+002	+0.000000E+000	+0.000000E+000
619	+1.755831E+002	+0.000000E+000	+0.000000E+000
620	+1.764023E+002	+0.000000E+000	+0.000000E+000
621	+1.773008E+002	+0.000000E+000	+0.000000E+000
622	+1.782621E+002	+0.000000E+000	+0.000000E+000
623	+1.792828E+002	+0.000000E+000	+0.000000E+000
624	+1.803525E+002	+0.000000E+000	+0.000000E+000
625	+1.814686E+002	+0.000000E+000	+0.000000E+000
626	+1.826339E+002	+0.000000E+000	+0.000000E+000
627	+1.838516E+002	+0.000000E+000	+0.000000E+000
628	+1.851367E+002	+0.000000E+000	+0.000000E+000
629	+1.861138E+002	+0.000000E+000	+0.000000E+000
630	+1.920599E+002	+0.000000E+000	+0.000000E+000
631	+1.955174E+002	+0.000000E+000	+0.000000E+000
632	+1.957945E+002	+0.000000E+000	+0.000000E+000
633	+1.978184E+002	+0.000000E+000	+0.000000E+000
634	+1.988654E+002	+0.000000E+000	+0.000000E+000
635	+1.989549E+002	+0.000000E+000	+0.000000E+000
636	+1.999160E+002	+0.000000E+000	+0.000000E+000
637	+2.008732E+002	+0.000000E+000	+0.000000E+000
638	+2.017199E+002	+0.000000E+000	+0.000000E+000
639	+2.025833E+002	+0.000000E+000	+0.000000E+000
640	+2.033547E+002	+0.000000E+000	+0.000000E+000
641	+2.040191E+002	+0.000000E+000	+0.000000E+000
642	+2.045453E+002	+0.000000E+000	+0.000000E+000
643	+2.049801E+002	+0.000000E+000	+0.000000E+000
644	+2.050387E+002	+0.000000E+000	+0.000000E+000
645	+2.052889E+002	+0.000000E+000	+0.000000E+000
646	+2.052861E+002	+0.000000E+000	+0.000000E+000
647	+2.050892E+002	+0.000000E+000	+0.000000E+000
648	+2.055527E+002	+0.000000E+000	+0.000000E+000
649	+2.047313E+002	+0.000000E+000	+0.000000E+000
650	+2.042394E+002	+0.000000E+000	+0.000000E+000
651	+2.056987E+002	+0.000000E+000	+0.000000E+000
652	+2.058292E+002	+0.000000E+000	+0.000000E+000

653	+2.036471E+002	+0.000000E+000	+0.000000E+000
654	+2.029569E+002	+0.000000E+000	+0.000000E+000
655	+2.056692E+002	+0.000000E+000	+0.000000E+000
656	+2.061210E+002	+0.000000E+000	+0.000000E+000
657	+2.021137E+002	+0.000000E+000	+0.000000E+000
658	+2.061366E+002	+0.000000E+000	+0.000000E+000
659	+2.020164E+002	+0.000000E+000	+0.000000E+000
660	+2.054967E+002	+0.000000E+000	+0.000000E+000
661	+2.064208E+002	+0.000000E+000	+0.000000E+000
662	+2.007128E+002	+0.000000E+000	+0.000000E+000
663	+1.995096E+002	+0.000000E+000	+0.000000E+000
664	+2.051862E+002	+0.000000E+000	+0.000000E+000
665	+2.062901E+002	+0.000000E+000	+0.000000E+000
666	+2.065984E+002	+0.000000E+000	+0.000000E+000
667	+2.067351E+002	+0.000000E+000	+0.000000E+000
668	+1.982304E+002	+0.000000E+000	+0.000000E+000
669	+1.968826E+002	+0.000000E+000	+0.000000E+000
670	+2.047365E+002	+0.000000E+000	+0.000000E+000
671	+2.070589E+002	+0.000000E+000	+0.000000E+000
672	+1.955058E+002	+0.000000E+000	+0.000000E+000
673	+2.063148E+002	+0.000000E+000	+0.000000E+000
674	+2.070835E+002	+0.000000E+000	+0.000000E+000
675	+1.737816E+002	+0.000000E+000	+0.000000E+000
676	+1.738447E+002	+0.000000E+000	+0.000000E+000
677	+1.740287E+002	+0.000000E+000	+0.000000E+000
678	+1.743333E+002	+0.000000E+000	+0.000000E+000
679	+1.747542E+002	+0.000000E+000	+0.000000E+000
680	+1.752851E+002	+0.000000E+000	+0.000000E+000
681	+1.759182E+002	+0.000000E+000	+0.000000E+000
682	+1.766483E+002	+0.000000E+000	+0.000000E+000
683	+1.774647E+002	+0.000000E+000	+0.000000E+000
684	+1.783587E+002	+0.000000E+000	+0.000000E+000
685	+1.793181E+002	+0.000000E+000	+0.000000E+000
686	+1.803391E+002	+0.000000E+000	+0.000000E+000
687	+1.814068E+002	+0.000000E+000	+0.000000E+000
688	+1.825234E+002	+0.000000E+000	+0.000000E+000
689	+1.836864E+002	+0.000000E+000	+0.000000E+000
690	+1.849185E+002	+0.000000E+000	+0.000000E+000
691	+1.862888E+002	+0.000000E+000	+0.000000E+000
692	+1.881745E+002	+0.000000E+000	+0.000000E+000
693	+1.941217E+002	+0.000000E+000	+0.000000E+000
694	+2.043386E+002	+0.000000E+000	+0.000000E+000
695	+2.869507E+002	+0.000000E+000	+0.000000E+000
696	+2.035714E+002	+0.000000E+000	+0.000000E+000
697	+2.061920E+002	+0.000000E+000	+0.000000E+000
698	+2.075866E+002	+0.000000E+000	+0.000000E+000
699	+2.024794E+002	+0.000000E+000	+0.000000E+000
700	+2.071653E+002	+0.000000E+000	+0.000000E+000
701	+2.076378E+002	+0.000000E+000	+0.000000E+000
702	+2.059454E+002	+0.000000E+000	+0.000000E+000
703	+2.081011E+002	+0.000000E+000	+0.000000E+000
704	+2.081119E+002	+0.000000E+000	+0.000000E+000
705	+2.012243E+002	+0.000000E+000	+0.000000E+000
706	+1.999704E+002	+0.000000E+000	+0.000000E+000
707	+2.051252E+002	+0.000000E+000	+0.000000E+000
708	+2.074288E+002	+0.000000E+000	+0.000000E+000
709	+2.084173E+002	+0.000000E+000	+0.000000E+000
710	+2.081848E+002	+0.000000E+000	+0.000000E+000
711	+1.986383E+002	+0.000000E+000	+0.000000E+000
712	+2.048773E+002	+0.000000E+000	+0.000000E+000

713	+2.092408E+002	+0.000000E+000	+0.000000E+000
714	+1.972359E+002	+0.000000E+000	+0.000000E+000
715	+2.093887E+002	+0.000000E+000	+0.000000E+000
716	+2.065458E+002	+0.000000E+000	+0.000000E+000
717	+2.092649E+002	+0.000000E+000	+0.000000E+000
718	+1.956965E+002	+0.000000E+000	+0.000000E+000
719	+2.029816E+002	+0.000000E+000	+0.000000E+000
720	+2.077828E+002	+0.000000E+000	+0.000000E+000
721	+2.088891E+002	+0.000000E+000	+0.000000E+000
722	+1.748388E+002	+0.000000E+000	+0.000000E+000
723	+1.749085E+002	+0.000000E+000	+0.000000E+000
724	+1.750828E+002	+0.000000E+000	+0.000000E+000
725	+1.753847E+002	+0.000000E+000	+0.000000E+000
726	+1.758811E+002	+0.000000E+000	+0.000000E+000
727	+1.763288E+002	+0.000000E+000	+0.000000E+000
728	+1.769602E+002	+0.000000E+000	+0.000000E+000
729	+1.776880E+002	+0.000000E+000	+0.000000E+000
730	+1.785018E+002	+0.000000E+000	+0.000000E+000
731	+1.793959E+002	+0.000000E+000	+0.000000E+000
732	+1.803563E+002	+0.000000E+000	+0.000000E+000
733	+1.813787E+002	+0.000000E+000	+0.000000E+000
734	+1.824473E+002	+0.000000E+000	+0.000000E+000
735	+1.835632E+002	+0.000000E+000	+0.000000E+000
736	+1.847235E+002	+0.000000E+000	+0.000000E+000
737	+1.859429E+002	+0.000000E+000	+0.000000E+000
738	+1.872586E+002	+0.000000E+000	+0.000000E+000
739	+1.887219E+002	+0.000000E+000	+0.000000E+000
740	+1.941272E+002	+0.000000E+000	+0.000000E+000
741	+2.056235E+002	+0.000000E+000	+0.000000E+000
742	+2.017894E+002	+0.000000E+000	+0.000000E+000
743	+2.104847E+002	+0.000000E+000	+0.000000E+000
744	+2.105029E+002	+0.000000E+000	+0.000000E+000
745	+2.101300E+002	+0.000000E+000	+0.000000E+000
746	+2.070269E+002	+0.000000E+000	+0.000000E+000
747	+2.091092E+002	+0.000000E+000	+0.000000E+000
748	+2.085131E+002	+0.000000E+000	+0.000000E+000
749	+2.046584E+002	+0.000000E+000	+0.000000E+000
750	+2.082146E+002	+0.000000E+000	+0.000000E+000
751	+1.991535E+002	+0.000000E+000	+0.000000E+000
752	+2.036015E+002	+0.000000E+000	+0.000000E+000
753	+2.062011E+002	+0.000000E+000	+0.000000E+000
754	+2.118085E+002	+0.000000E+000	+0.000000E+000
755	+2.114838E+002	+0.000000E+000	+0.000000E+000
756	+2.104915E+002	+0.000000E+000	+0.000000E+000
757	+1.977243E+002	+0.000000E+000	+0.000000E+000
758	+2.096473E+002	+0.000000E+000	+0.000000E+000
759	+2.075567E+002	+0.000000E+000	+0.000000E+000
760	+2.086701E+002	+0.000000E+000	+0.000000E+000
761	+2.024304E+002	+0.000000E+000	+0.000000E+000
762	+1.963000E+002	+0.000000E+000	+0.000000E+000
763	+2.053105E+002	+0.000000E+000	+0.000000E+000
764	+2.123986E+002	+0.000000E+000	+0.000000E+000
765	+2.117948E+002	+0.000000E+000	+0.000000E+000
766	+1.758565E+002	+0.000000E+000	+0.000000E+000
767	+1.759174E+002	+0.000000E+000	+0.000000E+000
768	+1.761000E+002	+0.000000E+000	+0.000000E+000
769	+1.764004E+002	+0.000000E+000	+0.000000E+000
770	+1.768153E+002	+0.000000E+000	+0.000000E+000
771	+1.773416E+002	+0.000000E+000	+0.000000E+000
772	+1.779710E+002	+0.000000E+000	+0.000000E+000

773	+1.786992E+002	+0.000000E+000	+0.000000E+000
774	+1.795147E+002	+0.000000E+000	+0.000000E+000
775	+1.804132E+002	+0.000000E+000	+0.000000E+000
776	+1.813778E+002	+0.000000E+000	+0.000000E+000
777	+1.824031E+002	+0.000000E+000	+0.000000E+000
778	+1.834745E+002	+0.000000E+000	+0.000000E+000
779	+1.845894E+002	+0.000000E+000	+0.000000E+000
780	+1.857438E+002	+0.000000E+000	+0.000000E+000
781	+1.869509E+002	+0.000000E+000	+0.000000E+000
782	+1.882585E+002	+0.000000E+000	+0.000000E+000
783	+1.896326E+002	+0.000000E+000	+0.000000E+000
784	+1.930412E+002	+0.000000E+000	+0.000000E+000
785	+2.011521E+002	+0.000000E+000	+0.000000E+000
786	+2.110516E+002	+0.000000E+000	+0.000000E+000
787	+2.068393E+002	+0.000000E+000	+0.000000E+000
788	+2.101508E+002	+0.000000E+000	+0.000000E+000
789	+2.091818E+002	+0.000000E+000	+0.000000E+000
790	+2.081378E+002	+0.000000E+000	+0.000000E+000
791	+2.043197E+002	+0.000000E+000	+0.000000E+000
792	+1.997479E+002	+0.000000E+000	+0.000000E+000
793	+2.129375E+002	+0.000000E+000	+0.000000E+000
794	+2.123077E+002	+0.000000E+000	+0.000000E+000
795	+2.060516E+002	+0.000000E+000	+0.000000E+000
796	+2.115678E+002	+0.000000E+000	+0.000000E+000
797	+2.031897E+002	+0.000000E+000	+0.000000E+000
798	+2.107840E+002	+0.000000E+000	+0.000000E+000
799	+2.097450E+002	+0.000000E+000	+0.000000E+000
800	+1.982208E+002	+0.000000E+000	+0.000000E+000
801	+2.086964E+002	+0.000000E+000	+0.000000E+000
802	+2.075516E+002	+0.000000E+000	+0.000000E+000
803	+2.135000E+002	+5.865232E-003	+0.000000E+000
804	+1.965702E+002	+0.000000E+000	+0.000000E+000
805	+2.019132E+002	+0.000000E+000	+0.000000E+000
806	+2.051572E+002	+0.000000E+000	+0.000000E+000
807	+2.120851E+002	+0.000000E+000	+0.000000E+000
808	+2.121512E+002	+0.000000E+000	+0.000000E+000
809	+2.113139E+002	+0.000000E+000	+0.000000E+000
810	+2.103643E+002	+0.000000E+000	+0.000000E+000
811	+2.093145E+002	+0.000000E+000	+0.000000E+000
812	+2.081632E+002	+0.000000E+000	+0.000000E+000
813	+2.069034E+002	+0.000000E+000	+0.000000E+000
814	+1.768373E+002	+0.000000E+000	+0.000000E+000
815	+1.768981E+002	+0.000000E+000	+0.000000E+000
816	+1.770791E+002	+0.000000E+000	+0.000000E+000
817	+1.773792E+002	+0.000000E+000	+0.000000E+000
818	+1.777940E+002	+0.000000E+000	+0.000000E+000
819	+1.783219E+002	+0.000000E+000	+0.000000E+000
820	+1.789529E+002	+0.000000E+000	+0.000000E+000
821	+1.796840E+002	+0.000000E+000	+0.000000E+000
822	+1.805042E+002	+0.000000E+000	+0.000000E+000
823	+1.814077E+002	+0.000000E+000	+0.000000E+000
824	+1.823798E+002	+0.000000E+000	+0.000000E+000
825	+1.834128E+002	+0.000000E+000	+0.000000E+000
826	+1.844894E+002	+0.000000E+000	+0.000000E+000
827	+1.856837E+002	+0.000000E+000	+0.000000E+000
828	+1.867469E+002	+0.000000E+000	+0.000000E+000
829	+1.879355E+002	+0.000000E+000	+0.000000E+000
830	+1.892016E+002	+0.000000E+000	+0.000000E+000
831	+1.906028E+002	+0.000000E+000	+0.000000E+000
832	+1.920836E+002	+0.000000E+000	+0.000000E+000

833	+2.004342E+002	+0.000000E+000	+0.000000E+000
834	+2.041821E+002	+0.000000E+000	+0.000000E+000
835	+2.135000E+002	+1.337278E-002	+0.000000E+000
836	+2.127951E+002	+0.000000E+000	+0.000000E+000
837	+2.119744E+002	+0.000000E+000	+0.000000E+000
838	+2.110424E+002	+0.000000E+000	+0.000000E+000
839	+2.100026E+002	+0.000000E+000	+0.000000E+000
840	+2.088431E+002	+0.000000E+000	+0.000000E+000
841	+1.986746E+002	+0.000000E+000	+0.000000E+000
842	+2.075537E+002	+0.000000E+000	+0.000000E+000
843	+2.061468E+002	+0.000000E+000	+0.000000E+000
844	+2.028592E+002	+0.000000E+000	+0.000000E+000
845	+2.135000E+002	+1.528798E-002	+0.000000E+000
846	+2.127037E+002	+0.000000E+000	+0.000000E+000
847	+1.964498E+002	+0.000000E+000	+0.000000E+000
848	+2.117959E+002	+0.000000E+000	+0.000000E+000
849	+2.107542E+002	+0.000000E+000	+0.000000E+000
850	+2.095859E+002	+0.000000E+000	+0.000000E+000
851	+2.082839E+002	+0.000000E+000	+0.000000E+000
852	+2.068329E+002	+0.000000E+000	+0.000000E+000
853	+2.052254E+002	+0.000000E+000	+0.000000E+000
854	+2.013342E+002	+0.000000E+000	+0.000000E+000
855	+1.777885E+002	+0.000000E+000	+0.000000E+000
856	+1.778413E+002	+0.000000E+000	+0.000000E+000
857	+1.780226E+002	+0.000000E+000	+0.000000E+000
858	+1.783234E+002	+0.000000E+000	+0.000000E+000
859	+1.787394E+002	+0.000000E+000	+0.000000E+000
860	+1.792684E+002	+0.000000E+000	+0.000000E+000
861	+1.799029E+002	+0.000000E+000	+0.000000E+000
862	+1.806395E+002	+0.000000E+000	+0.000000E+000
863	+1.814672E+002	+0.000000E+000	+0.000000E+000
864	+1.823803E+002	+0.000000E+000	+0.000000E+000
865	+1.833637E+002	+0.000000E+000	+0.000000E+000
866	+1.844083E+002	+0.000000E+000	+0.000000E+000
867	+1.854940E+002	+0.000000E+000	+0.000000E+000
868	+1.866894E+002	+0.000000E+000	+0.000000E+000
869	+1.877392E+002	+0.000000E+000	+0.000000E+000
870	+1.888941E+002	+0.000000E+000	+0.000000E+000
871	+1.901176E+002	+0.000000E+000	+0.000000E+000
872	+1.914798E+002	+0.000000E+000	+0.000000E+000
873	+1.930739E+002	+0.000000E+000	+0.000000E+000
874	+2.135000E+002	+1.715061E-002	+0.000000E+000
875	+2.126096E+002	+0.000000E+000	+0.000000E+000
876	+2.115888E+002	+0.000000E+000	+0.000000E+000
877	+2.104204E+002	+0.000000E+000	+0.000000E+000
878	+2.091026E+002	+0.000000E+000	+0.000000E+000
879	+2.076152E+002	+0.000000E+000	+0.000000E+000
880	+2.059548E+002	+0.000000E+000	+0.000000E+000
881	+1.994125E+002	+0.000000E+000	+0.000000E+000
882	+2.041002E+002	+0.000000E+000	+0.000000E+000
883	+2.135000E+002	+1.923544E-002	+0.000000E+000
884	+2.124949E+002	+0.000000E+000	+0.000000E+000
885	+2.113462E+002	+0.000000E+000	+0.000000E+000
886	+1.969596E+002	+0.000000E+000	+0.000000E+000
887	+2.100221E+002	+0.000000E+000	+0.000000E+000
888	+2.085191E+002	+0.000000E+000	+0.000000E+000
889	+2.068045E+002	+0.000000E+000	+0.000000E+000
890	+2.048578E+002	+0.000000E+000	+0.000000E+000
891	+2.026765E+002	+0.000000E+000	+0.000000E+000
892	+2.135000E+002	+2.165329E-002	+0.000000E+000

893	+1.922896E+002	+0.000000E+000	+0.000000E+000
894	+1.939116E+002	+0.000000E+000	+0.000000E+000
895	+1.833304E+002	+0.000000E+000	+0.000000E+000
896	+1.843292E+002	+0.000000E+000	+0.000000E+000
897	+1.853983E+002	+0.000000E+000	+0.000000E+000
898	+1.864903E+002	+0.000000E+000	+0.000000E+000
899	+1.876111E+002	+0.000000E+000	+0.000000E+000
900	+1.887260E+002	+0.000000E+000	+0.000000E+000
901	+1.898355E+002	+0.000000E+000	+0.000000E+000
902	+1.909900E+002	+0.000000E+000	+0.000000E+000
903	+1.786859E+002	+0.000000E+000	+0.000000E+000
904	+1.787471E+002	+0.000000E+000	+0.000000E+000
905	+1.789294E+002	+0.000000E+000	+0.000000E+000
906	+1.792316E+002	+0.000000E+000	+0.000000E+000
907	+1.796501E+002	+0.000000E+000	+0.000000E+000
908	+1.801829E+002	+0.000000E+000	+0.000000E+000
909	+1.808230E+002	+0.000000E+000	+0.000000E+000
910	+1.815674E+002	+0.000000E+000	+0.000000E+000
911	+1.824054E+002	+0.000000E+000	+0.000000E+000
912	+2.123721E+002	+0.000000E+000	+0.000000E+000
913	+2.110539E+002	+0.000000E+000	+0.000000E+000
914	+2.095360E+002	+0.000000E+000	+0.000000E+000
915	+2.077766E+002	+0.000000E+000	+0.000000E+000
916	+2.057721E+002	+0.000000E+000	+0.000000E+000
917	+2.034662E+002	+0.000000E+000	+0.000000E+000
918	+2.008519E+002	+0.000000E+000	+0.000000E+000
919	+2.135000E+002	+2.478075E-002	+0.000000E+000
920	+2.122102E+002	+0.000000E+000	+0.000000E+000
921	+2.106907E+002	+0.000000E+000	+0.000000E+000
922	+2.089267E+002	+0.000000E+000	+0.000000E+000
923	+2.068655E+002	+0.000000E+000	+0.000000E+000
924	+2.044663E+002	+0.000000E+000	+0.000000E+000
925	+2.016818E+002	+0.000000E+000	+0.000000E+000
926	+1.984089E+002	+0.000000E+000	+0.000000E+000
927	+2.135000E+002	+2.823440E-002	+0.000000E+000
928	+2.120844E+002	+0.000000E+000	+0.000000E+000
929	+2.102391E+002	+0.000000E+000	+0.000000E+000
930	+2.081683E+002	+0.000000E+000	+0.000000E+000
931	+2.057897E+002	+0.000000E+000	+0.000000E+000
932	+2.028074E+002	+0.000000E+000	+0.000000E+000
933	+1.992943E+002	+0.000000E+000	+0.000000E+000
934	+1.918181E+002	+0.000000E+000	+0.000000E+000
935	+1.930147E+002	+0.000000E+000	+0.000000E+000
936	+1.946273E+002	+0.000000E+000	+0.000000E+000
937	+1.852759E+002	+0.000000E+000	+0.000000E+000
938	+1.863593E+002	+0.000000E+000	+0.000000E+000
939	+1.874889E+002	+0.000000E+000	+0.000000E+000
940	+1.886148E+002	+0.000000E+000	+0.000000E+000
941	+1.897182E+002	+0.000000E+000	+0.000000E+000
942	+1.907683E+002	+0.000000E+000	+0.000000E+000
943	+1.810627E+002	+0.000000E+000	+0.000000E+000
944	+1.817101E+002	+0.000000E+000	+0.000000E+000
945	+1.824645E+002	+0.000000E+000	+0.000000E+000
946	+1.833156E+002	+0.000000E+000	+0.000000E+000
947	+1.842583E+002	+0.000000E+000	+0.000000E+000
948	+1.795535E+002	+0.000000E+000	+0.000000E+000
949	+1.796153E+002	+0.000000E+000	+0.000000E+000
950	+1.797990E+002	+0.000000E+000	+0.000000E+000
951	+1.801036E+002	+0.000000E+000	+0.000000E+000
952	+1.805257E+002	+0.000000E+000	+0.000000E+000

953	+2.135000E+002	+3.268428E-002	+0.000000E+000
954	+2.117707E+002	+0.000000E+000	+0.000000E+000
955	+2.095958E+002	+0.000000E+000	+0.000000E+000
956	+2.072580E+002	+0.000000E+000	+0.000000E+000
957	+2.044218E+002	+0.000000E+000	+0.000000E+000
958	+2.011387E+002	+0.000000E+000	+0.000000E+000
959	+1.943415E+002	+0.000000E+000	+0.000000E+000
960	+1.974828E+002	+0.000000E+000	+0.000000E+000
961	+1.934058E+002	+0.000000E+000	+0.000000E+000
962	+1.922840E+002	+0.000000E+000	+0.000000E+000
963	+1.913480E+002	+0.000000E+000	+0.000000E+000
964	+1.848179E+002	+0.000000E+000	+0.000000E+000
965	+1.858513E+002	+0.000000E+000	+0.000000E+000
966	+1.869518E+002	+0.000000E+000	+0.000000E+000
967	+1.880912E+002	+0.000000E+000	+0.000000E+000
968	+1.892368E+002	+0.000000E+000	+0.000000E+000
969	+1.903408E+002	+0.000000E+000	+0.000000E+000
970	+1.803162E+002	+0.000000E+000	+0.000000E+000
971	+1.806226E+002	+0.000000E+000	+0.000000E+000
972	+1.810474E+002	+0.000000E+000	+0.000000E+000
973	+1.815894E+002	+0.000000E+000	+0.000000E+000
974	+1.822422E+002	+0.000000E+000	+0.000000E+000
975	+1.830039E+002	+0.000000E+000	+0.000000E+000
976	+1.838644E+002	+0.000000E+000	+0.000000E+000
977	+1.800699E+002	+0.000000E+000	+0.000000E+000
978	+1.801325E+002	+0.000000E+000	+0.000000E+000
979	+2.135000E+002	+3.828768E-002	+0.000000E+000
980	+2.114803E+002	+0.000000E+000	+0.000000E+000
981	+2.091099E+002	+0.000000E+000	+0.000000E+000
982	+2.063495E+002	+0.000000E+000	+0.000000E+000
983	+2.032794E+002	+0.000000E+000	+0.000000E+000
984	+1.941288E+002	+0.000000E+000	+0.000000E+000
985	+2.000282E+002	+0.000000E+000	+0.000000E+000
986	+1.927542E+002	+0.000000E+000	+0.000000E+000
987	+2.135000E+002	+4.413505E-002	+0.000000E+000
988	+1.898648E+002	+0.000000E+000	+0.000000E+000
989	+1.909749E+002	+0.000000E+000	+0.000000E+000
990	+1.919398E+002	+0.000000E+000	+0.000000E+000
991	+1.835303E+002	+0.000000E+000	+0.000000E+000
992	+1.844012E+002	+0.000000E+000	+0.000000E+000
993	+1.853691E+002	+0.000000E+000	+0.000000E+000
994	+1.864189E+002	+0.000000E+000	+0.000000E+000
995	+1.875391E+002	+0.000000E+000	+0.000000E+000
996	+1.887005E+002	+0.000000E+000	+0.000000E+000
997	+1.805703E+002	+0.000000E+000	+0.000000E+000
998	+1.806344E+002	+0.000000E+000	+0.000000E+000
999	+1.808202E+002	+0.000000E+000	+0.000000E+000
1000	+1.811286E+002	+0.000000E+000	+0.000000E+000
1001	+1.815565E+002	+0.000000E+000	+0.000000E+000
1002	+1.821028E+002	+0.000000E+000	+0.000000E+000
1003	+1.827617E+002	+0.000000E+000	+0.000000E+000
1004	+2.111923E+002	+0.000000E+000	+0.000000E+000
1005	+2.085447E+002	+0.000000E+000	+0.000000E+000
1006	+2.056855E+002	+0.000000E+000	+0.000000E+000
1007	+2.024933E+002	+0.000000E+000	+0.000000E+000
1008	+1.939146E+002	+0.000000E+000	+0.000000E+000
1009	+2.135000E+002	+4.987807E-002	+0.000000E+000
1010	+2.109217E+002	+0.000000E+000	+0.000000E+000
1011	+2.080931E+002	+0.000000E+000	+0.000000E+000
1012	+1.938276E+002	+0.000000E+000	+0.000000E+000

1013	+1.985497E+002	+0.000000E+000	+0.000000E+000
1014	+2.050564E+002	+0.000000E+000	+0.000000E+000
1015	+1.932023E+002	+0.000000E+000	+0.000000E+000
1016	+1.869772E+002	+0.000000E+000	+0.000000E+000
1017	+1.881199E+002	+0.000000E+000	+0.000000E+000
1018	+1.893076E+002	+0.000000E+000	+0.000000E+000
1019	+1.905001E+002	+0.000000E+000	+0.000000E+000
1020	+1.916274E+002	+0.000000E+000	+0.000000E+000
1021	+1.925581E+002	+0.000000E+000	+0.000000E+000
1022	+1.820587E+002	+0.000000E+000	+0.000000E+000
1023	+1.826018E+002	+0.000000E+000	+0.000000E+000
1024	+1.832672E+002	+0.000000E+000	+0.000000E+000
1025	+1.840455E+002	+0.000000E+000	+0.000000E+000
1026	+1.849277E+002	+0.000000E+000	+0.000000E+000
1027	+1.859102E+002	+0.000000E+000	+0.000000E+000
1028	+1.810583E+002	+0.000000E+000	+0.000000E+000
1029	+1.811226E+002	+0.000000E+000	+0.000000E+000
1030	+1.813103E+002	+0.000000E+000	+0.000000E+000
1031	+1.816285E+002	+0.000000E+000	+0.000000E+000
1032	+2.135000E+002	+5.480697E-002	+0.000000E+000
1033	+2.107259E+002	+0.000000E+000	+0.000000E+000
1034	+1.937742E+002	+0.000000E+000	+0.000000E+000
1035	+2.009314E+002	+0.000000E+000	+0.000000E+000
1036	+2.076568E+002	+0.000000E+000	+0.000000E+000
1037	+1.854417E+002	+0.000000E+000	+0.000000E+000
1038	+1.864399E+002	+0.000000E+000	+0.000000E+000
1039	+1.875288E+002	+0.000000E+000	+0.000000E+000
1040	+1.886933E+002	+0.000000E+000	+0.000000E+000
1041	+1.899144E+002	+0.000000E+000	+0.000000E+000
1042	+1.911436E+002	+0.000000E+000	+0.000000E+000
1043	+1.922971E+002	+0.000000E+000	+0.000000E+000
1044	+1.932340E+002	+0.000000E+000	+0.000000E+000
1045	+1.815315E+002	+0.000000E+000	+0.000000E+000
1046	+1.815952E+002	+0.000000E+000	+0.000000E+000
1047	+1.817844E+002	+0.000000E+000	+0.000000E+000
1048	+1.820978E+002	+0.000000E+000	+0.000000E+000
1049	+1.825329E+002	+0.000000E+000	+0.000000E+000
1050	+1.830882E+002	+0.000000E+000	+0.000000E+000
1051	+1.837606E+002	+0.000000E+000	+0.000000E+000
1052	+1.845483E+002	+0.000000E+000	+0.000000E+000
1053	+2.135000E+002	+6.092186E-002	+0.000000E+000
1054	+1.938818E+002	+0.000000E+000	+0.000000E+000
1055	+1.975489E+002	+0.000000E+000	+0.000000E+000
1056	+2.031713E+002	+0.000000E+000	+0.000000E+000
1057	+2.103563E+002	+0.000000E+000	+0.000000E+000
1058	+2.135000E+002	+8.326367E-002	+0.000000E+000
1059	+1.917917E+002	+0.000000E+000	+0.000000E+000
1060	+1.929966E+002	+0.000000E+000	+0.000000E+000
1061	+1.939327E+002	+0.000000E+000	+0.000000E+000
1062	+1.829989E+002	+0.000000E+000	+0.000000E+000
1063	+1.835597E+002	+0.000000E+000	+0.000000E+000
1064	+1.842396E+002	+0.000000E+000	+0.000000E+000
1065	+1.850372E+002	+0.000000E+000	+0.000000E+000
1066	+1.859446E+002	+0.000000E+000	+0.000000E+000
1067	+1.869596E+002	+0.000000E+000	+0.000000E+000
1068	+1.880694E+002	+0.000000E+000	+0.000000E+000
1069	+1.892625E+002	+0.000000E+000	+0.000000E+000
1070	+1.905194E+002	+0.000000E+000	+0.000000E+000
1071	+1.819902E+002	+0.000000E+000	+0.000000E+000
1072	+1.820542E+002	+0.000000E+000	+0.000000E+000

1073	+1.822448E+002	+0.000000E+000	+0.000000E+000
1074	+1.825600E+002	+0.000000E+000	+0.000000E+000
1075	+2.051612E+002	+0.000000E+000	+0.000000E+000
1076	+2.002000E+002	+0.000000E+000	+0.000000E+000
1077	+1.965007E+002	+0.000000E+000	+0.000000E+000
1078	+1.944029E+002	+0.000000E+000	+0.000000E+000
1079	+1.898230E+002	+0.000000E+000	+0.000000E+000
1080	+1.911201E+002	+0.000000E+000	+0.000000E+000
1081	+1.924464E+002	+0.000000E+000	+0.000000E+000
1082	+1.937275E+002	+0.000000E+000	+0.000000E+000
1083	+1.946955E+002	+0.000000E+000	+0.000000E+000
1084	+1.824327E+002	+0.000000E+000	+0.000000E+000
1085	+1.824977E+002	+0.000000E+000	+0.000000E+000
1086	+1.826897E+002	+0.000000E+000	+0.000000E+000
1087	+1.830875E+002	+0.000000E+000	+0.000000E+000
1088	+1.834515E+002	+0.000000E+000	+0.000000E+000
1089	+1.840181E+002	+0.000000E+000	+0.000000E+000
1090	+1.847059E+002	+0.000000E+000	+0.000000E+000
1091	+1.855139E+002	+0.000000E+000	+0.000000E+000
1092	+1.864349E+002	+0.000000E+000	+0.000000E+000
1093	+1.874678E+002	+0.000000E+000	+0.000000E+000
1094	+1.886008E+002	+0.000000E+000	+0.000000E+000
1095	+2.135000E+002	+4.709158E-002	+0.000000E+000
1096	+2.069215E+002	+0.000000E+000	+0.000000E+000
1097	+2.018042E+002	+0.000000E+000	+0.000000E+000
1098	+1.979560E+002	+0.000000E+000	+0.000000E+000
1099	+1.951302E+002	+0.000000E+000	+0.000000E+000
1100	+1.958075E+002	+0.000000E+000	+0.000000E+000
1101	+1.991014E+002	+0.000000E+000	+0.000000E+000
1102	+2.031108E+002	+0.000000E+000	+0.000000E+000
1103	+1.859761E+002	+0.000000E+000	+0.000000E+000
1104	+1.869114E+002	+0.000000E+000	+0.000000E+000
1105	+1.879629E+002	+0.000000E+000	+0.000000E+000
1106	+1.891202E+002	+0.000000E+000	+0.000000E+000
1107	+1.903761E+002	+0.000000E+000	+0.000000E+000
1108	+1.917171E+002	+0.000000E+000	+0.000000E+000
1109	+1.931865E+002	+0.000000E+000	+0.000000E+000
1110	+1.944729E+002	+0.000000E+000	+0.000000E+000
1111	+1.955916E+002	+0.000000E+000	+0.000000E+000
1112	+1.828606E+002	+0.000000E+000	+0.000000E+000
1113	+1.829269E+002	+0.000000E+000	+0.000000E+000
1114	+1.831204E+002	+0.000000E+000	+0.000000E+000
1115	+1.834420E+002	+0.000000E+000	+0.000000E+000
1116	+1.838896E+002	+0.000000E+000	+0.000000E+000
1117	+1.844622E+002	+0.000000E+000	+0.000000E+000
1118	+1.851581E+002	+0.000000E+000	+0.000000E+000
1119	+2.079587E+002	+0.000000E+000	+0.000000E+000
1120	+2.135000E+002	+3.797499E-002	+0.000000E+000
1121	+1.964566E+002	+0.000000E+000	+0.000000E+000
1122	+2.000981E+002	+0.000000E+000	+0.000000E+000
1123	+2.041201E+002	+0.000000E+000	+0.000000E+000
1124	+1.937644E+002	+0.000000E+000	+0.000000E+000
1125	+1.952435E+002	+0.000000E+000	+0.000000E+000
1126	+1.965631E+002	+0.000000E+000	+0.000000E+000
1127	+1.835353E+002	+0.000000E+000	+0.000000E+000
1128	+1.838599E+002	+0.000000E+000	+0.000000E+000
1129	+1.843119E+002	+0.000000E+000	+0.000000E+000
1130	+1.848907E+002	+0.000000E+000	+0.000000E+000
1131	+1.855968E+002	+0.000000E+000	+0.000000E+000
1132	+1.864253E+002	+0.000000E+000	+0.000000E+000

1133	+1.873753E+002	+0.000000E+000	+0.000000E+000
1134	+1.884461E+002	+0.000000E+000	+0.000000E+000
1135	+1.896289E+002	+0.000000E+000	+0.000000E+000
1136	+1.909139E+002	+0.000000E+000	+0.000000E+000
1137	+1.923078E+002	+0.000000E+000	+0.000000E+000
1138	+1.832743E+002	+0.000000E+000	+0.000000E+000
1139	+1.833410E+002	+0.000000E+000	+0.000000E+000
1140	+1.971661E+002	+0.000000E+000	+0.000000E+000
1141	+2.086582E+002	+0.000000E+000	+0.000000E+000
1142	+2.135000E+002	+3.262850E-002	+0.000000E+000
1143	+2.009587E+002	+0.000000E+000	+0.000000E+000
1144	+1.979132E+002	+0.000000E+000	+0.000000E+000
1145	+2.049458E+002	+0.000000E+000	+0.000000E+000
1146	+1.901239E+002	+0.000000E+000	+0.000000E+000
1147	+1.914494E+002	+0.000000E+000	+0.000000E+000
1148	+1.928881E+002	+0.000000E+000	+0.000000E+000
1149	+1.944200E+002	+0.000000E+000	+0.000000E+000
1150	+1.960235E+002	+0.000000E+000	+0.000000E+000
1151	+1.976134E+002	+0.000000E+000	+0.000000E+000
1152	+1.836725E+002	+0.000000E+000	+0.000000E+000
1153	+1.837308E+002	+0.000000E+000	+0.000000E+000
1154	+1.839358E+002	+0.000000E+000	+0.000000E+000
1155	+1.842635E+002	+0.000000E+000	+0.000000E+000
1156	+1.847201E+002	+0.000000E+000	+0.000000E+000
1157	+1.853054E+002	+0.000000E+000	+0.000000E+000
1158	+1.860201E+002	+0.000000E+000	+0.000000E+000
1159	+1.868601E+002	+0.000000E+000	+0.000000E+000
1160	+1.878251E+002	+0.000000E+000	+0.000000E+000
1161	+1.889158E+002	+0.000000E+000	+0.000000E+000
1162	+2.091641E+002	+0.000000E+000	+0.000000E+000
1163	+2.017845E+002	+0.000000E+000	+0.000000E+000
1164	+1.986841E+002	+0.000000E+000	+0.000000E+000
1165	+2.135000E+002	+2.929309E-002	+0.000000E+000
1166	+2.056278E+002	+0.000000E+000	+0.000000E+000
1167	+2.026045E+002	+0.000000E+000	+0.000000E+000
1168	+1.996644E+002	+0.000000E+000	+0.000000E+000
1169	+1.846511E+002	+0.000000E+000	+0.000000E+000
1170	+1.851122E+002	+0.000000E+000	+0.000000E+000
1171	+1.857055E+002	+0.000000E+000	+0.000000E+000
1172	+1.864277E+002	+0.000000E+000	+0.000000E+000
1173	+1.872792E+002	+0.000000E+000	+0.000000E+000
1174	+1.882595E+002	+0.000000E+000	+0.000000E+000
1175	+1.893704E+002	+0.000000E+000	+0.000000E+000
1176	+1.906060E+002	+0.000000E+000	+0.000000E+000
1177	+1.919679E+002	+0.000000E+000	+0.000000E+000
1178	+1.934543E+002	+0.000000E+000	+0.000000E+000
1179	+1.950677E+002	+0.000000E+000	+0.000000E+000
1180	+1.967963E+002	+0.000000E+000	+0.000000E+000
1181	+1.987069E+002	+0.000000E+000	+0.000000E+000
1182	+1.840555E+002	+0.000000E+000	+0.000000E+000
1183	+1.841222E+002	+0.000000E+000	+0.000000E+000
1184	+1.843215E+002	+0.000000E+000	+0.000000E+000
1185	+2.095364E+002	+0.000000E+000	+0.000000E+000
1186	+2.061742E+002	+0.000000E+000	+0.000000E+000
1187	+2.009484E+002	+0.000000E+000	+0.000000E+000
1188	+2.135000E+002	+2.684963E-002	+0.000000E+000
1189	+2.033765E+002	+0.000000E+000	+0.000000E+000
1190	+1.844220E+002	+0.000000E+000	+0.000000E+000
1191	+1.844893E+002	+0.000000E+000	+0.000000E+000
1192	+1.846984E+002	+0.000000E+000	+0.000000E+000

1193	+1.850239E+002	+0.000000E+000	+0.000000E+000
1194	+1.854898E+002	+0.000000E+000	+0.000000E+000
1195	+1.860897E+002	+0.000000E+000	+0.000000E+000
1196	+1.868208E+002	+0.000000E+000	+0.000000E+000
1197	+1.876840E+002	+0.000000E+000	+0.000000E+000
1198	+1.886797E+002	+0.000000E+000	+0.000000E+000
1199	+1.898108E+002	+0.000000E+000	+0.000000E+000
1200	+1.910733E+002	+0.000000E+000	+0.000000E+000
1201	+1.924715E+002	+0.000000E+000	+0.000000E+000
1202	+1.940093E+002	+0.000000E+000	+0.000000E+000
1203	+1.957006E+002	+0.000000E+000	+0.000000E+000
1204	+1.975583E+002	+0.000000E+000	+0.000000E+000
1205	+1.997358E+002	+0.000000E+000	+0.000000E+000
1206	+2.097858E+002	+0.000000E+000	+0.000000E+000
1207	+2.065306E+002	+0.000000E+000	+0.000000E+000
1208	+2.039880E+002	+0.000000E+000	+0.000000E+000
1209	+2.135000E+002	+2.574084E-002	+0.000000E+000
1210	+1.929577E+002	+0.000000E+000	+0.000000E+000
1211	+1.945462E+002	+0.000000E+000	+0.000000E+000
1212	+1.963112E+002	+0.000000E+000	+0.000000E+000
1213	+1.982990E+002	+0.000000E+000	+0.000000E+000
1214	+2.006483E+002	+0.000000E+000	+0.000000E+000
1215	+1.847729E+002	+0.000000E+000	+0.000000E+000
1216	+1.848419E+002	+0.000000E+000	+0.000000E+000
1217	+1.850444E+002	+0.000000E+000	+0.000000E+000
1218	+1.853810E+002	+0.000000E+000	+0.000000E+000
1219	+1.858518E+002	+0.000000E+000	+0.000000E+000
1220	+1.864583E+002	+0.000000E+000	+0.000000E+000
1221	+1.871982E+002	+0.000000E+000	+0.000000E+000
1222	+1.880732E+002	+0.000000E+000	+0.000000E+000
1223	+1.890842E+002	+0.000000E+000	+0.000000E+000
1224	+1.902354E+002	+0.000000E+000	+0.000000E+000
1225	+1.915245E+002	+0.000000E+000	+0.000000E+000
1226	+2.899115E+002	+0.000000E+000	+0.000000E+000
1227	+2.866451E+002	+0.000000E+000	+0.000000E+000
1228	+2.135000E+002	+2.528036E-002	+0.000000E+000
1229	+1.851082E+002	+0.000000E+000	+0.000000E+000
1230	+1.851776E+002	+0.000000E+000	+0.000000E+000
1231	+1.853818E+002	+0.000000E+000	+0.000000E+000
1232	+1.857216E+002	+0.000000E+000	+0.000000E+000
1233	+1.861971E+002	+0.000000E+000	+0.000000E+000
1234	+1.868102E+002	+0.000000E+000	+0.000000E+000
1235	+1.875590E+002	+0.000000E+000	+0.000000E+000
1236	+1.884455E+002	+0.000000E+000	+0.000000E+000
1237	+1.894716E+002	+0.000000E+000	+0.000000E+000
1238	+1.906426E+002	+0.000000E+000	+0.000000E+000
1239	+1.919577E+002	+0.000000E+000	+0.000000E+000
1240	+1.934278E+002	+0.000000E+000	+0.000000E+000
1241	+1.950637E+002	+0.000000E+000	+0.000000E+000
1242	+1.969089E+002	+0.000000E+000	+0.000000E+000
1243	+1.989930E+002	+0.000000E+000	+0.000000E+000
1244	+2.015178E+002	+0.000000E+000	+0.000000E+000
1245	+2.099454E+002	+0.000000E+000	+0.000000E+000
1246	+2.076024E+002	+0.000000E+000	+0.000000E+000
1247	+2.135000E+002	+2.381887E-001	+0.000000E+000
1248	+1.961437E+002	+0.000000E+000	+0.000000E+000
1249	+1.981845E+002	+0.000000E+000	+0.000000E+000
1250	+2.005643E+002	+0.000000E+000	+0.000000E+000
1251	+2.036586E+002	+0.000000E+000	+0.000000E+000
1252	+1.908858E+002	+0.000000E+000	+0.000000E+000

1253	+1.913419E+002	+0.000000E+000	+0.000000E+000
1254	+1.927598E+002	+0.000000E+000	+0.000000E+000
1255	+1.943546E+002	+0.000000E+000	+0.000000E+000
1256	+1.872378E+002	+0.000000E+000	+0.000000E+000
1257	+1.880388E+002	+0.000000E+000	+0.000000E+000
1258	+1.889858E+002	+0.000000E+000	+0.000000E+000
1259	+1.855002E+002	+0.000000E+000	+0.000000E+000
1260	+1.857179E+002	+0.000000E+000	+0.000000E+000
1261	+1.860793E+002	+0.000000E+000	+0.000000E+000
1262	+1.865867E+002	+0.000000E+000	+0.000000E+000
1263	+1.854279E+002	+0.000000E+000	+0.000000E+000
1264	+2.135000E+002	+2.972749E-001	+0.000000E+000
1265	+1.988974E+002	+0.000000E+000	+0.000000E+000
1266	+2.013993E+002	+0.000000E+000	+0.000000E+000
1267	+2.045058E+002	+0.000000E+000	+0.000000E+000
1268	+2.084648E+002	+0.000000E+000	+0.000000E+000
1269	+1.932038E+002	+0.000000E+000	+0.000000E+000
1270	+1.949214E+002	+0.000000E+000	+0.000000E+000
1271	+1.967767E+002	+0.000000E+000	+0.000000E+000
1272	+1.884634E+002	+0.000000E+000	+0.000000E+000
1273	+1.894281E+002	+0.000000E+000	+0.000000E+000
1274	+1.905494E+002	+0.000000E+000	+0.000000E+000
1275	+1.918308E+002	+0.000000E+000	+0.000000E+000
1276	+1.861128E+002	+0.000000E+000	+0.000000E+000
1277	+1.864787E+002	+0.000000E+000	+0.000000E+000
1278	+1.869914E+002	+0.000000E+000	+0.000000E+000
1279	+1.876535E+002	+0.000000E+000	+0.000000E+000
1280	+1.858198E+002	+0.000000E+000	+0.000000E+000
1281	+1.858929E+002	+0.000000E+000	+0.000000E+000
1282	+2.852142E+002	+0.000000E+000	+0.000000E+000
1283	+2.898293E+002	+0.000000E+000	+0.000000E+000
1284	+2.135000E+002	+1.814524E-001	+0.000000E+000
1285	+1.937707E+002	+0.000000E+000	+0.000000E+000
1286	+1.954525E+002	+0.000000E+000	+0.000000E+000
1287	+1.973600E+002	+0.000000E+000	+0.000000E+000
1288	+1.995425E+002	+0.000000E+000	+0.000000E+000
1289	+2.021128E+002	+0.000000E+000	+0.000000E+000
1290	+1.888628E+002	+0.000000E+000	+0.000000E+000
1291	+1.898397E+002	+0.000000E+000	+0.000000E+000
1292	+1.909800E+002	+0.000000E+000	+0.000000E+000
1293	+1.922882E+002	+0.000000E+000	+0.000000E+000
1294	+1.864785E+002	+0.000000E+000	+0.000000E+000
1295	+1.868493E+002	+0.000000E+000	+0.000000E+000
1296	+1.873694E+002	+0.000000E+000	+0.000000E+000
1297	+1.880388E+002	+0.000000E+000	+0.000000E+000
1298	+1.861828E+002	+0.000000E+000	+0.000000E+000
1299	+1.862571E+002	+0.000000E+000	+0.000000E+000
1300	+2.894319E+002	+0.000000E+000	+0.000000E+000
1301	+2.135000E+002	+1.626928E-001	+0.000000E+000
1302	+1.978882E+002	+0.000000E+000	+0.000000E+000
1303	+2.001221E+002	+0.000000E+000	+0.000000E+000
1304	+2.027178E+002	+0.000000E+000	+0.000000E+000
1305	+2.057968E+002	+0.000000E+000	+0.000000E+000
1306	+1.913819E+002	+0.000000E+000	+0.000000E+000
1307	+1.927101E+002	+0.000000E+000	+0.000000E+000
1308	+1.942252E+002	+0.000000E+000	+0.000000E+000
1309	+1.959438E+002	+0.000000E+000	+0.000000E+000
1310	+1.871928E+002	+0.000000E+000	+0.000000E+000
1311	+1.877178E+002	+0.000000E+000	+0.000000E+000
1312	+1.883969E+002	+0.000000E+000	+0.000000E+000

1313	+1.892298E+002	+0.000000E+000	+0.000000E+000
1314	+1.902237E+002	+0.000000E+000	+0.000000E+000
1315	+1.865179E+002	+0.000000E+000	+0.000000E+000
1316	+1.865934E+002	+0.000000E+000	+0.000000E+000
1317	+1.868183E+002	+0.000000E+000	+0.000000E+000
1318	+2.032385E+002	+0.000000E+000	+0.000000E+000
1319	+2.062655E+002	+0.000000E+000	+0.000000E+000
1320	+2.097245E+002	+0.000000E+000	+0.000000E+000
1321	+2.135000E+002	+1.496744E-001	+0.000000E+000
1322	+1.917488E+002	+0.000000E+000	+0.000000E+000
1323	+1.931006E+002	+0.000000E+000	+0.000000E+000
1324	+1.946388E+002	+0.000000E+000	+0.000000E+000
1325	+1.963856E+002	+0.000000E+000	+0.000000E+000
1326	+1.983696E+002	+0.000000E+000	+0.000000E+000
1327	+2.006294E+002	+0.000000E+000	+0.000000E+000
1328	+1.880387E+002	+0.000000E+000	+0.000000E+000
1329	+1.887241E+002	+0.000000E+000	+0.000000E+000
1330	+1.895698E+002	+0.000000E+000	+0.000000E+000
1331	+1.905764E+002	+0.000000E+000	+0.000000E+000
1332	+1.868258E+002	+0.000000E+000	+0.000000E+000
1333	+1.869819E+002	+0.000000E+000	+0.000000E+000
1334	+1.871286E+002	+0.000000E+000	+0.000000E+000
1335	+1.875073E+002	+0.000000E+000	+0.000000E+000
1336	+2.866387E+002	+0.000000E+000	+0.000000E+000
1337	+2.899561E+002	+0.000000E+000	+0.000000E+000
1338	+2.135000E+002	+1.394756E-001	+0.000000E+000
1339	+1.950154E+002	+0.000000E+000	+0.000000E+000
1340	+1.967885E+002	+0.000000E+000	+0.000000E+000
1341	+1.987936E+002	+0.000000E+000	+0.000000E+000
1342	+2.010764E+002	+0.000000E+000	+0.000000E+000
1343	+2.036804E+002	+0.000000E+000	+0.000000E+000
1344	+1.883291E+002	+0.000000E+000	+0.000000E+000
1345	+1.890232E+002	+0.000000E+000	+0.000000E+000
1346	+1.898758E+002	+0.000000E+000	+0.000000E+000
1347	+1.908951E+002	+0.000000E+000	+0.000000E+000
1348	+1.920857E+002	+0.000000E+000	+0.000000E+000
1349	+1.934533E+002	+0.000000E+000	+0.000000E+000
1350	+1.871048E+002	+0.000000E+000	+0.000000E+000
1351	+1.871818E+002	+0.000000E+000	+0.000000E+000
1352	+1.874110E+002	+0.000000E+000	+0.000000E+000
1353	+1.877926E+002	+0.000000E+000	+0.000000E+000
1354	+1.971433E+002	+0.000000E+000	+0.000000E+000
1355	+1.991710E+002	+0.000000E+000	+0.000000E+000
1356	+2.014631E+002	+0.000000E+000	+0.000000E+000
1357	+2.040456E+002	+0.000000E+000	+0.000000E+000
1358	+2.069482E+002	+0.000000E+000	+0.000000E+000
1359	+2.101371E+002	+0.000000E+000	+0.000000E+000
1360	+2.135000E+002	+1.330391E-001	+0.000000E+000
1361	+1.885900E+002	+0.000000E+000	+0.000000E+000
1362	+1.892985E+002	+0.000000E+000	+0.000000E+000
1363	+1.901536E+002	+0.000000E+000	+0.000000E+000
1364	+1.911817E+002	+0.000000E+000	+0.000000E+000
1365	+1.923856E+002	+0.000000E+000	+0.000000E+000
1366	+1.937724E+002	+0.000000E+000	+0.000000E+000
1367	+1.953543E+002	+0.000000E+000	+0.000000E+000
1368	+1.873556E+002	+0.000000E+000	+0.000000E+000
1369	+1.874330E+002	+0.000000E+000	+0.000000E+000
1370	+1.876639E+002	+0.000000E+000	+0.000000E+000
1371	+1.880496E+002	+0.000000E+000	+0.000000E+000
1372	+2.017883E+002	+0.000000E+000	+0.000000E+000

1373	+2.043556E+002	+0.000000E+000	+0.000000E+000
1374	+2.071994E+002	+0.000000E+000	+0.000000E+000
1375	+2.102750E+002	+0.000000E+000	+0.000000E+000
1376	+2.135000E+002	+1.265895E-001	+0.000000E+000
1377	+1.903979E+002	+0.000000E+000	+0.000000E+000
1378	+1.914379E+002	+0.000000E+000	+0.000000E+000
1379	+1.926548E+002	+0.000000E+000	+0.000000E+000
1380	+1.940551E+002	+0.000000E+000	+0.000000E+000
1381	+1.956494E+002	+0.000000E+000	+0.000000E+000
1382	+1.974587E+002	+0.000000E+000	+0.000000E+000
1383	+1.994955E+002	+0.000000E+000	+0.000000E+000
1384	+1.875777E+002	+0.000000E+000	+0.000000E+000
1385	+1.876555E+002	+0.000000E+000	+0.000000E+000
1386	+1.878878E+002	+0.000000E+000	+0.000000E+000
1387	+1.882763E+002	+0.000000E+000	+0.000000E+000
1388	+1.888226E+002	+0.000000E+000	+0.000000E+000
1389	+1.895294E+002	+0.000000E+000	+0.000000E+000
1390	+2.103902E+002	+0.000000E+000	+0.000000E+000
1391	+2.135000E+002	+1.219559E-001	+0.000000E+000
1392	+1.916611E+002	+0.000000E+000	+0.000000E+000
1393	+1.928849E+002	+0.000000E+000	+0.000000E+000
1394	+1.942977E+002	+0.000000E+000	+0.000000E+000
1395	+1.959083E+002	+0.000000E+000	+0.000000E+000
1396	+1.977303E+002	+0.000000E+000	+0.000000E+000
1397	+1.997750E+002	+0.000000E+000	+0.000000E+000
1398	+2.020670E+002	+0.000000E+000	+0.000000E+000
1399	+2.046124E+002	+0.000000E+000	+0.000000E+000
1400	+2.073969E+002	+0.000000E+000	+0.000000E+000
1401	+1.877703E+002	+0.000000E+000	+0.000000E+000
1402	+1.878487E+002	+0.000000E+000	+0.000000E+000
1403	+1.880838E+002	+0.000000E+000	+0.000000E+000
1404	+1.884733E+002	+0.000000E+000	+0.000000E+000
1405	+1.890233E+002	+0.000000E+000	+0.000000E+000
1406	+1.897351E+002	+0.000000E+000	+0.000000E+000
1407	+1.906127E+002	+0.000000E+000	+0.000000E+000
1408	+1.961240E+002	+0.000000E+000	+0.000000E+000
1409	+1.979558E+002	+0.000000E+000	+0.000000E+000
1410	+2.000091E+002	+0.000000E+000	+0.000000E+000
1411	+2.022969E+002	+0.000000E+000	+0.000000E+000
1412	+2.048154E+002	+0.000000E+000	+0.000000E+000
1413	+2.075598E+002	+0.000000E+000	+0.000000E+000
1414	+2.104819E+002	+0.000000E+000	+0.000000E+000
1415	+2.135000E+002	+1.179124E-001	+0.000000E+000
1416	+1.879339E+002	+0.000000E+000	+0.000000E+000
1417	+1.880125E+002	+0.000000E+000	+0.000000E+000
1418	+1.882479E+002	+0.000000E+000	+0.000000E+000
1419	+1.886414E+002	+0.000000E+000	+0.000000E+000
1420	+1.891950E+002	+0.000000E+000	+0.000000E+000
1421	+1.899115E+002	+0.000000E+000	+0.000000E+000
1422	+1.907931E+002	+0.000000E+000	+0.000000E+000
1423	+1.918487E+002	+0.000000E+000	+0.000000E+000
1424	+1.930838E+002	+0.000000E+000	+0.000000E+000
1425	+1.945067E+002	+0.000000E+000	+0.000000E+000
1426	+2.024764E+002	+0.000000E+000	+0.000000E+000
1427	+2.049811E+002	+0.000000E+000	+0.000000E+000
1428	+2.076881E+002	+0.000000E+000	+0.000000E+000
1429	+2.105523E+002	+0.000000E+000	+0.000000E+000
1430	+2.135000E+002	+1.159106E-001	+0.000000E+000
1431	+1.880681E+002	+0.000000E+000	+0.000000E+000
1432	+1.881471E+002	+0.000000E+000	+0.000000E+000

```
1433 +1.883839E+002 +0.000000E+000 +0.000000E+000
1434 +1.887785E+002 +0.000000E+000 +0.000000E+000
1435 +1.893346E+002 +0.000000E+000 +0.000000E+000
1436 +1.900547E+002 +0.000000E+000 +0.000000E+000
1437 +1.909430E+002 +0.000000E+000 +0.000000E+000
1438 +1.920048E+002 +0.000000E+000 +0.000000E+000
1439 +1.932443E+002 +0.000000E+000 +0.000000E+000
1440 +1.946748E+002 +0.000000E+000 +0.000000E+000
1441 +1.963039E+002 +0.000000E+000 +0.000000E+000
1442 +1.981420E+002 +0.000000E+000 +0.000000E+000
1443 +2.001946E+002 +0.000000E+000 +0.000000E+000
1444 +2.135000E+002 +1.134743E-001 +0.000000E+000
1445 +1.884892E+002 +0.000000E+000 +0.000000E+000
1446 +1.888862E+002 +0.000000E+000 +0.000000E+000
1447 +1.894448E+002 +0.000000E+000 +0.000000E+000
1448 +1.901664E+002 +0.000000E+000 +0.000000E+000
1449 +1.910582E+002 +0.000000E+000 +0.000000E+000
1450 +1.921245E+002 +0.000000E+000 +0.000000E+000
1451 +1.933720E+002 +0.000000E+000 +0.000000E+000
1452 +1.948089E+002 +0.000000E+000 +0.000000E+000
1453 +1.964443E+002 +0.000000E+000 +0.000000E+000
1454 +1.982832E+002 +0.000000E+000 +0.000000E+000
1455 +2.003416E+002 +0.000000E+000 +0.000000E+000
1456 +2.026187E+002 +0.000000E+000 +0.000000E+000
1457 +2.051079E+002 +0.000000E+000 +0.000000E+000
1458 +2.077796E+002 +0.000000E+000 +0.000000E+000
1459 +2.106805E+002 +0.000000E+000 +0.000000E+000
1460 +1.881726E+002 +0.000000E+000 +0.000000E+000
1461 +1.882518E+002 +0.000000E+000 +0.000000E+000
1462 +1.885646E+002 +0.000000E+000 +0.000000E+000
1463 +1.889626E+002 +0.000000E+000 +0.000000E+000
1464 +1.895226E+002 +0.000000E+000 +0.000000E+000
1465 +1.902479E+002 +0.000000E+000 +0.000000E+000
1466 +1.911428E+002 +0.000000E+000 +0.000000E+000
1467 +1.922102E+002 +0.000000E+000 +0.000000E+000
1468 +1.934614E+002 +0.000000E+000 +0.000000E+000
1469 +1.949023E+002 +0.000000E+000 +0.000000E+000
1470 +1.965416E+002 +0.000000E+000 +0.000000E+000
1471 +1.983878E+002 +0.000000E+000 +0.000000E+000
1472 +2.004471E+002 +0.000000E+000 +0.000000E+000
1473 +2.027152E+002 +0.000000E+000 +0.000000E+000
1474 +2.051924E+002 +0.000000E+000 +0.000000E+000
1475 +2.078488E+002 +0.000000E+000 +0.000000E+000
1476 +2.106393E+002 +0.000000E+000 +0.000000E+000
1477 +2.135000E+002 +1.118803E-001 +0.000000E+000
1478 +1.882475E+002 +0.000000E+000 +0.000000E+000
1479 +1.883266E+002 +0.000000E+000 +0.000000E+000
1480 +1.949617E+002 +0.000000E+000 +0.000000E+000
1481 +1.966038E+002 +0.000000E+000 +0.000000E+000
1482 +1.984479E+002 +0.000000E+000 +0.000000E+000
1483 +2.005072E+002 +0.000000E+000 +0.000000E+000
1484 +2.027775E+002 +0.000000E+000 +0.000000E+000
1485 +2.052479E+002 +0.000000E+000 +0.000000E+000
1486 +2.078918E+002 +0.000000E+000 +0.000000E+000
1487 +2.106646E+002 +0.000000E+000 +0.000000E+000
1488 +2.135000E+002 +1.105250E-001 +0.000000E+000
1489 +1.882923E+002 +0.000000E+000 +0.000000E+000
1490 +1.883719E+002 +0.000000E+000 +0.000000E+000
1491 +1.886106E+002 +0.000000E+000 +0.000000E+000
1492 +1.890096E+002 +0.000000E+000 +0.000000E+000
```



```
1493 +1.895695E+002 +0.000000E+000 +0.000000E+000
1494 +1.902959E+002 +0.000000E+000 +0.000000E+000
1495 +1.911923E+002 +0.000000E+000 +0.000000E+000
1496 +1.922641E+002 +0.000000E+000 +0.000000E+000
1497 +1.935180E+002 +0.000000E+000 +0.000000E+000
1498 +1.883073E+002 +0.000000E+000 +0.000000E+000
1499 +1.883869E+002 +0.000000E+000 +0.000000E+000
1500 +1.886257E+002 +0.000000E+000 +0.000000E+000
1501 +1.890248E+002 +0.000000E+000 +0.000000E+000
1502 +1.895864E+002 +0.000000E+000 +0.000000E+000
1503 +1.903136E+002 +0.000000E+000 +0.000000E+000
1504 +1.912109E+002 +0.000000E+000 +0.000000E+000
1505 +1.922837E+002 +0.000000E+000 +0.000000E+000
1506 +1.935359E+002 +0.000000E+000 +0.000000E+000
1507 +1.949804E+002 +0.000000E+000 +0.000000E+000
1508 +1.966233E+002 +0.000000E+000 +0.000000E+000
1509 +1.984720E+002 +0.000000E+000 +0.000000E+000
1510 +2.005319E+002 +0.000000E+000 +0.000000E+000
1511 +2.028016E+002 +0.000000E+000 +0.000000E+000
1512 +2.052699E+002 +0.000000E+000 +0.000000E+000
1513 +2.079180E+002 +0.000000E+000 +0.000000E+000
1514 +2.106704E+002 +0.000000E+000 +0.000000E+000
1515 +2.135000E+002 +5.534605E-002 +0.000000E+000
```

8/19/2004
4:20:35 PM
0 +0.0000E+000 = Step Number, Elapsed time

Elem#	Pnt#	Velocity X	Velocity Y	Gradient X	Gradient Y
1	1	-1.614299E-005	-9.336153E-006	-5.696136E-003	-3.294552E-002
1	2	-1.614152E-005	-9.365695E-006	-5.697285E-003	-3.304704E-002
1	3	-1.638649E-005	-9.364449E-006	-5.753417E-003	-3.304711E-002
1	4	-1.638736E-005	-9.336982E-006	-5.753961E-003	-3.294270E-002
1	5	-1.613987E-005	-9.350832E-006	-5.694966E-003	-3.299547E-002
1	6	-1.622303E-005	-9.364294E-006	-5.724539E-003	-3.304708E-002
1	7	-1.638927E-005	-9.350832E-006	-5.754643E-003	-3.299547E-002
1	8	-1.622206E-005	-9.335808E-006	-5.724951E-003	-3.294792E-002
1	9	-1.622347E-005	-9.350832E-006	-5.723791E-003	-3.299547E-002
2	1	-1.693700E-005	-6.650551E-005	-5.977799E-003	-2.346764E-001
2	2	-1.693916E-005	-6.659623E-005	-5.977887E-003	-2.350021E-001
2	3	-1.746241E-005	-6.659645E-005	-6.162753E-003	-2.349989E-001
2	4	-1.746342E-005	-6.650561E-005	-6.162552E-003	-2.346702E-001
2	5	-1.693756E-005	-6.655140E-005	-5.976577E-003	-2.348417E-001
2	6	-1.720183E-005	-6.659667E-005	-6.070309E-003	-2.350036E-001
2	7	-1.746896E-005	-6.655100E-005	-6.162291E-003	-2.348409E-001
2	8	-1.720183E-005	-6.650667E-005	-6.070309E-003	-2.346811E-001
2	9	-1.720183E-005	-6.655142E-005	-6.070309E-003	-2.348365E-001
3	1	-1.650902E-005	-4.703361E-005	-5.826172E-003	-1.659666E-001
3	2	-1.651332E-005	-4.708704E-005	-5.826027E-003	-1.661565E-001
3	3	-1.682003E-005	-4.708617E-005	-5.935058E-003	-1.661547E-001
3	4	-1.681907E-005	-4.703244E-005	-5.935059E-003	-1.659671E-001
3	5	-1.650960E-005	-4.706029E-005	-5.824950E-003	-1.660585E-001
3	6	-1.666424E-005	-4.708596E-005	-5.879331E-003	-1.661556E-001
3	7	-1.681536E-005	-4.705947E-005	-5.934100E-003	-1.660594E-001
3	8	-1.666424E-005	-4.703407E-005	-5.879331E-003	-1.659661E-001
3	9	-1.666424E-005	-4.705982E-005	-5.879331E-003	-1.660598E-001
4	1	-1.612518E-005	-2.804694E-005	-5.690015E-003	-9.897086E-002
4	2	-1.612589E-005	-2.809863E-005	-5.691350E-003	-9.915288E-002
4	3	-1.641365E-005	-2.809910E-005	-5.793801E-003	-9.915458E-002
4	4	-1.642200E-005	-2.804698E-005	-5.795179E-003	-9.897005E-002
4	5	-1.612561E-005	-2.807311E-005	-5.690885E-003	-9.906276E-002
4	6	-1.627111E-005	-2.809875E-005	-5.742553E-003	-9.915469E-002
4	7	-1.642412E-005	-2.807239E-005	-5.794380E-003	-9.906027E-002
4	8	-1.627198E-005	-2.804756E-005	-5.742439E-003	-9.897307E-002
4	9	-1.627376E-005	-2.807310E-005	-5.742775E-003	-9.906175E-002
5	1	-1.987576E-005	-1.389647E-004	-7.015011E-003	-4.621366E-001
5	2	-1.987506E-005	-1.312792E-004	-7.012144E-003	-4.632466E-001
5	3	-2.168762E-005	-1.312797E-004	-7.651991E-003	-4.632455E-001
5	4	-2.169103E-005	-1.389651E-004	-7.653706E-003	-4.621366E-001
5	5	-1.987758E-005	-1.311226E-004	-7.014221E-003	-4.626907E-001
5	6	-2.078256E-005	-1.312796E-004	-7.333366E-003	-4.632449E-001
5	7	-2.168598E-005	-1.311226E-004	-7.653422E-003	-4.626907E-001
5	8	-2.078458E-005	-1.389654E-004	-7.334600E-003	-4.621377E-001
5	9	-2.078524E-005	-1.311226E-004	-7.333983E-003	-4.626907E-001
6	1	-1.859239E-005	-1.080667E-004	-6.558476E-003	-3.813360E-001
6	2	-1.858914E-005	-1.082686E-004	-6.559688E-003	-3.820476E-001
6	3	-1.974572E-005	-1.082679E-004	-6.967534E-003	-3.820446E-001
6	4	-1.974476E-005	-1.080676E-004	-6.967431E-003	-3.813363E-001
6	5	-1.858636E-005	-1.081683E-004	-6.559173E-003	-3.816926E-001
6	6	-1.916429E-005	-1.082678E-004	-6.762713E-003	-3.820444E-001
6	7	-1.974359E-005	-1.081683E-004	-6.966888E-003	-3.816926E-001

6	8	-1.916508E-005	-1.080669E-004	-6.763539E-003	-3.813390E-001
6	9	-1.916640E-005	-1.081683E-004	-6.762724E-003	-3.816926E-001
7	1	-1.764037E-005	-8.675185E-005	-6.225194E-003	-3.061171E-001
7	2	-1.763796E-005	-8.686692E-005	-6.224292E-003	-3.065301E-001
7	3	-1.832267E-005	-8.686780E-005	-6.463964E-003	-3.065293E-001
7	4	-1.832072E-005	-8.675830E-005	-6.463838E-003	-3.061136E-001
7	5	-1.763940E-005	-8.680797E-005	-6.224624E-003	-3.063222E-001
7	6	-1.797948E-005	-8.686781E-005	-6.345016E-003	-3.065296E-001
7	7	-1.831754E-005	-8.680822E-005	-6.464267E-003	-3.063238E-001
7	8	-1.797948E-005	-8.674964E-005	-6.345016E-003	-3.061122E-001
7	9	-1.797940E-005	-8.680862E-005	-6.345016E-003	-3.063222E-001
8	1	-3.360459E-005	-2.256344E-004	-1.188551E-002	-7.961971E-001
8	2	-3.370705E-005	-2.082634E-004	-1.189413E-002	-7.348998E-001
8	3	+6.644015E-005	-2.082633E-004	+2.344392E-002	-7.348989E-001
8	4	+6.664392E-005	-2.256337E-004	+2.351706E-002	-7.961965E-001
8	5	-3.360920E-005	-2.169410E-004	-1.188868E-002	-7.655207E-001
8	6	+1.636497E-005	-2.082636E-004	+5.774452E-003	-7.348992E-001
8	7	+6.654868E-005	-2.169410E-004	+2.348011E-002	-7.655203E-001
8	8	+1.647894E-005	-2.256333E-004	+5.814950E-003	-7.961968E-001
8	9	+1.642233E-005	-2.169413E-004	+5.794577E-003	-7.655195E-001
9	1	-2.589411E-005	-1.848631E-004	-9.138698E-003	-6.523256E-001
9	2	-2.589416E-005	-1.882528E-004	-9.138910E-003	-6.642882E-001
9	3	-4.543588E-005	-1.882527E-004	-1.603087E-002	-6.642876E-001
9	4	-4.543328E-005	-1.848633E-004	-1.603229E-002	-6.523287E-001
9	5	-2.588940E-005	-1.865579E-004	-9.137066E-003	-6.583099E-001
9	6	-3.566689E-005	-1.882534E-004	-1.258522E-002	-6.642916E-001
9	7	-4.543640E-005	-1.865575E-004	-1.603089E-002	-6.583098E-001
9	8	-3.566689E-005	-1.848635E-004	-1.258522E-002	-6.523253E-001
9	9	-3.566689E-005	-1.865587E-004	-1.258522E-002	-6.583051E-001
10	1	-2.178741E-005	-1.560043E-004	-7.689610E-003	-5.504905E-001
10	2	-2.178492E-005	-1.561965E-004	-7.689487E-003	-5.511703E-001
10	3	-2.289016E-005	-1.561967E-004	-8.078568E-003	-5.511695E-001
10	4	-2.289359E-005	-1.560047E-004	-8.078588E-003	-5.504935E-001
10	5	-2.178285E-005	-1.561006E-004	-7.687431E-003	-5.508348E-001
10	6	-2.233765E-005	-1.561973E-004	-7.883122E-003	-5.511712E-001
10	7	-2.289256E-005	-1.561004E-004	-8.077759E-003	-5.508327E-001
10	8	-2.233929E-005	-1.560045E-004	-7.883587E-003	-5.504931E-001
10	9	-2.234083E-005	-1.561007E-004	-7.883151E-003	-5.508309E-001
11	1	-2.467959E-002	-2.190851E-002	-8.708770E-002	-7.730802E-001
11	2	-2.610484E-002	-2.910988E-002	-8.708722E-002	-9.711781E-001
11	3	-5.703147E-002	-2.752228E-002	-2.012472E-001	-9.711774E-001
11	4	-5.703131E-002	-2.190845E-002	-2.012466E-001	-7.730803E-001
11	5	-2.467948E-002	-2.471535E-002	-8.708835E-002	-8.721340E-001
11	6	-4.216396E-002	-2.840372E-002	-1.441671E-001	-9.711788E-001
11	7	-5.703139E-002	-2.471535E-002	-2.012469E-001	-8.721340E-001
11	8	-4.085570E-002	-2.190839E-002	-1.441671E-001	-7.730843E-001
11	9	-4.085570E-002	-2.471535E-002	-1.441671E-001	-8.721340E-001
12	1	-8.656429E-004	-1.789773E-004	-3.054588E-001	-6.315596E-001
12	2	-8.668114E-004	-7.812887E-005	-3.050723E-001	-2.756940E-001
12	3	-2.844564E-004	-7.812855E-005	-1.083758E-001	-2.756933E-001
12	4	-2.843111E-002	-1.789767E-002	-1.083249E-001	-6.315597E-001
12	5	-8.662242E-004	-1.285967E-004	-3.056656E-001	-4.537827E-001
12	6	-5.756346E-004	-7.812932E-005	-2.031247E-001	-2.756948E-001
12	7	-2.458358E-002	-1.108052E-002	-1.083580E-001	-4.537827E-001
12	8	-5.749760E-004	-1.789764E-004	-2.028926E-001	-6.315539E-001
12	9	-5.753040E-004	-1.285967E-004	-2.030077E-001	-4.537827E-001
13	1	-3.472496E-005	-2.433722E-004	-1.225194E-002	-8.587895E-001
13	2	-3.298468E-005	-3.819265E-004	-1.161168E-002	-1.347706E+000

13	5	-3.381479E-005	-3.126492E-004	-1.193229E-002	-1.103248E+000
13	6	-4.321737E-004	-3.819272E-004	-1.525015E-001	-1.347713E+000
13	7	-8.323962E-004	-3.126587E-004	-2.936965E-001	-1.103279E+000
13	8	-4.339888E-004	-2.433795E-004	-1.531428E-001	-8.588145E-001
13	9	-4.330821E-004	-3.126535E-004	-1.528218E-001	-1.103263E+000
14	1	-1.104128E-001	-2.352340E-002	-3.896151E-001	-8.300722E-001
14	2	-1.104074E-001	-2.772841E-002	-3.895939E-001	-9.784529E-001
14	3	-1.346427E-001	-2.772840E-002	-4.751155E-001	-9.784527E-001
14	4	-1.346920E-001	-2.352334E-002	-4.752887E-001	-8.300720E-001
14	5	-1.104099E-001	-2.562783E-002	-3.896041E-001	-9.043289E-001
14	6	-1.225252E-001	-2.772841E-002	-4.323552E-001	-9.784528E-001
14	7	-1.346678E-001	-2.562772E-002	-4.752025E-001	-9.043282E-001
14	8	-1.225525E-001	-2.352340E-002	-4.324520E-001	-8.300721E-001
14	9	-1.225388E-001	-2.562777E-002	-4.324043E-001	-9.043288E-001
15	1	-8.537477E-002	-2.460669E-002	-3.012626E-001	-8.682989E-001
15	2	-8.537462E-002	-2.786491E-002	-3.012622E-001	-9.832706E-001
15	3	-1.041491E-001	-2.786501E-002	-3.675114E-001	-9.832723E-001
15	4	-1.041491E-001	-2.460675E-002	-3.675113E-001	-8.682989E-001
15	5	-8.537521E-002	-2.623579E-002	-3.012633E-001	-9.257859E-001
15	6	-9.476203E-002	-2.786495E-002	-3.343870E-001	-9.832704E-001
15	7	-1.041496E-001	-2.623588E-002	-3.675114E-001	-9.257859E-001
15	8	-9.476203E-002	-2.460675E-002	-3.343870E-001	-8.682989E-001
15	9	-9.476203E-002	-2.623582E-002	-3.343870E-001	-9.257859E-001
16	1	-6.409428E-002	-2.511992E-002	-2.261698E-001	-8.864092E-001
16	2	-6.409417E-002	-2.793009E-002	-2.261701E-001	-9.855728E-001
16	3	-8.028737E-002	-2.793015E-002	-2.833111E-001	-9.855748E-001
16	4	-8.028730E-002	-2.512030E-002	-2.833109E-001	-8.864205E-001
16	5	-6.409433E-002	-2.652581E-002	-2.261705E-001	-9.359910E-001
16	6	-7.219147E-002	-2.793018E-002	-2.547419E-001	-9.855732E-001
16	7	-8.028781E-002	-2.652527E-002	-2.833110E-001	-9.359984E-001
16	8	-7.219147E-002	-2.512011E-002	-2.547419E-001	-8.864167E-001
16	9	-7.219147E-002	-2.652514E-002	-2.547419E-001	-9.359952E-001
17	1	-2.153373E-001	+1.279442E-002	-7.598608E-001	+4.514793E-001
17	2	-2.153372E-001	+4.881491E-002	-7.598605E-001	+1.722533E+000
17	3	-7.888252E-003	+4.881484E-002	-2.755224E-002	+1.722533E+000
17	4	-7.888236E-003	+1.279447E-002	-2.755215E-002	+4.514809E-001
17	5	-2.153368E-001	+3.880467E-002	-7.598597E-001	+1.887006E+000
17	6	-1.115725E-001	+4.881487E-002	-3.937064E-001	+1.722534E+000
17	7	-7.887775E-003	+3.880467E-002	-2.755125E-002	+1.887006E+000
17	8	-1.115725E-001	+1.279442E-002	-3.937064E-001	+4.514773E-001
17	9	-1.115725E-001	+3.880467E-002	-3.937064E-001	+1.887006E+000
18	1	-1.504557E-001	-1.183680E-002	-5.389131E-001	-4.176850E-001
18	2	-1.502885E-001	-2.623918E-002	-5.390231E-001	-9.259839E-001
18	3	-2.334355E-001	-2.623947E-002	-8.237255E-001	-9.259138E-001
18	4	-2.334569E-001	-1.183846E-002	-8.237999E-001	-4.177449E-001
18	5	-1.503720E-001	-1.983166E-002	-5.386198E-001	-6.715699E-001
18	6	-1.918640E-001	-2.623930E-002	-6.770316E-001	-9.259091E-001
18	7	-2.334456E-001	-1.983254E-002	-8.237618E-001	-6.716041E-001
18	8	-1.919586E-001	-1.183766E-002	-6.773637E-001	-4.177169E-001
18	9	-1.919113E-001	-1.983215E-002	-6.771976E-001	-6.715866E-001
19	1	-4.839986E-005	-9.312183E-006	-1.707731E-002	-3.285522E-002
19	2	-4.839365E-005	-9.329704E-006	-1.707685E-002	-3.291975E-002
19	3	-4.850385E-005	-9.328907E-006	-1.711508E-002	-3.292269E-002
19	4	-4.850568E-005	-9.310320E-006	-1.711605E-002	-3.285522E-002
19	5	-4.839298E-005	-9.320371E-006	-1.707537E-002	-3.288921E-002
19	6	-4.844736E-005	-9.329924E-006	-1.709625E-002	-3.292447E-002
19	7	-4.850201E-005	-9.319987E-006	-1.711510E-002	-3.288813E-002
19	8	-4.844724E-005	-9.310320E-006	-1.709579E-002	-3.285522E-002
19	9	-4.844701E-005	-9.320007E-006	-1.709478E-002	-3.288771E-002
20	1	-4.860523E-005	-2.791936E-005	-1.715095E-002	-9.851719E-002

20	2	-4.860285E-005	-2.802495E-005	-1.715266E-002	-9.889083E-002
20	3	-4.921803E-005	-2.802524E-005	-1.736826E-002	-9.889331E-002
20	4	-4.922250E-005	-2.791759E-005	-1.737009E-002	-9.851987E-002
20	5	-4.860453E-005	-2.797246E-005	-1.715131E-002	-9.870744E-002
20	6	-4.891707E-005	-2.802508E-005	-1.726038E-002	-9.889382E-002
20	7	-4.921489E-005	-2.797131E-005	-1.736849E-002	-9.870581E-002
20	8	-4.891285E-005	-2.791877E-005	-1.726039E-002	-9.851782E-002
20	9	-4.891552E-005	-2.797183E-005	-1.726045E-002	-9.870316E-002
21	1	-4.925066E-005	-4.677855E-005	-1.737851E-002	-1.650696E-001
21	2	-4.924489E-005	-4.699470E-005	-1.737578E-002	-1.658269E-001
21	3	-5.048512E-005	-4.699392E-005	-1.781536E-002	-1.658269E-001
21	4	-5.049063E-005	-4.677995E-005	-1.781642E-002	-1.650692E-001
21	5	-4.924087E-005	-4.688626E-005	-1.737802E-002	-1.654502E-001
21	6	-4.986467E-005	-4.699385E-005	-1.759580E-002	-1.658269E-001
21	7	-5.048835E-005	-4.688626E-005	-1.781684E-002	-1.654502E-001
21	8	-4.986691E-005	-4.677913E-005	-1.759567E-002	-1.650682E-001
21	9	-4.986510E-005	-4.688626E-005	-1.759633E-002	-1.654502E-001
22	1	-5.867521E-005	-6.613676E-005	-1.788029E-002	-2.333797E-001
22	2	-5.867097E-005	-6.644840E-005	-1.788038E-002	-2.344763E-001
22	3	-5.245318E-005	-6.644681E-005	-1.851091E-002	-2.344712E-001
22	4	-5.246248E-005	-6.613688E-005	-1.851285E-002	-2.333754E-001
22	5	-5.066855E-005	-6.629273E-005	-1.787922E-002	-2.339263E-001
22	6	-5.156589E-005	-6.644714E-005	-1.819474E-002	-2.344706E-001
22	7	-5.245737E-005	-6.629207E-005	-1.850974E-002	-2.339240E-001
22	8	-5.156458E-005	-6.613688E-005	-1.819606E-002	-2.333764E-001
22	9	-5.156430E-005	-6.629252E-005	-1.819635E-002	-2.339267E-001
23	1	-5.276721E-005	-8.631276E-005	-1.861956E-002	-3.045694E-001
23	2	-5.276279E-005	-8.667958E-005	-1.861962E-002	-3.058657E-001
23	3	-5.488901E-005	-8.667955E-005	-1.936856E-002	-3.058662E-001
23	4	-5.488793E-005	-8.631258E-005	-1.936857E-002	-3.045676E-001
23	5	-5.276695E-005	-8.649562E-005	-1.861856E-002	-3.052181E-001
23	6	-5.382223E-005	-8.667933E-005	-1.899337E-002	-3.058662E-001
23	7	-5.488288E-005	-8.649602E-005	-1.936688E-002	-3.052171E-001
23	8	-5.382558E-005	-8.631174E-005	-1.899280E-002	-3.045696E-001
23	9	-5.382355E-005	-8.649582E-005	-1.899273E-002	-3.052172E-001
24	1	-5.566700E-005	-1.073936E-004	-1.964298E-002	-3.789614E-001
24	2	-5.566655E-005	-1.079565E-004	-1.964346E-002	-3.809474E-001
24	3	-5.890702E-005	-1.079561E-004	-2.078572E-002	-3.809462E-001
24	4	-5.890664E-005	-1.073950E-004	-2.078521E-002	-3.789617E-001
24	5	-5.567097E-005	-1.076755E-004	-1.964382E-002	-3.799571E-001
24	6	-5.728394E-005	-1.079563E-004	-2.021409E-002	-3.809468E-001
24	7	-5.890828E-005	-1.076752E-004	-2.078605E-002	-3.799565E-001
24	8	-5.728394E-005	-1.073943E-004	-2.021409E-002	-3.789644E-001
24	9	-5.728394E-005	-1.076755E-004	-2.021409E-002	-3.799521E-001
25	1	-5.998013E-005	-1.300891E-004	-2.116513E-002	-4.590479E-001
25	2	-5.997776E-005	-1.300125E-004	-2.116607E-002	-4.616089E-001
25	3	-6.415580E-005	-1.300125E-004	-2.264039E-002	-4.616084E-001
25	4	-6.415969E-005	-1.300892E-004	-2.264086E-002	-4.590466E-001
25	5	-5.998365E-005	-1.304510E-004	-2.116674E-002	-4.603231E-001
25	6	-6.207040E-005	-1.300126E-004	-2.190349E-002	-4.616086E-001
25	7	-6.415961E-005	-1.304519E-004	-2.264080E-002	-4.603254E-001
25	8	-6.207040E-005	-1.300892E-004	-2.190349E-002	-4.590492E-001
25	9	-6.207040E-005	-1.304515E-004	-2.190349E-002	-4.603239E-001
26	1	-6.550197E-005	-1.549807E-004	-2.311322E-002	-5.468033E-001
26	2	-6.549874E-005	-1.550514E-004	-2.311343E-002	-5.499554E-001
26	3	-7.951157E-005	-1.550516E-004	-2.488288E-002	-5.499535E-001
26	4	-7.952783E-005	-1.549810E-004	-2.488790E-002	-5.468820E-001
26	5	-6.549985E-005	-1.554160E-004	-2.311295E-002	-5.484180E-001

```
13     3 -8.313924E-004 -3.819285E-004 -2.933741E-001 -1.347716E+000
13     4 -8.332081E-004 -2.433884E-004 -2.940149E-001 -8.588452E-001
26     6 -6.800674E-005 -1.558521E-004 -2.399710E-002 -5.499555E-001
26     7 -7.051941E-005 -1.554159E-004 -2.488416E-002 -5.484203E-001
```

26	8	-6.801313E-005	-1.549815E-004	-2.399935E-002	-5.468045E-001
26	9	-6.800928E-005	-1.554167E-004	-2.399755E-002	-5.484216E-001
27	1	-7.495446E-005	-1.788902E-004	-2.644049E-002	-6.312500E-001
27	2	-7.489462E-005	-1.836727E-004	-2.642911E-002	-6.481251E-001
27	3	-1.025199E-004	-1.836729E-004	-3.617715E-002	-6.481249E-001
27	4	-1.025294E-004	-1.788889E-004	-3.618039E-002	-6.312484E-001
27	5	-7.492708E-005	-1.812784E-004	-2.643812E-002	-6.396804E-001
27	6	-8.871189E-005	-1.836723E-004	-3.130268E-002	-6.481288E-001
27	7	-1.025253E-004	-1.812784E-004	-3.617702E-002	-6.396804E-001
27	8	-8.874336E-005	-1.788898E-004	-3.131465E-002	-6.312503E-001
27	9	-8.872617E-005	-1.812784E-004	-3.130976E-002	-6.396804E-001
28	1	-1.023521E-004	-2.338859E-004	-3.611687E-002	-8.253160E-001
28	2	-1.023575E-004	-2.288938E-004	-3.611735E-002	-8.076950E-001
28	3	-7.357268E-005	-2.288928E-004	-2.596140E-002	-8.076960E-001
28	4	-7.357388E-005	-2.338862E-004	-2.596181E-002	-8.253157E-001
28	5	-1.023528E-004	-2.313901E-004	-3.611692E-002	-8.165084E-001
28	6	-8.796238E-005	-2.288935E-004	-3.103914E-002	-8.076941E-001
28	7	-7.357703E-005	-2.313898E-004	-2.596311E-002	-8.165067E-001
28	8	-8.796238E-005	-2.338872E-004	-3.103914E-002	-8.253177E-001
28	9	-8.796238E-005	-2.313899E-004	-3.103914E-002	-8.165041E-001
29	1	-1.111200E-004	-1.661955E-004	-3.921187E-002	-5.864565E-001
29	2	-1.111258E-004	-2.159732E-004	-3.921240E-002	-7.621845E-001
29	3	-3.979885E-004	-2.159802E-004	-1.404368E-001	-7.621273E-001
29	4	-1.645674E-003	-6.872423E-004	-1.404379E-001	-5.864761E-001
29	5	-1.111286E-004	-1.910044E-004	-3.921154E-002	-6.742812E-001
29	6	-2.545555E-004	-2.159757E-004	-8.982480E-002	-7.621173E-001
29	7	-3.979927E-004	-1.910911E-004	-1.404379E-001	-6.743036E-001
29	8	-2.545555E-004	-1.661986E-004	-8.982480E-002	-5.864701E-001
29	9	-2.545555E-004	-1.910879E-004	-8.982480E-002	-6.742905E-001
30	1	-5.300619E-002	-1.976142E-002	-1.870444E-001	-6.973192E-001
30	2	-5.299302E-002	-2.092248E-002	-1.869952E-001	-7.382926E-001
30	3	-5.969705E-002	-2.092243E-002	-2.106533E-001	-7.382912E-001
30	4	-5.969882E-002	-1.976129E-002	-2.106597E-001	-6.973209E-001
30	5	-5.299321E-002	-2.034139E-002	-1.870195E-001	-7.177881E-001
30	6	-5.634495E-002	-2.092251E-002	-1.988248E-001	-7.382922E-001
30	7	-5.969771E-002	-2.034139E-002	-2.106566E-001	-7.177881E-001
30	8	-5.635238E-002	-1.976136E-002	-1.988503E-001	-6.973210E-001
30	9	-5.634853E-002	-2.034139E-002	-1.988376E-001	-7.177881E-001
31	1	-4.488337E-002	-1.812840E-002	-1.583795E-001	-6.394184E-001
31	2	-4.488167E-004	-1.920465E-004	-1.583755E-001	-6.776744E-001
31	3	-5.113132E-002	-1.920460E-002	-1.804253E-001	-6.776780E-001
31	4	-5.114298E-002	-1.812852E-002	-1.804691E-001	-6.394223E-001
31	5	-4.488265E-004	-1.866300E-004	-1.583783E-001	-6.585618E-001
31	6	-7.679897E-004	-3.871975E-004	-1.694084E-001	-6.776762E-001
31	7	-5.113634E-002	-1.866311E-002	-1.804480E-001	-6.585674E-001
31	8	-4.801347E-002	-1.812843E-002	-1.694258E-001	-6.394175E-001
31	9	-4.800985E-002	-1.866306E-002	-1.694135E-001	-6.585652E-001
32	1	-6.313851E-002	-2.134112E-002	-2.227970E-001	-7.530647E-001
32	2	-6.313833E-002	-2.428300E-002	-2.227973E-001	-8.568760E-001
32	3	-8.009858E-002	-2.428346E-002	-2.826169E-001	-8.568926E-001
32	4	-8.009898E-002	-2.134149E-002	-2.826165E-001	-7.530773E-001
32	5	-6.313839E-002	-2.281207E-002	-2.227977E-001	-8.049725E-001
32	6	-7.161460E-002	-2.428318E-002	-2.527071E-001	-8.568822E-001
32	7	-8.009855E-002	-2.281243E-002	-2.826167E-001	-8.049842E-001
32	8	-7.161460E-002	-2.134134E-002	-2.527071E-001	-7.530720E-001
32	9	-7.161460E-002	-2.281225E-002	-2.527071E-001	-8.049778E-001
33	1	-1.073346E-001	-1.772837E-002	-3.787521E-001	-6.255839E-001
33	2	-1.073344E-001	-2.225223E-002	-3.787518E-001	-7.852148E-001
33	3	-1.333977E-001	-2.225215E-002	-4.707223E-001	-7.852141E-001
33	4	-1.333977E-001	-1.772837E-002	-4.707232E-001	-6.255801E-001

33	5	-1.073345E-001	-1.999028E-002	-3.787520E-001	-7.054001E-001
33	6	-1.203664E-001	-2.225219E-002	-4.247380E-001	-7.852134E-001
33	7	-1.333977E-001	-1.999028E-002	-4.707213E-001	-7.054001E-001
33	8	-1.203664E-001	-1.772843E-002	-4.247380E-001	-6.255839E-001
33	9	-1.203664E-001	-1.999028E-002	-4.247380E-001	-7.054001E-001
34	1	-8.492191E-002	-2.090084E-002	-2.996663E-001	-7.375298E-001
34	2	-8.492178E-002	-2.372223E-002	-2.996659E-001	-8.370871E-001
34	3	-1.011775E-001	-2.372215E-002	-3.570256E-001	-8.370863E-001
34	4	-1.011776E-001	-2.090114E-002	-3.570258E-001	-7.375405E-001
34	5	-8.492234E-002	-2.231148E-002	-2.996670E-001	-7.873073E-001
34	6	-9.305029E-002	-2.372219E-002	-3.283483E-001	-8.370888E-001
34	7	-1.011776E-001	-2.231170E-002	-3.570257E-001	-7.873151E-001
34	8	-9.305029E-002	-2.090099E-002	-3.283483E-001	-7.375332E-001
34	9	-9.305029E-002	-2.231161E-002	-3.283483E-001	-7.873117E-001
35	1	-1.382005E-001	-8.368216E-003	-4.876698E-001	-2.952880E-001
35	2	-1.381999E-001	-9.570349E-003	-4.876698E-001	-3.377079E-001
35	3	-1.451416E-001	-9.570449E-003	-5.121638E-001	-3.377113E-001
35	4	-1.451420E-001	-8.368356E-003	-5.121629E-001	-2.952954E-001
35	5	-1.382005E-001	-8.969221E-003	-4.876689E-001	-3.164985E-001
35	6	-1.416709E-001	-9.570425E-003	-4.999155E-001	-3.377106E-001
35	7	-1.451420E-001	-8.969444E-003	-5.121629E-001	-3.165047E-001
35	8	-1.416709E-001	-8.368257E-003	-4.999155E-001	-2.952917E-001
35	9	-1.416709E-001	-8.969348E-003	-4.999155E-001	-3.165011E-001
36	1	-1.409550E-001	+4.528470E-004	-4.973904E-001	+1.597988E-002
36	2	-1.409554E-001	+6.651674E-003	-4.973904E-001	+2.347172E-001
36	3	-1.852457E-001	+6.651727E-003	-3.713807E-001	+2.347197E-001
36	4	-1.852457E-001	+4.536039E-004	-3.713807E-001	+1.680485E-002
36	5	-1.409549E-001	+3.552277E-003	-4.973893E-001	+1.253496E-001
36	6	-1.230998E-001	+6.651727E-003	-4.343826E-001	+2.347186E-001
36	7	-1.852452E-001	+3.552675E-003	-3.713798E-001	+1.253619E-001
36	8	-1.230998E-001	+4.532553E-004	-4.343826E-001	+1.599236E-002
36	9	-1.230998E-001	+3.552416E-003	-4.343826E-001	+1.253548E-001
37	1	-8.042275E-005	-9.247028E-006	-2.838046E-002	-3.263353E-002
37	2	-8.042518E-005	-9.300296E-006	-2.837873E-002	-3.281887E-002
37	3	-8.073317E-005	-9.300467E-006	-2.848936E-002	-3.281923E-002
37	4	-8.073225E-005	-9.248691E-006	-2.848831E-002	-3.263284E-002
37	5	-8.042793E-005	-9.274100E-006	-2.838010E-002	-3.272318E-002
37	6	-8.057711E-005	-9.300931E-006	-2.843421E-002	-3.282024E-002
37	7	-8.072911E-005	-9.274395E-006	-2.848643E-002	-3.272461E-002
37	8	-8.057962E-005	-9.248553E-006	-2.843421E-002	-3.263248E-002
37	9	-8.057931E-005	-9.274076E-006	-2.843306E-002	-3.272831E-002
38	1	-8.069702E-005	-2.768057E-005	-2.847546E-002	-9.768236E-002
38	2	-8.069345E-005	-2.787522E-005	-2.847556E-002	-9.836280E-002
38	3	-8.101372E-005	-2.787553E-005	-2.857041E-002	-9.836377E-002
38	4	-8.101175E-005	-2.768123E-005	-2.857091E-002	-9.767858E-002
38	5	-8.069524E-005	-2.777837E-005	-2.847444E-002	-9.802014E-002
38	6	-8.125197E-005	-2.787549E-005	-2.867194E-002	-9.836520E-002
38	7	-8.101273E-005	-2.777824E-005	-2.857111E-002	-9.802207E-002
38	8	-8.125957E-005	-2.768195E-005	-2.867300E-002	-9.768163E-002
38	9	-8.125532E-005	-2.777813E-005	-2.867307E-002	-9.802301E-002
39	1	-8.280046E-005	-4.639056E-005	-2.893583E-002	-1.637000E-001
39	2	-8.199372E-005	-4.670247E-005	-2.893322E-002	-1.647962E-001
39	3	-8.379524E-005	-4.670144E-005	-2.956678E-002	-1.647974E-001
39	4	-8.379284E-005	-4.638969E-005	-2.956798E-002	-1.637008E-001
39	5	-8.199766E-005	-4.654602E-005	-2.893468E-002	-1.642488E-001
39	6	-8.289210E-005	-4.670036E-005	-2.925043E-002	-1.647959E-001
39	7	-8.379826E-005	-4.654587E-005	-2.956902E-002	-1.642476E-001
39	8	-8.289207E-005	-4.639012E-005	-2.925094E-002	-1.636985E-001
39	9	-8.289191E-005	-4.654612E-005	-2.925035E-002	-1.642486E-001
40	1	-8.441581E-005	-6.559556E-005	-2.978810E-002	-2.314626E-001

40	2	-8.441631E-005	-6.603025E-005	-2.978714E-002	-2.330007E-001
40	3	-8.692578E-005	-6.602969E-005	-3.067341E-002	-2.329993E-001
40	4	-8.692016E-005	-6.559545E-005	-3.067316E-002	-2.314650E-001
40	5	-8.441641E-005	-6.581294E-005	-2.978781E-002	-2.322325E-001
40	6	-8.567052E-005	-6.602937E-005	-3.023116E-002	-2.329985E-001
40	7	-8.692297E-005	-6.581271E-005	-3.067269E-002	-2.322334E-001
40	8	-8.567052E-005	-6.559533E-005	-3.023116E-002	-2.314623E-001
40	9	-8.567052E-005	-6.581259E-005	-3.023116E-002	-2.322311E-001
41	1	-8.782400E-005	-8.552097E-005	-3.099261E-002	-3.017770E-001
41	2	-8.782573E-005	-8.616524E-005	-3.099182E-002	-3.040549E-001
41	3	-9.154328E-005	-8.616559E-005	-3.230186E-002	-3.040516E-001
41	4	-9.154662E-005	-8.552087E-005	-3.230514E-002	-3.017791E-001
41	5	-8.782498E-005	-8.584397E-005	-3.099216E-002	-3.029174E-001
41	6	-8.968628E-005	-8.616546E-005	-3.164828E-002	-3.040522E-001
41	7	-9.154453E-005	-8.584335E-005	-3.230368E-002	-3.029189E-001
41	8	-8.968748E-005	-8.552185E-005	-3.164879E-002	-3.017761E-001
41	9	-8.968787E-005	-8.584395E-005	-3.164829E-002	-3.029178E-001
42	1	-9.237631E-005	-1.865524E-004	-3.259680E-002	-3.759897E-001
42	2	-9.236535E-005	-1.872163E-004	-3.259301E-002	-3.783341E-001
42	3	-9.619325E-005	-1.872162E-004	-3.394426E-002	-3.783340E-001
42	4	-9.619876E-005	-1.865525E-004	-3.394587E-002	-3.759922E-001
42	5	-9.236875E-005	-1.868845E-004	-3.259554E-002	-3.771600E-001
42	6	-9.427713E-005	-1.872160E-004	-3.326868E-002	-3.783332E-001
42	7	-9.619538E-005	-1.868849E-004	-3.394491E-002	-3.771607E-001
42	8	-9.428408E-005	-1.865528E-004	-3.327019E-002	-3.759902E-001
42	9	-9.428308E-005	-1.868842E-004	-3.326959E-002	-3.771613E-001
43	1	-9.845947E-005	-1.276531E-004	-3.474384E-002	-4.504539E-001
43	2	-9.846126E-005	-1.296877E-004	-3.474286E-002	-4.576304E-001
43	3	-1.101853E-004	-1.296881E-004	-3.880255E-002	-4.576331E-001
43	4	-1.101848E-004	-1.276539E-004	-3.880224E-002	-4.504522E-001
43	5	-9.845460E-005	-1.286713E-004	-3.474354E-002	-4.540437E-001
43	6	-1.043237E-004	-1.296876E-004	-3.681259E-002	-4.576339E-001
43	7	-1.101891E-004	-1.286715E-004	-3.880297E-002	-4.540423E-001
43	8	-1.043237E-004	-1.276531E-004	-3.681259E-002	-4.504521E-001
43	9	-1.043237E-004	-1.286711E-004	-3.681259E-002	-4.540439E-001
44	1	-1.116520E-004	-1.551804E-004	-3.940023E-002	-5.475867E-001
44	2	-1.116531E-004	-1.548969E-004	-3.940044E-002	-5.465843E-001
44	3	-1.100195E-004	-1.548969E-004	-3.882314E-002	-5.465875E-001
44	4	-1.100220E-004	-1.551807E-004	-3.882249E-002	-5.475872E-001
44	5	-1.116562E-004	-1.550381E-004	-3.940157E-002	-5.470834E-001
44	6	-1.100388E-004	-1.548968E-004	-3.911158E-002	-5.465876E-001
44	7	-1.100167E-004	-1.550382E-004	-3.882129E-002	-5.470870E-001
44	8	-1.100388E-004	-1.551803E-004	-3.911158E-002	-5.475858E-001
44	9	-1.100388E-004	-1.550391E-004	-3.911158E-002	-5.470865E-001
45	1	-1.137366E-004	-1.728058E-004	-4.013431E-002	-6.097832E-001
45	2	-1.137226E-004	-1.775124E-004	-4.012972E-002	-6.263895E-001
45	3	-1.408562E-004	-1.775123E-004	-4.970293E-002	-6.263803E-001
45	4	-1.408189E-004	-1.728060E-004	-4.972248E-002	-6.097833E-001
45	5	-1.137326E-004	-1.751617E-004	-4.013002E-002	-6.180939E-001
45	6	-1.272920E-004	-1.775113E-004	-4.491777E-002	-6.263893E-001
45	7	-1.408761E-004	-1.751620E-004	-4.971271E-002	-6.180949E-001
45	8	-1.273241E-004	-1.728066E-004	-4.492812E-002	-6.097831E-001
45	9	-1.273070E-004	-1.751616E-004	-4.492334E-002	-6.180938E-001
46	1	-1.712897E-004	-1.980622E-004	-6.844263E-002	-6.989845E-001
46	2	-1.709186E-004	-2.299634E-004	-6.031321E-002	-8.114731E-001
46	3	-3.551452E-004	-2.299680E-004	-1.253196E-001	-8.114893E-001
46	4	-3.551914E-004	-1.980655E-004	-1.253366E-001	-6.989129E-001
46	5	-1.711032E-004	-2.139986E-004	-6.037735E-002	-7.551369E-001
46	6	-2.630287E-004	-2.299654E-004	-9.281559E-002	-8.114798E-001
46	7	-3.551649E-004	-2.140017E-004	-1.253269E-001	-7.551537E-001

46	8	-2.632378E-004	-1.980644E-004	-9.280917E-002	-6.989898E-001
46	9	-2.631354E-004	-2.140004E-004	-9.285225E-002	-7.551457E-001
47	1	-3.880813E-004	-1.505738E-004	-1.369426E-001	-5.313287E-001
47	2	-3.880859E-004	-1.578941E-004	-1.369431E-001	-5.571627E-001
47	3	-4.302749E-002	-1.578953E-002	-1.518302E-001	-5.571641E-001
47	4	-4.302701E-002	-1.505745E-002	-1.518312E-001	-5.313326E-001
47	5	-3.880812E-004	-1.542342E-004	-1.369423E-001	-5.442443E-001
47	6	-4.091780E-004	-1.578947E-004	-1.443871E-001	-5.571649E-001
47	7	-4.302749E-002	-1.542346E-002	-1.518312E-001	-5.442497E-001
47	8	-4.091781E-002	-1.505737E-002	-1.443871E-001	-5.313297E-001
47	9	-4.091780E-004	-1.542341E-004	-1.443871E-001	-5.442465E-001
48	1	-4.474456E-002	-1.645483E-002	-1.578903E-001	-5.806490E-001
48	2	-4.474455E-002	-1.777086E-002	-1.578902E-001	-6.270814E-001
48	3	-5.232885E-002	-1.777103E-002	-1.846526E-001	-6.270892E-001
48	4	-5.232843E-002	-1.645509E-002	-1.846528E-001	-5.806493E-001
48	5	-4.474456E-002	-1.711287E-002	-1.578903E-001	-6.038635E-001
48	6	-4.853694E-002	-1.777098E-002	-1.712724E-001	-6.270837E-001
48	7	-5.232898E-002	-1.711304E-002	-1.846547E-001	-6.038702E-001
48	8	-4.853694E-002	-1.645496E-002	-1.712724E-001	-5.806460E-001
48	9	-4.853694E-002	-1.711294E-002	-1.712724E-001	-6.038688E-001
49	1	-5.471244E-002	-1.784737E-002	-1.930659E-001	-6.297806E-001
49	2	-5.471383E-002	-1.937096E-002	-1.930653E-001	-6.835466E-001
49	3	-6.351238E-002	-1.937098E-002	-2.241172E-001	-6.835471E-001
49	4	-6.351262E-002	-1.784752E-002	-2.241174E-001	-6.297851E-001
49	5	-5.471348E-002	-1.860923E-002	-1.930663E-001	-6.566651E-001
49	6	-5.911282E-002	-1.937107E-002	-2.085915E-001	-6.835467E-001
49	7	-6.351226E-002	-1.860939E-002	-2.241168E-001	-6.566686E-001
49	8	-5.911282E-002	-1.784760E-002	-2.085915E-001	-6.297840E-001
49	9	-5.911282E-002	-1.860938E-002	-2.085915E-001	-6.566683E-001
50	1	-6.661168E-002	-1.842729E-002	-2.350530E-001	-6.502473E-001
50	2	-6.661192E-002	-2.059736E-002	-2.350548E-001	-7.268227E-001
50	3	-7.911612E-002	-2.059765E-002	-2.791798E-001	-7.268313E-001
50	4	-7.911600E-002	-1.842765E-002	-2.791785E-001	-6.502565E-001
50	5	-6.661166E-002	-1.951238E-002	-2.350536E-001	-6.885329E-001
50	6	-7.286407E-002	-2.059751E-002	-2.571168E-001	-7.268259E-001
50	7	-7.911654E-002	-1.951262E-002	-2.791788E-001	-6.885433E-001
50	8	-7.286407E-002	-1.842744E-002	-2.571168E-001	-6.502518E-001
50	9	-7.286407E-002	-1.951250E-002	-2.571168E-001	-6.885386E-001
51	1	-8.311579E-002	-1.751159E-002	-2.932903E-001	-6.179326E-001
51	2	-8.311558E-002	-2.011198E-002	-2.932907E-001	-7.096930E-001
51	3	-9.809909E-002	-2.011237E-002	-3.461629E-001	-7.097041E-001
51	4	-9.809922E-002	-1.751211E-002	-3.461624E-001	-6.179491E-001
51	5	-8.311619E-002	-1.881185E-002	-2.932920E-001	-6.630142E-001
51	6	-9.060737E-002	-2.011212E-002	-3.197279E-001	-7.096984E-001
51	7	-9.809914E-002	-1.881217E-002	-3.461622E-001	-6.638272E-001
51	8	-9.060737E-002	-1.751182E-002	-3.197279E-001	-6.179399E-001
51	9	-9.060737E-002	-1.881202E-002	-3.197279E-001	-6.638287E-001
52	1	-1.024978E-001	-1.403860E-002	-3.616846E-001	-4.953797E-001
52	2	-1.024977E-001	-1.668512E-002	-3.616850E-001	-5.887671E-001
52	3	-1.177463E-001	-1.668515E-002	-4.154917E-001	-5.887702E-001
52	4	-1.177459E-001	-1.403881E-002	-4.154918E-001	-4.953927E-001
52	5	-1.024978E-001	-1.536188E-002	-3.616844E-001	-5.420741E-001
52	6	-1.101224E-001	-1.668514E-002	-3.885893E-001	-5.887689E-001
52	7	-1.177459E-001	-1.536202E-002	-4.154899E-001	-5.420810E-001
52	8	-1.101224E-001	-1.403873E-002	-3.885893E-001	-4.953852E-001
52	9	-1.101224E-001	-1.536192E-002	-3.885893E-001	-5.420771E-001
53	1	-1.203568E-001	-7.658126E-003	-4.247034E-001	-2.702333E-001
53	2	-1.203568E-001	-8.124994E-003	-4.247035E-001	-2.867062E-001
53	3	-1.230522E-001	-8.125019E-003	-4.342145E-001	-2.867082E-001
53	4	-1.230527E-001	-7.658286E-003	-4.342146E-001	-2.702369E-001

53	5	-1.203568E-001	-7.891577E-003	-4.247034E-001	-2.784789E-001
53	6	-1.217045E-001	-8.125043E-003	-4.294587E-001	-2.867074E-001
53	7	-1.230522E-001	-7.891552E-003	-4.342146E-001	-2.784725E-001
53	8	-1.217045E-001	-7.658237E-003	-4.294587E-001	-2.702352E-001
53	9	-1.217045E-001	-7.891564E-003	-4.294587E-001	-2.784787E-001
54	1	-1.224581E-001	-1.796432E-003	-4.321188E-001	-6.339339E-002
54	2	-1.224581E-001	-6.198054E-004	-4.321189E-001	-2.187195E-002
54	3	-1.156794E-001	-6.197602E-004	-4.081983E-001	-2.186816E-002
54	4	-1.156789E-001	-1.796274E-003	-4.081984E-001	-6.338426E-002
54	5	-1.224576E-001	-1.288140E-003	-4.321178E-001	-4.263227E-002
54	6	-1.190684E-001	-6.198166E-004	-4.201582E-001	-2.187196E-002
54	7	-1.156789E-001	-1.288017E-003	-4.081974E-001	-4.262719E-002
54	8	-1.190684E-001	-1.796323E-003	-4.201582E-001	-6.338596E-002
54	9	-1.190684E-001	-1.288123E-003	-4.201582E-001	-4.262973E-002
55	1	-1.122288E-004	-9.188528E-006	-3.959850E-002	-3.239024E-002
55	2	-1.122170E-004	-9.233357E-006	-3.959879E-002	-3.257923E-002
55	3	-1.125256E-004	-9.232853E-006	-3.970812E-002	-3.257762E-002
55	4	-1.125256E-004	-9.179183E-006	-3.970662E-002	-3.239370E-002
55	5	-1.122191E-004	-9.206554E-006	-3.959957E-002	-3.248457E-002
55	6	-1.123725E-004	-9.232777E-006	-3.965259E-002	-3.258104E-002
55	7	-1.125243E-004	-9.206084E-006	-3.970797E-002	-3.248635E-002
55	8	-1.123727E-004	-9.180321E-006	-3.965301E-002	-3.239197E-002
55	9	-1.123724E-004	-9.206148E-006	-3.965240E-002	-3.248822E-002
56	1	-1.127489E-004	-2.742487E-005	-3.978094E-002	-9.677385E-002
56	2	-1.127365E-004	-2.762424E-005	-3.978215E-002	-9.748007E-002
56	3	-1.138892E-004	-2.762548E-005	-4.018645E-002	-9.747948E-002
56	4	-1.138840E-004	-2.742524E-005	-4.018613E-002	-9.677526E-002
56	5	-1.127367E-004	-2.752529E-005	-3.978262E-002	-9.712853E-002
56	6	-1.133114E-004	-2.762581E-005	-3.998395E-002	-9.748121E-002
56	7	-1.138866E-004	-2.752503E-005	-4.018724E-002	-9.712664E-002
56	8	-1.133114E-004	-2.742657E-005	-3.998395E-002	-9.677766E-002
56	9	-1.133114E-004	-2.752499E-005	-3.998395E-002	-9.712723E-002
57	1	-1.144186E-004	-4.585372E-005	-4.037308E-002	-1.618053E-001
57	2	-1.144130E-004	-4.628346E-005	-4.037337E-002	-1.633207E-001
57	3	-1.168917E-004	-4.628423E-005	-4.124839E-002	-1.633211E-001
57	4	-1.168954E-004	-4.585313E-005	-4.125033E-002	-1.618040E-001
57	5	-1.144122E-004	-4.606912E-005	-4.037381E-002	-1.625624E-001
57	6	-1.156558E-004	-4.628322E-005	-4.081151E-002	-1.633221E-001
57	7	-1.168948E-004	-4.606969E-005	-4.124989E-002	-1.625659E-001
57	8	-1.156578E-004	-4.585296E-005	-4.081248E-002	-1.618028E-001
57	9	-1.156562E-004	-4.606905E-005	-4.081159E-002	-1.625639E-001
58	1	-1.175604E-004	-6.478510E-005	-4.148403E-002	-2.286086E-001
58	2	-1.175497E-004	-6.543637E-005	-4.148113E-002	-2.309103E-001
58	3	-1.213258E-004	-6.543784E-005	-4.281126E-002	-2.309076E-001
58	4	-1.213250E-004	-6.478388E-005	-4.281265E-002	-2.286084E-001
58	5	-1.175524E-004	-6.511017E-005	-4.148108E-002	-2.297583E-001
58	6	-1.194413E-004	-6.543678E-005	-4.214675E-002	-2.309092E-001
58	7	-1.213184E-004	-6.511081E-005	-4.281124E-002	-2.297582E-001
58	8	-1.194434E-004	-6.478478E-005	-4.214858E-002	-2.286059E-001
58	9	-1.194414E-004	-6.511148E-005	-4.214729E-002	-2.297554E-001
59	1	-1.225572E-004	-8.448955E-005	-4.324721E-002	-2.981424E-001
59	2	-1.225615E-004	-8.530865E-005	-4.324881E-002	-3.010314E-001
59	3	-1.272890E-004	-8.530997E-005	-4.491533E-002	-3.010315E-001
59	4	-1.272842E-004	-8.449082E-005	-4.491562E-002	-2.981406E-001
59	5	-1.225634E-004	-8.489969E-005	-4.324884E-002	-2.995849E-001
59	6	-1.249207E-004	-8.530861E-005	-4.408086E-002	-3.010314E-001
59	7	-1.272818E-004	-8.489964E-005	-4.491452E-002	-2.995847E-001
59	8	-1.249207E-004	-8.448943E-005	-4.408086E-002	-2.981403E-001
59	9	-1.249207E-004	-8.489972E-005	-4.408086E-002	-2.995873E-001
60	1	-1.288876E-004	-1.852030E-004	-4.548068E-002	-3.712296E-001

60	2	-1.288868E-004	-1.862987E-004	-4.548101E-002	-3.750981E-001
60	3	-1.352068E-004	-1.862992E-004	-4.771013E-002	-3.750977E-001
60	4	-1.352183E-004	-1.852033E-004	-4.771438E-002	-3.712329E-001
60	5	-1.288868E-004	-1.857512E-004	-4.547997E-002	-3.731676E-001
60	6	-1.320463E-004	-1.862985E-004	-4.659480E-002	-3.750966E-001
60	7	-1.352079E-004	-1.857519E-004	-4.771100E-002	-3.731661E-001
60	8	-1.320539E-004	-1.852028E-004	-4.659819E-002	-3.712286E-001
60	9	-1.320508E-004	-1.857515E-004	-4.659649E-002	-3.731640E-001
61	1	-1.363470E-004	-1.266838E-004	-4.811439E-002	-4.470289E-001
61	2	-1.363428E-004	-1.272726E-004	-4.811111E-002	-4.491099E-001
61	3	-1.397469E-004	-1.272731E-004	-4.931296E-002	-4.491068E-001
61	4	-1.397464E-004	-1.266839E-004	-4.931332E-002	-4.470297E-001
61	5	-1.363473E-004	-1.269774E-004	-4.811307E-002	-4.480644E-001
61	6	-1.380481E-004	-1.272729E-004	-4.871276E-002	-4.491081E-001
61	7	-1.397478E-004	-1.269773E-004	-4.931392E-002	-4.480655E-001
61	8	-1.380499E-004	-1.266839E-004	-4.871471E-002	-4.470295E-001
61	9	-1.380492E-004	-1.269774E-004	-4.871275E-002	-4.480645E-001
62	1	-1.491922E-004	-1.430027E-004	-5.264513E-002	-5.046148E-001
62	2	-1.491941E-004	-1.536709E-004	-5.264517E-002	-5.422603E-001
62	3	-2.106817E-004	-1.536718E-004	-7.434233E-002	-5.422624E-001
62	4	-2.106804E-004	-1.430045E-004	-7.434354E-002	-5.046216E-001
62	5	-1.491971E-004	-1.483366E-004	-5.264651E-002	-5.234362E-001
62	6	-1.799389E-004	-1.536715E-004	-6.349415E-002	-5.422607E-001
62	7	-2.106751E-004	-1.483386E-004	-7.434236E-002	-5.234445E-001
62	8	-1.799389E-004	-1.430041E-004	-6.349415E-002	-5.046163E-001
62	9	-1.799389E-004	-1.483374E-004	-6.349415E-002	-5.234413E-001
63	1	-1.909002E-004	-2.113603E-004	-6.736328E-002	-7.450255E-001
63	2	-1.909081E-004	-1.771070E-004	-6.736239E-002	-6.249582E-001
63	3	+6.527667E-006	-1.771014E-004	+2.303681E-003	-6.249399E-001
63	4	+6.530168E-006	-2.113552E-004	+2.304720E-003	-7.450081E-001
63	5	-1.909020E-004	-1.942325E-004	-6.736181E-002	-6.853923E-001
63	6	-9.218499E-005	-1.771037E-004	-3.252956E-002	-6.249456E-001
63	7	+6.533262E-006	-1.942280E-004	+2.305670E-003	-6.853738E-001
63	8	-9.218499E-005	-2.113571E-004	-3.252956E-002	-7.450227E-001
63	9	-9.218499E-005	-1.942305E-004	-3.252956E-002	-6.853825E-001
64	1	-1.300212E-005	-1.276560E-004	-4.588034E-003	-4.504613E-001
64	2	-1.291866E-005	-1.858071E-004	-4.559847E-003	-6.531167E-001
64	3	-3.439690E-004	-1.858943E-004	-1.213786E-001	-6.531448E-001
64	4	-3.637583E-002	-1.347542E-002	-1.216137E-001	-4.505101E-001
64	5	-1.296892E-005	-1.563963E-004	-4.572701E-003	-5.518808E-001
64	6	-1.784539E-004	-1.858908E-004	-6.297181E-002	-6.531309E-001
64	7	-3.443836E-004	-1.564078E-004	-1.214959E-001	-5.519200E-001
64	8	-1.788301E-004	-1.276641E-004	-6.310416E-002	-4.504838E-001
64	9	-1.786412E-004	-1.564027E-004	-6.303712E-002	-5.518989E-001
65	1	-4.829620E-002	-1.355993E-002	-1.421948E-001	-4.784891E-001
65	2	-4.828183E-004	-1.477383E-004	-1.421436E-001	-5.213220E-001
65	3	-4.729192E-002	-1.477391E-002	-1.668807E-001	-5.213310E-001
65	4	-4.729457E-002	-1.356007E-002	-1.668804E-001	-4.784961E-001
65	5	-4.828893E-002	-1.416635E-002	-1.421675E-001	-4.998865E-001
65	6	-4.378748E-002	-1.477398E-002	-1.545128E-001	-5.213268E-001
65	7	-4.729334E-002	-1.416648E-002	-1.668848E-001	-4.998927E-001
65	8	-4.379531E-002	-1.355997E-002	-1.545407E-001	-4.784936E-001
65	9	-4.379160E-002	-1.416643E-002	-1.545271E-001	-4.998896E-001
66	1	-4.910231E-002	-1.518468E-002	-1.732672E-001	-5.358206E-001
66	2	-4.910238E-002	-1.612651E-002	-1.732672E-001	-5.690564E-001
66	3	-5.452926E-002	-1.612655E-002	-1.924175E-001	-5.690599E-001
66	4	-5.452884E-002	-1.518487E-002	-1.924169E-001	-5.358301E-001
66	5	-4.910231E-002	-1.565559E-002	-1.732672E-001	-5.524413E-001
66	6	-5.181571E-002	-1.612656E-002	-1.828434E-001	-5.690585E-001
66	7	-5.452932E-002	-1.565575E-002	-1.924196E-001	-5.524450E-001

66	8	-5.181571E-002	-1.518481E-002	-1.828434E-001	-5.358273E-001
66	9	-5.181571E-002	-1.565561E-002	-1.828434E-001	-5.524417E-001
67	1	-5.653283E-002	-1.597145E-002	-1.994877E-001	-5.635860E-001
67	2	-5.653096E-002	-1.741603E-002	-1.994796E-001	-6.145613E-001
67	3	-6.485853E-002	-1.741614E-002	-2.288643E-001	-6.145675E-001
67	4	-6.487443E-002	-1.597160E-002	-2.289242E-001	-5.635876E-001
67	5	-5.653227E-002	-1.669432E-002	-1.994829E-001	-5.890974E-001
67	6	-6.069428E-002	-1.741611E-002	-2.141720E-001	-6.145660E-001
67	7	-6.486613E-002	-1.669457E-002	-2.288927E-001	-5.891019E-001
67	8	-6.070368E-002	-1.597149E-002	-2.142055E-001	-5.635856E-001
67	9	-6.069903E-002	-1.669443E-002	-2.141898E-001	-5.891001E-001
68	1	-6.760395E-002	-1.684067E-002	-2.385529E-001	-5.660278E-001
68	2	-6.758267E-002	-1.784805E-002	-2.384789E-001	-6.298048E-001
68	3	-7.881832E-002	-1.784841E-002	-2.753038E-001	-6.298168E-001
68	4	-7.882088E-002	-1.684106E-002	-2.753134E-001	-5.660409E-001
68	5	-6.759351E-002	-1.694360E-002	-2.385168E-001	-5.978892E-001
68	6	-7.280062E-002	-1.784817E-002	-2.568919E-001	-6.298116E-001
68	7	-7.881963E-002	-1.694393E-002	-2.753087E-001	-5.979027E-001
68	8	-7.281256E-002	-1.684083E-002	-2.569345E-001	-5.660343E-001
68	9	-7.280648E-002	-1.694377E-002	-2.569132E-001	-5.979055E-001
69	1	-8.125808E-002	-1.478121E-002	-2.867362E-001	-5.215843E-001
69	2	-8.125737E-002	-1.683456E-002	-2.867345E-001	-5.940434E-001
69	3	-9.308965E-002	-1.683492E-002	-3.284857E-001	-5.940517E-001
69	4	-9.308937E-002	-1.478153E-002	-3.284854E-001	-5.215944E-001
69	5	-8.125798E-002	-1.580789E-002	-2.867358E-001	-5.578157E-001
69	6	-8.717378E-002	-1.683471E-002	-3.076107E-001	-5.940478E-001
69	7	-9.308977E-002	-1.580818E-002	-3.284851E-001	-5.578246E-001
69	8	-8.717378E-002	-1.478129E-002	-3.076107E-001	-5.215894E-001
69	9	-8.717378E-002	-1.580807E-002	-3.076107E-001	-5.578201E-001
70	1	-9.627458E-002	-1.165335E-002	-3.397253E-001	-4.112121E-001
70	2	-9.627482E-002	-1.339932E-002	-3.397246E-001	-4.728237E-001
70	3	-1.063347E-001	-1.339953E-002	-3.752228E-001	-4.728324E-001
70	4	-1.063344E-001	-1.165372E-002	-3.752233E-001	-4.112294E-001
70	5	-9.627487E-002	-1.252633E-002	-3.397249E-001	-4.420178E-001
70	6	-1.013048E-001	-1.339945E-002	-3.574749E-001	-4.728279E-001
70	7	-1.063338E-001	-1.252667E-002	-3.752211E-001	-4.420301E-001
70	8	-1.013048E-001	-1.165350E-002	-3.574749E-001	-4.112197E-001
70	9	-1.013048E-001	-1.252650E-002	-3.574749E-001	-4.420235E-001
71	1	-1.082961E-001	-6.910787E-003	-3.821452E-001	-2.438615E-001
71	2	-1.082962E-001	-7.503742E-003	-3.821457E-001	-2.647845E-001
71	3	-1.117205E-001	-7.503823E-003	-3.942274E-001	-2.647870E-001
71	4	-1.117205E-001	-6.910812E-003	-3.942275E-001	-2.438640E-001
71	5	-1.082962E-001	-7.207179E-003	-3.821455E-001	-2.543207E-001
71	6	-1.100080E-001	-7.503756E-003	-3.881859E-001	-2.647857E-001
71	7	-1.117205E-001	-7.207324E-003	-3.942274E-001	-2.543256E-001
71	8	-1.100080E-001	-6.910851E-003	-3.881859E-001	-2.438599E-001
71	9	-1.100080E-001	-7.207236E-003	-3.881859E-001	-2.543231E-001
72	1	-1.121072E-001	-2.119589E-003	-3.955922E-001	-7.479463E-002
72	2	-1.121072E-001	-1.986752E-003	-3.955923E-001	-7.010534E-002
72	3	-1.113416E-001	-1.986682E-003	-3.928923E-001	-7.010574E-002
72	4	-1.113416E-001	-2.119537E-003	-3.928915E-001	-7.479148E-002
72	5	-1.121067E-001	-2.053132E-003	-3.955912E-001	-7.244875E-002
72	6	-1.117240E-001	-1.986721E-003	-3.942415E-001	-7.010555E-002
72	7	-1.113411E-001	-2.053104E-003	-3.928905E-001	-7.244733E-002
72	8	-1.117240E-001	-2.119563E-003	-3.942415E-001	-7.479302E-002
72	9	-1.117240E-001	-2.053103E-003	-3.942415E-001	-7.244898E-002
73	1	-1.436532E-004	-9.081992E-006	-5.869205E-002	-3.204733E-002
73	2	-1.436590E-004	-9.162258E-006	-5.869163E-002	-3.233253E-002
73	3	-1.441125E-004	-9.161717E-006	-5.885389E-002	-3.232964E-002
73	4	-1.441222E-004	-9.081361E-006	-5.885590E-002	-3.204788E-002

73	5	-1.436542E-004	-9.120935E-006	-5.869238E-002	-3.219149E-002
73	6	-1.438874E-004	-9.161688E-006	-5.877418E-002	-3.232768E-002
73	7	-1.441144E-004	-9.121882E-006	-5.885590E-002	-3.218947E-002
73	8	-1.438898E-004	-9.081040E-006	-5.877404E-002	-3.205068E-002
73	9	-1.438894E-004	-9.122348E-006	-5.877363E-002	-3.219143E-002
74	1	-1.441789E-004	-2.708786E-005	-5.887646E-002	-9.558715E-002
74	2	-1.441718E-004	-2.735750E-005	-5.887428E-002	-9.653720E-002
74	3	-1.457352E-004	-2.735742E-005	-5.142766E-002	-9.653733E-002
74	4	-1.457378E-004	-2.708730E-005	-5.142791E-002	-9.558401E-002
74	5	-1.441764E-004	-2.722242E-005	-5.887581E-002	-9.606051E-002
74	6	-1.449538E-004	-2.735688E-005	-5.115021E-002	-9.653631E-002
74	7	-1.457417E-004	-2.722217E-005	-5.142768E-002	-9.606197E-002
74	8	-1.449579E-004	-2.708677E-005	-5.115136E-002	-9.558297E-002
74	9	-1.449563E-004	-2.722242E-005	-5.115087E-002	-9.605707E-002
75	1	-1.463825E-004	-4.522617E-005	-5.165254E-002	-1.595867E-001
75	2	-1.463764E-004	-4.571988E-005	-5.165208E-002	-1.613298E-001
75	3	-1.492221E-004	-4.572001E-005	-5.265701E-002	-1.613331E-001
75	4	-1.492283E-004	-4.522566E-005	-5.265857E-002	-1.595801E-001
75	5	-1.463818E-004	-4.547308E-005	-5.165386E-002	-1.604597E-001
75	6	-1.478039E-004	-4.571932E-005	-5.215516E-002	-1.613318E-001
75	7	-1.492331E-004	-4.547293E-005	-5.265934E-002	-1.604582E-001
75	8	-1.478039E-004	-4.522545E-005	-5.215516E-002	-1.595874E-001
75	9	-1.478039E-004	-4.547248E-005	-5.215516E-002	-1.604609E-001
76	1	-1.503529E-004	-6.371491E-005	-5.305636E-002	-2.248303E-001
76	2	-1.503585E-004	-6.456710E-005	-5.305785E-002	-2.278369E-001
76	3	-1.552762E-004	-6.456694E-005	-5.479344E-002	-2.278371E-001
76	4	-1.552884E-004	-6.371310E-005	-5.479499E-002	-2.248267E-001
76	5	-1.503544E-004	-6.414035E-005	-5.305675E-002	-2.263351E-001
76	6	-1.528161E-004	-6.456678E-005	-5.392432E-002	-2.278378E-001
76	7	-1.552860E-004	-6.414050E-005	-5.479575E-002	-2.263347E-001
76	8	-1.528192E-004	-6.371325E-005	-5.392616E-002	-2.248273E-001
76	9	-1.528200E-004	-6.414094E-005	-5.392583E-002	-2.263345E-001
77	1	-1.566558E-004	-8.313618E-005	-5.527061E-002	-2.933600E-001
77	2	-1.566463E-004	-8.421538E-005	-5.527467E-002	-2.971738E-001
77	3	-1.628674E-004	-8.421588E-005	-5.747060E-002	-2.971735E-001
77	4	-1.628760E-004	-8.313508E-005	-5.747542E-002	-2.933612E-001
77	5	-1.566467E-004	-8.367466E-005	-5.527509E-002	-2.952637E-001
77	6	-1.597536E-004	-8.421464E-005	-5.637253E-002	-2.971704E-001
77	7	-1.628717E-004	-8.367498E-005	-5.747285E-002	-2.952649E-001
77	8	-1.597632E-004	-8.313548E-005	-5.637655E-002	-2.933613E-001
77	9	-1.597575E-004	-8.367476E-005	-5.637454E-002	-2.952653E-001
78	1	-1.647456E-004	-1.033664E-004	-5.813368E-002	-3.647443E-001
78	2	-1.647277E-004	-1.048301E-004	-5.812855E-002	-3.699141E-001
78	3	-1.731943E-004	-1.048309E-004	-6.111531E-002	-3.699172E-001
78	4	-1.731958E-004	-1.033665E-004	-6.111565E-002	-3.647436E-001
78	5	-1.647432E-004	-1.048972E-004	-5.813154E-002	-3.673281E-001
78	6	-1.689602E-004	-1.048303E-004	-5.962208E-002	-3.699158E-001
78	7	-1.731955E-004	-1.048973E-004	-6.111437E-002	-3.673273E-001
78	8	-1.689730E-004	-1.033652E-004	-5.962516E-002	-3.647466E-001
78	9	-1.689662E-004	-1.048977E-004	-5.962324E-002	-3.673286E-001
79	1	-1.746675E-004	-1.262674E-004	-6.163557E-002	-4.455625E-001
79	2	-1.746638E-004	-1.265567E-004	-6.163557E-002	-4.465792E-001
79	3	-1.763268E-004	-1.265567E-004	-6.221968E-002	-4.465812E-001
79	4	-1.763293E-004	-1.262686E-004	-6.222157E-002	-4.455688E-001
79	5	-1.746673E-004	-1.264126E-004	-6.163469E-002	-4.460727E-001
79	6	-1.754978E-004	-1.265561E-004	-6.192707E-002	-4.465795E-001
79	7	-1.763261E-004	-1.264121E-004	-6.222026E-002	-4.460752E-001
79	8	-1.754941E-004	-1.262673E-004	-6.192799E-002	-4.455597E-001
79	9	-1.754964E-004	-1.264123E-004	-6.192743E-002	-4.460711E-001
80	1	-1.796522E-004	-1.370582E-004	-6.339392E-002	-4.836337E-001

88	2	-1.796017E-004	-1.408927E-004	-6.337719E-002	-4.971696E-001
88	3	-2.017570E-004	-1.408938E-004	-7.119305E-002	-4.971741E-001
88	4	-2.017619E-004	-1.370576E-004	-7.119600E-002	-4.836379E-001
88	5	-1.796264E-004	-1.389739E-004	-6.338470E-002	-4.903954E-001
88	6	-1.906786E-004	-1.408936E-004	-6.728496E-002	-4.971676E-001
88	7	-2.017583E-004	-1.389740E-004	-7.119433E-002	-4.903886E-001
88	8	-1.907024E-004	-1.370574E-004	-6.729300E-002	-4.836348E-001
88	9	-1.906986E-004	-1.389739E-004	-6.728934E-002	-4.903973E-001
81	1	-2.456777E-004	-1.607480E-004	-8.669207E-002	-5.672339E-001
81	2	-2.456784E-004	-2.092827E-004	-8.669277E-002	-7.384967E-001
81	3	-5.253898E-004	-2.092901E-004	-1.853949E-001	-7.385240E-001
81	4	-5.253876E-004	-1.607685E-004	-1.853939E-001	-5.672745E-001
81	5	-2.456757E-004	-1.850155E-004	-8.669247E-002	-6.528649E-001
81	6	-3.855407E-004	-2.092871E-004	-1.360468E-001	-7.385122E-001
81	7	-5.253850E-004	-1.850250E-004	-1.853929E-001	-6.528991E-001
81	8	-3.855407E-004	-1.607541E-004	-1.360468E-001	-5.672534E-001
81	9	-3.855407E-004	-1.850205E-004	-1.360468E-001	-6.528829E-001
82	1	-5.554669E-004	-1.338135E-004	-1.960869E-001	-4.721893E-001
82	2	-5.554619E-004	-1.211510E-004	-1.960863E-001	-4.275067E-001
82	3	-4.824861E-002	-1.211484E-002	-1.702527E-001	-4.274938E-001
82	4	-4.824767E-002	-1.338122E-002	-1.702531E-001	-4.721817E-001
82	5	-5.554617E-004	-1.274818E-004	-1.960859E-001	-4.498477E-001
82	6	-5.189741E-004	-1.211496E-004	-1.831306E-001	-4.274999E-001
82	7	-4.824790E-002	-1.274800E-002	-1.702529E-001	-4.498386E-001
82	8	-5.189733E-002	-1.338128E-002	-1.831306E-001	-4.721835E-001
82	9	-5.189741E-004	-1.274812E-004	-1.831306E-001	-4.498469E-001
83	1	-4.744805E-002	-1.302623E-002	-1.674303E-001	-4.596566E-001
83	2	-4.744810E-002	-1.333827E-002	-1.674306E-001	-4.706731E-001
83	3	-4.925104E-002	-1.333841E-002	-1.737916E-001	-4.706727E-001
83	4	-4.925111E-002	-1.302635E-002	-1.737927E-001	-4.596594E-001
83	5	-4.744831E-002	-1.318223E-002	-1.674305E-001	-4.651632E-001
83	6	-4.834957E-002	-1.333836E-002	-1.706119E-001	-4.706736E-001
83	7	-4.925159E-002	-1.318240E-002	-1.737927E-001	-4.651676E-001
83	8	-4.834957E-002	-1.302620E-002	-1.706119E-001	-4.596590E-001
83	9	-4.834957E-002	-1.318234E-002	-1.706119E-001	-4.651631E-001
84	1	-5.035507E-002	-1.389803E-002	-1.776878E-001	-4.904212E-001
84	2	-5.035506E-002	-1.490165E-002	-1.776879E-001	-5.258348E-001
84	3	-5.613866E-002	-1.490188E-002	-1.980955E-001	-5.258413E-001
84	4	-5.613796E-002	-1.389823E-002	-1.980968E-001	-4.904267E-001
84	5	-5.035507E-002	-1.439987E-002	-1.776879E-001	-5.081314E-001
84	6	-5.324688E-002	-1.490188E-002	-1.878926E-001	-5.258391E-001
84	7	-5.613892E-002	-1.439997E-002	-1.980976E-001	-5.081389E-001
84	8	-5.324688E-002	-1.389810E-002	-1.878926E-001	-4.904239E-001
84	9	-5.324688E-002	-1.439995E-002	-1.878926E-001	-5.081326E-001
85	1	-5.802362E-002	-1.433515E-002	-2.047487E-001	-5.058427E-001
85	2	-5.802362E-002	-1.557973E-002	-2.047489E-001	-5.497656E-001
85	3	-6.519515E-002	-1.557998E-002	-2.300567E-001	-5.497718E-001
85	4	-6.519563E-002	-1.433545E-002	-2.300557E-001	-5.058533E-001
85	5	-5.802353E-002	-1.495744E-002	-2.047476E-001	-5.278050E-001
85	6	-6.160979E-002	-1.557980E-002	-2.174027E-001	-5.497664E-001
85	7	-6.519515E-002	-1.495770E-002	-2.300538E-001	-5.278146E-001
85	8	-6.160979E-002	-1.433529E-002	-2.174027E-001	-5.058517E-001
85	9	-6.160979E-002	-1.495754E-002	-2.174027E-001	-5.278103E-001
86	1	-6.751350E-002	-1.403969E-002	-2.382387E-001	-4.954196E-001
86	2	-6.751441E-002	-1.555745E-002	-2.382385E-001	-5.489745E-001
86	3	-7.627881E-002	-1.555778E-002	-2.691678E-001	-5.489863E-001
86	4	-7.627959E-002	-1.404011E-002	-2.691671E-001	-4.954317E-001
86	5	-6.751449E-002	-1.479855E-002	-2.382376E-001	-5.221982E-001
86	6	-7.189677E-002	-1.555765E-002	-2.537023E-001	-5.489817E-001
86	7	-7.627920E-002	-1.479894E-002	-2.691674E-001	-5.222096E-001

86	8	-7.189677E-002	-1.403987E-002	-2.537023E-001	-4.954266E-001
86	9	-7.189677E-002	-1.479873E-002	-2.537023E-001	-5.222035E-001
87	1	-7.889578E-002	-1.264995E-002	-2.783982E-001	-4.463830E-001
87	2	-7.889548E-002	-1.424965E-002	-2.783984E-001	-5.028294E-001
87	3	-8.811288E-002	-1.425000E-002	-3.109248E-001	-5.028387E-001
87	4	-8.811314E-002	-1.265031E-002	-3.109247E-001	-4.463896E-001
87	5	-7.889614E-002	-1.344986E-002	-2.783998E-001	-4.746867E-001
87	6	-8.350434E-002	-1.424980E-002	-2.946616E-001	-5.028349E-001
87	7	-8.811251E-002	-1.345015E-002	-3.109243E-001	-4.746163E-001
87	8	-8.350434E-002	-1.265013E-002	-2.946616E-001	-4.463862E-001
87	9	-8.350434E-002	-1.345002E-002	-2.946616E-001	-4.746115E-001
88	1	-9.054103E-002	-9.913986E-003	-3.194925E-001	-3.498331E-001
88	2	-9.054077E-002	-1.121037E-002	-3.194917E-001	-3.955826E-001
88	3	-9.881161E-002	-1.121070E-002	-3.458535E-001	-3.955937E-001
88	4	-9.881133E-002	-9.914297E-003	-3.458543E-001	-3.498468E-001
88	5	-9.054092E-002	-1.056213E-002	-3.194922E-001	-3.727003E-001
88	6	-9.427615E-002	-1.121054E-002	-3.326723E-001	-3.955802E-001
88	7	-9.881123E-002	-1.056254E-002	-3.458529E-001	-3.727205E-001
88	8	-9.427615E-002	-9.914071E-003	-3.326723E-001	-3.498400E-001
88	9	-9.427615E-002	-1.056232E-002	-3.326723E-001	-3.727140E-001
89	1	-9.961917E-002	-6.113681E-003	-3.515284E-001	-2.157319E-001
89	2	-9.961925E-002	-6.734124E-003	-3.515249E-001	-2.376269E-001
89	3	-1.031953E-001	-6.734249E-003	-3.641464E-001	-2.376324E-001
89	4	-1.032024E-001	-6.113748E-003	-3.641713E-001	-2.157352E-001
89	5	-9.961944E-002	-6.424164E-003	-3.515280E-001	-2.266888E-001
89	6	-1.014071E-001	-6.734194E-003	-3.578361E-001	-2.376289E-001
89	7	-1.031987E-001	-6.424327E-003	-3.641581E-001	-2.266944E-001
89	8	-1.014110E-001	-6.113603E-003	-3.578507E-001	-2.157326E-001
89	9	-1.014093E-001	-6.424202E-003	-3.578429E-001	-2.266912E-001
90	1	-1.038679E-001	-2.014746E-003	-3.665195E-001	-7.109496E-002
90	2	-1.038670E-001	-2.122904E-003	-3.665145E-001	-7.491026E-002
90	3	-1.044912E-001	-2.122928E-003	-3.687186E-001	-7.491247E-002
90	4	-1.044915E-001	-2.014754E-003	-3.687198E-001	-7.109486E-002
90	5	-1.038672E-001	-2.068771E-003	-3.665174E-001	-7.300221E-002
90	6	-1.041792E-001	-2.123001E-003	-3.676172E-001	-7.491352E-002
90	7	-1.044916E-001	-2.068791E-003	-3.687198E-001	-7.300214E-002
90	8	-1.041797E-001	-2.014692E-003	-3.676197E-001	-7.109305E-002
90	9	-1.041793E-001	-2.068825E-003	-3.676184E-001	-7.300265E-002
91	1	-1.747785E-004	-9.005112E-006	-6.167580E-002	-3.177341E-002
91	2	-1.747762E-004	-9.062331E-006	-6.167489E-002	-3.197769E-002
91	3	-1.751124E-004	-9.062389E-006	-6.179154E-002	-3.198073E-002
91	4	-1.751119E-004	-9.004143E-006	-6.179201E-002	-3.177765E-002
91	5	-1.747787E-004	-9.034548E-006	-6.167347E-002	-3.187612E-002
91	6	-1.749436E-004	-9.062918E-006	-6.173325E-002	-3.198056E-002
91	7	-1.751132E-004	-9.033653E-006	-6.179074E-002	-3.187710E-002
91	8	-1.749462E-004	-9.004161E-006	-6.173405E-002	-3.177432E-002
91	9	-1.749446E-004	-9.033232E-006	-6.173202E-002	-3.187938E-002
92	1	-1.753942E-004	-2.672685E-005	-6.189155E-002	-9.430026E-002
92	2	-1.753940E-004	-2.700738E-005	-6.189189E-002	-9.530338E-002
92	3	-1.770227E-004	-2.700883E-005	-6.246459E-002	-9.530865E-002
92	4	-1.770193E-004	-2.672699E-005	-6.246630E-002	-9.431501E-002
92	5	-1.754011E-004	-2.686883E-005	-6.189213E-002	-9.480895E-002
92	6	-1.762869E-004	-2.700917E-005	-6.217765E-002	-9.530517E-002
92	7	-1.770176E-004	-2.686829E-005	-6.246368E-002	-9.481009E-002
92	8	-1.762119E-004	-2.672768E-005	-6.217832E-002	-9.431355E-002
92	9	-1.762082E-004	-2.686833E-005	-6.217870E-002	-9.481047E-002
93	1	-1.775489E-004	-4.444805E-005	-6.265149E-002	-1.568139E-001
93	2	-1.775407E-004	-4.506340E-005	-6.264816E-002	-1.590164E-001
93	3	-1.811484E-004	-4.506388E-005	-6.391887E-002	-1.590135E-001
93	4	-1.811506E-004	-4.443891E-005	-6.392099E-002	-1.568141E-001

93	5	-1.775505E-004	-4.475174E-005	-6.265121E-002	-1.579129E-001
93	6	-1.793428E-004	-4.506337E-005	-6.328435E-002	-1.590161E-001
93	7	-1.811488E-004	-4.475110E-005	-6.392028E-002	-1.579153E-001
93	8	-1.793447E-004	-4.443948E-005	-6.328661E-002	-1.568139E-001
93	9	-1.793456E-004	-4.475142E-005	-6.328501E-002	-1.579137E-001
94	1	-1.822997E-004	-6.241394E-005	-6.432743E-002	-2.202458E-001
94	2	-1.822866E-004	-6.344108E-005	-6.432368E-002	-2.238666E-001
94	3	-1.882110E-004	-6.344076E-005	-6.641456E-002	-2.238640E-001
94	4	-1.882146E-004	-6.241527E-005	-6.641518E-002	-2.202432E-001
94	5	-1.822963E-004	-6.292802E-005	-6.432656E-002	-2.220533E-001
94	6	-1.852476E-004	-6.344054E-005	-6.536863E-002	-2.238627E-001
94	7	-1.882100E-004	-6.292739E-005	-6.641381E-002	-2.220518E-001
94	8	-1.852535E-004	-6.241601E-005	-6.537008E-002	-2.202487E-001
94	9	-1.852516E-004	-6.292717E-005	-6.537011E-002	-2.220493E-001
95	1	-1.903435E-004	-8.124369E-005	-6.716601E-002	-2.866866E-001
95	2	-1.903455E-004	-8.275936E-005	-6.716743E-002	-2.920332E-001
95	3	-1.990821E-004	-8.276824E-005	-7.025035E-002	-2.920367E-001
95	4	-1.990832E-004	-8.124269E-005	-7.024970E-002	-2.866888E-001
95	5	-1.903491E-004	-8.200145E-005	-6.716820E-002	-2.893611E-001
95	6	-1.947132E-004	-8.275908E-005	-6.870859E-002	-2.920389E-001
95	7	-1.990812E-004	-8.200138E-005	-7.024848E-002	-2.893596E-001
95	8	-1.947132E-004	-8.124430E-005	-6.870859E-002	-2.866837E-001
95	9	-1.947132E-004	-8.200182E-005	-6.870859E-002	-2.893623E-001
96	1	-2.010317E-004	-1.022323E-004	-7.893764E-002	-3.607442E-001
96	2	-2.010272E-004	-1.030366E-004	-7.893781E-002	-3.635051E-001
96	3	-2.056787E-004	-1.030359E-004	-7.257795E-002	-3.635040E-001
96	4	-2.056722E-004	-1.022314E-004	-7.257649E-002	-3.607463E-001
96	5	-2.010257E-004	-1.026344E-004	-7.893792E-002	-3.621651E-001
96	6	-2.033535E-004	-1.030358E-004	-7.175760E-002	-3.635048E-001
96	7	-2.056750E-004	-1.026340E-004	-7.257722E-002	-3.621678E-001
96	8	-2.033535E-004	-1.022314E-004	-7.175760E-002	-3.607433E-001
96	9	-2.033535E-004	-1.026342E-004	-7.175760E-002	-3.621655E-001
97	1	-2.102304E-004	-1.209319E-004	-7.418457E-002	-4.267326E-001
97	2	-2.102329E-004	-1.255551E-004	-7.418532E-002	-4.430460E-001
97	3	-2.368777E-004	-1.255571E-004	-8.358800E-002	-4.430537E-001
97	4	-2.368796E-004	-1.209328E-004	-8.358877E-002	-4.267373E-001
97	5	-2.102358E-004	-1.232438E-004	-7.418514E-002	-4.348802E-001
97	6	-2.235572E-004	-1.255557E-004	-7.888672E-002	-4.430464E-001
97	7	-2.368768E-004	-1.232440E-004	-8.358743E-002	-4.348960E-001
97	8	-2.235572E-004	-1.209318E-004	-7.888672E-002	-4.267333E-001
97	9	-2.235572E-004	-1.232437E-004	-7.888672E-002	-4.348915E-001
98	1	-2.234540E-004	-1.600876E-004	-7.885073E-002	-5.649017E-001
98	2	-2.234867E-004	-1.394926E-004	-7.886076E-002	-4.922304E-001
98	3	-1.845723E-004	-1.394875E-004	-3.696423E-002	-4.922071E-001
98	4	-1.845142E-004	-1.600814E-004	-3.687983E-002	-5.648804E-001
98	5	-2.234693E-004	-1.497805E-004	-7.885606E-002	-5.285313E-001
98	6	-1.641217E-004	-1.394897E-004	-5.791278E-002	-4.922192E-001
98	7	-1.846388E-004	-1.497766E-004	-3.692262E-002	-5.285125E-001
98	8	-1.639834E-004	-1.600843E-004	-5.786619E-002	-5.648893E-001
98	9	-1.640530E-004	-1.497781E-004	-5.788921E-002	-5.285234E-001
99	1	-1.190621E-004	-1.180505E-004	-4.201298E-002	-3.918653E-001
99	2	-1.186314E-004	-1.482552E-004	-4.186204E-002	-5.231491E-001
99	3	-3.335026E-004	-1.482657E-004	-1.176825E-001	-5.231863E-001
99	4	-3.447543E-002	-1.147877E-002	-1.177030E-001	-3.918972E-001
99	5	-1.188428E-004	-1.296357E-004	-4.193630E-002	-4.574493E-001
99	6	-2.260603E-004	-1.482608E-004	-7.977281E-002	-5.231689E-001
99	7	-3.335317E-004	-1.296467E-004	-1.176941E-001	-4.574874E-001
99	8	-2.263100E-004	-1.180555E-004	-7.985834E-002	-3.918820E-001
99	9	-2.261892E-004	-1.296414E-004	-7.981586E-002	-4.574651E-001
100	1	-3.777307E-002	-1.179485E-002	-1.332900E-001	-4.162894E-001

100	2	-3.777280E-004	-1.334032E-004	-1.332902E-001	-4.707411E-001
100	3	-4.667929E-002	-1.334066E-002	-1.647179E-001	-4.707518E-001
100	4	-4.667927E-002	-1.179536E-002	-1.647162E-001	-4.162252E-001
100	5	-3.777242E-002	-1.256765E-002	-1.332879E-001	-4.434772E-001
100	6	-4.222622E-002	-1.334046E-002	-1.490037E-001	-4.707454E-001
100	7	-4.667904E-002	-1.256796E-002	-1.647180E-001	-4.434861E-001
100	8	-4.222622E-002	-1.179514E-002	-1.490037E-001	-4.162155E-001
100	9	-4.222622E-002	-1.256779E-002	-1.490037E-001	-4.434797E-001
101	1	-4.835010E-002	-1.246967E-002	-1.706134E-001	-4.400158E-001
101	2	-4.834916E-002	-1.291602E-002	-1.706113E-001	-4.557705E-001
101	3	-5.092262E-002	-1.291614E-002	-1.796901E-001	-4.557721E-001
101	4	-5.092784E-002	-1.246976E-002	-1.797090E-001	-4.400241E-001
101	5	-4.834954E-002	-1.269298E-002	-1.706102E-001	-4.479034E-001
101	6	-4.963631E-002	-1.291607E-002	-1.751507E-001	-4.557724E-001
101	7	-5.092495E-002	-1.269316E-002	-1.796997E-001	-4.479058E-001
101	8	-4.963895E-002	-1.246974E-002	-1.751609E-001	-4.400224E-001
101	9	-4.963753E-002	-1.269310E-002	-1.751561E-001	-4.479010E-001
102	1	-5.201833E-002	-1.276803E-002	-1.835591E-001	-4.505769E-001
102	2	-5.200921E-002	-1.362700E-002	-1.835245E-001	-4.808587E-001
102	3	-5.696382E-002	-1.362706E-002	-2.010875E-001	-4.808586E-001
102	4	-5.696495E-002	-1.276897E-002	-2.010117E-001	-4.505817E-001
102	5	-5.201336E-002	-1.319754E-002	-1.835396E-001	-4.657024E-001
102	6	-5.448645E-002	-1.362699E-002	-1.922664E-001	-4.808580E-001
102	7	-5.696421E-002	-1.319765E-002	-2.010103E-001	-4.657069E-001
102	8	-5.449169E-002	-1.276884E-002	-1.922854E-001	-4.505754E-001
102	9	-5.448987E-002	-1.319761E-002	-1.922754E-001	-4.657042E-001
103	1	-5.860318E-002	-1.289886E-002	-2.067930E-001	-4.551638E-001
103	2	-5.860332E-002	-1.399463E-002	-2.067933E-001	-4.938388E-001
103	3	-6.491768E-002	-1.399489E-002	-2.290751E-001	-4.938391E-001
103	4	-6.491715E-002	-1.289916E-002	-2.290760E-001	-4.551719E-001
103	5	-5.860274E-002	-1.344672E-002	-2.067921E-001	-4.744979E-001
103	6	-6.176037E-002	-1.399480E-002	-2.179343E-001	-4.938338E-001
103	7	-6.491715E-002	-1.344705E-002	-2.290741E-001	-4.745071E-001
103	8	-6.176037E-002	-1.289889E-002	-2.179343E-001	-4.551649E-001
103	9	-6.176037E-002	-1.344684E-002	-2.179343E-001	-4.745000E-001
104	1	-6.689462E-002	-1.237573E-002	-2.360519E-001	-4.367052E-001
104	2	-6.689256E-002	-1.363585E-002	-2.360451E-001	-4.811704E-001
104	3	-7.415506E-002	-1.363617E-002	-2.616738E-001	-4.811799E-001
104	4	-7.417052E-002	-1.237606E-002	-2.617268E-001	-4.367178E-001
104	5	-6.689375E-002	-1.300639E-002	-2.360480E-001	-4.589549E-001
104	6	-7.052410E-002	-1.363594E-002	-2.488692E-001	-4.811739E-001
104	7	-7.416293E-002	-1.300674E-002	-2.617000E-001	-4.589691E-001
104	8	-7.053281E-002	-1.237599E-002	-2.488896E-001	-4.367097E-001
104	9	-7.052848E-002	-1.300653E-002	-2.488751E-001	-4.589616E-001
105	1	-7.631206E-002	-1.096318E-002	-2.692819E-001	-3.868586E-001
105	2	-7.629684E-002	-1.223227E-002	-2.692299E-001	-4.316402E-001
105	3	-8.362343E-002	-1.223246E-002	-2.958030E-001	-4.316401E-001
105	4	-8.362570E-002	-1.096356E-002	-2.958097E-001	-3.868698E-001
105	5	-7.630462E-002	-1.159719E-002	-2.692563E-001	-4.092315E-001
105	6	-7.996018E-002	-1.223240E-002	-2.821569E-001	-4.316433E-001
105	7	-8.362459E-002	-1.159739E-002	-2.958058E-001	-4.092401E-001
105	8	-7.996082E-002	-1.096325E-002	-2.821857E-001	-3.868613E-001
105	9	-7.996469E-002	-1.159729E-002	-2.821719E-001	-4.092330E-001
106	1	-8.554673E-002	-8.553091E-003	-3.018705E-001	-3.818116E-001
106	2	-8.554689E-002	-9.576288E-003	-3.018694E-001	-3.379164E-001
106	3	-9.144143E-002	-9.576485E-003	-3.226715E-001	-3.379246E-001
106	4	-9.144128E-002	-8.553328E-003	-3.226715E-001	-3.818216E-001
106	5	-8.554710E-002	-9.064624E-003	-3.018699E-001	-3.198659E-001
106	6	-8.849456E-002	-9.576354E-003	-3.122705E-001	-3.379206E-001
106	7	-9.144156E-002	-9.064887E-003	-3.226700E-001	-3.198720E-001

106	8	-8.849456E-002	-8.553212E-003	-3.122705E-001	-3.818186E-001
106	9	-8.849456E-002	-9.864770E-003	-3.122705E-001	-3.198690E-001
107	1	-9.278497E-002	-5.359359E-003	-3.274104E-001	-1.891173E-001
107	2	-9.278522E-002	-5.938475E-003	-3.274113E-001	-2.055542E-001
107	3	-9.612200E-002	-5.938738E-003	-3.391860E-001	-2.055591E-001
107	4	-9.612176E-002	-5.359481E-003	-3.391858E-001	-1.891220E-001
107	5	-9.278582E-002	-5.649002E-003	-3.274118E-001	-1.993348E-001
107	6	-9.445316E-002	-5.938666E-003	-3.332980E-001	-2.055564E-001
107	7	-9.612164E-002	-5.649102E-003	-3.391854E-001	-1.993399E-001
107	8	-9.445316E-002	-5.359358E-003	-3.332980E-001	-1.891167E-001
107	9	-9.445316E-002	-5.649039E-003	-3.332980E-001	-1.993373E-001
108	1	-9.674703E-002	-1.808045E-003	-3.413914E-001	-6.380331E-002
108	2	-9.674627E-002	-1.974476E-003	-3.413921E-001	-6.967310E-002
108	3	-9.770786E-002	-1.974592E-003	-3.447025E-001	-6.967755E-002
108	4	-9.770742E-002	-1.808154E-003	-3.447027E-001	-6.380450E-002
108	5	-9.674671E-002	-1.891269E-003	-3.413908E-001	-6.673078E-002
108	6	-9.722725E-002	-1.974534E-003	-3.430869E-001	-6.967640E-002
108	7	-9.770738E-002	-1.891321E-003	-3.447816E-001	-6.673998E-002
108	8	-9.722725E-002	-1.808157E-003	-3.430869E-001	-6.380383E-002
108	9	-9.722725E-002	-1.891326E-003	-3.430869E-001	-6.674033E-002
109	1	-2.054916E-004	-8.915931E-006	-7.251164E-002	-3.146466E-002
109	2	-2.054902E-004	-8.988305E-006	-7.251120E-002	-3.171694E-002
109	3	-2.059033E-004	-8.987268E-006	-7.265680E-002	-3.171555E-002
109	4	-2.058972E-004	-8.915954E-006	-7.265546E-002	-3.146769E-002
109	5	-2.054916E-004	-8.952791E-006	-7.251317E-002	-3.159004E-002
109	6	-2.056966E-004	-8.987899E-006	-7.258393E-002	-3.171694E-002
109	7	-2.059003E-004	-8.951939E-006	-7.265645E-002	-3.158691E-002
109	8	-2.056964E-004	-8.916577E-006	-7.258491E-002	-3.146496E-002
109	9	-2.056965E-004	-8.952365E-006	-7.258462E-002	-3.159194E-002
110	1	-2.059641E-004	-2.637540E-005	-7.267854E-002	-9.387203E-002
110	2	-2.059552E-004	-2.664778E-005	-7.267731E-002	-9.483256E-002
110	3	-2.075364E-004	-2.664803E-005	-7.323162E-002	-9.483095E-002
110	4	-2.075310E-004	-2.637484E-005	-7.323153E-002	-9.387137E-002
110	5	-2.059633E-004	-2.651150E-005	-7.267878E-002	-9.355092E-002
110	6	-2.067435E-004	-2.664788E-005	-7.295419E-002	-9.483119E-002
110	7	-2.075310E-004	-2.651221E-005	-7.323149E-002	-9.355182E-002
110	8	-2.067460E-004	-2.637618E-005	-7.295585E-002	-9.387222E-002
110	9	-2.067461E-004	-2.651186E-005	-7.295580E-002	-9.355198E-002
111	1	-2.082873E-004	-4.364122E-005	-7.349675E-002	-1.539975E-001
111	2	-2.082819E-004	-4.426182E-005	-7.349683E-002	-1.561826E-001
111	3	-2.118451E-004	-4.426005E-005	-7.475308E-002	-1.561838E-001
111	4	-2.118458E-004	-4.364198E-005	-7.475396E-002	-1.540048E-001
111	5	-2.082788E-004	-4.395103E-005	-7.349607E-002	-1.550076E-001
111	6	-2.100629E-004	-4.426186E-005	-7.412446E-002	-1.561811E-001
111	7	-2.118394E-004	-4.395076E-005	-7.475256E-002	-1.550914E-001
111	8	-2.100629E-004	-4.364266E-005	-7.412446E-002	-1.540004E-001
111	9	-2.100629E-004	-4.395060E-005	-7.412446E-002	-1.550899E-001
112	1	-2.133380E-004	-6.894282E-005	-7.527916E-002	-2.150489E-001
112	2	-2.133332E-004	-6.289912E-005	-7.527956E-002	-2.191287E-001
112	3	-2.200058E-004	-6.289983E-005	-7.763359E-002	-2.191308E-001
112	4	-2.200186E-004	-6.894371E-005	-7.763878E-002	-2.150462E-001
112	5	-2.133296E-004	-6.152148E-005	-7.527784E-002	-2.170914E-001
112	6	-2.166668E-004	-6.289955E-005	-7.645648E-002	-2.191296E-001
112	7	-2.200128E-004	-6.152185E-005	-7.763667E-002	-2.170932E-001
112	8	-2.166764E-004	-6.894270E-005	-7.645924E-002	-2.150488E-001
112	9	-2.166723E-004	-6.152126E-005	-7.645804E-002	-2.170935E-001
113	1	-2.225882E-004	-7.863898E-005	-7.851477E-002	-2.774969E-001
113	2	-2.224849E-004	-8.072109E-005	-7.850733E-002	-2.848392E-001
113	3	-2.344985E-004	-8.072129E-005	-8.275021E-002	-2.848412E-001
113	4	-2.345847E-004	-7.864816E-005	-8.275021E-002	-2.774988E-001

113	5	-2.224929E-004	-7.967925E-005	-7.851212E-002	-2.811635E-001
113	6	-2.284912E-004	-8.072115E-005	-8.062901E-002	-2.848420E-001
113	7	-2.345044E-004	-7.968004E-005	-8.275097E-002	-2.811698E-001
113	8	-2.285069E-004	-7.863982E-005	-8.063337E-002	-2.774968E-001
113	9	-2.285000E-004	-7.967970E-005	-8.063095E-002	-2.811647E-001
114	1	-2.377453E-004	-1.000824E-004	-8.389399E-002	-3.531615E-001
114	2	-2.377445E-004	-1.018585E-004	-8.389332E-002	-3.594288E-001
114	3	-2.479747E-004	-1.018585E-004	-8.750349E-002	-3.594282E-001
114	4	-2.479999E-004	-1.000849E-004	-8.751146E-002	-3.531644E-001
114	5	-2.377424E-004	-1.009710E-004	-8.389224E-002	-3.563001E-001
114	6	-2.428609E-004	-1.018595E-004	-8.569832E-002	-3.594389E-001
114	7	-2.479951E-004	-1.009716E-004	-8.750857E-002	-3.563012E-001
114	8	-2.428726E-004	-1.000833E-004	-8.570264E-002	-3.531622E-001
114	9	-2.428670E-004	-1.009721E-004	-8.570128E-002	-3.562969E-001
115	1	-2.478916E-004	-1.220589E-004	-8.747299E-002	-4.307119E-001
115	2	-2.479119E-004	-1.204883E-004	-8.748110E-002	-4.251670E-001
115	3	-2.388609E-004	-1.204882E-004	-8.428508E-002	-4.251694E-001
115	4	-2.388338E-004	-1.220599E-004	-8.427668E-002	-4.307114E-001
115	5	-2.478988E-004	-1.212736E-004	-8.747644E-002	-4.279422E-001
115	6	-2.433799E-004	-1.204892E-004	-8.588259E-002	-4.251684E-001
115	7	-2.388399E-004	-1.212739E-004	-8.428142E-002	-4.279384E-001
115	8	-2.433642E-004	-1.220597E-004	-8.587468E-002	-4.307107E-001
115	9	-2.433704E-004	-1.212733E-004	-8.587864E-002	-4.279381E-001
116	1	-2.551882E-004	-1.386522E-004	-9.004819E-002	-4.892641E-001
116	2	-2.549485E-004	-1.599812E-004	-8.996198E-002	-5.645264E-001
116	3	-3.781238E-004	-1.599869E-004	-1.334268E-001	-5.645475E-001
116	4	-3.781502E-004	-1.386578E-004	-1.334392E-001	-4.892825E-001
116	5	-2.550656E-004	-1.493088E-004	-9.000593E-002	-5.268641E-001
116	6	-3.165322E-004	-1.599844E-004	-1.116947E-001	-5.645362E-001
116	7	-3.781396E-004	-1.493139E-004	-1.334328E-001	-5.268822E-001
116	8	-3.166728E-004	-1.386562E-004	-1.117444E-001	-4.892766E-001
116	9	-3.166028E-004	-1.493112E-004	-1.117198E-001	-5.268716E-001
117	1	-4.011019E-004	-9.876463E-005	-1.415366E-001	-3.485152E-001
117	2	-4.010939E-004	-1.047867E-004	-1.415341E-001	-3.697624E-001
117	3	-4.358071E-002	-1.047879E-002	-1.537829E-001	-3.697678E-001
117	4	-4.358015E-002	-9.876733E-003	-1.538078E-001	-3.485202E-001
117	5	-4.011086E-004	-1.017790E-004	-1.415355E-001	-3.591452E-001
117	6	-4.184507E-004	-1.047869E-004	-1.476579E-001	-3.697616E-001
117	7	-4.358450E-002	-1.017798E-002	-1.537950E-001	-3.591514E-001
117	8	-4.413501E-002	-1.041614E-002	-1.476720E-001	-3.485160E-001
117	9	-4.184694E-004	-1.017796E-004	-1.476651E-001	-3.591487E-001
118	1	-4.440879E-002	-1.111829E-002	-1.567054E-001	-3.923338E-001
118	2	-4.440413E-002	-1.151283E-002	-1.566896E-001	-4.062535E-001
118	3	-4.668222E-002	-1.151298E-002	-1.647262E-001	-4.062578E-001
118	4	-4.668299E-002	-1.111849E-002	-1.647298E-001	-3.923390E-001
118	5	-4.440635E-002	-1.131544E-002	-1.566959E-001	-3.992911E-001
118	6	-4.554274E-002	-1.151298E-002	-1.607068E-001	-4.062577E-001
118	7	-4.668213E-002	-1.131553E-002	-1.647268E-001	-3.992966E-001
118	8	-4.554564E-002	-1.111845E-002	-1.607164E-001	-3.923385E-001
118	9	-4.554415E-002	-1.131551E-002	-1.607123E-001	-3.992986E-001
119	1	-4.760960E-002	-1.158975E-002	-1.680013E-001	-4.009701E-001
119	2	-4.760972E-002	-1.230182E-002	-1.680018E-001	-4.340664E-001
119	3	-5.170880E-002	-1.230116E-002	-1.824662E-001	-4.340745E-001
119	4	-5.170888E-002	-1.158991E-002	-1.824659E-001	-4.009740E-001
119	5	-4.761037E-002	-1.194535E-002	-1.680003E-001	-4.215166E-001
119	6	-4.965923E-002	-1.230115E-002	-1.752335E-001	-4.340685E-001
119	7	-5.170903E-002	-1.194559E-002	-1.824661E-001	-4.215260E-001
119	8	-4.965923E-002	-1.158974E-002	-1.752335E-001	-4.009719E-001
119	9	-4.965923E-002	-1.194545E-002	-1.752335E-001	-4.215194E-001
120	1	-5.293677E-002	-1.178361E-002	-1.867983E-001	-4.158184E-001

120	2	-5.293557E-002	-1.253504E-002	-1.867948E-001	-4.423234E-001
120	3	-5.726785E-002	-1.253524E-002	-2.020085E-001	-4.423305E-001
120	4	-5.727627E-002	-1.178383E-002	-2.021119E-001	-4.158180E-001
120	5	-5.293638E-002	-1.215972E-002	-1.867984E-001	-4.290796E-001
120	6	-5.510164E-002	-1.253520E-002	-1.944370E-001	-4.423315E-001
120	7	-5.727179E-002	-1.215989E-002	-2.020949E-001	-4.290873E-001
120	8	-5.510645E-002	-1.178372E-002	-1.944548E-001	-4.158139E-001
120	9	-5.510379E-002	-1.215978E-002	-1.944460E-001	-4.290825E-001
121	1	-5.870731E-002	-1.164934E-002	-2.071605E-001	-4.110705E-001
121	2	-5.869600E-002	-1.260071E-002	-2.071213E-001	-4.446419E-001
121	3	-6.418898E-002	-1.260092E-002	-2.265042E-001	-4.446512E-001
121	4	-6.419068E-002	-1.164967E-002	-2.265089E-001	-4.110808E-001
121	5	-5.870089E-002	-1.212453E-002	-2.071391E-001	-4.278404E-001
121	6	-6.144294E-002	-1.260084E-002	-2.168144E-001	-4.446442E-001
121	7	-6.418998E-002	-1.212487E-002	-2.265072E-001	-4.278524E-001
121	8	-6.144923E-002	-1.164941E-002	-2.168351E-001	-4.110745E-001
121	9	-6.144584E-002	-1.212476E-002	-2.168251E-001	-4.278458E-001
122	1	-6.587158E-002	-1.098533E-002	-2.324426E-001	-3.876399E-001
122	2	-6.587153E-002	-1.203872E-002	-2.324425E-001	-4.248122E-001
122	3	-7.194147E-002	-1.203900E-002	-2.538606E-001	-4.248226E-001
122	4	-7.194102E-002	-1.098564E-002	-2.538601E-001	-3.876505E-001
122	5	-6.587156E-002	-1.151199E-002	-2.324416E-001	-4.062243E-001
122	6	-6.890669E-002	-1.203889E-002	-2.431514E-001	-4.248165E-001
122	7	-7.194141E-002	-1.151233E-002	-2.538684E-001	-4.062348E-001
122	8	-6.890669E-002	-1.098545E-002	-2.431514E-001	-3.876461E-001
122	9	-6.890669E-002	-1.151219E-002	-2.431514E-001	-4.062319E-001
123	1	-7.368950E-002	-9.600352E-003	-2.600277E-001	-3.387685E-001
123	2	-7.368927E-002	-1.062913E-002	-2.600281E-001	-3.750785E-001
123	3	-7.963070E-002	-1.062943E-002	-2.809930E-001	-3.750812E-001
123	4	-7.963060E-002	-9.600550E-003	-2.809943E-001	-3.387766E-001
123	5	-7.368989E-002	-1.011476E-002	-2.600296E-001	-3.569195E-001
123	6	-7.666007E-002	-1.062926E-002	-2.705109E-001	-3.750747E-001
123	7	-7.963139E-002	-1.011501E-002	-2.809936E-001	-3.569275E-001
123	8	-7.666007E-002	-9.600511E-003	-2.705109E-001	-3.387726E-001
123	9	-7.666007E-002	-1.011487E-002	-2.705109E-001	-3.569220E-001
124	1	-8.119153E-002	-7.452339E-003	-2.865019E-001	-2.629699E-001
124	2	-8.119166E-002	-8.283125E-003	-2.865006E-001	-2.922886E-001
124	3	-8.597829E-002	-8.283415E-003	-3.033917E-001	-2.922984E-001
124	4	-8.597811E-002	-7.452640E-003	-3.033918E-001	-2.629840E-001
124	5	-8.119177E-002	-7.867764E-003	-2.865012E-001	-2.776291E-001
124	6	-8.358505E-002	-8.283210E-003	-2.949471E-001	-2.922916E-001
124	7	-8.597796E-002	-7.868057E-003	-3.033912E-001	-2.776389E-001
124	8	-8.358505E-002	-7.452497E-003	-2.949471E-001	-2.629789E-001
124	9	-8.358505E-002	-7.867879E-003	-2.949471E-001	-2.776359E-001
125	1	-8.709549E-002	-4.694313E-003	-3.073481E-001	-1.656482E-001
125	2	-8.709578E-002	-5.281080E-003	-3.073491E-001	-1.835319E-001
125	3	-9.001923E-002	-5.281254E-003	-3.176514E-001	-1.835366E-001
125	4	-9.001904E-002	-4.694454E-003	-3.176505E-001	-1.656525E-001
125	5	-8.709963E-002	-4.947689E-003	-3.073496E-001	-1.745915E-001
125	6	-8.855930E-002	-5.281205E-003	-3.124986E-001	-1.835353E-001
125	7	-9.001930E-002	-4.947830E-003	-3.176509E-001	-1.745958E-001
125	8	-8.855930E-002	-4.694413E-003	-3.124986E-001	-1.656504E-001
125	9	-8.855930E-002	-4.947789E-003	-3.124986E-001	-1.745917E-001
126	1	-9.058034E-002	-1.597131E-003	-3.196324E-001	-5.636018E-002
126	2	-9.058062E-002	-1.760011E-003	-3.196315E-001	-6.210291E-002
126	3	-9.152041E-002	-1.759981E-003	-3.229502E-001	-6.210284E-002
126	4	-9.152051E-002	-1.597097E-003	-3.229495E-001	-5.635767E-002
126	5	-9.057996E-002	-1.678542E-003	-3.196319E-001	-5.923059E-002
126	6	-9.105060E-002	-1.760029E-003	-3.212910E-001	-6.210503E-002
126	7	-9.152047E-002	-1.678520E-003	-3.229493E-001	-5.923245E-002

126	8	-9.105060E-002	-1.597180E-003	-3.212910E-001	-5.635997E-002
126	9	-9.105060E-002	-1.678561E-003	-3.212910E-001	-5.923057E-002
127	1	-2.360281E-004	-8.910034E-006	-8.328688E-002	-3.144334E-002
127	2	-2.360314E-004	-8.989724E-006	-8.328807E-002	-3.143652E-002
127	3	-2.360137E-004	-8.988679E-006	-8.328321E-002	-3.143795E-002
127	4	-2.360155E-004	-8.910018E-006	-8.328255E-002	-3.143992E-002
127	5	-2.360328E-004	-8.989229E-006	-8.328696E-002	-3.143983E-002
127	6	-2.360208E-004	-8.988545E-006	-8.328556E-002	-3.143574E-002
127	7	-2.360214E-004	-8.988609E-006	-8.328368E-002	-3.143872E-002
127	8	-2.360237E-004	-8.910798E-006	-8.328552E-002	-3.144354E-002
127	9	-2.360224E-004	-8.910083E-006	-8.328550E-002	-3.144214E-002
128	1	-2.361913E-004	-2.689559E-005	-8.334474E-002	-9.208400E-002
128	2	-2.361935E-004	-2.638650E-005	-8.334420E-002	-9.282819E-002
128	3	-2.374114E-004	-2.638588E-005	-8.377502E-002	-9.282498E-002
128	4	-2.374122E-004	-2.689507E-005	-8.377636E-002	-9.208614E-002
128	5	-2.361920E-004	-2.620175E-005	-8.334439E-002	-9.245557E-002
128	6	-2.367978E-004	-2.638698E-005	-8.356027E-002	-9.283143E-002
128	7	-2.374171E-004	-2.638154E-005	-8.377659E-002	-9.245745E-002
128	8	-2.367998E-004	-2.689418E-005	-8.356068E-002	-9.208194E-002
128	9	-2.368006E-004	-2.638088E-005	-8.355967E-002	-9.245651E-002
129	1	-2.378992E-004	-4.283703E-005	-8.394751E-002	-1.511572E-001
129	2	-2.378926E-004	-4.346207E-005	-8.394584E-002	-1.533639E-001
129	3	-2.415057E-004	-4.346196E-005	-8.522082E-002	-1.533657E-001
129	4	-2.415056E-004	-4.283664E-005	-8.522011E-002	-1.511525E-001
129	5	-2.378925E-004	-4.314891E-005	-8.394477E-002	-1.522569E-001
129	6	-2.396979E-004	-4.346306E-005	-8.458145E-002	-1.533659E-001
129	7	-2.415072E-004	-4.314931E-005	-8.522037E-002	-1.522609E-001
129	8	-2.397012E-004	-4.283561E-005	-8.458327E-002	-1.511566E-001
129	9	-2.396986E-004	-4.314824E-005	-8.458322E-002	-1.522579E-001
130	1	-2.431161E-004	-5.929487E-005	-8.578782E-002	-2.092377E-001
130	2	-2.431178E-004	-6.058686E-005	-8.578797E-002	-2.137939E-001
130	3	-2.505615E-004	-6.058798E-005	-8.841749E-002	-2.137951E-001
130	4	-2.505659E-004	-5.929617E-005	-8.841772E-002	-2.092365E-001
130	5	-2.431143E-004	-5.994187E-005	-8.578837E-002	-2.115169E-001
130	6	-2.468385E-004	-6.058835E-005	-8.710195E-002	-2.137990E-001
130	7	-2.505638E-004	-5.994142E-005	-8.841760E-002	-2.115171E-001
130	8	-2.468385E-004	-5.929585E-005	-8.710195E-002	-2.092333E-001
130	9	-2.468385E-004	-5.994158E-005	-8.710195E-002	-2.115161E-001
131	1	-2.533292E-004	-7.605603E-005	-8.939134E-002	-2.683817E-001
131	2	-2.533233E-004	-7.804894E-005	-8.939048E-002	-2.754132E-001
131	3	-2.648185E-004	-7.805014E-005	-9.344693E-002	-2.754161E-001
131	4	-2.648398E-004	-7.605644E-005	-9.345353E-002	-2.683791E-001
131	5	-2.533291E-004	-7.705337E-005	-8.939169E-002	-2.718996E-001
131	6	-2.590696E-004	-7.804942E-005	-9.141812E-002	-2.754118E-001
131	7	-2.648220E-004	-7.705464E-005	-9.344911E-002	-2.718988E-001
131	8	-2.590799E-004	-7.605686E-005	-9.142247E-002	-2.683854E-001
131	9	-2.590760E-004	-7.705383E-005	-9.142037E-002	-2.718992E-001
132	1	-2.713896E-004	-9.286859E-005	-9.576537E-002	-3.276783E-001
132	2	-2.713202E-004	-9.893978E-005	-9.574212E-002	-3.491293E-001
132	3	-3.064288E-004	-9.894079E-005	-1.081292E-001	-3.491334E-001
132	4	-3.064329E-004	-9.286231E-005	-1.081316E-001	-3.276854E-001
132	5	-2.713598E-004	-9.589782E-005	-9.575380E-002	-3.383932E-001
132	6	-2.888738E-004	-9.894003E-005	-1.019362E-001	-3.491318E-001
132	7	-3.064345E-004	-9.589995E-005	-1.081328E-001	-3.384005E-001
132	8	-2.889139E-004	-9.286297E-005	-1.019498E-001	-3.276812E-001
132	9	-2.888971E-004	-9.589813E-005	-1.019438E-001	-3.383978E-001
133	1	-3.017615E-004	-1.356456E-004	-1.064833E-001	-4.786525E-001
133	2	-3.017619E-004	-1.239884E-004	-1.064819E-001	-4.375189E-001
133	3	-3.345640E-004	-1.239833E-004	-8.276964E-002	-4.375005E-001
133	4	-3.345604E-004	-1.356421E-004	-8.277071E-002	-4.786443E-001

133	5	-3.817593E-004	-1.298171E-004	-1.064811E-001	-4.580837E-001
133	6	-2.681594E-004	-1.239864E-004	-9.462646E-002	-4.375125E-001
133	7	-2.345580E-004	-1.298136E-004	-8.276863E-002	-4.580745E-001
133	8	-2.681594E-004	-1.356442E-004	-9.462646E-002	-4.786484E-001
133	9	-2.681594E-004	-1.298144E-004	-9.462646E-002	-4.580785E-001
134	1	-2.526979E-004	-9.751325E-005	-8.917056E-002	-3.440953E-001
134	2	-2.526971E-004	-1.307243E-004	-8.917024E-002	-4.612885E-001
134	3	-4.445449E-004	-1.307333E-004	-1.568682E-001	-4.613189E-001
134	4	-4.445499E-004	-9.752540E-005	-1.568682E-001	-3.441484E-001
134	5	-2.526961E-004	-1.141183E-004	-8.916952E-002	-4.026928E-001
134	6	-3.486281E-004	-1.307294E-004	-1.230201E-001	-4.613040E-001
134	7	-4.445552E-004	-1.141300E-004	-1.568698E-001	-4.027306E-001
134	8	-3.486281E-004	-9.751989E-005	-1.230201E-001	-3.441190E-001
134	9	-3.486281E-004	-1.141244E-004	-1.230201E-001	-4.027085E-001
135	1	-4.690251E-002	-1.025779E-002	-1.655051E-001	-3.619691E-001
135	2	-4.690275E-004	-9.848555E-005	-1.655056E-001	-3.475267E-001
135	3	-4.454443E-002	-9.848518E-003	-1.571834E-001	-3.475244E-001
135	4	-4.454454E-002	-1.025763E-002	-1.571835E-001	-3.619629E-001
135	5	-4.690285E-004	-1.005317E-004	-1.655079E-001	-3.547484E-001
135	6	-4.572358E-002	-9.848525E-003	-1.613449E-001	-3.475236E-001
135	7	-4.454396E-002	-1.005303E-002	-1.571835E-001	-3.547395E-001
135	8	-4.572358E-002	-1.025771E-002	-1.613449E-001	-3.619645E-001
135	9	-4.572358E-002	-1.005314E-002	-1.613449E-001	-3.547435E-001
136	1	-4.465152E-002	-1.044722E-002	-1.575638E-001	-3.686521E-001
136	2	-4.465155E-002	-1.098307E-002	-1.575627E-001	-3.875625E-001
136	3	-4.774722E-002	-1.098331E-002	-1.684864E-001	-3.875679E-001
136	4	-4.774715E-002	-1.044741E-002	-1.684846E-001	-3.686685E-001
136	5	-4.465154E-002	-1.071516E-002	-1.575627E-001	-3.781066E-001
136	6	-4.619930E-002	-1.098318E-002	-1.630239E-001	-3.875679E-001
136	7	-4.774695E-002	-1.071538E-002	-1.684864E-001	-3.781124E-001
136	8	-4.619930E-002	-1.044725E-002	-1.630239E-001	-3.686533E-001
136	9	-4.619930E-002	-1.071528E-002	-1.630239E-001	-3.781095E-001
137	1	-4.868032E-002	-1.082694E-002	-1.717785E-001	-3.820509E-001
137	2	-4.868034E-002	-1.140259E-002	-1.717789E-001	-4.023631E-001
137	3	-5.199770E-002	-1.140269E-002	-1.834849E-001	-4.023665E-001
137	4	-5.199765E-002	-1.082716E-002	-1.834847E-001	-3.820586E-001
137	5	-4.868107E-002	-1.111469E-002	-1.717796E-001	-3.922050E-001
137	6	-5.033921E-002	-1.140256E-002	-1.776317E-001	-4.023633E-001
137	7	-5.199740E-002	-1.111491E-002	-1.834848E-001	-3.922137E-001
137	8	-5.033921E-002	-1.082704E-002	-1.776317E-001	-3.820580E-001
137	9	-5.033921E-002	-1.111482E-002	-1.776317E-001	-3.922074E-001
138	1	-5.387518E-002	-1.086136E-002	-1.872877E-001	-3.832683E-001
138	2	-5.387523E-002	-1.157090E-002	-1.872863E-001	-4.083042E-001
138	3	-5.716306E-002	-1.157105E-002	-2.017130E-001	-4.083073E-001
138	4	-5.716305E-002	-1.086166E-002	-2.017140E-001	-3.832796E-001
138	5	-5.387544E-002	-1.121611E-002	-1.872875E-001	-3.957831E-001
138	6	-5.511941E-002	-1.157098E-002	-1.945007E-001	-4.083047E-001
138	7	-5.716321E-002	-1.121639E-002	-2.017126E-001	-3.957931E-001
138	8	-5.511941E-002	-1.086151E-002	-1.945007E-001	-3.832721E-001
138	9	-5.511941E-002	-1.121625E-002	-1.945007E-001	-3.957898E-001
139	1	-5.844714E-002	-1.057211E-002	-2.062434E-001	-3.730594E-001
139	2	-5.844728E-002	-1.139191E-002	-2.062433E-001	-4.019867E-001
139	3	-6.318197E-002	-1.139210E-002	-2.229488E-001	-4.019939E-001
139	4	-6.318142E-002	-1.057239E-002	-2.229496E-001	-3.730660E-001
139	5	-5.844670E-002	-1.098200E-002	-2.062418E-001	-3.875200E-001
139	6	-6.081409E-002	-1.139196E-002	-2.145946E-001	-4.019900E-001
139	7	-6.318142E-002	-1.098223E-002	-2.229477E-001	-3.875324E-001
139	8	-6.081409E-002	-1.057225E-002	-2.145946E-001	-3.730642E-001
139	9	-6.081409E-002	-1.098213E-002	-2.145946E-001	-3.875270E-001
140	1	-6.461275E-002	-9.817969E-003	-2.279995E-001	-3.464498E-001

140	2	-6.461210E-002	-1.070313E-002	-2.279992E-001	-3.776837E-001
140	3	-6.971351E-002	-1.070345E-002	-2.459983E-001	-3.776937E-001
140	4	-6.971338E-002	-9.818417E-003	-2.459978E-001	-3.464686E-001
140	5	-6.461266E-002	-1.026058E-002	-2.280004E-001	-3.620670E-001
140	6	-6.716332E-002	-1.070333E-002	-2.370000E-001	-3.776888E-001
140	7	-6.971344E-002	-1.026092E-002	-2.459981E-001	-3.620754E-001
140	8	-6.716332E-002	-9.818189E-003	-2.370000E-001	-3.464548E-001
140	9	-6.716332E-002	-1.026075E-002	-2.370000E-001	-3.620702E-001
141	1	-7.116629E-002	-8.481674E-003	-2.511242E-001	-2.992948E-001
141	2	-7.116663E-002	-9.327446E-003	-2.511245E-001	-3.291390E-001
141	3	-7.604994E-002	-9.327685E-003	-2.683594E-001	-3.291485E-001
141	4	-7.605005E-002	-8.482052E-003	-2.683599E-001	-2.993068E-001
141	5	-7.116631E-002	-8.904614E-003	-2.511259E-001	-3.142165E-001
141	6	-7.360826E-002	-9.327575E-003	-2.597424E-001	-3.291439E-001
141	7	-7.605013E-002	-8.904829E-003	-2.683582E-001	-3.142292E-001
141	8	-7.360826E-002	-8.481838E-003	-2.597424E-001	-2.993032E-001
141	9	-7.360826E-002	-8.904740E-003	-2.597424E-001	-3.142224E-001
142	1	-7.733452E-002	-6.546837E-003	-2.728919E-001	-2.310161E-001
142	2	-7.733465E-002	-7.231598E-003	-2.728903E-001	-2.551821E-001
142	3	-8.128068E-002	-7.231845E-003	-2.868159E-001	-2.551931E-001
142	4	-8.128048E-002	-6.546918E-003	-2.868162E-001	-2.310254E-001
142	5	-7.733486E-002	-6.889171E-003	-2.728918E-001	-2.430978E-001
142	6	-7.930774E-002	-7.231773E-003	-2.798537E-001	-2.551872E-001
142	7	-8.128031E-002	-6.889430E-003	-2.868155E-001	-2.431059E-001
142	8	-7.930774E-002	-6.546877E-003	-2.798537E-001	-2.310206E-001
142	9	-7.930774E-002	-6.889300E-003	-2.798537E-001	-2.431042E-001
143	1	-8.221753E-002	-4.125423E-003	-2.981211E-001	-1.455740E-001
143	2	-8.221739E-002	-4.557576E-003	-2.981204E-001	-1.608202E-001
143	3	-8.470663E-002	-4.557644E-003	-2.989048E-001	-1.608265E-001
143	4	-8.470697E-002	-4.125539E-003	-2.989059E-001	-1.455822E-001
143	5	-8.221722E-002	-4.341460E-003	-2.981207E-001	-1.531971E-001
143	6	-8.346203E-002	-4.557513E-003	-2.945127E-001	-1.608223E-001
143	7	-8.470688E-002	-4.341608E-003	-2.989044E-001	-1.532029E-001
143	8	-8.346203E-002	-4.125511E-003	-2.945127E-001	-1.455801E-001
143	9	-8.346203E-002	-4.341534E-003	-2.945127E-001	-1.532029E-001
144	1	-8.519065E-002	-1.487043E-003	-3.006122E-001	-4.964901E-002
144	2	-8.519047E-002	-1.552108E-003	-3.006133E-001	-5.476858E-002
144	3	-8.602881E-002	-1.552127E-003	-3.035693E-001	-5.477113E-002
144	4	-8.602845E-002	-1.487109E-003	-3.035687E-001	-4.965373E-002
144	5	-8.519074E-002	-1.479548E-003	-3.006118E-001	-5.220819E-002
144	6	-8.560978E-002	-1.552140E-003	-3.020912E-001	-5.476879E-002
144	7	-8.602786E-002	-1.479566E-003	-3.035685E-001	-5.221239E-002
144	8	-8.560978E-002	-1.487073E-003	-3.020912E-001	-4.965232E-002
144	9	-8.560978E-002	-1.479602E-003	-3.020912E-001	-5.221071E-002
145	1	-2.664933E-004	-8.992238E-006	-9.403837E-002	-3.173125E-002
145	2	-2.664896E-004	-8.922076E-006	-9.403836E-002	-3.148444E-002
145	3	-2.660975E-004	-8.923123E-006	-9.389843E-002	-3.148695E-002
145	4	-2.660961E-004	-8.991560E-006	-9.389722E-002	-3.172698E-002
145	5	-2.664945E-004	-8.957179E-006	-9.403824E-002	-3.160566E-002
145	6	-2.662941E-004	-8.923023E-006	-9.396819E-002	-3.148600E-002
145	7	-2.661002E-004	-8.956275E-006	-9.389688E-002	-3.160764E-002
145	8	-2.662972E-004	-8.992964E-006	-9.396710E-002	-3.172843E-002
145	9	-2.662950E-004	-8.957093E-006	-9.396730E-002	-3.160486E-002
146	1	-2.658372E-004	-2.603701E-005	-9.380524E-002	-9.187613E-002
146	2	-2.658361E-004	-2.606367E-005	-9.388677E-002	-9.196981E-002
146	3	-2.659857E-004	-2.606228E-005	-9.385797E-002	-9.196780E-002
146	4	-2.659862E-004	-2.603638E-005	-9.385826E-002	-9.187625E-002
146	5	-2.658335E-004	-2.605016E-005	-9.380535E-002	-9.191927E-002
146	6	-2.659894E-004	-2.606230E-005	-9.383187E-002	-9.196611E-002
146	7	-2.659833E-004	-2.604992E-005	-9.385804E-002	-9.192235E-002

146	8	-2.659105E-004	-2.603559E-005	-9.383121E-002	-9.187551E-002
146	9	-2.659100E-004	-2.604927E-005	-9.383139E-002	-9.192082E-002
147	1	-2.665679E-004	-4.198287E-005	-9.406507E-002	-1.481490E-001
147	2	-2.665686E-004	-4.265013E-005	-9.406384E-002	-1.504986E-001
147	3	-2.704149E-004	-4.264998E-005	-9.541959E-002	-1.504996E-001
147	4	-2.704223E-004	-4.198360E-005	-9.542439E-002	-1.481483E-001
147	5	-2.665671E-004	-4.231753E-005	-9.406418E-002	-1.493253E-001
147	6	-2.684886E-004	-4.265097E-005	-9.474188E-002	-1.505017E-001
147	7	-2.704125E-004	-4.231776E-005	-9.542186E-002	-1.493270E-001
147	8	-2.684932E-004	-4.198370E-005	-9.474374E-002	-1.481486E-001
147	9	-2.684986E-004	-4.231712E-005	-9.474248E-002	-1.493242E-001
148	1	-2.716334E-004	-5.793415E-005	-9.585065E-002	-2.044300E-001
148	2	-2.716140E-004	-5.895893E-005	-9.584489E-002	-2.080501E-001
148	3	-2.775253E-004	-5.895884E-005	-9.792892E-002	-2.080482E-001
148	4	-2.775389E-004	-5.793529E-005	-9.793418E-002	-2.044359E-001
148	5	-2.716306E-004	-5.844741E-005	-9.585000E-002	-2.062412E-001
148	6	-2.745676E-004	-5.895933E-005	-9.688752E-002	-2.080495E-001
148	7	-2.775273E-004	-5.844701E-005	-9.792999E-002	-2.062436E-001
148	8	-2.745856E-004	-5.793455E-005	-9.689260E-002	-2.044334E-001
148	9	-2.745778E-004	-5.844721E-005	-9.689102E-002	-2.062449E-001
149	1	-2.808216E-004	-7.219714E-005	-9.989583E-002	-2.547583E-001
149	2	-2.807858E-004	-7.531294E-005	-9.988038E-002	-2.657581E-001
149	3	-2.987869E-004	-7.531479E-005	-1.054340E-001	-2.657607E-001
149	4	-2.987910E-004	-7.219665E-005	-1.054342E-001	-2.547642E-001
149	5	-2.808075E-004	-7.375397E-005	-9.988959E-002	-2.602554E-001
149	6	-2.897896E-004	-7.531376E-005	-1.022568E-001	-2.657594E-001
149	7	-2.987905E-004	-7.375552E-005	-1.054349E-001	-2.602572E-001
149	8	-2.898091E-004	-7.219614E-005	-1.022648E-001	-2.547612E-001
149	9	-2.897987E-004	-7.375346E-005	-1.022621E-001	-2.602560E-001
150	1	-3.038320E-004	-8.867306E-005	-1.072150E-001	-3.128996E-001
150	2	-3.038294E-004	-9.156110E-005	-1.072119E-001	-3.238988E-001
150	3	-3.204984E-004	-9.156195E-005	-1.130989E-001	-3.238963E-001
150	4	-3.205250E-004	-8.867295E-005	-1.131024E-001	-3.129013E-001
150	5	-3.038378E-004	-9.011803E-005	-1.072140E-001	-3.179999E-001
150	6	-3.121594E-004	-9.156212E-005	-1.101524E-001	-3.238938E-001
150	7	-3.205098E-004	-9.011909E-005	-1.130966E-001	-3.180061E-001
150	8	-3.121811E-004	-8.867207E-005	-1.101591E-001	-3.128955E-001
150	9	-3.121695E-004	-9.011786E-005	-1.101552E-001	-3.180007E-001
151	1	-3.452686E-004	-1.065418E-004	-1.218359E-001	-3.759536E-001
151	2	-3.449571E-004	-1.334243E-004	-1.217256E-001	-4.708135E-001
151	3	-5.802209E-004	-1.334315E-004	-1.765132E-001	-4.708433E-001
151	4	-5.802579E-004	-1.065518E-004	-1.765261E-001	-3.759885E-001
151	5	-3.451113E-004	-1.199711E-004	-1.217799E-001	-4.233443E-001
151	6	-4.225940E-004	-1.334285E-004	-1.491201E-001	-4.708297E-001
151	7	-5.002402E-004	-1.199795E-004	-1.765211E-001	-4.233757E-001
151	8	-4.227649E-004	-1.065463E-004	-1.491823E-001	-3.759730E-001
151	9	-4.226813E-004	-1.199758E-004	-1.491518E-001	-4.233600E-001
152	1	-5.121711E-004	-1.071915E-004	-1.807305E-001	-3.782502E-001
152	2	-5.121883E-004	-9.453682E-005	-1.807369E-001	-3.335940E-001
152	3	-4.392334E-004	-9.453174E-005	-1.549911E-001	-3.335746E-001
152	4	-4.390842E-004	-1.071864E-004	-1.549391E-001	-3.782335E-001
152	5	-5.121846E-004	-1.008582E-004	-1.807338E-001	-3.558995E-001
152	6	-4.757095E-004	-9.453489E-005	-1.678638E-001	-3.335844E-001
152	7	-4.391620E-004	-1.008534E-004	-1.549654E-001	-3.558821E-001
152	8	-4.756262E-004	-1.071891E-004	-1.670352E-001	-3.782380E-001
152	9	-4.756688E-004	-1.008560E-004	-1.678495E-001	-3.558937E-001
153	1	-4.323360E-002	-9.802783E-003	-1.525583E-001	-3.459128E-001
153	2	-4.322861E-002	-1.025162E-002	-1.525394E-001	-3.617521E-001
153	3	-4.582065E-002	-1.025187E-002	-1.616872E-001	-3.617591E-001
153	4	-4.582144E-002	-9.802920E-003	-1.616915E-001	-3.459176E-001

153	5	-4.323142E-002	-1.002697E-002	-1.525500E-001	-3.538242E-001
153	6	-4.452446E-002	-1.025174E-002	-1.571147E-001	-3.617544E-001
153	7	-4.582167E-002	-1.002721E-002	-1.616898E-001	-3.538297E-001
153	8	-4.452721E-002	-9.802781E-003	-1.571247E-001	-3.459127E-001
153	9	-4.452684E-002	-1.002704E-002	-1.571202E-001	-3.538292E-001
154	1	-4.646121E-002	-1.001002E-002	-1.639509E-001	-3.532232E-001
154	2	-4.646133E-002	-1.032381E-002	-1.639487E-001	-3.642959E-001
154	3	-4.827058E-002	-1.032385E-002	-1.703327E-001	-3.642991E-001
154	4	-4.827348E-002	-1.001011E-002	-1.703456E-001	-3.532281E-001
154	5	-4.646097E-002	-1.016708E-002	-1.639501E-001	-3.587645E-001
154	6	-4.736539E-002	-1.032384E-002	-1.671399E-001	-3.642961E-001
154	7	-4.827236E-002	-1.016712E-002	-1.703380E-001	-3.587672E-001
154	8	-4.736708E-002	-1.001007E-002	-1.671478E-001	-3.532249E-001
154	9	-4.736678E-002	-1.016703E-002	-1.671439E-001	-3.587654E-001
155	1	-4.893247E-002	-1.011988E-002	-1.728787E-001	-3.570989E-001
155	2	-4.898641E-002	-1.066388E-002	-1.728573E-001	-3.762955E-001
155	3	-5.212720E-002	-1.066407E-002	-1.839411E-001	-3.763036E-001
155	4	-5.212794E-002	-1.012017E-002	-1.839448E-001	-3.571096E-001
155	5	-4.898901E-002	-1.039165E-002	-1.728689E-001	-3.666897E-001
155	6	-5.055657E-002	-1.066401E-002	-1.783988E-001	-3.763008E-001
155	7	-5.212714E-002	-1.039184E-002	-1.839428E-001	-3.666966E-001
155	8	-5.056030E-002	-1.012000E-002	-1.784120E-001	-3.571062E-001
155	9	-5.055838E-002	-1.039173E-002	-1.784048E-001	-3.666932E-001
156	1	-5.311219E-002	-1.003629E-002	-1.874102E-001	-3.541502E-001
156	2	-5.311214E-002	-1.066650E-002	-1.874189E-001	-3.763800E-001
156	3	-5.674467E-002	-1.066678E-002	-2.002351E-001	-3.763998E-001
156	4	-5.674445E-002	-1.003650E-002	-2.002342E-001	-3.541603E-001
156	5	-5.311288E-002	-1.035136E-002	-1.874200E-001	-3.652698E-001
156	6	-5.492850E-002	-1.066657E-002	-1.938262E-001	-3.763917E-001
156	7	-5.674428E-002	-1.035161E-002	-2.002346E-001	-3.652805E-001
156	8	-5.492850E-002	-1.003639E-002	-1.938262E-001	-3.541524E-001
156	9	-5.492850E-002	-1.035149E-002	-1.938262E-001	-3.652738E-001
157	1	-5.787337E-002	-9.634768E-003	-2.042178E-001	-3.399841E-001
157	2	-5.787324E-002	-1.034895E-002	-2.042176E-001	-3.651857E-001
157	3	-6.199729E-002	-1.034908E-002	-2.187723E-001	-3.651898E-001
157	4	-6.199777E-002	-9.635074E-003	-2.187712E-001	-3.399902E-001
157	5	-5.787252E-002	-9.991808E-003	-2.042162E-001	-3.525828E-001
157	6	-5.993545E-002	-1.034899E-002	-2.114945E-001	-3.651867E-001
157	7	-6.199729E-002	-9.992052E-003	-2.187712E-001	-3.525911E-001
157	8	-5.993545E-002	-9.634987E-003	-2.114945E-001	-3.399902E-001
157	9	-5.993545E-002	-9.991989E-003	-2.114945E-001	-3.525847E-001
158	1	-6.322492E-002	-8.832201E-003	-2.231000E-001	-3.116631E-001
158	2	-6.322473E-002	-9.580351E-003	-2.231024E-001	-3.306605E-001
158	3	-6.753445E-002	-9.580649E-003	-2.383102E-001	-3.306725E-001
158	4	-6.753526E-002	-8.832597E-003	-2.383116E-001	-3.116761E-001
158	5	-6.322429E-002	-9.206234E-003	-2.231017E-001	-3.246658E-001
158	6	-6.537996E-002	-9.580437E-003	-2.307062E-001	-3.306653E-001
158	7	-6.753438E-002	-9.206660E-003	-2.383099E-001	-3.246731E-001
158	8	-6.537996E-002	-8.832459E-003	-2.307062E-001	-3.116725E-001
158	9	-6.537996E-002	-9.206462E-003	-2.307062E-001	-3.246675E-001
159	1	-6.875082E-002	-7.555377E-003	-2.426016E-001	-2.666092E-001
159	2	-6.875085E-002	-8.256692E-003	-2.425982E-001	-2.913553E-001
159	3	-7.279164E-002	-8.256932E-003	-2.568594E-001	-2.913639E-001
159	4	-7.279967E-002	-7.555678E-003	-2.568879E-001	-2.666196E-001
159	5	-6.875085E-002	-7.906363E-003	-2.425993E-001	-2.789928E-001
159	6	-7.077087E-002	-8.256815E-003	-2.497295E-001	-2.913597E-001
159	7	-7.279568E-002	-7.906621E-003	-2.568763E-001	-2.790007E-001
159	8	-7.077578E-002	-7.555592E-003	-2.497465E-001	-2.666115E-001
159	9	-7.077312E-002	-7.906492E-003	-2.497375E-001	-2.789973E-001
160	1	-7.388803E-002	-5.796689E-003	-2.607298E-001	-2.045464E-001

160	2	-7.388144E-002	-6.364208E-003	-2.687063E-001	-2.245739E-001
160	3	-7.715823E-002	-6.364367E-003	-2.722687E-001	-2.245810E-001
160	4	-7.715946E-002	-5.796815E-003	-2.722729E-001	-2.045540E-001
160	5	-7.388477E-002	-6.880214E-003	-2.687170E-001	-2.145502E-001
160	6	-7.552812E-002	-6.364244E-003	-2.664872E-001	-2.245757E-001
160	7	-7.715884E-002	-6.880370E-003	-2.722719E-001	-2.145564E-001
160	8	-7.552362E-002	-5.796850E-003	-2.665008E-001	-2.045532E-001
160	9	-7.552198E-002	-6.880389E-003	-2.664948E-001	-2.145501E-001
161	1	-7.794153E-002	-3.643496E-003	-2.750326E-001	-1.285645E-001
161	2	-7.794137E-002	-4.009103E-003	-2.750338E-001	-1.414686E-001
161	3	-8.004797E-002	-4.009277E-003	-2.824655E-001	-1.414736E-001
161	4	-8.004836E-002	-3.643568E-003	-2.824668E-001	-1.285711E-001
161	5	-7.794172E-002	-3.826284E-003	-2.750323E-001	-1.350185E-001
161	6	-7.899468E-002	-4.009109E-003	-2.787491E-001	-1.414701E-001
161	7	-8.004817E-002	-3.826412E-003	-2.824671E-001	-1.350235E-001
161	8	-7.899468E-002	-3.643528E-003	-2.787491E-001	-1.285678E-001
161	9	-7.899468E-002	-3.826346E-003	-2.787491E-001	-1.350210E-001
162	1	-8.045940E-002	-1.242794E-003	-2.839176E-001	-4.385295E-002
162	2	-8.045927E-002	-1.367469E-003	-2.839170E-001	-4.825456E-002
162	3	-8.117927E-002	-1.367530E-003	-2.864566E-001	-4.825614E-002
162	4	-8.117892E-002	-1.242816E-003	-2.864580E-001	-4.385484E-002
162	5	-8.045909E-002	-1.305184E-003	-2.839173E-001	-4.605540E-002
162	6	-8.081912E-002	-1.367496E-003	-2.851862E-001	-4.825605E-002
162	7	-8.117831E-002	-1.305138E-003	-2.864558E-001	-4.605812E-002
162	8	-8.081912E-002	-1.242779E-003	-2.851862E-001	-4.385588E-002
162	9	-8.081912E-002	-1.305131E-003	-2.851862E-001	-4.605526E-002
163	1	-2.977154E-004	-9.401033E-006	-1.050532E-001	-3.317201E-002
163	2	-2.977115E-004	-9.054481E-006	-1.050540E-001	-3.195164E-002
163	3	-2.957111E-004	-9.053663E-006	-1.043485E-001	-3.194735E-002
163	4	-2.957186E-004	-9.401396E-006	-1.043481E-001	-3.317235E-002
163	5	-2.977148E-004	-9.228274E-006	-1.050545E-001	-3.256163E-002
163	6	-2.967114E-004	-9.054325E-006	-1.047009E-001	-3.194878E-002
163	7	-2.957125E-004	-9.227834E-006	-1.043483E-001	-3.256275E-002
163	8	-2.967087E-004	-9.401515E-006	-1.047007E-001	-3.317599E-002
163	9	-2.967127E-004	-9.228287E-006	-1.047004E-001	-3.256376E-002
164	1	-2.952180E-004	-2.630598E-005	-1.041741E-001	-9.282797E-002
164	2	-2.952197E-004	-2.606959E-005	-1.041739E-001	-9.199252E-002
164	3	-2.938580E-004	-2.606902E-005	-1.036933E-001	-9.198961E-002
164	4	-2.938478E-004	-2.630675E-005	-1.036908E-001	-9.282698E-002
164	5	-2.952177E-004	-2.618774E-005	-1.041742E-001	-9.240801E-002
164	6	-2.945371E-004	-2.606928E-005	-1.039339E-001	-9.199336E-002
164	7	-2.938481E-004	-2.618718E-005	-1.036910E-001	-9.241011E-002
164	8	-2.945350E-004	-2.630633E-005	-1.039328E-001	-9.282930E-002
164	9	-2.945360E-004	-2.618776E-005	-1.039324E-001	-9.240968E-002
165	1	-2.937523E-004	-4.147620E-005	-1.036572E-001	-1.463553E-001
165	2	-2.937482E-004	-4.183477E-005	-1.036560E-001	-1.476231E-001
165	3	-2.958240E-004	-4.183576E-005	-1.043895E-001	-1.476235E-001
165	4	-2.958277E-004	-4.147632E-005	-1.043894E-001	-1.463569E-001
165	5	-2.937509E-004	-4.165556E-005	-1.036569E-001	-1.469900E-001
165	6	-2.947866E-004	-4.183627E-005	-1.040231E-001	-1.476275E-001
165	7	-2.958307E-004	-4.165574E-005	-1.043884E-001	-1.469925E-001
165	8	-2.947934E-004	-4.147563E-005	-1.040232E-001	-1.463574E-001
165	9	-2.947914E-004	-4.165565E-005	-1.040235E-001	-1.469916E-001
166	1	-2.979369E-004	-5.532023E-005	-1.051341E-001	-1.952058E-001
166	2	-2.979367E-004	-5.747412E-005	-1.051341E-001	-2.028109E-001
166	3	-3.103526E-004	-5.747484E-005	-1.095144E-001	-2.028106E-001
166	4	-3.103537E-004	-5.532212E-005	-1.095157E-001	-1.952161E-001
166	5	-2.979361E-004	-5.639682E-005	-1.051340E-001	-1.990099E-001
166	6	-3.041466E-004	-5.747426E-005	-1.073244E-001	-2.028097E-001
166	7	-3.103545E-004	-5.639838E-005	-1.095150E-001	-1.990130E-001

166	8	-3.041466E-004	-5.532007E-005	-1.073244E-001	-1.952122E-001
166	9	-3.041466E-004	-5.639767E-005	-1.073244E-001	-1.990095E-001
167	1	-3.106783E-004	-7.376132E-005	-1.096297E-001	-2.602788E-001
167	2	-3.106831E-004	-7.200235E-005	-1.096309E-001	-2.540759E-001
167	3	-3.085147E-004	-7.200128E-005	-1.060434E-001	-2.540706E-001
167	4	-3.085141E-004	-7.375986E-005	-1.060434E-001	-2.602823E-001
167	5	-3.106810E-004	-7.288196E-005	-1.096305E-001	-2.571765E-001
167	6	-3.095955E-004	-7.200143E-005	-1.078362E-001	-2.540729E-001
167	7	-3.085144E-004	-7.288122E-005	-1.060418E-001	-2.571760E-001
167	8	-3.095955E-004	-7.376181E-005	-1.078362E-001	-2.602786E-001
167	9	-3.095955E-004	-7.288152E-005	-1.078362E-001	-2.571794E-001
168	1	-3.134798E-004	-6.852501E-005	-1.106170E-001	-2.418093E-001
168	2	-3.134756E-004	-8.574539E-005	-1.106172E-001	-3.025728E-001
168	3	-4.127437E-004	-8.575212E-005	-1.456449E-001	-3.025941E-001
168	4	-4.127422E-004	-6.853188E-005	-1.456445E-001	-2.418305E-001
168	5	-3.134721E-004	-7.713670E-005	-1.106156E-001	-2.721897E-001
168	6	-3.631086E-004	-8.574957E-005	-1.281308E-001	-3.025865E-001
168	7	-4.127411E-004	-7.714192E-005	-1.456456E-001	-2.722124E-001
168	8	-3.631086E-004	-6.852891E-005	-1.281308E-001	-2.418187E-001
168	9	-3.631086E-004	-7.713908E-005	-1.281308E-001	-2.722030E-001
169	1	-4.203913E-004	-1.118994E-004	-1.483431E-001	-3.946687E-001
169	2	-4.203922E-004	-1.038185E-004	-1.483441E-001	-3.663464E-001
169	3	-3.737875E-004	-1.038161E-004	-1.318704E-001	-3.663354E-001
169	4	-3.737838E-004	-1.118962E-004	-1.318693E-001	-3.946495E-001
169	5	-4.203881E-004	-1.078591E-004	-1.483428E-001	-3.806050E-001
169	6	-3.970461E-004	-1.038174E-004	-1.401061E-001	-3.663432E-001
169	7	-3.737810E-004	-1.078572E-004	-1.318693E-001	-3.805928E-001
169	8	-3.970461E-004	-1.118993E-004	-1.401061E-001	-3.946565E-001
169	9	-3.970461E-004	-1.078582E-004	-1.401061E-001	-3.805989E-001
170	1	-3.759651E-004	-9.665824E-005	-1.326671E-001	-3.410018E-001
170	2	-3.759665E-004	-1.074563E-004	-1.326663E-001	-3.791803E-001
170	3	-4.382009E-004	-1.074609E-004	-1.546293E-001	-3.792002E-001
170	4	-4.382091E-004	-9.666237E-005	-1.546283E-001	-3.410957E-001
170	5	-3.759674E-004	-1.020571E-004	-1.326679E-001	-3.601284E-001
170	6	-4.070854E-004	-1.074586E-004	-1.436484E-001	-3.791912E-001
170	7	-4.382021E-004	-1.020619E-004	-1.546298E-001	-3.601444E-001
170	8	-4.070859E-004	-9.665854E-005	-1.436484E-001	-3.410837E-001
170	9	-4.070859E-004	-1.020595E-004	-1.436484E-001	-3.601367E-001
171	1	-4.487337E-004	-9.536739E-005	-1.583443E-001	-3.365239E-001
171	2	-4.487314E-004	-9.712136E-005	-1.583434E-001	-3.427132E-001
171	3	-4.588474E-004	-9.712298E-005	-1.619131E-001	-3.427161E-001
171	4	-4.588673E-004	-9.536862E-005	-1.619211E-001	-3.365257E-001
171	5	-4.487263E-004	-9.624572E-005	-1.583448E-001	-3.396216E-001
171	6	-4.537910E-004	-9.712305E-005	-1.601284E-001	-3.427146E-001
171	7	-4.588536E-004	-9.624588E-005	-1.619153E-001	-3.396246E-001
171	8	-4.538016E-004	-9.536808E-005	-1.601328E-001	-3.365231E-001
171	9	-4.537920E-004	-9.624544E-005	-1.601306E-001	-3.396225E-001
172	1	-4.635632E-004	-9.523681E-003	-1.635797E-001	-3.360655E-001
172	2	-4.635210E-004	-9.908119E-003	-1.635630E-001	-3.496289E-001
172	3	-4.857227E-004	-9.908311E-003	-1.713973E-001	-3.496365E-001
172	4	-4.857307E-004	-9.523916E-003	-1.713997E-001	-3.360719E-001
172	5	-4.635451E-004	-9.715768E-003	-1.635721E-001	-3.428443E-001
172	6	-4.746197E-004	-9.908317E-003	-1.674808E-001	-3.496342E-001
172	7	-4.857248E-004	-9.716842E-003	-1.713977E-001	-3.428507E-001
172	8	-4.746447E-004	-9.523895E-003	-1.674899E-001	-3.360670E-001
172	9	-4.746351E-004	-9.715846E-003	-1.674858E-001	-3.428446E-001
173	1	-4.929116E-003	-9.502077E-003	-1.739338E-001	-3.352996E-001
173	2	-4.929817E-003	-9.972591E-003	-1.739300E-001	-3.519036E-001
173	3	-5.200271E-003	-9.972863E-003	-1.835014E-001	-3.519112E-001
173	4	-5.200796E-003	-9.502247E-003	-1.835284E-001	-3.353044E-001

173	5	-4.929011E-003	-9.737529E-003	-1.739307E-001	-3.436068E-001
173	6	-5.064667E-003	-9.972798E-003	-1.787167E-001	-3.519064E-001
173	7	-5.200499E-003	-9.737675E-003	-1.835115E-001	-3.436151E-001
173	8	-5.064942E-003	-9.502102E-003	-1.787271E-001	-3.353029E-001
173	9	-5.064785E-003	-9.737638E-003	-1.787214E-001	-3.436121E-001
174	1	-5.287904E-003	-9.298447E-003	-1.865964E-001	-3.281139E-001
174	2	-5.287230E-003	-9.862254E-003	-1.865715E-001	-3.480101E-001
174	3	-5.612963E-003	-9.862501E-003	-1.980633E-001	-3.480285E-001
174	4	-5.612996E-003	-9.298488E-003	-1.980677E-001	-3.281184E-001
174	5	-5.287614E-003	-9.580078E-003	-1.865838E-001	-3.380520E-001
174	6	-5.450090E-003	-9.862378E-003	-1.923179E-001	-3.480136E-001
174	7	-5.612941E-003	-9.580233E-003	-1.980662E-001	-3.380594E-001
174	8	-5.450442E-003	-9.298467E-003	-1.923304E-001	-3.281140E-001
174	9	-5.450283E-003	-9.580173E-003	-1.923243E-001	-3.380586E-001
175	1	-5.712378E-003	-8.821283E-003	-2.015720E-001	-3.112740E-001
175	2	-5.712305E-003	-9.440889E-003	-2.015698E-001	-3.331397E-001
175	3	-6.069285E-003	-9.441152E-003	-2.141699E-001	-3.331496E-001
175	4	-6.070077E-003	-8.821580E-003	-2.141937E-001	-3.112923E-001
175	5	-5.712307E-003	-9.131353E-003	-2.015720E-001	-3.222168E-001
175	6	-5.890816E-003	-9.440987E-003	-2.078693E-001	-3.331447E-001
175	7	-6.069740E-003	-9.131627E-003	-2.141836E-001	-3.222290E-001
175	8	-5.891205E-003	-8.821460E-003	-2.078842E-001	-3.112841E-001
175	9	-5.891012E-003	-9.131532E-003	-2.078766E-001	-3.222239E-001
176	1	-6.176376E-002	-7.995902E-003	-2.179469E-001	-2.821556E-001
176	2	-6.175719E-002	-8.630768E-003	-2.179210E-001	-3.045551E-001
176	3	-6.542280E-002	-8.631080E-003	-2.308576E-001	-3.045648E-001
176	4	-6.542336E-002	-7.996223E-003	-2.308601E-001	-2.821656E-001
176	5	-6.176037E-002	-8.313109E-003	-2.179355E-001	-2.933438E-001
176	6	-6.358931E-002	-8.630891E-003	-2.243885E-001	-3.045590E-001
176	7	-6.542288E-002	-8.313332E-003	-2.308586E-001	-2.933538E-001
176	8	-6.359392E-002	-7.996033E-003	-2.244040E-001	-2.821568E-001
176	9	-6.359156E-002	-8.313205E-003	-2.243960E-001	-2.933478E-001
177	1	-6.644988E-002	-6.777189E-003	-2.344838E-001	-2.391449E-001
177	2	-6.645018E-002	-7.367184E-003	-2.344828E-001	-2.599645E-001
177	3	-6.985821E-002	-7.367419E-003	-2.464814E-001	-2.599731E-001
177	4	-6.985853E-002	-6.777346E-003	-2.464819E-001	-2.391534E-001
177	5	-6.645029E-002	-7.072138E-003	-2.344841E-001	-2.495548E-001
177	6	-6.815048E-002	-7.367339E-003	-2.404831E-001	-2.599696E-001
177	7	-6.985062E-002	-7.072424E-003	-2.464810E-001	-2.495633E-001
177	8	-6.815048E-002	-6.777267E-003	-2.404831E-001	-2.391471E-001
177	9	-6.815048E-002	-7.072281E-003	-2.404831E-001	-2.495581E-001
178	1	-7.074569E-002	-5.168241E-003	-2.496418E-001	-1.823709E-001
178	2	-7.074561E-002	-5.644721E-003	-2.496404E-001	-1.991864E-001
178	3	-7.349753E-002	-5.644898E-003	-2.593499E-001	-1.991909E-001
178	4	-7.349703E-002	-5.168485E-003	-2.593506E-001	-1.823820E-001
178	5	-7.074568E-002	-5.406496E-003	-2.496407E-001	-1.907774E-001
178	6	-7.212130E-002	-5.644751E-003	-2.544952E-001	-1.991839E-001
178	7	-7.349680E-002	-5.406654E-003	-2.593478E-001	-1.907865E-001
178	8	-7.212130E-002	-5.168299E-003	-2.544952E-001	-1.823774E-001
178	9	-7.212130E-002	-5.406518E-003	-2.544952E-001	-1.907821E-001
179	1	-7.415580E-002	-3.237006E-003	-2.616741E-001	-1.142246E-001
179	2	-7.415563E-002	-3.545142E-003	-2.616737E-001	-1.250987E-001
179	3	-7.593146E-002	-3.545349E-003	-2.679389E-001	-1.251022E-001
179	4	-7.593141E-002	-3.237084E-003	-2.679384E-001	-1.142297E-001
179	5	-7.415602E-002	-3.391133E-003	-2.616739E-001	-1.196684E-001
179	6	-7.504348E-002	-3.545217E-003	-2.648069E-001	-1.251007E-001
179	7	-7.593120E-002	-3.391182E-003	-2.679386E-001	-1.196647E-001
179	8	-7.504348E-002	-3.237075E-003	-2.648069E-001	-1.142262E-001
179	9	-7.504348E-002	-3.391177E-003	-2.648069E-001	-1.196612E-001
180	1	-7.627876E-002	-1.102131E-003	-2.691655E-001	-3.888971E-002

180	2	-7.627921E-002	-1.288902E-003	-2.691669E-001	-4.265973E-002
180	3	-7.689555E-002	-1.288932E-003	-2.713405E-001	-4.266148E-002
180	4	-7.689515E-002	-1.102174E-003	-2.713418E-001	-3.889226E-002
180	5	-7.627847E-002	-1.155514E-003	-2.691653E-001	-4.077331E-002
180	6	-7.658717E-002	-1.288828E-003	-2.702531E-001	-4.265776E-002
180	7	-7.689507E-002	-1.155565E-003	-2.713396E-001	-4.077528E-002
180	8	-7.658717E-002	-1.102127E-003	-2.702531E-001	-3.889384E-002
180	9	-7.658717E-002	-1.155527E-003	-2.702531E-001	-4.077715E-002
181	1	-3.313773E-004	-1.063145E-005	-1.169331E-001	-3.751326E-002
181	2	-3.313749E-004	-9.604068E-006	-1.169332E-001	-3.388937E-002
181	3	-3.254574E-004	-9.603700E-006	-1.148448E-001	-3.388817E-002
181	4	-3.254442E-004	-1.062911E-005	-1.148401E-001	-3.750690E-002
181	5	-3.313812E-004	-1.011789E-005	-1.169349E-001	-3.569856E-002
181	6	-3.284219E-004	-9.603832E-006	-1.158892E-001	-3.388981E-002
181	7	-3.254538E-004	-1.011613E-005	-1.148432E-001	-3.569767E-002
181	8	-3.284105E-004	-1.062935E-005	-1.158873E-001	-3.750817E-002
181	9	-3.284165E-004	-1.011655E-005	-1.158882E-001	-3.569812E-002
182	1	-3.236972E-004	-2.725349E-005	-1.142249E-001	-9.616573E-002
182	2	-3.237120E-004	-2.645844E-005	-1.142276E-001	-9.336302E-002
182	3	-3.191222E-004	-2.645877E-005	-1.126075E-001	-9.336387E-002
182	4	-3.191186E-004	-2.725270E-005	-1.126069E-001	-9.616540E-002
182	5	-3.237039E-004	-2.685568E-005	-1.142260E-001	-9.476893E-002
182	6	-3.214153E-004	-2.645901E-005	-1.134176E-001	-9.336662E-002
182	7	-3.191191E-004	-2.685584E-005	-1.126071E-001	-9.476727E-002
182	8	-3.214065E-004	-2.725326E-005	-1.134163E-001	-9.616751E-002
182	9	-3.214106E-004	-2.685599E-005	-1.134164E-001	-9.476809E-002
183	1	-3.189300E-004	-4.877657E-005	-1.125397E-001	-1.438929E-001
183	2	-3.189236E-004	-4.134336E-005	-1.125384E-001	-1.458859E-001
183	3	-3.221938E-004	-4.134336E-005	-1.136922E-001	-1.458918E-001
183	4	-3.221943E-004	-4.877663E-005	-1.136932E-001	-1.438905E-001
183	5	-3.189304E-004	-4.186014E-005	-1.125393E-001	-1.448981E-001
183	6	-3.205579E-004	-4.134318E-005	-1.131150E-001	-1.458862E-001
183	7	-3.221931E-004	-4.186061E-005	-1.136916E-001	-1.448871E-001
183	8	-3.205609E-004	-4.877720E-005	-1.131166E-001	-1.438891E-001
183	9	-3.205601E-004	-4.185991E-005	-1.131160E-001	-1.448899E-001
184	1	-3.229619E-004	-5.437480E-005	-1.139632E-001	-1.918719E-001
184	2	-3.229550E-004	-5.492848E-005	-1.139603E-001	-1.938257E-001
184	3	-3.261511E-004	-5.492858E-005	-1.150803E-001	-1.938267E-001
184	4	-3.261509E-004	-5.437529E-005	-1.150887E-001	-1.918751E-001
184	5	-3.229548E-004	-5.465230E-005	-1.139625E-001	-1.928584E-001
184	6	-3.245512E-004	-5.492888E-005	-1.145243E-001	-1.938284E-001
184	7	-3.261502E-004	-5.465179E-005	-1.150894E-001	-1.928524E-001
184	8	-3.245524E-004	-5.437628E-005	-1.145252E-001	-1.918728E-001
184	9	-3.245522E-004	-5.465205E-005	-1.145252E-001	-1.928495E-001
185	1	-3.334050E-004	-6.476254E-005	-1.176490E-001	-2.285253E-001
185	2	-3.333921E-004	-7.204633E-005	-1.176446E-001	-2.570518E-001
185	3	-3.799983E-004	-7.205013E-005	-1.340897E-001	-2.570668E-001
185	4	-3.800952E-004	-6.476668E-005	-1.341231E-001	-2.285441E-001
185	5	-3.333974E-004	-6.888024E-005	-1.176464E-001	-2.428024E-001
185	6	-3.566972E-004	-7.284676E-005	-1.258679E-001	-2.570575E-001
185	7	-3.800444E-004	-6.881154E-005	-1.341052E-001	-2.428176E-001
185	8	-3.567466E-004	-6.476440E-005	-1.258864E-001	-2.285385E-001
185	9	-3.567242E-004	-6.880989E-005	-1.258777E-001	-2.428115E-001
186	1	-3.562814E-004	-1.070656E-004	-1.257203E-001	-3.770068E-001
186	2	-3.566964E-004	-7.124573E-005	-1.256803E-001	-2.514054E-001
186	3	-1.498046E-004	-7.123053E-005	-5.286140E-002	-2.513523E-001
186	4	-1.497492E-004	-1.070491E-004	-5.284224E-002	-3.777474E-001
186	5	-3.564888E-004	-8.917150E-005	-1.257922E-001	-3.146596E-001
186	6	-2.532488E-004	-7.123833E-005	-8.936373E-002	-2.513784E-001
186	7	-1.497760E-004	-8.915621E-005	-5.285267E-002	-3.146045E-001

186	8	-2.530134E-004	-1.070584E-004	-8.928031E-002	-3.777779E-001
186	9	-2.531305E-004	-8.916421E-005	-8.932247E-002	-3.146346E-001
187	1	-1.520275E-004	-6.980422E-005	-5.364633E-002	-2.434925E-001
187	2	-1.519729E-004	-1.074672E-004	-5.362627E-002	-3.792194E-001
187	3	-3.737425E-004	-1.074870E-004	-1.318830E-001	-3.792918E-001
187	4	-3.887998E-002	-7.171866E-003	-1.320402E-001	-2.435612E-001
187	5	-1.519989E-004	-8.825222E-005	-5.363729E-002	-3.114172E-001
187	6	-2.628529E-004	-1.074778E-004	-9.275259E-002	-3.792548E-001
187	7	-3.739606E-004	-8.827132E-005	-1.319599E-001	-3.114878E-001
187	8	-2.631841E-004	-6.981446E-005	-9.284218E-002	-2.435312E-001
187	9	-2.629775E-004	-8.826293E-005	-9.279688E-002	-3.114529E-001
188	1	-4.099597E-002	-8.999457E-003	-1.446628E-001	-3.175658E-001
188	2	-4.099129E-004	-9.444104E-005	-1.446458E-001	-3.332554E-001
188	3	-4.355998E-002	-9.444383E-003	-1.537102E-001	-3.332609E-001
188	4	-4.356019E-002	-8.999599E-003	-1.537114E-001	-3.175701E-001
188	5	-4.099358E-002	-9.221490E-003	-1.446578E-001	-3.253991E-001
188	6	-4.227522E-002	-9.444181E-003	-1.491708E-001	-3.332570E-001
188	7	-4.356040E-002	-9.221747E-003	-1.537091E-001	-3.254096E-001
188	8	-4.227845E-002	-8.999432E-003	-1.491888E-001	-3.175661E-001
188	9	-4.227706E-002	-9.221547E-003	-1.491834E-001	-3.254053E-001
189	1	-4.419149E-002	-9.158936E-003	-1.559383E-001	-3.231929E-001
189	2	-4.419136E-002	-9.466453E-003	-1.559385E-001	-3.340411E-001
189	3	-4.596272E-002	-9.466544E-003	-1.621899E-001	-3.340452E-001
189	4	-4.596318E-002	-9.158993E-003	-1.621903E-001	-3.231982E-001
189	5	-4.419179E-002	-9.312672E-003	-1.559401E-001	-3.286142E-001
189	6	-4.507742E-002	-9.466504E-003	-1.590648E-001	-3.340437E-001
189	7	-4.596300E-002	-9.312809E-003	-1.621910E-001	-3.286208E-001
189	8	-4.507742E-002	-9.159098E-003	-1.590648E-001	-3.231948E-001
189	9	-4.507742E-002	-9.312711E-003	-1.590648E-001	-3.286203E-001
190	1	-4.651600E-002	-9.064994E-003	-1.641444E-001	-3.198740E-001
190	2	-4.651602E-002	-9.416692E-003	-1.641435E-001	-3.322070E-001
190	3	-4.854866E-002	-9.416989E-003	-1.713145E-001	-3.322960E-001
190	4	-4.854865E-002	-9.065242E-003	-1.713140E-001	-3.198829E-001
190	5	-4.651689E-002	-9.240820E-003	-1.641437E-001	-3.260821E-001
190	6	-4.753277E-002	-9.416778E-003	-1.677288E-001	-3.322931E-001
190	7	-4.854839E-002	-9.241849E-003	-1.713137E-001	-3.260987E-001
190	8	-4.753277E-002	-9.065029E-003	-1.677288E-001	-3.198802E-001
190	9	-4.753277E-002	-9.240952E-003	-1.677288E-001	-3.260864E-001
191	1	-4.920731E-002	-8.937249E-003	-1.736398E-001	-3.153702E-001
191	2	-4.920748E-002	-9.370437E-003	-1.736398E-001	-3.306510E-001
191	3	-5.170326E-002	-9.370569E-003	-1.824461E-001	-3.306591E-001
191	4	-5.170343E-002	-8.937448E-003	-1.824468E-001	-3.153785E-001
191	5	-4.920709E-002	-9.153843E-003	-1.736375E-001	-3.230134E-001
191	6	-5.045554E-002	-9.370377E-003	-1.780427E-001	-3.306545E-001
191	7	-5.170305E-002	-9.153994E-003	-1.824445E-001	-3.230167E-001
191	8	-5.045554E-002	-8.937408E-003	-1.780427E-001	-3.153753E-001
191	9	-5.045554E-002	-9.153912E-003	-1.780427E-001	-3.230145E-001
192	1	-5.248580E-002	-8.645218E-003	-1.852070E-001	-3.050618E-001
192	2	-5.248549E-002	-9.143897E-003	-1.852057E-001	-3.226598E-001
192	3	-5.536601E-002	-9.144009E-003	-1.953714E-001	-3.226674E-001
192	4	-5.536640E-002	-8.645304E-003	-1.953706E-001	-3.050720E-001
192	5	-5.248559E-002	-8.894525E-003	-1.852052E-001	-3.138615E-001
192	6	-5.392591E-002	-9.144055E-003	-1.902898E-001	-3.226647E-001
192	7	-5.536620E-002	-8.894749E-003	-1.953710E-001	-3.138707E-001
192	8	-5.392591E-002	-8.645297E-003	-1.902898E-001	-3.050669E-001
192	9	-5.392591E-002	-8.894684E-003	-1.902898E-001	-3.138657E-001
193	1	-5.623013E-002	-8.112363E-003	-1.984471E-001	-2.862617E-001
193	2	-5.623797E-002	-8.652381E-003	-1.984477E-001	-3.053169E-001
193	3	-5.935004E-002	-8.652640E-003	-2.094271E-001	-3.053264E-001
193	4	-5.934955E-002	-8.112700E-003	-2.094267E-001	-2.862745E-001

193	5	-5.623784E-002	-8.382390E-003	-1.984474E-001	-2.957877E-001
193	6	-5.779388E-002	-8.652585E-003	-2.039371E-001	-3.053216E-001
193	7	-5.934927E-002	-8.382628E-003	-2.094278E-001	-2.957968E-001
193	8	-5.779388E-002	-8.112466E-003	-2.039371E-001	-2.862641E-001
193	9	-5.779388E-002	-8.382507E-003	-2.039371E-001	-2.957955E-001
194	1	-6.025898E-002	-7.281053E-003	-2.126363E-001	-2.569258E-001
194	2	-6.025892E-002	-7.824578E-003	-2.126366E-001	-2.761846E-001
194	3	-6.339809E-002	-7.824766E-003	-2.237122E-001	-2.761165E-001
194	4	-6.339782E-002	-7.281216E-003	-2.237134E-001	-2.569372E-001
194	5	-6.025917E-002	-7.552736E-003	-2.126371E-001	-2.665156E-001
194	6	-6.182876E-002	-7.824698E-003	-2.181749E-001	-2.761072E-001
194	7	-6.339847E-002	-7.553091E-003	-2.237137E-001	-2.665251E-001
194	8	-6.182876E-002	-7.281200E-003	-2.181749E-001	-2.569334E-001
194	9	-6.182876E-002	-7.552959E-003	-2.181749E-001	-2.665209E-001
195	1	-6.427199E-002	-6.120640E-003	-2.267981E-001	-2.159757E-001
195	2	-6.427275E-002	-6.618671E-003	-2.267971E-001	-2.335558E-001
195	3	-6.714221E-002	-6.618898E-003	-2.369262E-001	-2.335613E-001
195	4	-6.714308E-002	-6.120794E-003	-2.369267E-001	-2.159851E-001
195	5	-6.427186E-002	-6.369640E-003	-2.267984E-001	-2.247644E-001
195	6	-6.570759E-002	-6.618734E-003	-2.318618E-001	-2.335539E-001
195	7	-6.714213E-002	-6.369811E-003	-2.369240E-001	-2.247746E-001
195	8	-6.570759E-002	-6.120682E-003	-2.318618E-001	-2.159804E-001
195	9	-6.570759E-002	-6.369710E-003	-2.318618E-001	-2.247691E-001
196	1	-6.789654E-002	-4.639817E-003	-2.395875E-001	-1.637269E-001
196	2	-6.789625E-002	-5.840318E-003	-2.395868E-001	-1.778576E-001
196	3	-7.020994E-002	-5.840483E-003	-2.477489E-001	-1.778627E-001
196	4	-7.020995E-002	-4.640010E-003	-2.477498E-001	-1.637307E-001
196	5	-6.789646E-002	-4.840067E-003	-2.395870E-001	-1.707897E-001
196	6	-6.905296E-002	-5.840459E-003	-2.436673E-001	-1.778611E-001
196	7	-7.020915E-002	-4.840241E-003	-2.477488E-001	-1.707982E-001
196	8	-6.905296E-002	-4.639889E-003	-2.436673E-001	-1.637293E-001
196	9	-6.905296E-002	-4.840178E-003	-2.436673E-001	-1.707944E-001
197	1	-7.076494E-002	-2.893193E-003	-2.497083E-001	-1.020944E-001
197	2	-7.076433E-002	-3.153988E-003	-2.497081E-001	-1.112947E-001
197	3	-7.226748E-002	-3.154142E-003	-2.550117E-001	-1.112993E-001
197	4	-7.226788E-002	-2.893316E-003	-2.550113E-001	-1.020978E-001
197	5	-7.076518E-002	-3.023588E-003	-2.497082E-001	-1.066954E-001
197	6	-7.151613E-002	-3.154072E-003	-2.523590E-001	-1.112963E-001
197	7	-7.226709E-002	-3.023682E-003	-2.550115E-001	-1.066989E-001
197	8	-7.151613E-002	-2.893225E-003	-2.523590E-001	-1.020943E-001
197	9	-7.151613E-002	-3.023634E-003	-2.523590E-001	-1.066943E-001
198	1	-7.256376E-002	-9.804565E-004	-2.560565E-001	-3.459780E-002
198	2	-7.256377E-002	-1.072976E-003	-2.560562E-001	-3.786144E-002
198	3	-7.389779E-002	-1.072912E-003	-2.579417E-001	-3.785985E-002
198	4	-7.389794E-002	-9.805028E-004	-2.579412E-001	-3.459928E-002
198	5	-7.256397E-002	-1.026685E-003	-2.560563E-001	-3.622924E-002
198	6	-7.283060E-002	-1.073049E-003	-2.569986E-001	-3.786350E-002
198	7	-7.389786E-002	-1.026752E-003	-2.579398E-001	-3.622966E-002
198	8	-7.283060E-002	-9.804498E-004	-2.569986E-001	-3.459755E-002
198	9	-7.283060E-002	-1.026689E-003	-2.569986E-001	-3.622985E-002
199	1	-3.753530E-004	-1.552093E-005	-1.324511E-001	-5.476588E-002
199	2	-3.753982E-004	-1.138665E-005	-1.324683E-001	-4.018085E-002
199	3	-3.515198E-004	-1.138477E-005	-1.240485E-001	-4.017366E-002
199	4	-3.515143E-004	-1.551945E-005	-1.240381E-001	-5.475915E-002
199	5	-3.753752E-004	-1.345638E-005	-1.324595E-001	-4.748121E-002
199	6	-3.634586E-004	-1.138583E-005	-1.282545E-001	-4.017566E-002
199	7	-3.515163E-004	-1.345282E-005	-1.240402E-001	-4.747535E-002
199	8	-3.634361E-004	-1.552080E-005	-1.282445E-001	-5.476376E-002
199	9	-3.634463E-004	-1.345390E-005	-1.282500E-001	-4.747766E-002
200	1	-3.474734E-004	-2.814961E-005	-1.226121E-001	-9.933384E-002

200	2	-3.474754E-004	-2.746965E-005	-1.226131E-001	-9.693072E-002
200	3	-3.435485E-004	-2.746874E-005	-1.212288E-001	-9.692748E-002
200	4	-3.435438E-004	-2.814960E-005	-1.212255E-001	-9.933012E-002
200	5	-3.474755E-004	-2.780843E-005	-1.226142E-001	-9.813292E-002
200	6	-3.455095E-004	-2.746919E-005	-1.219212E-001	-9.692965E-002
200	7	-3.435436E-004	-2.780918E-005	-1.212272E-001	-9.813134E-002
200	8	-3.455085E-004	-2.814977E-005	-1.219193E-001	-9.933415E-002
200	9	-3.455114E-004	-2.780857E-005	-1.219289E-001	-9.812927E-002
201	1	-3.426685E-004	-4.087584E-005	-1.289185E-001	-1.442404E-001
201	2	-3.426734E-004	-4.071848E-005	-1.289200E-001	-1.436861E-001
201	3	-3.417710E-004	-4.071914E-005	-1.286021E-001	-1.436855E-001
201	4	-3.417714E-004	-4.087526E-005	-1.286001E-001	-1.442363E-001
201	5	-3.426744E-004	-4.079803E-005	-1.289197E-001	-1.439588E-001
201	6	-3.422237E-004	-4.071966E-005	-1.287696E-001	-1.436855E-001
201	7	-3.417647E-004	-4.079725E-005	-1.285995E-001	-1.439590E-001
201	8	-3.422236E-004	-4.087448E-005	-1.287599E-001	-1.442333E-001
201	9	-3.422228E-004	-4.079664E-005	-1.287603E-001	-1.439599E-001
202	1	-3.438406E-004	-5.129829E-005	-1.213314E-001	-1.810173E-001
202	2	-3.438383E-004	-5.391724E-005	-1.213306E-001	-1.902569E-001
202	3	-3.589326E-004	-5.391765E-005	-1.266570E-001	-1.902606E-001
202	4	-3.589661E-004	-5.130038E-005	-1.266673E-001	-1.810249E-001
202	5	-3.438338E-004	-5.260885E-005	-1.213294E-001	-1.856400E-001
202	6	-3.513834E-004	-5.391657E-005	-1.239925E-001	-1.902571E-001
202	7	-3.589446E-004	-5.260943E-005	-1.266620E-001	-1.856468E-001
202	8	-3.513972E-004	-5.129950E-005	-1.239992E-001	-1.810218E-001
202	9	-3.513919E-004	-5.260908E-005	-1.239955E-001	-1.856424E-001
203	1	-3.599431E-004	-6.500255E-005	-1.270133E-001	-2.293723E-001
203	2	-3.599611E-004	-6.376736E-005	-1.270186E-001	-2.250154E-001
203	3	-3.528243E-004	-6.376662E-005	-1.245009E-001	-2.250125E-001
203	4	-3.528250E-004	-6.500198E-005	-1.245006E-001	-2.293719E-001
203	5	-3.599497E-004	-6.438546E-005	-1.270168E-001	-2.271962E-001
203	6	-3.563926E-004	-6.376708E-005	-1.257600E-001	-2.250166E-001
203	7	-3.528257E-004	-6.438437E-005	-1.245022E-001	-2.271930E-001
203	8	-3.563857E-004	-6.500227E-005	-1.257573E-001	-2.293748E-001
203	9	-3.563890E-004	-6.438538E-005	-1.257592E-001	-2.271956E-001
204	1	-3.759218E-004	-7.938208E-005	-1.326505E-001	-2.801131E-001
204	2	-3.758803E-004	-1.081001E-004	-1.326362E-001	-3.814510E-001
204	3	-5.414463E-004	-1.081131E-004	-1.910613E-001	-3.814975E-001
204	4	-5.417856E-004	-7.939731E-005	-1.911089E-001	-2.801695E-001
204	5	-3.759062E-004	-9.375328E-005	-1.326449E-001	-3.308299E-001
204	6	-4.586685E-004	-1.081057E-004	-1.618582E-001	-3.814733E-001
204	7	-5.416222E-004	-9.376778E-005	-1.911218E-001	-3.308792E-001
204	8	-4.588563E-004	-7.939863E-005	-1.619168E-001	-2.801394E-001
204	9	-4.587611E-004	-9.376802E-005	-1.618836E-001	-3.308517E-001
205	1	-5.495655E-004	-8.565174E-005	-1.939265E-001	-3.022438E-001
205	2	-5.497924E-004	-6.625790E-005	-1.940062E-001	-2.338043E-001
205	3	-4.377698E-002	-6.624722E-003	-1.544770E-001	-2.337705E-001
205	4	-4.377424E-002	-8.564216E-003	-1.544674E-001	-3.022183E-001
205	5	-5.496777E-004	-7.596373E-005	-1.939648E-001	-2.680531E-001
205	6	-4.937888E-004	-6.625288E-005	-1.742409E-001	-2.337850E-001
205	7	-4.377627E-002	-7.595352E-003	-1.544737E-001	-2.680182E-001
205	8	-2.115461E-002	-3.670199E-003	-1.741962E-001	-3.022251E-001
205	9	-4.937173E-004	-7.595887E-005	-1.742190E-001	-2.680334E-001
206	1	-4.230652E-002	-8.718772E-003	-1.492869E-001	-3.076628E-001
206	2	-4.230592E-002	-8.907552E-003	-1.492860E-001	-3.143199E-001
206	3	-4.339318E-002	-8.907630E-003	-1.531207E-001	-3.143232E-001
206	4	-4.339528E-002	-8.719813E-003	-1.531288E-001	-3.076688E-001
206	5	-4.230656E-002	-8.813335E-003	-1.492857E-001	-3.109942E-001
206	6	-4.284922E-002	-8.907540E-003	-1.512027E-001	-3.143206E-001
206	7	-4.339436E-002	-8.813462E-003	-1.531279E-001	-3.109998E-001

206	8	-4.285039E-002	-8.718893E-003	-1.512082E-001	-3.076639E-001
206	9	-4.285019E-002	-8.813368E-003	-1.512058E-001	-3.109970E-001
207	1	-4.384498E-002	-8.716165E-003	-1.547169E-001	-3.075766E-001
207	2	-4.384105E-002	-9.063490E-003	-1.547006E-001	-3.198259E-001
207	3	-4.584692E-002	-9.063708E-003	-1.617802E-001	-3.198327E-001
207	4	-4.584755E-002	-8.716415E-003	-1.617831E-001	-3.075767E-001
207	5	-4.384363E-002	-8.889731E-003	-1.547116E-001	-3.136935E-001
207	6	-4.484375E-002	-9.063602E-003	-1.582417E-001	-3.198282E-001
207	7	-4.584729E-002	-8.889893E-003	-1.617825E-001	-3.136963E-001
207	8	-4.484602E-002	-8.716379E-003	-1.582497E-001	-3.075716E-001
207	9	-4.484508E-002	-8.889764E-003	-1.582461E-001	-3.136972E-001
208	1	-4.642015E-002	-8.630274E-003	-1.638035E-001	-3.045403E-001
208	2	-4.641923E-002	-8.965184E-003	-1.638018E-001	-3.163537E-001
208	3	-4.834984E-002	-8.965258E-003	-1.706132E-001	-3.163611E-001
208	4	-4.835448E-002	-8.630446E-003	-1.706279E-001	-3.045442E-001
208	5	-4.642037E-002	-8.797874E-003	-1.638024E-001	-3.104498E-001
208	6	-4.738478E-002	-8.965250E-003	-1.672069E-001	-3.163577E-001
208	7	-4.835186E-002	-8.797999E-003	-1.706201E-001	-3.104549E-001
208	8	-4.738701E-002	-8.630182E-003	-1.672158E-001	-3.045385E-001
208	9	-4.738608E-002	-8.798019E-003	-1.672119E-001	-3.104527E-001
209	1	-4.896863E-002	-8.422595E-003	-1.727958E-001	-2.972097E-001
209	2	-4.896478E-002	-8.816828E-003	-1.727811E-001	-3.111199E-001
209	3	-5.124002E-002	-8.816969E-003	-1.808111E-001	-3.111256E-001
209	4	-5.124106E-002	-8.422926E-003	-1.808147E-001	-2.972192E-001
209	5	-4.896638E-002	-8.619613E-003	-1.727888E-001	-3.041551E-001
209	6	-5.010213E-002	-8.816878E-003	-1.767960E-001	-3.111224E-001
209	7	-5.123988E-002	-8.619655E-003	-1.808128E-001	-3.041644E-001
209	8	-5.010401E-002	-8.422701E-003	-1.768050E-001	-2.972135E-001
209	9	-5.010368E-002	-8.619605E-003	-1.768006E-001	-3.041613E-001
210	1	-5.194308E-002	-8.865140E-003	-1.832930E-001	-2.845983E-001
210	2	-5.194329E-002	-8.588085E-003	-1.832936E-001	-3.002274E-001
210	3	-5.450223E-002	-8.588314E-003	-1.923222E-001	-3.002329E-001
210	4	-5.450158E-002	-8.865389E-003	-1.923215E-001	-2.846069E-001
210	5	-5.194393E-002	-8.726594E-003	-1.832931E-001	-2.924124E-001
210	6	-5.322278E-002	-8.588212E-003	-1.878074E-001	-3.002303E-001
210	7	-5.450186E-002	-8.726827E-003	-1.923218E-001	-2.924186E-001
210	8	-5.322278E-002	-8.865388E-003	-1.878074E-001	-2.846047E-001
210	9	-5.322278E-002	-8.726777E-003	-1.878074E-001	-2.924132E-001
211	1	-5.526855E-002	-7.494930E-003	-1.950258E-001	-2.644756E-001
211	2	-5.526875E-002	-7.965381E-003	-1.950267E-001	-2.810747E-001
211	3	-5.797916E-002	-7.965528E-003	-2.045914E-001	-2.810804E-001
211	4	-5.797917E-002	-7.495161E-003	-2.045911E-001	-2.644822E-001
211	5	-5.526862E-002	-7.730211E-003	-1.950262E-001	-2.727743E-001
211	6	-5.662365E-002	-7.965459E-003	-1.998088E-001	-2.810776E-001
211	7	-5.797848E-002	-7.730321E-003	-2.045903E-001	-2.727839E-001
211	8	-5.662365E-002	-7.495046E-003	-1.998088E-001	-2.644779E-001
211	9	-5.662365E-002	-7.730296E-003	-1.998088E-001	-2.727791E-001
212	1	-5.876513E-002	-6.667543E-003	-2.073659E-001	-2.352771E-001
212	2	-5.876504E-002	-7.133957E-003	-2.073644E-001	-2.517385E-001
212	3	-6.145918E-002	-7.134248E-003	-2.168705E-001	-2.517459E-001
212	4	-6.145947E-002	-6.667815E-003	-2.168716E-001	-2.352870E-001
212	5	-5.876581E-002	-6.900789E-003	-2.073667E-001	-2.435069E-001
212	6	-6.011239E-002	-7.134052E-003	-2.121184E-001	-2.517414E-001
212	7	-6.145908E-002	-6.901034E-003	-2.168701E-001	-2.435174E-001
212	8	-6.011239E-002	-6.667679E-003	-2.121184E-001	-2.352830E-001
212	9	-6.011239E-002	-6.900884E-003	-2.121184E-001	-2.435131E-001
213	1	-6.220570E-002	-5.563627E-003	-2.195036E-001	-1.963212E-001
213	2	-6.220481E-002	-5.986542E-003	-2.195044E-001	-2.112429E-001
213	3	-6.464239E-002	-5.986566E-003	-2.281029E-001	-2.112471E-001
213	4	-6.464174E-002	-5.563697E-003	-2.281014E-001	-1.963288E-001

213	5	-6.220543E-002	-5.774984E-003	-2.195039E-001	-2.037040E-001
213	6	-6.342371E-002	-5.986516E-003	-2.238037E-001	-2.112468E-001
213	7	-6.464183E-002	-5.775212E-003	-2.281086E-001	-2.037886E-001
213	8	-6.342371E-002	-5.563721E-003	-2.238037E-001	-1.963241E-001
213	9	-6.342371E-002	-5.775083E-003	-2.238037E-001	-2.037878E-001
214	1	-6.528088E-002	-4.193347E-003	-2.303571E-001	-1.479713E-001
214	2	-6.528120E-002	-4.532031E-003	-2.303564E-001	-1.599224E-001
214	3	-6.723728E-002	-4.532206E-003	-2.372601E-001	-1.599289E-001
214	4	-6.723638E-002	-4.193434E-003	-2.372592E-001	-1.479760E-001
214	5	-6.528128E-002	-4.362698E-003	-2.303566E-001	-1.539420E-001
214	6	-6.625897E-002	-4.532033E-003	-2.338084E-001	-1.599225E-001
214	7	-6.723659E-002	-4.362774E-003	-2.372581E-001	-1.539520E-001
214	8	-6.625897E-002	-4.193455E-003	-2.338084E-001	-1.479757E-001
214	9	-6.625897E-002	-4.362698E-003	-2.338084E-001	-1.539464E-001
215	1	-6.770514E-002	-2.604186E-003	-2.389119E-001	-9.189449E-002
215	2	-6.770518E-002	-2.823130E-003	-2.389117E-001	-9.961800E-002
215	3	-6.896677E-002	-2.823255E-003	-2.433640E-001	-9.962367E-002
215	4	-6.896681E-002	-2.604275E-003	-2.433638E-001	-9.189982E-002
215	5	-6.770540E-002	-2.713548E-003	-2.389118E-001	-9.575612E-002
215	6	-6.833577E-002	-2.823130E-003	-2.411372E-001	-9.962076E-002
215	7	-6.896703E-002	-2.713800E-003	-2.433639E-001	-9.575947E-002
215	8	-6.833577E-002	-2.604215E-003	-2.411372E-001	-9.189520E-002
215	9	-6.833577E-002	-2.713659E-003	-2.411372E-001	-9.575700E-002
216	1	-6.922520E-002	-8.645384E-004	-2.442745E-001	-3.050838E-002
216	2	-6.922524E-002	-9.537772E-004	-2.442761E-001	-3.365738E-002
216	3	-6.974023E-002	-9.537996E-004	-2.460940E-001	-3.365547E-002
216	4	-6.974088E-002	-8.645192E-004	-2.460954E-001	-3.050701E-002
216	5	-6.922542E-002	-9.098489E-004	-2.442763E-001	-3.208137E-002
216	6	-6.948293E-002	-9.537884E-004	-2.451848E-001	-3.365452E-002
216	7	-6.974032E-002	-9.892897E-004	-2.460932E-001	-3.207992E-002

226	8	-4.787886E-002	-8.286978E-003	-1.661243E-001	-2.855974E-001
226	9	-4.784267E-002	-8.370013E-003	-1.660007E-001	-2.853551E-001
227	1	-4.868381E-002	-7.954373E-003	-1.715102E-001	-2.806867E-001
227	2	-4.853289E-002	-8.312884E-003	-1.712564E-001	-2.933306E-001
227	3	-5.055346E-002	-8.313137E-003	-1.783872E-001	-2.933482E-001
227	4	-5.061743E-002	-7.954473E-003	-1.786159E-001	-2.806898E-001
227	5	-4.856834E-002	-8.133368E-003	-1.713827E-001	-2.870038E-001
227	6	-4.954265E-002	-8.313089E-003	-1.748210E-001	-2.933440E-001
227	7	-5.058585E-002	-8.133527E-003	-1.785031E-001	-2.870071E-001
227	8	-4.961061E-002	-7.954446E-003	-1.750622E-001	-2.806880E-001
227	9	-4.957681E-002	-8.133424E-003	-1.749422E-001	-2.870041E-001
228	1	-5.130298E-002	-7.551766E-003	-1.810319E-001	-2.664805E-001
228	2	-5.123350E-002	-7.943553E-003	-1.807884E-001	-2.803077E-001
228	3	-5.343770E-002	-7.943791E-003	-1.885661E-001	-2.803117E-001
228	4	-5.350268E-002	-7.551831E-003	-1.887961E-001	-2.664840E-001
228	5	-5.126804E-002	-7.747556E-003	-1.809100E-001	-2.733883E-001
228	6	-5.233558E-002	-7.943616E-003	-1.846762E-001	-2.803872E-001
228	7	-5.347020E-002	-7.747655E-003	-1.886810E-001	-2.733920E-001
228	8	-5.240266E-002	-7.551835E-003	-1.849133E-001	-2.664813E-001
228	9	-5.236912E-002	-7.747640E-003	-1.847950E-001	-2.733874E-001
229	1	-5.425290E-002	-6.959427E-003	-1.914441E-001	-2.455803E-001
229	2	-5.418779E-002	-7.366771E-003	-1.912129E-001	-2.599528E-001
229	3	-5.640380E-002	-7.366960E-003	-1.993124E-001	-2.599598E-001
229	4	-5.653684E-002	-6.959759E-003	-1.995088E-001	-2.455883E-001
229	5	-5.422075E-002	-7.162585E-003	-1.913292E-001	-2.527481E-001
229	6	-5.533548E-002	-7.366874E-003	-1.952623E-001	-2.599536E-001
229	7	-5.650976E-002	-7.162778E-003	-1.994059E-001	-2.527519E-001
229	8	-5.539523E-002	-6.959563E-003	-1.954730E-001	-2.455816E-001
229	9	-5.536539E-002	-7.162675E-003	-1.953672E-001	-2.527479E-001
230	1	-5.729724E-002	-6.144478E-003	-2.021856E-001	-2.168216E-001

240	2	-2.138414E-004	-8.155893E-005	-7.545871E-002	-2.877935E-001
240	3	-3.942916E-004	-8.156683E-005	-1.391323E-001	-2.878271E-001
240	4	-2.685131E-002	-3.298202E-003	-1.426184E-001	-1.751816E-001
240	5	-2.192670E-004	-6.555738E-005	-7.737365E-002	-2.313331E-001
240	6	-3.040606E-004	-8.156166E-005	-1.072948E-001	-2.878105E-001
240	7	-3.992448E-004	-6.556404E-005	-1.408818E-001	-2.313591E-001
240	8	-3.144095E-004	-4.964163E-005	-1.109457E-001	-1.751733E-001
240	9	-3.092479E-004	-6.556181E-005	-1.091244E-001	-2.313452E-001
241	1	-4.205681E-002	-8.313858E-003	-1.484060E-001	-2.933718E-001
241	2	-4.622313E-003	-9.208152E-004	-1.483406E-001	-2.955137E-001
241	3	-4.238235E-002	-8.374539E-003	-1.495528E-001	-2.955159E-001
241	4	-4.239906E-002	-8.313840E-003	-1.496127E-001	-2.933700E-001
241	5	-4.204748E-002	-8.344202E-003	-1.483742E-001	-2.944423E-001
241	6	-4.221811E-002	-8.374562E-003	-1.489469E-001	-2.955145E-001
241	7	-4.238997E-002	-8.344183E-003	-1.495843E-001	-2.944428E-001
241	8	-4.222781E-002	-8.313947E-003	-1.490894E-001	-2.933741E-001
241	9	-4.221897E-002	-8.344152E-003	-1.489791E-001	-2.944422E-001
242	1	-4.263111E-002	-8.078983E-003	-1.504326E-001	-2.850862E-001
242	2	-4.259176E-002	-8.220907E-003	-1.502936E-001	-2.900954E-001
242	3	-4.339277E-002	-8.220912E-003	-1.531186E-001	-2.900921E-001
242	4	-4.343058E-002	-8.079828E-003	-1.532543E-001	-2.850855E-001
242	5	-4.261150E-002	-8.149898E-003	-1.503639E-001	-2.875870E-001
242	6	-4.299210E-002	-8.220891E-003	-1.517061E-001	-2.900925E-001
242	7	-4.341150E-002	-8.149969E-003	-1.531849E-001	-2.875877E-001
242	8	-4.303899E-002	-8.079818E-003	-1.518434E-001	-2.850873E-001
242	9	-4.301135E-002	-8.150012E-003	-1.517748E-001	-2.875873E-001
243	1	-4.379347E-002	-7.994926E-003	-1.545336E-001	-2.821131E-001
243	2	-4.372123E-002	-8.267962E-003	-1.542798E-001	-2.917515E-001
243	3	-4.526609E-002	-8.268013E-003	-1.597311E-001	-2.917559E-001
243	4	-4.533293E-002	-7.994906E-003	-1.599669E-001	-2.821186E-001
243	5	-4.375777E-002	-8.131148E-003	-1.544088E-001	-2.869271E-001
243	6	-4.449375E-002	-8.268028E-003	-1.570856E-001	-2.917541E-001
243	7	-4.529963E-002	-8.131333E-003	-1.598482E-001	-2.869266E-001
243	8	-4.456323E-002	-7.994983E-003	-1.572502E-001	-2.821190E-001
243	9	-4.452834E-002	-8.131211E-003	-1.571271E-001	-2.869263E-001
244	1	-4.583543E-002	-7.826316E-003	-1.617413E-001	-2.761647E-001
244	2	-4.576608E-002	-8.116943E-003	-1.614963E-001	-2.864238E-001
244	3	-4.741126E-002	-8.116968E-003	-1.672997E-001	-2.864246E-001
244	4	-4.747198E-002	-7.826333E-003	-1.675143E-001	-2.761732E-001
244	5	-4.580133E-002	-7.971398E-003	-1.616285E-001	-2.812837E-001
244	6	-4.658912E-002	-8.117052E-003	-1.643956E-001	-2.864266E-001
244	7	-4.744115E-002	-7.971365E-003	-1.674067E-001	-2.812857E-001
244	8	-4.665338E-002	-7.826287E-003	-1.646273E-001	-2.761639E-001
244	9	-4.662140E-002	-7.971285E-003	-1.645139E-001	-2.812870E-001
245	1	-4.803411E-002	-7.533372E-003	-1.694968E-001	-2.658319E-001
245	2	-4.796878E-002	-7.855394E-003	-1.692698E-001	-2.771902E-001
245	3	-4.979184E-002	-7.855439E-003	-1.757009E-001	-2.771948E-001
245	4	-4.984964E-002	-7.533330E-003	-1.759068E-001	-2.658283E-001
245	5	-4.880177E-002	-7.693953E-003	-1.693844E-001	-2.715000E-001
245	6	-4.888079E-002	-7.855314E-003	-1.724855E-001	-2.771939E-001
245	7	-4.982132E-002	-7.694100E-003	-1.758050E-001	-2.715020E-001
245	8	-4.894175E-002	-7.533411E-003	-1.727017E-001	-2.658339E-001
245	9	-4.891129E-002	-7.694128E-003	-1.725940E-001	-2.715036E-001
246	1	-5.047406E-002	-7.899998E-003	-1.781084E-001	-2.505386E-001
246	2	-5.041361E-002	-7.444478E-003	-1.778947E-001	-2.626950E-001
246	3	-5.235976E-002	-7.444592E-003	-1.847636E-001	-2.626972E-001
246	4	-5.241342E-002	-7.100181E-003	-1.849528E-001	-2.505365E-001
246	5	-5.044385E-002	-7.271977E-003	-1.780018E-001	-2.566060E-001
246	6	-5.138670E-002	-7.444683E-003	-1.813277E-001	-2.626993E-001
246	7	-5.238656E-002	-7.271974E-003	-1.848562E-001	-2.566093E-001

246	8	-5.144389E-002	-7.100856E-003	-1.815301E-001	-2.505397E-001
246	9	-5.141534E-002	-7.271934E-003	-1.814298E-001	-2.566063E-001
247	1	-5.307838E-002	-6.495580E-003	-1.872987E-001	-2.292057E-001
247	2	-5.302627E-002	-6.848874E-003	-1.871135E-001	-2.416783E-001
247	3	-5.502746E-002	-6.848984E-003	-1.941730E-001	-2.416814E-001
247	4	-5.507325E-002	-6.495483E-003	-1.943359E-001	-2.292115E-001
247	5	-5.385227E-002	-6.671948E-003	-1.872804E-001	-2.354338E-001
247	6	-5.402639E-002	-6.849021E-003	-1.906419E-001	-2.416831E-001
247	7	-5.505884E-002	-6.672028E-003	-1.942571E-001	-2.354372E-001
247	8	-5.407541E-002	-6.495558E-003	-1.908163E-001	-2.292095E-001
247	9	-5.405112E-002	-6.671984E-003	-1.907299E-001	-2.354338E-001
248	1	-5.574491E-002	-5.696046E-003	-1.967078E-001	-2.089956E-001
248	2	-5.570297E-002	-6.036926E-003	-1.965596E-001	-2.130278E-001
248	3	-5.763425E-002	-6.037064E-003	-2.033729E-001	-2.130310E-001
248	4	-5.767044E-002	-5.696108E-003	-2.034998E-001	-2.089816E-001
248	5	-5.572381E-002	-5.866250E-003	-1.966329E-001	-2.070813E-001
248	6	-5.666089E-002	-6.037057E-003	-1.999660E-001	-2.130297E-001
248	7	-5.765167E-002	-5.866271E-003	-2.034356E-001	-2.070833E-001
248	8	-5.670730E-002	-5.695952E-003	-2.001044E-001	-2.089952E-001
248	9	-5.668779E-002	-5.866260E-003	-2.000356E-001	-2.070819E-001
249	1	-5.830807E-002	-4.694276E-003	-2.057235E-001	-1.656465E-001
249	2	-5.827095E-002	-4.996629E-003	-2.056205E-001	-1.763132E-001
249	3	-5.998351E-002	-4.996696E-003	-2.116615E-001	-1.763159E-001
249	4	-6.000739E-002	-4.694356E-003	-2.117486E-001	-1.656487E-001
249	5	-5.828498E-002	-4.845264E-003	-2.056722E-001	-1.709709E-001
249	6	-5.912783E-002	-4.996645E-003	-2.086414E-001	-1.763171E-001
249	7	-5.999523E-002	-4.845196E-003	-2.117061E-001	-1.709725E-001
249	8	-5.915369E-002	-4.694309E-003	-2.087362E-001	-1.656493E-001
249	9	-5.914030E-002	-4.845200E-003	-2.086888E-001	-1.709759E-001
250	1	-6.054385E-002	-3.582088E-003	-2.136413E-001	-1.235755E-001
250	2	-6.052722E-002	-3.742661E-003	-2.135804E-001	-1.320671E-001
250	3	-6.188972E-002	-3.742767E-003	-2.183913E-001	-1.320722E-001
250	4	-6.190801E-002	-3.582144E-003	-2.184273E-001	-1.235808E-001
250	5	-6.053570E-002	-3.622041E-003	-2.136120E-001	-1.278122E-001
250	6	-6.120815E-002	-3.742615E-003	-2.159860E-001	-1.320695E-001
250	7	-6.189513E-002	-3.622132E-003	-2.184088E-001	-1.278129E-001
250	8	-6.122165E-002	-3.582146E-003	-2.160350E-001	-1.235768E-001
250	9	-6.121510E-002	-3.622081E-003	-2.160189E-001	-1.278098E-001
251	1	-6.227678E-002	-2.155701E-003	-2.197579E-001	-7.686846E-002
251	2	-6.227110E-002	-2.311070E-003	-2.197362E-001	-8.154984E-002
251	3	-6.314999E-002	-2.311161E-003	-2.228392E-001	-8.155374E-002
251	4	-6.315406E-002	-2.155757E-003	-2.228531E-001	-7.687150E-002
251	5	-6.227411E-002	-2.233343E-003	-2.197479E-001	-7.880565E-002
251	6	-6.271055E-002	-2.311063E-003	-2.212877E-001	-8.155155E-002
251	7	-6.315200E-002	-2.233313E-003	-2.228457E-001	-7.880744E-002
251	8	-6.271551E-002	-2.155657E-003	-2.213042E-001	-7.686692E-002
251	9	-6.271315E-002	-2.233337E-003	-2.212961E-001	-7.880883E-002
252	1	-6.336181E-002	-7.852660E-004	-2.235031E-001	-2.488716E-002
252	2	-6.335995E-002	-7.569400E-004	-2.235786E-001	-2.670740E-002
252	3	-6.365301E-002	-7.569398E-004	-2.246125E-001	-2.670888E-002
252	4	-6.365310E-002	-7.853051E-004	-2.246120E-001	-2.488554E-002
252	5	-6.336096E-002	-7.311010E-004	-2.235817E-001	-2.579785E-002
252	6	-6.350622E-002	-7.568842E-004	-2.240967E-001	-2.670765E-002
252	7	-6.365321E-002	-7.310599E-004	-2.246137E-001	-2.579788E-002
252	8	-6.350742E-002	-7.851601E-004	-2.240987E-001	-2.488520E-002
252	9	-6.350692E-002	-7.310586E-004	-2.240968E-001	-2.579748E-002
253	1	-5.987462E-002	-1.982889E-003	-2.112797E-001	-6.996875E-002
253	2	-5.986766E-002	-2.113919E-003	-2.112576E-001	-7.459121E-002
253	3	-6.061475E-002	-2.113895E-003	-2.138913E-001	-7.459234E-002
253	4	-6.061653E-002	-1.982858E-003	-2.138980E-001	-6.996883E-002

253	5	-5.987165E-002	-2.048184E-003	-2.112699E-001	-7.227787E-002
253	6	-6.024113E-002	-2.113881E-003	-2.125737E-001	-7.459464E-002
253	7	-6.061538E-002	-2.048204E-003	-2.138937E-001	-7.227373E-002
253	8	-6.024538E-002	-1.982863E-003	-2.125885E-001	-6.996477E-002
253	9	-6.024336E-002	-2.048168E-003	-2.125803E-001	-7.227257E-002
254	1	-6.077962E-002	-6.444572E-004	-2.144737E-001	-2.274347E-002
254	2	-6.077992E-002	-6.910452E-004	-2.144741E-001	-2.438535E-002
254	3	-6.104401E-002	-6.909840E-004	-2.154077E-001	-2.438204E-002
254	4	-6.104397E-002	-6.444431E-004	-2.154057E-001	-2.274380E-002
254	5	-6.078005E-002	-6.677179E-004	-2.144737E-001	-2.356040E-002
254	6	-6.091185E-002	-6.909810E-004	-2.149400E-001	-2.438384E-002
254	7	-6.104426E-002	-6.677510E-004	-2.154069E-001	-2.355998E-002
254	8	-6.091185E-002	-6.445462E-004	-2.149400E-001	-2.274154E-002
254	9	-6.091185E-002	-6.677610E-004	-2.149400E-001	-2.356056E-002
255	1	-5.838705E-002	-3.235155E-003	-2.060310E-001	-1.141598E-001
255	2	-5.837178E-002	-3.437730E-003	-2.059785E-001	-1.213827E-001
255	3	-5.952469E-002	-3.437568E-003	-2.100458E-001	-1.213832E-001
255	4	-5.953553E-002	-3.235147E-003	-2.100823E-001	-1.141595E-001
255	5	-5.838008E-002	-3.336159E-003	-2.060061E-001	-1.177268E-001
255	6	-5.894838E-002	-3.437732E-003	-2.080121E-001	-1.213855E-001
255	7	-5.953002E-002	-3.336252E-003	-2.100635E-001	-1.177267E-001
255	8	-5.896101E-002	-3.235194E-003	-2.080559E-001	-1.141579E-001
255	9	-5.895476E-002	-3.336265E-003	-2.080344E-001	-1.177252E-001
256	1	-5.424263E-002	-5.310810E-003	-1.914045E-001	-1.874082E-001
256	2	-5.420638E-002	-5.603660E-003	-1.912761E-001	-1.977412E-001
256	3	-5.587258E-002	-5.603788E-003	-1.971588E-001	-1.977426E-001
256	4	-5.590314E-002	-5.310912E-003	-1.972638E-001	-1.874057E-001
256	5	-5.422469E-002	-5.457038E-003	-1.913420E-001	-1.925657E-001
256	6	-5.503886E-002	-5.603767E-003	-1.942170E-001	-1.977416E-001
256	7	-5.588732E-002	-5.457148E-003	-1.972105E-001	-1.925654E-001
256	8	-5.587258E-002	-5.310935E-003	-1.943351E-001	-1.874072E-001
256	9	-5.585585E-002	-5.457112E-003	-1.942757E-001	-1.925661E-001
257	1	-5.645525E-002	-4.354214E-003	-1.992160E-001	-1.536486E-001
257	2	-5.642956E-002	-4.612671E-003	-1.991253E-001	-1.627703E-001
257	3	-5.790072E-002	-4.612778E-003	-2.043143E-001	-1.627700E-001
257	4	-5.792150E-002	-4.354256E-003	-2.043879E-001	-1.536468E-001
257	5	-5.644307E-002	-4.483234E-003	-1.991701E-001	-1.582004E-001
257	6	-5.716518E-002	-4.612796E-003	-2.017185E-001	-1.627718E-001
257	7	-5.791096E-002	-4.483282E-003	-2.043503E-001	-1.582012E-001
257	8	-5.718822E-002	-4.354301E-003	-2.018011E-001	-1.536477E-001
257	9	-5.717690E-002	-4.483269E-003	-2.017606E-001	-1.582028E-001
258	1	-4.960205E-002	-6.703082E-003	-1.750309E-001	-2.365344E-001
258	2	-4.954864E-002	-7.005847E-003	-1.748436E-001	-2.472155E-001
258	3	-5.126658E-002	-7.005868E-003	-1.809036E-001	-2.472139E-001
258	4	-5.131388E-002	-6.703127E-003	-1.810694E-001	-2.365330E-001
258	5	-4.957492E-002	-6.854171E-003	-1.749355E-001	-2.418644E-001
258	6	-5.040786E-002	-7.005842E-003	-1.778737E-001	-2.472157E-001
258	7	-5.129010E-002	-6.854179E-003	-1.809866E-001	-2.418629E-001
258	8	-5.045771E-002	-6.703164E-003	-1.780503E-001	-2.365363E-001
258	9	-5.043262E-002	-6.854216E-003	-1.779617E-001	-2.418641E-001
259	1	-5.190920E-002	-6.892587E-003	-1.831704E-001	-2.149914E-001
259	2	-5.186338E-002	-6.399552E-003	-1.830898E-001	-2.258183E-001
259	3	-5.360804E-002	-6.399509E-003	-1.891664E-001	-2.258195E-001
259	4	-5.364855E-002	-6.892676E-003	-1.893893E-001	-2.149928E-001
259	5	-5.188607E-002	-6.245885E-003	-1.830904E-001	-2.203975E-001
259	6	-5.273525E-002	-6.399462E-003	-1.860870E-001	-2.258178E-001
259	7	-5.362797E-002	-6.245819E-003	-1.892365E-001	-2.203954E-001
259	8	-5.277813E-002	-6.892662E-003	-1.862385E-001	-2.149942E-001
259	9	-5.275789E-002	-6.245833E-003	-1.861642E-001	-2.203948E-001
260	1	-4.540387E-002	-7.482246E-003	-1.602169E-001	-2.640280E-001

260	2	-4.534446E-002	-7.745848E-003	-1.600863E-001	-2.733274E-001
260	3	-4.684152E-002	-7.745812E-003	-1.652916E-001	-2.733253E-001
260	4	-4.689561E-002	-7.482335E-003	-1.654832E-001	-2.640269E-001
260	5	-4.537402E-002	-7.613768E-003	-1.601114E-001	-2.686684E-001
260	6	-4.689278E-002	-7.745702E-003	-1.626479E-001	-2.733252E-001
260	7	-4.686904E-002	-7.613941E-003	-1.653863E-001	-2.686721E-001
260	8	-4.614996E-002	-7.482312E-003	-1.628485E-001	-2.640300E-001
260	9	-4.612141E-002	-7.613784E-003	-1.627490E-001	-2.686689E-001
261	1	-4.741559E-002	-7.158793E-003	-1.673148E-001	-2.526115E-001
261	2	-4.735724E-002	-7.444933E-003	-1.671105E-001	-2.627068E-001
261	3	-4.898471E-002	-7.444872E-003	-1.728515E-001	-2.627054E-001
261	4	-4.903634E-002	-7.158755E-003	-1.730342E-001	-2.526098E-001
261	5	-4.738650E-002	-7.301498E-003	-1.672127E-001	-2.576538E-001
261	6	-4.817067E-002	-7.444856E-003	-1.699798E-001	-2.627084E-001
261	7	-4.900945E-002	-7.301555E-003	-1.729417E-001	-2.576532E-001
261	8	-4.822562E-002	-7.158863E-003	-1.701735E-001	-2.526126E-001
261	9	-4.819823E-002	-7.301676E-003	-1.700774E-001	-2.576538E-001
262	1	-4.364315E-002	-7.691268E-003	-1.540035E-001	-2.713995E-001
262	2	-4.358526E-002	-7.921570E-003	-1.537994E-001	-2.795329E-001
262	3	-4.489525E-002	-7.921776E-003	-1.584212E-001	-2.795316E-001
262	4	-4.494838E-002	-7.691246E-003	-1.586097E-001	-2.713982E-001
262	5	-4.361498E-002	-7.806381E-003	-1.539037E-001	-2.754621E-001
262	6	-4.424029E-002	-7.921630E-003	-1.561103E-001	-2.795315E-001
262	7	-4.492156E-002	-7.806208E-003	-1.585166E-001	-2.754623E-001
262	8	-4.425583E-002	-7.691198E-003	-1.563063E-001	-2.714020E-001
262	9	-4.426012E-002	-7.806245E-003	-1.562086E-001	-2.754616E-001
263	1	-4.017838E-002	-7.972401E-003	-1.417776E-001	-2.813172E-001
263	2	-4.008666E-002	-8.262501E-003	-1.414553E-001	-2.915601E-001
263	3	-4.173581E-002	-8.262628E-003	-1.472732E-001	-2.915637E-001
263	4	-4.182172E-002	-7.972323E-003	-1.475759E-001	-2.813198E-001
263	5	-4.013202E-002	-8.117240E-003	-1.416141E-001	-2.864349E-001
263	6	-4.091129E-002	-8.262499E-003	-1.443647E-001	-2.915636E-001
263	7	-4.177865E-002	-8.117240E-003	-1.474255E-001	-2.864349E-001
263	8	-4.100028E-002	-7.972157E-003	-1.446778E-001	-2.813179E-001
263	9	-4.095563E-002	-8.117240E-003	-1.445205E-001	-2.864349E-001
264	1	-4.224467E-002	-7.851646E-003	-1.490696E-001	-2.770595E-001
264	2	-4.219265E-002	-8.032189E-003	-1.488860E-001	-2.834303E-001
264	3	-4.321786E-002	-8.032036E-003	-1.525024E-001	-2.834291E-001
264	4	-4.326448E-002	-7.851597E-003	-1.526661E-001	-2.770593E-001
264	5	-4.221803E-002	-7.941652E-003	-1.489773E-001	-2.802354E-001
264	6	-4.270584E-002	-8.032026E-003	-1.506932E-001	-2.834282E-001
264	7	-4.324105E-002	-7.941681E-003	-1.525861E-001	-2.802384E-001
264	8	-4.275442E-002	-7.851680E-003	-1.508669E-001	-2.770593E-001
264	9	-4.272979E-002	-7.941515E-003	-1.507813E-001	-2.802362E-001
265	1	-6.477452E-004	-8.947657E-005	-2.285692E-001	-3.157377E-001
265	2	-6.689419E-004	-5.869837E-005	-2.332267E-001	-1.789815E-001
265	3	-4.486702E-002	-5.869515E-003	-1.555006E-001	-1.788875E-001
265	4	-4.282365E-002	-8.948017E-003	-1.511125E-001	-3.157495E-001
265	5	-6.543273E-004	-7.812073E-005	-2.308933E-001	-2.474365E-001
265	6	-5.508174E-004	-5.869636E-005	-1.943670E-001	-1.788906E-001
265	7	-4.344444E-002	-7.811998E-003	-1.533026E-001	-2.474366E-001
265	8	-5.379985E-004	-8.947821E-005	-1.898435E-001	-3.157403E-001
265	9	-5.443477E-004	-7.812059E-005	-1.921024E-001	-2.474379E-001
266	1	-4.829036E-004	-5.868367E-005	-1.421742E-001	-1.788432E-001
266	2	-4.854427E-004	-4.419361E-005	-1.438685E-001	-1.559482E-001
266	3	-3.685965E-004	-4.419346E-005	-1.300665E-001	-1.559451E-001
266	4	-3.661908E-004	-5.868281E-005	-1.292167E-001	-1.788459E-001
266	5	-4.041748E-004	-4.744485E-005	-1.426201E-001	-1.674156E-001
266	6	-3.870197E-004	-4.419288E-005	-1.365682E-001	-1.559451E-001
266	7	-3.673873E-004	-4.744485E-005	-1.296409E-001	-1.674156E-001

266	8	-3.845473E-004	-5.068402E-005	-1.356967E-001	-1.708446E-001
266	9	-3.857848E-004	-4.744485E-005	-1.361313E-001	-1.674156E-001
267	1	-3.974452E-004	-3.635363E-005	-1.402462E-001	-1.282822E-001
267	2	-3.963553E-004	-3.889784E-005	-1.398633E-001	-1.372551E-001
267	3	-4.107988E-004	-3.889741E-005	-1.449552E-001	-1.372598E-001
267	4	-4.118028E-004	-3.635257E-005	-1.453126E-001	-1.282824E-001
267	5	-3.969840E-004	-3.762277E-005	-1.400565E-001	-1.327586E-001
267	6	-4.035732E-004	-3.889719E-005	-1.424091E-001	-1.372593E-001
267	7	-4.112977E-004	-3.762200E-005	-1.451354E-001	-1.327586E-001
267	8	-4.046176E-004	-3.635450E-005	-1.427794E-001	-1.282829E-001
267	9	-4.040980E-004	-3.762168E-005	-1.425940E-001	-1.327580E-001
268	1	-4.038573E-004	-3.541675E-005	-1.425101E-001	-1.249710E-001
268	2	-3.872541E-004	-8.082409E-005	-1.366492E-001	-2.852849E-001
268	3	-6.451227E-004	-8.082446E-005	-2.276449E-001	-2.852821E-001
268	4	-6.688313E-004	-3.541138E-005	-2.331893E-001	-1.249686E-001
268	5	-3.955690E-004	-5.808194E-005	-1.395846E-001	-2.049498E-001
268	6	-5.161795E-004	-8.082470E-005	-1.821432E-001	-2.852861E-001
268	7	-6.529894E-004	-5.807842E-005	-2.304205E-001	-2.049426E-001
268	8	-5.323390E-004	-3.541437E-005	-1.878475E-001	-1.249698E-001
268	9	-5.242751E-004	-5.807964E-005	-1.850003E-001	-2.049446E-001
269	1	-4.089127E-004	-2.303255E-005	-1.442932E-001	-8.128173E-002
269	2	-4.091798E-004	-2.248212E-005	-1.443859E-001	-7.932860E-002
269	3	-4.868472E-004	-2.248888E-005	-1.432813E-001	-7.932743E-002
269	4	-4.857945E-004	-2.303177E-005	-1.431932E-001	-8.127827E-002
269	5	-4.890427E-004	-2.275739E-005	-1.443395E-001	-8.030394E-002
269	6	-4.876085E-004	-2.248177E-005	-1.438339E-001	-7.933111E-002
269	7	-4.859288E-004	-2.275739E-005	-1.432382E-001	-8.030394E-002
269	8	-4.873534E-004	-2.303371E-005	-1.437438E-001	-8.127365E-002
269	9	-4.874828E-004	-2.275739E-005	-1.437883E-001	-8.030394E-002
270	1	-4.017459E-004	-2.989507E-005	-1.417633E-001	-1.054920E-001
270	2	-4.013988E-004	-2.933972E-005	-1.418524E-001	-1.035329E-001
270	3	-3.988489E-004	-2.933946E-005	-1.407406E-001	-1.035314E-001
270	4	-3.985963E-004	-2.989573E-005	-1.406545E-001	-1.054955E-001
270	5	-4.018718E-004	-2.961717E-005	-1.418083E-001	-1.045134E-001
270	6	-4.004182E-004	-2.934046E-005	-1.412961E-001	-1.035312E-001
270	7	-3.987267E-004	-2.961755E-005	-1.406993E-001	-1.045152E-001
270	8	-4.001700E-004	-2.989416E-005	-1.412091E-001	-1.054899E-001
270	9	-4.002955E-004	-2.961806E-005	-1.412525E-001	-1.045133E-001
271	1	-5.843229E-002	-5.943129E-004	-2.061896E-001	-2.097184E-002
271	2	-5.843129E-002	-6.322662E-004	-2.061879E-001	-2.231211E-002
271	3	-5.864996E-002	-6.322332E-004	-2.069532E-001	-2.231023E-002
271	4	-5.864893E-002	-5.944206E-004	-2.069547E-001	-2.097218E-002
271	5	-5.843164E-002	-6.133160E-004	-2.061895E-001	-2.163980E-002
271	6	-5.854023E-002	-6.322617E-004	-2.065710E-001	-2.231251E-002
271	7	-5.864867E-002	-6.132906E-004	-2.069543E-001	-2.163857E-002
271	8	-5.854052E-002	-5.942704E-004	-2.065726E-001	-2.096820E-002
271	9	-5.854009E-002	-6.132551E-004	-2.065713E-001	-2.163955E-002
272	1	-5.764920E-002	-1.837455E-003	-2.034274E-001	-6.484397E-002
272	2	-5.764382E-002	-1.947852E-003	-2.034074E-001	-6.873386E-002
272	3	-5.827462E-002	-1.947882E-003	-2.056337E-001	-6.873385E-002
272	4	-5.827805E-002	-1.837466E-003	-2.056442E-001	-6.484196E-002
272	5	-5.764631E-002	-1.892632E-003	-2.034160E-001	-6.678364E-002
272	6	-5.795901E-002	-1.947834E-003	-2.045210E-001	-6.873217E-002
272	7	-5.827616E-002	-1.892596E-003	-2.056374E-001	-6.678139E-002
272	8	-5.796331E-002	-1.837431E-003	-2.045351E-001	-6.483819E-002
272	9	-5.796126E-002	-1.892621E-003	-2.045285E-001	-6.678378E-002
273	1	-5.637312E-002	-3.008376E-003	-1.989260E-001	-1.061586E-001
273	2	-5.636130E-002	-3.180733E-003	-1.988811E-001	-1.122368E-001
273	3	-5.734496E-002	-3.180625E-003	-2.023573E-001	-1.122353E-001
273	4	-5.735533E-002	-3.008320E-003	-2.023890E-001	-1.061566E-001

273	5	-5.636708E-002	-3.094453E-003	-1.989018E-001	-1.091951E-001
273	6	-5.685307E-002	-3.180693E-003	-2.006174E-001	-1.122366E-001
273	7	-5.735084E-002	-3.094442E-003	-2.023728E-001	-1.091918E-001
273	8	-5.686376E-002	-3.008400E-003	-2.006567E-001	-1.061574E-001
273	9	-5.685889E-002	-3.094418E-003	-2.006384E-001	-1.091912E-001
274	1	-5.478098E-002	-4.063678E-003	-1.930522E-001	-1.433979E-001
274	2	-5.468724E-002	-4.284540E-003	-1.929755E-001	-1.511886E-001
274	3	-5.594917E-002	-4.284536E-003	-1.974305E-001	-1.511900E-001
274	4	-5.596684E-002	-4.063733E-003	-1.974911E-001	-1.433976E-001
274	5	-5.469895E-002	-4.173972E-003	-1.930154E-001	-1.472891E-001
274	6	-5.531842E-002	-4.284559E-003	-1.952015E-001	-1.511881E-001
274	7	-5.595862E-002	-4.174038E-003	-1.974605E-001	-1.472882E-001
274	8	-5.533776E-002	-4.063698E-003	-1.952721E-001	-1.433985E-001
274	9	-5.532827E-002	-4.174053E-003	-1.952368E-001	-1.472864E-001
275	1	-5.278759E-002	-4.979731E-003	-1.862736E-001	-1.757165E-001
275	2	-5.275683E-002	-5.231692E-003	-1.861634E-001	-1.846130E-001
275	3	-5.419722E-002	-5.231574E-003	-1.912461E-001	-1.846081E-001
275	4	-5.422406E-002	-4.979516E-003	-1.913414E-001	-1.757112E-001
275	5	-5.277236E-002	-5.105432E-003	-1.862189E-001	-1.801578E-001
275	6	-5.347683E-002	-5.231603E-003	-1.887043E-001	-1.846120E-001
275	7	-5.421034E-002	-5.105399E-003	-1.912939E-001	-1.801548E-001
275	8	-5.350604E-002	-4.979586E-003	-1.888066E-001	-1.757148E-001
275	9	-5.349138E-002	-5.105397E-003	-1.887562E-001	-1.801534E-001
276	1	-5.074503E-002	-5.743067E-003	-1.790642E-001	-2.026581E-001
276	2	-5.070575E-002	-6.009256E-003	-1.789233E-001	-2.120538E-001
276	3	-5.222758E-002	-6.009360E-003	-1.842946E-001	-2.120510E-001
276	4	-5.226138E-002	-5.742993E-003	-1.844153E-001	-2.026553E-001
276	5	-5.072535E-002	-5.876035E-003	-1.789954E-001	-2.073475E-001
276	6	-5.146590E-002	-6.009414E-003	-1.816070E-001	-2.120531E-001
276	7	-5.224312E-002	-5.875884E-003	-1.843528E-001	-2.073448E-001
276	8	-5.150296E-002	-5.743038E-003	-1.817395E-001	-2.026560E-001
276	9	-5.148479E-002	-5.876019E-003	-1.816741E-001	-2.073452E-001
277	1	-4.870640E-002	-6.355418E-003	-1.718704E-001	-2.242645E-001
277	2	-4.865699E-002	-6.620497E-003	-1.716958E-001	-2.336203E-001
277	3	-5.016999E-002	-6.620524E-003	-1.770360E-001	-2.336161E-001
277	4	-5.021229E-002	-6.355318E-003	-1.771833E-001	-2.242671E-001
277	5	-4.868138E-002	-6.487685E-003	-1.717028E-001	-2.289309E-001
277	6	-4.941347E-002	-6.620530E-003	-1.743646E-001	-2.336178E-001
277	7	-5.019121E-002	-6.487629E-003	-1.771100E-001	-2.289273E-001
277	8	-4.945855E-002	-6.355363E-003	-1.745259E-001	-2.242632E-001
277	9	-4.943622E-002	-6.487567E-003	-1.744457E-001	-2.289320E-001
278	1	-4.675172E-002	-6.828256E-003	-1.649733E-001	-2.409462E-001
278	2	-4.669764E-002	-7.088555E-003	-1.647824E-001	-2.498508E-001
278	3	-4.813850E-002	-7.088610E-003	-1.698677E-001	-2.498537E-001
278	4	-4.818792E-002	-6.828093E-003	-1.700404E-001	-2.409484E-001
278	5	-4.672490E-002	-6.954208E-003	-1.648772E-001	-2.453952E-001
278	6	-4.741828E-002	-7.088579E-003	-1.673252E-001	-2.498492E-001
278	7	-4.816365E-002	-6.954121E-003	-1.699558E-001	-2.453911E-001
278	8	-4.746934E-002	-6.828272E-003	-1.675058E-001	-2.409492E-001
278	9	-4.744489E-002	-6.954184E-003	-1.674164E-001	-2.453941E-001
279	1	-4.493942E-002	-7.175348E-003	-1.585774E-001	-2.531942E-001
279	2	-4.488273E-002	-7.409894E-003	-1.583795E-001	-2.614730E-001
279	3	-4.622149E-002	-7.409825E-003	-1.631036E-001	-2.614731E-001
279	4	-4.627371E-002	-7.175289E-003	-1.632846E-001	-2.531961E-001
279	5	-4.491097E-002	-7.292363E-003	-1.584778E-001	-2.573292E-001
279	6	-4.555219E-002	-7.409803E-003	-1.607416E-001	-2.614715E-001
279	7	-4.624772E-002	-7.292448E-003	-1.631956E-001	-2.573249E-001
279	8	-4.560603E-002	-7.175311E-003	-1.609305E-001	-2.531978E-001
279	9	-4.557943E-002	-7.292335E-003	-1.608370E-001	-2.573277E-001
280	1	-4.336012E-002	-7.424990E-003	-1.530848E-001	-2.620843E-001

280	2	-4.330587E-002	-7.628236E-003	-1.528133E-001	-2.691760E-001
280	3	-4.446671E-002	-7.628153E-003	-1.569101E-001	-2.691779E-001
280	4	-4.451588E-002	-7.424858E-003	-1.570847E-001	-2.620807E-001
280	5	-4.333324E-002	-7.526351E-003	-1.529112E-001	-2.655857E-001
280	6	-4.388647E-002	-7.628144E-003	-1.548621E-001	-2.691764E-001
280	7	-4.449124E-002	-7.526338E-003	-1.569964E-001	-2.655825E-001
280	8	-4.393812E-002	-7.424835E-003	-1.550453E-001	-2.620813E-001
280	9	-4.391230E-002	-7.526306E-003	-1.549539E-001	-2.655825E-001
281	1	-4.173482E-002	-7.576432E-003	-1.472698E-001	-2.673447E-001
281	2	-4.167196E-002	-7.793766E-003	-1.470483E-001	-2.750218E-001
281	3	-4.291223E-002	-7.793679E-003	-1.514252E-001	-2.750194E-001
281	4	-4.297131E-002	-7.576311E-003	-1.516334E-001	-2.673424E-001
281	5	-4.170332E-002	-7.684865E-003	-1.471593E-001	-2.711776E-001
281	6	-4.229231E-002	-7.793663E-003	-1.492367E-001	-2.750186E-001
281	7	-4.294228E-002	-7.684795E-003	-1.515306E-001	-2.711773E-001
281	8	-4.235290E-002	-7.576359E-003	-1.494510E-001	-2.673467E-001
281	9	-4.232258E-002	-7.684879E-003	-1.493448E-001	-2.711765E-001
282	1	-4.049302E-002	-7.752605E-003	-1.428902E-001	-2.735656E-001
282	2	-4.044484E-002	-7.907571E-003	-1.427173E-001	-2.790376E-001
282	3	-4.132986E-002	-7.907475E-003	-1.458379E-001	-2.790344E-001
282	4	-4.137549E-002	-7.752745E-003	-1.459999E-001	-2.735642E-001
282	5	-4.046911E-002	-7.838015E-003	-1.428042E-001	-2.762941E-001
282	6	-4.088784E-002	-7.907632E-003	-1.442786E-001	-2.790354E-001
282	7	-4.135237E-002	-7.829914E-003	-1.459197E-001	-2.762946E-001
282	8	-4.093408E-002	-7.752687E-003	-1.444447E-001	-2.735617E-001
282	9	-4.091077E-002	-7.830085E-003	-1.443613E-001	-2.762947E-001
283	1	-2.249913E-004	-6.284673E-005	-7.939202E-002	-2.217724E-001
283	2	-2.154106E-004	-9.099329E-005	-7.601037E-002	-3.210915E-001
283	3	-3.768022E-002	-9.098946E-003	-1.326791E-001	-3.210771E-001
283	4	-3.850298E-002	-6.283797E-003	-1.358659E-001	-2.217402E-001
283	5	-2.202088E-004	-7.689670E-005	-7.770560E-002	-2.713442E-001
283	6	-3.899122E-002	-9.536576E-003	-1.043431E-001	-3.210827E-001
283	7	-3.805238E-002	-7.688913E-003	-1.342745E-001	-2.713190E-001
283	8	-3.850006E-002	-6.284342E-003	-1.076261E-001	-2.217544E-001
283	9	-3.003578E-002	-7.689307E-003	-1.059866E-001	-2.713339E-001
284	1	-4.369877E-004	-7.071949E-005	-1.542008E-001	-2.495469E-001
284	2	-4.503540E-004	-3.417298E-005	-1.589177E-001	-1.205882E-001
284	3	-2.418861E-004	-3.417981E-005	-8.535542E-002	-1.206882E-001
284	4	-2.292362E-004	-7.073466E-005	-8.088973E-002	-2.495554E-001
284	5	-4.436580E-004	-5.247820E-005	-1.565540E-001	-1.851821E-001
284	6	-3.461300E-004	-3.417654E-005	-1.221391E-001	-1.205987E-001
284	7	-2.355494E-004	-5.248798E-005	-8.311975E-002	-1.852153E-001
284	8	-3.331240E-004	-7.072646E-005	-1.175492E-001	-2.495743E-001
284	9	-3.396145E-004	-5.248309E-005	-1.198404E-001	-1.851952E-001
285	1	-4.170408E-004	-4.085246E-005	-1.471601E-001	-1.441599E-001
285	2	-4.133664E-004	-5.024939E-005	-1.458645E-001	-1.773161E-001
285	3	-4.669556E-004	-5.024791E-005	-1.647758E-001	-1.773105E-001
285	4	-4.704496E-004	-4.085088E-005	-1.660068E-001	-1.441520E-001
285	5	-4.152051E-004	-4.554293E-005	-1.465153E-001	-1.607115E-001
285	6	-4.401597E-004	-5.024984E-005	-1.553203E-001	-1.773153E-001
285	7	-4.687859E-004	-4.554214E-005	-1.653930E-001	-1.607026E-001
285	8	-4.437437E-004	-4.085245E-005	-1.565839E-001	-1.441540E-001
285	9	-4.419554E-004	-4.554207E-005	-1.559532E-001	-1.607045E-001
286	1	-4.102945E-004	-3.581626E-005	-1.447802E-001	-1.263860E-001
286	2	-4.102357E-004	-3.596365E-005	-1.447587E-001	-1.269080E-001
286	3	-4.110708E-004	-3.596428E-005	-1.450554E-001	-1.269087E-001
286	4	-4.111337E-004	-3.581518E-005	-1.450765E-001	-1.263820E-001
286	5	-4.102664E-004	-3.589872E-005	-1.447696E-001	-1.266465E-001
286	6	-4.106516E-004	-3.596372E-005	-1.449059E-001	-1.269052E-001
286	7	-4.111042E-004	-3.589848E-005	-1.450665E-001	-1.266471E-001

286	8	-4.107184E-004	-3.581557E-005	-1.449278E-001	-1.263872E-001
286	9	-4.106839E-004	-3.588998E-005	-1.449176E-001	-1.266462E-001
287	1	-4.143163E-004	-3.029834E-005	-1.461995E-001	-1.069144E-001
287	2	-4.144444E-004	-3.001694E-005	-1.462443E-001	-1.059224E-001
287	3	-4.128386E-004	-3.001715E-005	-1.456769E-001	-1.059200E-001
287	4	-4.127158E-004	-3.029989E-005	-1.456359E-001	-1.069218E-001
287	5	-4.143839E-004	-3.015853E-005	-1.462215E-001	-1.064184E-001
287	6	-4.136376E-004	-3.001757E-005	-1.459603E-001	-1.059217E-001
287	7	-4.127772E-004	-3.015887E-005	-1.456570E-001	-1.064205E-001
287	8	-4.135140E-004	-3.029912E-005	-1.459182E-001	-1.069120E-001
287	9	-4.135746E-004	-3.015800E-005	-1.459395E-001	-1.064191E-001
288	1	-4.209371E-004	-2.372341E-005	-1.485368E-001	-8.371387E-002
288	2	-4.211895E-004	-2.318981E-005	-1.486239E-001	-8.183889E-002
288	3	-4.181472E-004	-2.319875E-005	-1.475529E-001	-8.183228E-002
288	4	-4.179143E-004	-2.372265E-005	-1.474704E-001	-8.370995E-002
288	5	-4.210567E-004	-2.345756E-005	-1.485804E-001	-8.277411E-002
288	6	-4.196693E-004	-2.319038E-005	-1.480898E-001	-8.183397E-002
288	7	-4.180314E-004	-2.345795E-005	-1.475119E-001	-8.277516E-002
288	8	-4.194237E-004	-2.372396E-005	-1.480031E-001	-8.371000E-002
288	9	-4.195467E-004	-2.345760E-005	-1.480457E-001	-8.277248E-002
289	1	-5.623689E-002	-5.416131E-004	-1.984441E-001	-1.910848E-002
289	2	-5.623670E-002	-5.828841E-004	-1.984424E-001	-2.057004E-002
289	3	-5.647369E-002	-5.828899E-004	-1.992790E-001	-2.056988E-002
289	4	-5.647296E-002	-5.415836E-004	-1.992784E-001	-1.911013E-002
289	5	-5.623636E-002	-5.620708E-004	-1.984422E-001	-1.984004E-002
289	6	-5.635523E-002	-5.828674E-004	-1.988614E-001	-2.056850E-002
289	7	-5.647352E-002	-5.622279E-004	-1.992784E-001	-1.983819E-002
289	8	-5.635523E-002	-5.416428E-004	-1.988614E-001	-1.911260E-002
289	9	-5.635523E-002	-5.621388E-004	-1.988614E-001	-1.983816E-002
290	1	-5.557670E-002	-1.714974E-003	-1.961134E-001	-6.851392E-002
290	2	-5.557317E-002	-1.888086E-003	-1.961015E-001	-6.880154E-002
290	3	-5.610859E-002	-1.888017E-003	-1.979911E-001	-6.880267E-002
290	4	-5.611865E-002	-1.714772E-003	-1.979967E-001	-6.850956E-002
290	5	-5.557518E-002	-1.761367E-003	-1.961082E-001	-6.215197E-002
290	6	-5.584092E-002	-1.888074E-003	-1.970466E-001	-6.880297E-002
290	7	-5.610936E-002	-1.761343E-003	-1.979942E-001	-6.215252E-002
290	8	-5.584305E-002	-1.714754E-003	-1.970535E-001	-6.851175E-002
290	9	-5.584197E-002	-1.761385E-003	-1.970505E-001	-6.215320E-002
291	1	-5.448059E-002	-2.812875E-003	-1.922458E-001	-9.925987E-002
291	2	-5.447118E-002	-2.961939E-003	-1.922132E-001	-1.045142E-001
291	3	-5.532652E-002	-2.961731E-003	-1.952318E-001	-1.045143E-001
291	4	-5.533287E-002	-2.812872E-003	-1.952528E-001	-9.925670E-002
291	5	-5.447637E-002	-2.887277E-003	-1.922307E-001	-1.018827E-001
291	6	-5.489891E-002	-2.961753E-003	-1.937225E-001	-1.045152E-001
291	7	-5.533021E-002	-2.887191E-003	-1.952427E-001	-1.018801E-001
291	8	-5.490646E-002	-2.812896E-003	-1.937492E-001	-9.926175E-002
291	9	-5.490263E-002	-2.887242E-003	-1.937348E-001	-1.018822E-001
292	1	-5.304989E-002	-3.814510E-003	-1.871970E-001	-1.346033E-001
292	2	-5.303086E-002	-4.084096E-003	-1.871300E-001	-1.412925E-001
292	3	-5.412183E-002	-4.083977E-003	-1.909888E-001	-1.412984E-001
292	4	-5.413466E-002	-3.814385E-003	-1.910249E-001	-1.346086E-001
292	5	-5.303998E-002	-3.989870E-003	-1.871621E-001	-1.379397E-001
292	6	-5.357598E-002	-4.083976E-003	-1.890548E-001	-1.412807E-001
292	7	-5.412803E-002	-3.988964E-003	-1.910016E-001	-1.379364E-001
292	8	-5.359194E-002	-3.814485E-003	-1.891102E-001	-1.346013E-001
292	9	-5.358416E-002	-3.989884E-003	-1.890822E-001	-1.379386E-001
293	1	-5.138209E-002	-4.694915E-003	-1.813121E-001	-1.656675E-001
293	2	-5.135495E-002	-4.911466E-003	-1.812161E-001	-1.733120E-001
293	3	-5.259930E-002	-4.911486E-003	-1.856049E-001	-1.733094E-001
293	4	-5.262155E-002	-4.694817E-003	-1.856848E-001	-1.656642E-001

293	5	-5.136024E-002	-4.803813E-003	-1.812641E-001	-1.694827E-001
293	6	-5.197691E-002	-4.911574E-003	-1.834118E-001	-1.733141E-001
293	7	-5.260970E-002	-4.802987E-003	-1.856442E-001	-1.694821E-001
293	8	-5.200170E-002	-4.694895E-003	-1.834996E-001	-1.656685E-001
293	9	-5.198919E-002	-4.802929E-003	-1.834544E-001	-1.694817E-001
294	1	-4.959466E-002	-5.440110E-003	-1.750047E-001	-1.919658E-001
294	2	-4.955992E-002	-5.670850E-003	-1.748816E-001	-2.001867E-001
294	3	-5.088439E-002	-5.670819E-003	-1.795565E-001	-2.001874E-001
294	4	-5.091501E-002	-5.439926E-003	-1.796625E-001	-1.919579E-001
294	5	-4.957738E-002	-5.555241E-003	-1.749430E-001	-1.960304E-001
294	6	-5.022181E-002	-5.670079E-003	-1.772182E-001	-2.001853E-001
294	7	-5.089984E-002	-5.555111E-003	-1.796085E-001	-1.960255E-001
294	8	-5.025414E-002	-5.439988E-003	-1.773323E-001	-1.919650E-001
294	9	-5.023027E-002	-5.555254E-003	-1.772761E-001	-1.960292E-001
295	1	-4.779071E-002	-6.051561E-003	-1.686375E-001	-2.135448E-001
295	2	-4.774915E-002	-6.283334E-003	-1.684937E-001	-2.217223E-001
295	3	-4.980858E-002	-6.283390E-003	-1.731897E-001	-2.217175E-001
295	4	-4.911595E-002	-6.051435E-003	-1.733174E-001	-2.135386E-001
295	5	-4.776982E-002	-6.167187E-003	-1.685669E-001	-2.176236E-001
295	6	-4.841464E-002	-6.283280E-003	-1.708415E-001	-2.217170E-001
295	7	-4.909867E-002	-6.167098E-003	-1.732520E-001	-2.176224E-001
295	8	-4.845293E-002	-6.051489E-003	-1.709765E-001	-2.135382E-001
295	9	-4.843391E-002	-6.167307E-003	-1.709091E-001	-2.176227E-001
296	1	-4.604691E-002	-6.535486E-003	-1.624057E-001	-2.306229E-001
296	2	-4.600159E-002	-6.759098E-003	-1.623271E-001	-2.385112E-001
296	3	-4.728391E-002	-6.758978E-003	-1.668536E-001	-2.385035E-001
296	4	-4.732470E-002	-6.535401E-003	-1.669970E-001	-2.306164E-001
296	5	-4.682438E-002	-6.647168E-003	-1.624064E-001	-2.345580E-001
296	6	-4.664316E-002	-6.759094E-003	-1.645899E-001	-2.385083E-001
296	7	-4.738513E-002	-6.647036E-003	-1.669271E-001	-2.345554E-001
296	8	-4.668597E-002	-6.535592E-003	-1.647420E-001	-2.306215E-001
296	9	-4.666461E-002	-6.647072E-003	-1.646652E-001	-2.345551E-001
297	1	-4.443599E-002	-6.985281E-003	-1.568023E-001	-2.436692E-001
297	2	-4.439014E-002	-7.111356E-003	-1.566386E-001	-2.509379E-001
297	3	-4.557161E-002	-7.111223E-003	-1.608085E-001	-2.509339E-001
297	4	-4.561412E-002	-6.985183E-003	-1.609583E-001	-2.436610E-001
297	5	-4.441333E-002	-7.008224E-003	-1.567207E-001	-2.472974E-001
297	6	-4.498042E-002	-7.111362E-003	-1.587230E-001	-2.509361E-001
297	7	-4.559266E-002	-7.008113E-003	-1.608038E-001	-2.472951E-001
297	8	-4.502482E-002	-6.985232E-003	-1.588082E-001	-2.436670E-001
297	9	-4.500283E-002	-7.008119E-003	-1.588016E-001	-2.472944E-001
298	1	-4.291998E-002	-7.170632E-003	-1.514501E-001	-2.530315E-001
298	2	-4.287049E-002	-7.366857E-003	-1.512772E-001	-2.599550E-001
298	3	-4.399549E-002	-7.366686E-003	-1.552456E-001	-2.599505E-001
298	4	-4.404112E-002	-7.170644E-003	-1.554077E-001	-2.530292E-001
298	5	-4.289537E-002	-7.268672E-003	-1.513633E-001	-2.564802E-001
298	6	-4.343247E-002	-7.366823E-003	-1.532611E-001	-2.599524E-001
298	7	-4.401803E-002	-7.268503E-003	-1.553276E-001	-2.564863E-001
298	8	-4.348022E-002	-7.170609E-003	-1.534280E-001	-2.530316E-001
298	9	-4.345649E-002	-7.268598E-003	-1.533453E-001	-2.564873E-001
299	1	-4.176270E-002	-7.380152E-003	-1.473683E-001	-2.604235E-001
299	2	-4.172296E-002	-7.523869E-003	-1.472287E-001	-2.654963E-001
299	3	-4.254689E-002	-7.523780E-003	-1.501362E-001	-2.654937E-001
299	4	-4.258361E-002	-7.380171E-003	-1.502658E-001	-2.604256E-001
299	5	-4.174322E-002	-7.451996E-003	-1.472988E-001	-2.629567E-001
299	6	-4.213510E-002	-7.523834E-003	-1.486823E-001	-2.654934E-001
299	7	-4.256516E-002	-7.451872E-003	-1.502817E-001	-2.629532E-001
299	8	-4.217319E-002	-7.380281E-003	-1.488172E-001	-2.604233E-001
299	9	-4.215426E-002	-7.451914E-003	-1.487502E-001	-2.629571E-001
300	1	-3.898200E-002	-7.258238E-003	-1.375544E-001	-2.561167E-001

300	2	-3.885273E-002	-7.669797E-003	-1.378999E-001	-2.706479E-001
300	3	-4.121784E-002	-7.669769E-003	-1.454460E-001	-2.706430E-001
300	4	-4.133516E-002	-7.257953E-003	-1.458602E-001	-2.561086E-001
300	5	-3.891680E-002	-7.463469E-003	-1.373272E-001	-2.633640E-001
300	6	-4.003496E-002	-7.669895E-003	-1.412724E-001	-2.706459E-001
300	7	-4.127673E-002	-7.463239E-003	-1.456528E-001	-2.633606E-001
300	8	-4.015821E-002	-7.257946E-003	-1.417073E-001	-2.561114E-001
300	9	-4.009712E-002	-7.463354E-003	-1.414904E-001	-2.633636E-001
301	1	-5.097132E-002	-8.000853E-003	-1.798620E-001	-2.851511E-001
301	2	-5.162621E-002	-6.156007E-003	-1.821746E-001	-2.172298E-001
301	3	-4.859495E-002	-6.156879E-003	-1.432485E-001	-2.172594E-001
301	4	-3.997786E-002	-8.001995E-003	-1.410676E-001	-2.851803E-001
301	5	-5.129793E-002	-7.120128E-003	-1.810158E-001	-2.512518E-001
301	6	-4.611805E-002	-6.156541E-003	-1.627123E-001	-2.172461E-001
301	7	-4.028532E-002	-7.121141E-003	-1.421553E-001	-2.512844E-001
301	8	-4.547467E-002	-8.001375E-003	-1.684669E-001	-2.851672E-001
301	9	-4.579239E-002	-7.120633E-003	-1.615881E-001	-2.512607E-001
302	1	-4.666922E-004	-6.470639E-005	-1.646020E-001	-2.283305E-001
302	2	-4.630879E-004	-7.457324E-005	-1.634092E-001	-2.631469E-001
302	3	-5.196139E-004	-7.456980E-005	-1.833581E-001	-2.631316E-001
302	4	-5.230286E-004	-6.470059E-005	-1.845626E-001	-2.283097E-001
302	5	-4.648961E-004	-6.963158E-005	-1.640467E-001	-2.457803E-001
302	6	-4.913514E-004	-7.457122E-005	-1.733026E-001	-2.631398E-001
302	7	-5.213275E-004	-6.962685E-005	-1.839613E-001	-2.456912E-001
302	8	-4.948596E-004	-6.470473E-005	-1.746219E-001	-2.283258E-001
302	9	-4.931102E-004	-6.962955E-005	-1.740038E-001	-2.457039E-001
303	1	-4.235313E-004	-3.119862E-005	-1.494519E-001	-1.100087E-001
303	2	-4.286985E-004	-3.843433E-005	-1.484513E-001	-1.356244E-001
303	3	-4.621589E-004	-3.843274E-005	-1.630883E-001	-1.356175E-001
303	4	-4.648378E-004	-3.119589E-005	-1.640281E-001	-1.100786E-001
303	5	-4.221167E-004	-3.481148E-005	-1.489531E-001	-1.228347E-001
303	6	-4.414257E-004	-3.843267E-005	-1.557656E-001	-1.356287E-001
303	7	-4.634924E-004	-3.480734E-005	-1.635529E-001	-1.228251E-001
303	8	-4.441798E-004	-3.119632E-005	-1.567382E-001	-1.100855E-001
303	9	-4.428042E-004	-3.480957E-005	-1.562530E-001	-1.228328E-001
304	1	-4.286034E-004	-3.671654E-005	-1.484193E-001	-1.295571E-001
304	2	-4.289412E-004	-3.591159E-005	-1.485369E-001	-1.267234E-001
304	3	-4.163298E-004	-3.591316E-005	-1.469124E-001	-1.267229E-001
304	4	-4.168179E-004	-3.671546E-005	-1.467987E-001	-1.295593E-001
304	5	-4.287728E-004	-3.631480E-005	-1.484792E-001	-1.281429E-001
304	6	-4.186324E-004	-3.591260E-005	-1.477234E-001	-1.267233E-001
304	7	-4.161783E-004	-3.631579E-005	-1.468559E-001	-1.281444E-001
304	8	-4.183115E-004	-3.671662E-005	-1.476090E-001	-1.295582E-001
304	9	-4.184738E-004	-3.631460E-005	-1.476667E-001	-1.281440E-001
305	1	-4.261989E-004	-3.076614E-005	-1.503917E-001	-1.085566E-001
305	2	-4.263552E-004	-3.039254E-005	-1.504496E-001	-1.072484E-001
305	3	-4.242276E-004	-3.039353E-005	-1.496983E-001	-1.072489E-001
305	4	-4.240740E-004	-3.076557E-005	-1.496437E-001	-1.085624E-001
305	5	-4.262797E-004	-3.057990E-005	-1.504217E-001	-1.079842E-001
305	6	-4.252929E-004	-3.039379E-005	-1.500736E-001	-1.072475E-001
305	7	-4.241505E-004	-3.057929E-005	-1.496702E-001	-1.079843E-001
305	8	-4.251305E-004	-3.076478E-005	-1.500178E-001	-1.085608E-001
305	9	-4.252172E-004	-3.057961E-005	-1.500458E-001	-1.079858E-001
306	1	-4.335644E-004	-2.455338E-005	-1.529934E-001	-8.664379E-002
306	2	-4.338804E-004	-2.389689E-005	-1.531045E-001	-8.432862E-002
306	3	-4.301012E-004	-2.389478E-005	-1.517706E-001	-8.431996E-002
306	4	-4.298147E-004	-2.455395E-005	-1.516684E-001	-8.664316E-002
306	5	-4.337234E-004	-2.422609E-005	-1.530487E-001	-8.548415E-002
306	6	-4.319921E-004	-2.389588E-005	-1.524377E-001	-8.432180E-002
306	7	-4.299583E-004	-2.422545E-005	-1.517192E-001	-8.548510E-002

306	8	-4.316914E-004	-2.455337E-005	-1.523309E-001	-8.664285E-002
306	9	-4.318399E-004	-2.422577E-005	-1.523843E-001	-8.548558E-002
307	1	-5.420915E-002	-5.166566E-004	-1.912901E-001	-1.822935E-002
307	2	-5.420927E-002	-5.333576E-004	-1.912888E-001	-1.881960E-002
307	3	-5.430605E-002	-5.334318E-004	-1.916309E-001	-1.882193E-002
307	4	-5.430528E-002	-5.165262E-004	-1.916302E-001	-1.822655E-002
307	5	-5.421007E-002	-5.250213E-004	-1.912903E-001	-1.852386E-002
307	6	-5.425783E-002	-5.332580E-004	-1.914593E-001	-1.881746E-002
307	7	-5.430657E-002	-5.250141E-004	-1.916317E-001	-1.852201E-002
307	8	-5.425782E-002	-5.166212E-004	-1.914603E-001	-1.823081E-002
307	9	-5.425796E-002	-5.249989E-004	-1.914606E-001	-1.852484E-002
308	1	-5.365000E-002	-1.611401E-003	-1.893152E-001	-5.686165E-002
308	2	-5.364639E-002	-1.690833E-003	-1.893018E-001	-5.963898E-002
308	3	-5.409976E-002	-1.690831E-003	-1.909838E-001	-5.963514E-002
308	4	-5.410241E-002	-1.611375E-003	-1.909119E-001	-5.685926E-002
308	5	-5.364796E-002	-1.650707E-003	-1.893895E-001	-5.824920E-002
308	6	-5.387310E-002	-1.690882E-003	-1.901825E-001	-5.963673E-002
308	7	-5.410146E-002	-1.650627E-003	-1.909883E-001	-5.824437E-002
308	8	-5.387587E-002	-1.611388E-003	-1.901131E-001	-5.686237E-002
308	9	-5.387472E-002	-1.650656E-003	-1.901077E-001	-5.824643E-002
309	1	-5.271434E-002	-2.649318E-003	-1.860141E-001	-9.348717E-002
309	2	-5.270516E-002	-2.773378E-003	-1.859809E-001	-9.786459E-002
309	3	-5.342089E-002	-2.773387E-003	-1.885069E-001	-9.786195E-002
309	4	-5.342799E-002	-2.649195E-003	-1.885388E-001	-9.348072E-002
309	5	-5.270998E-002	-2.711267E-003	-1.859978E-001	-9.567113E-002
309	6	-5.306301E-002	-2.773468E-003	-1.872433E-001	-9.786366E-002
309	7	-5.342433E-002	-2.711208E-003	-1.885178E-001	-9.566872E-002
309	8	-5.307061E-002	-2.649324E-003	-1.872710E-001	-9.348688E-002
309	9	-5.306698E-002	-2.711256E-003	-1.872582E-001	-9.567052E-002
310	1	-5.146632E-002	-3.601286E-003	-1.816095E-001	-1.270771E-001
310	2	-5.145254E-002	-3.763536E-003	-1.815602E-001	-1.328042E-001
310	3	-5.238071E-002	-3.763522E-003	-1.848648E-001	-1.328050E-001
310	4	-5.240133E-002	-3.601151E-003	-1.849106E-001	-1.270784E-001
310	5	-5.145957E-002	-3.682400E-003	-1.815855E-001	-1.299373E-001
310	6	-5.192051E-002	-3.763516E-003	-1.832121E-001	-1.328034E-001
310	7	-5.239543E-002	-3.682257E-003	-1.848887E-001	-1.299343E-001
310	8	-5.193433E-002	-3.601121E-003	-1.832603E-001	-1.270747E-001
310	9	-5.192748E-002	-3.682318E-003	-1.832371E-001	-1.299389E-001
311	1	-5.002068E-002	-4.448581E-003	-1.765078E-001	-1.569799E-001
311	2	-4.999751E-002	-4.636188E-003	-1.764261E-001	-1.635944E-001
311	3	-5.188067E-002	-4.636051E-003	-1.832501E-001	-1.635914E-001
311	4	-5.189832E-002	-4.448363E-003	-1.803103E-001	-1.569741E-001
311	5	-5.000919E-002	-4.542223E-003	-1.764671E-001	-1.602795E-001
311	6	-5.053947E-002	-4.636042E-003	-1.783382E-001	-1.635937E-001
311	7	-5.188979E-002	-4.542125E-003	-1.802807E-001	-1.602752E-001
311	8	-5.055962E-002	-4.448539E-003	-1.784091E-001	-1.569773E-001
311	9	-5.054929E-002	-4.542133E-003	-1.783737E-001	-1.602779E-001
312	1	-4.845877E-002	-5.178275E-003	-1.709976E-001	-1.827268E-001
312	2	-4.842877E-002	-5.377670E-003	-1.708914E-001	-1.897605E-001
312	3	-4.957755E-002	-5.377472E-003	-1.749456E-001	-1.897555E-001
312	4	-4.960382E-002	-5.178134E-003	-1.750372E-001	-1.827205E-001
312	5	-4.844401E-002	-5.277764E-003	-1.709437E-001	-1.862357E-001
312	6	-4.900312E-002	-5.377649E-003	-1.729184E-001	-1.897606E-001
312	7	-4.959103E-002	-5.277590E-003	-1.749928E-001	-1.862316E-001
312	8	-4.903154E-002	-5.178174E-003	-1.730167E-001	-1.827211E-001
312	9	-4.901739E-002	-5.277677E-003	-1.729676E-001	-1.862346E-001
313	1	-4.686996E-002	-5.786442E-003	-1.653900E-001	-2.041878E-001
313	2	-4.683407E-002	-5.988526E-003	-1.652659E-001	-2.113175E-001
313	3	-4.799890E-002	-5.988428E-003	-1.693747E-001	-2.113146E-001
313	4	-4.803081E-002	-5.786282E-003	-1.694854E-001	-2.041834E-001

313	5	-4.685243E-002	-5.887336E-003	-1.653271E-001	-2.077452E-001
313	6	-4.741664E-002	-5.988395E-003	-1.673202E-001	-2.113117E-001
313	7	-4.801510E-002	-5.887186E-003	-1.694290E-001	-2.077428E-001
313	8	-4.745018E-002	-5.786332E-003	-1.674383E-001	-2.041830E-001
313	9	-4.743342E-002	-5.887261E-003	-1.673788E-001	-2.077402E-001
314	1	-4.532815E-002	-6.279383E-003	-1.599500E-001	-2.215810E-001
314	2	-4.528882E-002	-6.474577E-003	-1.598106E-001	-2.284713E-001
314	3	-4.641487E-002	-6.474513E-003	-1.637841E-001	-2.284677E-001
314	4	-4.644971E-002	-6.279232E-003	-1.639085E-001	-2.215710E-001
314	5	-4.530850E-002	-6.376812E-003	-1.598804E-001	-2.250181E-001
314	6	-4.585199E-002	-6.474513E-003	-1.617981E-001	-2.284663E-001
314	7	-4.643203E-002	-6.376571E-003	-1.638447E-001	-2.250167E-001
314	8	-4.588911E-002	-6.279257E-003	-1.619293E-001	-2.215779E-001
314	9	-4.587868E-002	-6.376760E-003	-1.618637E-001	-2.250151E-001
315	1	-4.387370E-002	-6.664138E-003	-1.548169E-001	-2.351573E-001
315	2	-4.382956E-002	-6.848563E-003	-1.546633E-001	-2.416652E-001
315	3	-4.489414E-002	-6.848389E-003	-1.584172E-001	-2.416583E-001
315	4	-4.493260E-002	-6.663922E-003	-1.585541E-001	-2.351576E-001
315	5	-4.385264E-002	-6.756166E-003	-1.547414E-001	-2.384044E-001
315	6	-4.436157E-002	-6.848478E-003	-1.565408E-001	-2.416618E-001
315	7	-4.491381E-002	-6.755993E-003	-1.584862E-001	-2.384009E-001
315	8	-4.440318E-002	-6.664179E-003	-1.566858E-001	-2.351606E-001
315	9	-4.438256E-002	-6.756088E-003	-1.566134E-001	-2.384004E-001
316	1	-4.259388E-002	-6.958404E-003	-1.503004E-001	-2.455415E-001
316	2	-4.255081E-002	-7.118797E-003	-1.501490E-001	-2.512042E-001
316	3	-4.347561E-002	-7.118613E-003	-1.534112E-001	-2.511964E-001
316	4	-4.351472E-002	-6.958140E-003	-1.535501E-001	-2.455360E-001
316	5	-4.257211E-002	-7.038368E-003	-1.502255E-001	-2.483675E-001
316	6	-4.301395E-002	-7.118888E-003	-1.517814E-001	-2.512028E-001
316	7	-4.349483E-002	-7.038399E-003	-1.534808E-001	-2.483611E-001
316	8	-4.305390E-002	-6.958272E-003	-1.519255E-001	-2.455387E-001
316	9	-4.303364E-002	-7.038384E-003	-1.518537E-001	-2.483649E-001
317	1	-4.111268E-002	-7.132913E-003	-1.450749E-001	-2.516961E-001
317	2	-4.105572E-002	-7.330591E-003	-1.448738E-001	-2.586757E-001
317	3	-4.219451E-002	-7.330551E-003	-1.488914E-001	-2.586733E-001
317	4	-4.224785E-002	-7.132818E-003	-1.490797E-001	-2.516962E-001
317	5	-4.108402E-002	-7.231534E-003	-1.449755E-001	-2.551822E-001
317	6	-4.162534E-002	-7.330514E-003	-1.468829E-001	-2.586733E-001
317	7	-4.222129E-002	-7.231388E-003	-1.489848E-001	-2.551747E-001
317	8	-4.168038E-002	-7.132726E-003	-1.470784E-001	-2.516916E-001
317	9	-4.165288E-002	-7.231521E-003	-1.469798E-001	-2.551813E-001
318	1	-4.163053E-002	-7.326961E-003	-1.469038E-001	-2.585484E-001
318	2	-4.166434E-002	-7.214689E-003	-1.470223E-001	-2.545835E-001
318	3	-4.101814E-002	-7.214654E-003	-1.447489E-001	-2.545846E-001
318	4	-4.098584E-002	-7.327055E-003	-1.446244E-001	-2.585478E-001
318	5	-4.164755E-002	-7.270765E-003	-1.469617E-001	-2.565658E-001
318	6	-4.134183E-002	-7.214584E-003	-1.458029E-001	-2.545838E-001
318	7	-4.100169E-002	-7.270070E-003	-1.446025E-001	-2.565682E-001
318	8	-4.130770E-002	-7.326829E-003	-1.457633E-001	-2.585443E-001
318	9	-4.132472E-002	-7.270927E-003	-1.458223E-001	-2.565666E-001
319	1	-3.530537E-002	-7.237355E-003	-1.245827E-001	-2.553827E-001
319	2	-3.497245E-002	-8.218021E-003	-1.234892E-001	-2.899932E-001
319	3	-4.062967E-002	-8.217499E-003	-1.433691E-001	-2.899680E-001
319	4	-4.093321E-002	-7.236530E-003	-1.444425E-001	-2.553574E-001
319	5	-3.513952E-002	-7.726508E-003	-1.239962E-001	-2.726446E-001
319	6	-3.780119E-002	-8.217857E-003	-1.333886E-001	-2.899834E-001
319	7	-4.078234E-002	-7.725795E-003	-1.439078E-001	-2.726197E-001
319	8	-3.811920E-002	-7.237071E-003	-1.345111E-001	-2.553713E-001
319	9	-3.796034E-002	-7.726118E-003	-1.339514E-001	-2.726337E-001
320	1	-3.461069E-004	-6.293962E-005	-1.221318E-001	-2.220959E-001

320	2	-3.459981E-004	-6.324391E-005	-1.220911E-001	-2.231650E-001
320	3	-3.477423E-004	-6.324263E-005	-1.227085E-001	-2.231660E-001
320	4	-3.478531E-002	-6.293848E-003	-1.227464E-001	-2.220993E-001
320	5	-3.460477E-004	-6.309074E-005	-1.221094E-001	-2.226290E-001
320	6	-3.468729E-004	-6.324259E-005	-1.224007E-001	-2.231650E-001
320	7	-3.675940E-002	-6.668143E-003	-1.227282E-001	-2.226291E-001
320	8	-3.469810E-004	-6.293983E-005	-1.224382E-001	-2.220932E-001
320	9	-3.469256E-004	-6.309104E-005	-1.224197E-001	-2.226287E-001
321	1	-4.257867E-004	-4.280036E-005	-1.502461E-001	-1.510278E-001
321	2	-4.301014E-004	-3.176208E-005	-1.517710E-001	-1.120772E-001
321	3	-3.665877E-004	-3.176693E-005	-1.293581E-001	-1.120977E-001
321	4	-3.624014E-004	-4.280862E-005	-1.279088E-001	-1.510580E-001
321	5	-4.279392E-004	-3.729011E-005	-1.510882E-001	-1.315072E-001
321	6	-3.983478E-004	-3.176470E-005	-1.405658E-001	-1.120894E-001
321	7	-3.645302E-004	-3.729721E-005	-1.286323E-001	-1.316118E-001
321	8	-3.941424E-004	-4.280458E-005	-1.390806E-001	-1.510449E-001
321	9	-3.962393E-004	-3.729420E-005	-1.398213E-001	-1.315985E-001
322	1	-4.288106E-004	-3.523274E-005	-1.513144E-001	-1.243232E-001
322	2	-4.282312E-004	-3.662747E-005	-1.511088E-001	-1.292480E-001
322	3	-4.362586E-004	-3.662708E-005	-1.539419E-001	-1.292454E-001
322	4	-4.368143E-004	-3.523093E-005	-1.541377E-001	-1.243227E-001
322	5	-4.285194E-004	-3.592938E-005	-1.512134E-001	-1.267844E-001
322	6	-4.322438E-004	-3.662790E-005	-1.525262E-001	-1.292479E-001
322	7	-4.365371E-004	-3.592771E-005	-1.540419E-001	-1.267791E-001
322	8	-4.328068E-004	-3.523200E-005	-1.527257E-001	-1.243223E-001
322	9	-4.325269E-004	-3.592854E-005	-1.526261E-001	-1.267798E-001
323	1	-4.301448E-004	-3.244568E-005	-1.546864E-001	-1.144878E-001
323	2	-4.307986E-004	-3.182445E-005	-1.548366E-001	-1.094771E-001
323	3	-4.305973E-004	-3.182599E-005	-1.519450E-001	-1.094802E-001
323	4	-4.299995E-004	-3.244638E-005	-1.517335E-001	-1.144983E-001
323	5	-4.384618E-004	-3.173741E-005	-1.547205E-001	-1.119892E-001
323	6	-4.346982E-004	-3.182558E-005	-1.533988E-001	-1.094805E-001
323	7	-4.302980E-004	-3.173733E-005	-1.518390E-001	-1.119933E-001
323	8	-4.340697E-004	-3.244510E-005	-1.531789E-001	-1.144898E-001
323	9	-4.343824E-004	-3.173691E-005	-1.532002E-001	-1.119922E-001
324	1	-4.466322E-004	-2.535548E-005	-1.576036E-001	-8.947889E-002
324	2	-4.469201E-004	-2.473788E-005	-1.577064E-001	-8.729892E-002
324	3	-4.433694E-004	-2.473748E-005	-1.564519E-001	-8.729296E-002
324	4	-4.430888E-004	-2.535705E-005	-1.563524E-001	-8.947561E-002
324	5	-4.467801E-004	-2.504738E-005	-1.576532E-001	-8.838488E-002
324	6	-4.451462E-004	-2.473741E-005	-1.570798E-001	-8.729307E-002
324	7	-4.432308E-004	-2.504737E-005	-1.564022E-001	-8.838470E-002
324	8	-4.448601E-004	-2.535472E-005	-1.569769E-001	-8.947203E-002
324	9	-4.450811E-004	-2.504719E-005	-1.570282E-001	-8.838258E-002
325	1	-5.230110E-002	-4.915603E-004	-1.845533E-001	-1.734336E-002
325	2	-5.230897E-002	-5.115474E-004	-1.845547E-001	-1.805875E-002
325	3	-5.241688E-002	-5.114691E-004	-1.849638E-001	-1.805245E-002
325	4	-5.241687E-002	-4.914418E-004	-1.849628E-001	-1.734453E-002
325	5	-5.230857E-002	-5.015148E-004	-1.845538E-001	-1.769644E-002
325	6	-5.235884E-002	-5.115825E-004	-1.847587E-001	-1.805867E-002
325	7	-5.241683E-002	-5.015319E-004	-1.849639E-001	-1.769645E-002
325	8	-5.235895E-002	-4.915549E-004	-1.847589E-001	-1.734186E-002
325	9	-5.235866E-002	-5.015233E-004	-1.847586E-001	-1.769610E-002
326	1	-5.182986E-002	-1.523903E-003	-1.828837E-001	-5.377482E-002
326	2	-5.182811E-002	-1.590591E-003	-1.828858E-001	-5.612376E-002
326	3	-5.221388E-002	-1.590449E-003	-1.842477E-001	-5.612197E-002
326	4	-5.221469E-002	-1.523851E-003	-1.842511E-001	-5.377293E-002
326	5	-5.182859E-002	-1.557096E-003	-1.828895E-001	-5.494500E-002
326	6	-5.202061E-002	-1.590410E-003	-1.835665E-001	-5.612141E-002
326	7	-5.221466E-002	-1.557020E-003	-1.842503E-001	-5.494539E-002

326	8	-5.202266E-002	-1.523877E-003	-1.835724E-001	-5.377292E-002
326	9	-5.202157E-002	-1.557096E-003	-1.835685E-001	-5.494294E-002
327	1	-5.103140E-002	-2.509341E-003	-1.800752E-001	-8.854978E-002
327	2	-5.102311E-002	-2.615963E-003	-1.800475E-001	-9.231064E-002
327	3	-5.164227E-002	-2.615876E-003	-1.822307E-001	-9.230474E-002
327	4	-5.164637E-002	-2.509319E-003	-1.822461E-001	-8.854341E-002
327	5	-5.102698E-002	-2.562543E-003	-1.800594E-001	-9.042326E-002
327	6	-5.133291E-002	-2.615986E-003	-1.811391E-001	-9.230876E-002
327	7	-5.164464E-002	-2.562458E-003	-1.822391E-001	-9.041958E-002
327	8	-5.133891E-002	-2.509368E-003	-1.811607E-001	-8.854781E-002
327	9	-5.133586E-002	-2.562449E-003	-1.811501E-001	-9.042358E-002
328	1	-4.996258E-002	-3.420387E-003	-1.763031E-001	-1.206950E-001
328	2	-4.994924E-002	-3.557787E-003	-1.762569E-001	-1.255447E-001
328	3	-5.074598E-002	-3.557658E-003	-1.790665E-001	-1.255411E-001
328	4	-5.075671E-002	-3.420145E-003	-1.791045E-001	-1.206876E-001
328	5	-4.995607E-002	-3.488880E-003	-1.762811E-001	-1.231144E-001
328	6	-5.034697E-002	-3.557617E-003	-1.776618E-001	-1.255415E-001
328	7	-5.075130E-002	-3.488787E-003	-1.790858E-001	-1.231113E-001
328	8	-5.036001E-002	-3.420274E-003	-1.777038E-001	-1.206926E-001
328	9	-5.035330E-002	-3.488958E-003	-1.776823E-001	-1.231108E-001
329	1	-4.870407E-002	-4.238340E-003	-1.718622E-001	-1.495581E-001
329	2	-4.868342E-002	-4.398291E-003	-1.717916E-001	-1.552029E-001
329	3	-4.961258E-002	-4.398132E-003	-1.750671E-001	-1.551955E-001
329	4	-4.962081E-002	-4.238140E-003	-1.751268E-001	-1.495512E-001
329	5	-4.869349E-002	-4.318232E-003	-1.718257E-001	-1.523745E-001
329	6	-4.914024E-002	-4.398248E-003	-1.734297E-001	-1.552019E-001
329	7	-4.962048E-002	-4.318062E-003	-1.750976E-001	-1.523719E-001
329	8	-4.916633E-002	-4.238248E-003	-1.734947E-001	-1.495597E-001
329	9	-4.915758E-002	-4.318136E-003	-1.734617E-001	-1.523728E-001
330	1	-4.734063E-002	-4.952343E-003	-1.670523E-001	-1.747521E-001
330	2	-4.731490E-002	-5.124378E-003	-1.669623E-001	-1.808249E-001
330	3	-4.831186E-002	-5.124241E-003	-1.704759E-001	-1.808216E-001
330	4	-4.833375E-002	-4.952154E-003	-1.705551E-001	-1.747444E-001
330	5	-4.732814E-002	-5.038212E-003	-1.670888E-001	-1.777849E-001
330	6	-4.781379E-002	-5.124457E-003	-1.687200E-001	-1.808231E-001
330	7	-4.832290E-002	-5.038079E-003	-1.705164E-001	-1.777790E-001
330	8	-4.783699E-002	-4.952249E-003	-1.688036E-001	-1.747581E-001
330	9	-4.782557E-002	-5.038073E-003	-1.687621E-001	-1.777825E-001
331	1	-4.594741E-002	-5.556706E-003	-1.621360E-001	-1.960779E-001
331	2	-4.591724E-002	-5.731688E-003	-1.620273E-001	-2.022533E-001
331	3	-4.692988E-002	-5.731671E-003	-1.656033E-001	-2.022535E-001
331	4	-4.695741E-002	-5.556729E-003	-1.656988E-001	-1.960771E-001
331	5	-4.593177E-002	-5.644056E-003	-1.620823E-001	-1.991638E-001
331	6	-4.642373E-002	-5.731674E-003	-1.638151E-001	-2.022545E-001
331	7	-4.694393E-002	-5.643946E-003	-1.656584E-001	-1.991591E-001
331	8	-4.645227E-002	-5.556589E-003	-1.639164E-001	-1.960794E-001
331	9	-4.643802E-002	-5.644061E-003	-1.638664E-001	-1.991621E-001
332	1	-4.458828E-002	-6.056171E-003	-1.573374E-001	-2.137022E-001
332	2	-4.455161E-002	-6.226286E-003	-1.572188E-001	-2.197018E-001
332	3	-4.553788E-002	-6.226012E-003	-1.606983E-001	-2.196982E-001
332	4	-4.556854E-002	-6.056053E-003	-1.607991E-001	-2.136989E-001
332	5	-4.456964E-002	-6.140867E-003	-1.572752E-001	-2.166967E-001
332	6	-4.504588E-002	-6.226115E-003	-1.589502E-001	-2.197018E-001
332	7	-4.555348E-002	-6.140743E-003	-1.607442E-001	-2.166886E-001
332	8	-4.507855E-002	-6.056061E-003	-1.590681E-001	-2.137004E-001
332	9	-4.506171E-002	-6.140765E-003	-1.590104E-001	-2.166920E-001
333	1	-4.330971E-002	-6.455913E-003	-1.528272E-001	-2.278141E-001
333	2	-4.327322E-002	-6.614573E-003	-1.526997E-001	-2.334076E-001
333	3	-4.419188E-002	-6.614409E-003	-1.559366E-001	-2.334019E-001
333	4	-4.422515E-002	-6.455738E-003	-1.560575E-001	-2.278042E-001

333	5	-4.329054E-002	-6.535151E-003	-1.527623E-001	-2.396083E-001
333	6	-4.373218E-002	-6.614438E-003	-1.543182E-001	-2.334048E-001
333	7	-4.428814E-002	-6.535186E-003	-1.559984E-001	-2.396002E-001
333	8	-4.376714E-002	-6.455795E-003	-1.544423E-001	-2.278072E-001
333	9	-4.374984E-002	-6.535127E-003	-1.543890E-001	-2.396042E-001
334	1	-4.209862E-002	-6.760237E-003	-1.485535E-001	-2.385513E-001
334	2	-4.205830E-002	-6.912729E-003	-1.484121E-001	-2.439336E-001
334	3	-4.294319E-002	-6.912794E-003	-1.515333E-001	-2.439293E-001
334	4	-4.297857E-002	-6.759943E-003	-1.516578E-001	-2.385439E-001
334	5	-4.287888E-002	-6.836341E-003	-1.484833E-001	-2.412345E-001
334	6	-4.250845E-002	-6.912749E-003	-1.497713E-001	-2.439306E-001
334	7	-4.296042E-002	-6.836192E-003	-1.515960E-001	-2.412293E-001
334	8	-4.253850E-002	-6.760149E-003	-1.501048E-001	-2.385464E-001
334	9	-4.251962E-002	-6.836276E-003	-1.500396E-001	-2.412312E-001
335	1	-4.123865E-002	-6.986437E-003	-1.454898E-001	-2.465312E-001
335	2	-4.120862E-002	-7.089261E-003	-1.453844E-001	-2.501585E-001
335	3	-4.179573E-002	-7.089111E-003	-1.474847E-001	-2.501538E-001
335	4	-4.182373E-002	-6.986392E-003	-1.475845E-001	-2.465252E-001
335	5	-4.121565E-002	-7.037778E-003	-1.454376E-001	-2.483396E-001
335	6	-4.149789E-002	-7.089146E-003	-1.464358E-001	-2.501562E-001
335	7	-4.180979E-002	-7.037564E-003	-1.475347E-001	-2.483336E-001
335	8	-4.152739E-002	-6.986463E-003	-1.465374E-001	-2.465250E-001
335	9	-4.151284E-002	-7.037631E-003	-1.464864E-001	-2.483369E-001
336	1	-3.984399E-002	-7.124697E-003	-1.405974E-001	-2.514133E-001
336	2	-3.978386E-002	-7.315653E-003	-1.403846E-001	-2.581480E-001
336	3	-4.088756E-002	-7.315457E-003	-1.442791E-001	-2.581485E-001
336	4	-4.094411E-002	-7.124588E-003	-1.444789E-001	-2.514037E-001
336	5	-3.981295E-002	-7.219925E-003	-1.404889E-001	-2.547714E-001
336	6	-4.033570E-002	-7.315473E-003	-1.423326E-001	-2.581437E-001
336	7	-4.091566E-002	-7.219741E-003	-1.443779E-001	-2.547648E-001
336	8	-4.039359E-002	-7.124632E-003	-1.425376E-001	-2.514079E-001
336	9	-4.036446E-002	-7.219922E-003	-1.424346E-001	-2.547697E-001
337	1	-4.079527E-002	-7.297650E-003	-1.439708E-001	-2.575107E-001
337	2	-4.085992E-002	-7.120567E-003	-1.441819E-001	-2.512645E-001
337	3	-3.983405E-002	-7.120860E-003	-1.405635E-001	-2.512721E-001
337	4	-3.977704E-002	-7.297972E-003	-1.403614E-001	-2.575237E-001
337	5	-4.082982E-002	-7.209244E-003	-1.440767E-001	-2.543924E-001
337	6	-4.034664E-002	-7.120696E-003	-1.423727E-001	-2.512685E-001
337	7	-3.980548E-002	-7.209398E-003	-1.404620E-001	-2.544000E-001
337	8	-4.028831E-002	-7.297632E-003	-1.421658E-001	-2.575184E-001
337	9	-4.031780E-002	-7.209331E-003	-1.422697E-001	-2.543933E-001
338	1	-4.680600E-004	-7.385785E-005	-1.651670E-001	-2.577940E-001
338	2	-4.713123E-004	-6.417611E-005	-1.663111E-001	-2.264603E-001
338	3	-4.199751E-002	-6.418207E-003	-1.481962E-001	-2.264827E-001
338	4	-4.168939E-002	-7.386645E-003	-1.471118E-001	-2.578291E-001
338	5	-4.696797E-004	-6.862392E-005	-1.657371E-001	-2.421534E-001
338	6	-4.456418E-004	-6.417943E-005	-1.572555E-001	-2.264711E-001
338	7	-4.184396E-002	-6.863237E-003	-1.476537E-001	-2.421812E-001
338	8	-3.231900E-002	-5.336341E-003	-1.561304E-001	-2.578109E-001
338	9	-4.440584E-004	-6.862795E-005	-1.566961E-001	-2.421667E-001
339	1	-4.213781E-004	-3.239521E-005	-1.486915E-001	-1.143117E-001
339	2	-4.172815E-004	-4.287055E-005	-1.472489E-001	-1.512818E-001
339	3	-4.778150E-004	-4.286235E-005	-1.686886E-001	-1.512489E-001
339	4	-4.817152E-004	-3.238569E-005	-1.699831E-001	-1.142798E-001
339	5	-4.193411E-004	-3.762476E-005	-1.479729E-001	-1.327652E-001
339	6	-4.475554E-004	-4.286671E-005	-1.579204E-001	-1.512648E-001
339	7	-4.797716E-004	-3.761612E-005	-1.692959E-001	-1.327368E-001
339	8	-4.515468E-004	-3.238952E-005	-1.593377E-001	-1.142957E-001
339	9	-4.495508E-004	-3.761997E-005	-1.586337E-001	-1.327584E-001
340	1	-4.373743E-004	-3.984312E-005	-1.543371E-001	-1.405989E-001

340	2	-4.391665E-004	-3.564244E-005	-1.549708E-001	-1.257735E-001
340	3	-4.148690E-004	-3.564653E-005	-1.463919E-001	-1.257835E-001
340	4	-4.131868E-004	-3.984623E-005	-1.458005E-001	-1.406894E-001
340	5	-4.382706E-004	-3.774761E-005	-1.546532E-001	-1.332029E-001
340	6	-4.270128E-004	-3.564484E-005	-1.506824E-001	-1.257783E-001
340	7	-4.140211E-004	-3.775171E-005	-1.468963E-001	-1.332123E-001
340	8	-4.252839E-004	-3.984343E-005	-1.508700E-001	-1.405983E-001
340	9	-4.261458E-004	-3.774983E-005	-1.503747E-001	-1.332070E-001
341	1	-4.507907E-004	-3.392244E-005	-1.590714E-001	-1.196996E-001
341	2	-4.512853E-004	-3.201101E-005	-1.592442E-001	-1.157832E-001
341	3	-4.448595E-004	-3.201177E-005	-1.569704E-001	-1.157848E-001
341	4	-4.443820E-004	-3.392350E-005	-1.568099E-001	-1.197083E-001
341	5	-4.510379E-004	-3.336771E-005	-1.591583E-001	-1.177421E-001
341	6	-4.480738E-004	-3.201121E-005	-1.581133E-001	-1.157812E-001
341	7	-4.446213E-004	-3.336795E-005	-1.568933E-001	-1.177455E-001
341	8	-4.475843E-004	-3.392376E-005	-1.579392E-001	-1.197059E-001
341	9	-4.478297E-004	-3.336786E-005	-1.580262E-001	-1.177458E-001
342	1	-4.608481E-004	-2.645163E-005	-1.626181E-001	-9.333957E-002
342	2	-4.612709E-004	-2.557093E-005	-1.627680E-001	-9.023362E-002
342	3	-4.561797E-004	-2.557385E-005	-1.609722E-001	-9.023771E-002
342	4	-4.557816E-004	-2.645172E-005	-1.608339E-001	-9.334181E-002
342	5	-4.610610E-004	-2.601228E-005	-1.626939E-001	-9.178096E-002
342	6	-4.587208E-004	-2.557202E-005	-1.618683E-001	-9.023681E-002
342	7	-4.559864E-004	-2.601363E-005	-1.609024E-001	-9.179337E-002
342	8	-4.583168E-004	-2.645153E-005	-1.617253E-001	-9.333969E-002
342	9	-4.585188E-004	-2.601289E-005	-1.617983E-001	-9.179152E-002
343	1	-5.051945E-002	-4.708066E-004	-1.782678E-001	-1.661733E-002
343	2	-5.051903E-002	-4.866659E-004	-1.782659E-001	-1.717058E-002
343	3	-5.061059E-002	-4.865552E-004	-1.785902E-001	-1.717146E-002
343	4	-5.061034E-002	-4.709805E-004	-1.785804E-001	-1.661877E-002
343	5	-5.051942E-002	-4.788139E-004	-1.782681E-001	-1.689484E-002
343	6	-5.056477E-002	-4.867218E-004	-1.784275E-001	-1.716997E-002
343	7	-5.060956E-002	-4.787298E-004	-1.785871E-001	-1.689477E-002
343	8	-5.056462E-002	-4.708256E-004	-1.784279E-001	-1.661779E-002
343	9	-5.056475E-002	-4.788422E-004	-1.784277E-001	-1.689385E-002
344	1	-5.012684E-002	-1.453320E-003	-1.768788E-001	-5.120011E-002
344	2	-5.012279E-002	-1.586682E-003	-1.768787E-001	-5.316723E-002
344	3	-5.043399E-002	-1.586653E-003	-1.779677E-001	-5.316642E-002
344	4	-5.043519E-002	-1.453192E-003	-1.779729E-001	-5.127889E-002
344	5	-5.012463E-002	-1.479910E-003	-1.768745E-001	-5.222329E-002
344	6	-5.027848E-002	-1.586661E-003	-1.774189E-001	-5.316491E-002
344	7	-5.043451E-002	-1.479857E-003	-1.779695E-001	-5.222182E-002
344	8	-5.028117E-002	-1.453205E-003	-1.774266E-001	-5.127988E-002
344	9	-5.027978E-002	-1.479970E-003	-1.774224E-001	-5.222023E-002
345	1	-4.943646E-002	-2.391538E-003	-1.744457E-001	-8.439182E-002
345	2	-4.942980E-002	-2.401079E-003	-1.744234E-001	-8.755062E-002
345	3	-4.995208E-002	-2.401052E-003	-1.762674E-001	-8.754791E-002
345	4	-4.995760E-002	-2.391408E-003	-1.762837E-001	-8.438944E-002
345	5	-4.943252E-002	-2.436294E-003	-1.744331E-001	-8.596869E-002
345	6	-4.969065E-002	-2.401182E-003	-1.753449E-001	-8.754964E-002
345	7	-4.995479E-002	-2.436189E-003	-1.762757E-001	-8.596385E-002
345	8	-4.969658E-002	-2.391465E-003	-1.753646E-001	-8.438681E-002
345	9	-4.969389E-002	-2.436261E-003	-1.753547E-001	-8.596688E-002
346	1	-4.851476E-002	-3.266355E-003	-1.711934E-001	-1.152588E-001
346	2	-4.850237E-002	-3.383628E-003	-1.711517E-001	-1.193958E-001
346	3	-4.918545E-002	-3.383379E-003	-1.735599E-001	-1.193891E-001
346	4	-4.919480E-002	-3.266101E-003	-1.735944E-001	-1.152517E-001
346	5	-4.850981E-002	-3.324792E-003	-1.711728E-001	-1.173225E-001
346	6	-4.884369E-002	-3.383408E-003	-1.723564E-001	-1.193907E-001
346	7	-4.918942E-002	-3.324710E-003	-1.735762E-001	-1.173164E-001

346	8	-4.885450E-002	-3.266277E-003	-1.723924E-001	-1.152584E-001
346	9	-4.884915E-002	-3.324740E-003	-1.723749E-001	-1.173200E-001
347	1	-4.742509E-002	-4.058628E-003	-1.673506E-001	-1.432223E-001
347	2	-4.740784E-002	-4.195367E-003	-1.672983E-001	-1.480427E-001
347	3	-4.820528E-002	-4.195269E-003	-1.701011E-001	-1.480344E-001
347	4	-4.821955E-002	-4.058613E-003	-1.701519E-001	-1.432161E-001
347	5	-4.741681E-002	-4.126939E-003	-1.673189E-001	-1.456290E-001
347	6	-4.780691E-002	-4.195394E-003	-1.686959E-001	-1.480426E-001
347	7	-4.821210E-002	-4.126751E-003	-1.701257E-001	-1.456212E-001
347	8	-4.782259E-002	-4.058697E-003	-1.687509E-001	-1.432166E-001
347	9	-4.781439E-002	-4.126822E-003	-1.687233E-001	-1.456244E-001
348	1	-4.623868E-002	-4.758211E-003	-1.631642E-001	-1.679053E-001
348	2	-4.621646E-002	-4.905996E-003	-1.630868E-001	-1.731205E-001
348	3	-4.707672E-002	-4.905881E-003	-1.661196E-001	-1.731144E-001
348	4	-4.709640E-002	-4.758009E-003	-1.661884E-001	-1.678940E-001
348	5	-4.622894E-002	-4.831952E-003	-1.631268E-001	-1.705064E-001
348	6	-4.664710E-002	-4.905949E-003	-1.646034E-001	-1.731169E-001
348	7	-4.708596E-002	-4.831844E-003	-1.661540E-001	-1.704985E-001
348	8	-4.666746E-002	-4.758080E-003	-1.646759E-001	-1.679047E-001
348	9	-4.665739E-002	-4.831987E-003	-1.646397E-001	-1.705044E-001
349	1	-4.502074E-002	-5.359953E-003	-1.588915E-001	-1.891386E-001
349	2	-4.500074E-002	-5.509618E-003	-1.587933E-001	-1.944184E-001
349	3	-4.587314E-002	-5.509548E-003	-1.618721E-001	-1.944166E-001
349	4	-4.589678E-002	-5.359719E-003	-1.619552E-001	-1.891260E-001
349	5	-4.501404E-002	-5.434553E-003	-1.588436E-001	-1.917727E-001
349	6	-4.543682E-002	-5.509530E-003	-1.603328E-001	-1.944177E-001
349	7	-4.588450E-002	-5.434459E-003	-1.619134E-001	-1.917666E-001
349	8	-4.546285E-002	-5.359854E-003	-1.604236E-001	-1.891335E-001
349	9	-4.544944E-002	-5.434461E-003	-1.603787E-001	-1.917680E-001
350	1	-4.383225E-002	-5.864054E-003	-1.546719E-001	-2.069191E-001
350	2	-4.380289E-002	-6.010337E-003	-1.545678E-001	-2.120876E-001
350	3	-4.465441E-002	-6.010235E-003	-1.575712E-001	-2.120832E-001
350	4	-4.468258E-002	-5.863028E-003	-1.576716E-001	-2.069131E-001
350	5	-4.381783E-002	-5.937156E-003	-1.546214E-001	-2.095011E-001
350	6	-4.422864E-002	-6.010297E-003	-1.560702E-001	-2.120863E-001
350	7	-4.466833E-002	-5.936995E-003	-1.576222E-001	-2.094991E-001
350	8	-4.425755E-002	-5.863941E-003	-1.561715E-001	-2.069174E-001
350	9	-4.424318E-002	-5.937004E-003	-1.561213E-001	-2.095000E-001
351	1	-4.270708E-002	-6.274315E-003	-1.506985E-001	-2.214018E-001
351	2	-4.267367E-002	-6.412734E-003	-1.505810E-001	-2.262877E-001
351	3	-4.348074E-002	-6.412675E-003	-1.534286E-001	-2.262823E-001
351	4	-4.350862E-002	-6.274038E-003	-1.535300E-001	-2.213964E-001
351	5	-4.268966E-002	-6.343424E-003	-1.506396E-001	-2.238387E-001
351	6	-4.307618E-002	-6.412652E-003	-1.520047E-001	-2.262847E-001
351	7	-4.349458E-002	-6.343191E-003	-1.534800E-001	-2.238320E-001
351	8	-4.310746E-002	-6.274255E-003	-1.521142E-001	-2.213978E-001
351	9	-4.309193E-002	-6.343247E-003	-1.520594E-001	-2.238362E-001
352	1	-4.169346E-002	-6.597086E-003	-1.471248E-001	-2.327966E-001
352	2	-4.166251E-002	-6.720385E-003	-1.470138E-001	-2.371417E-001
352	3	-4.237717E-002	-6.720182E-003	-1.495378E-001	-2.371362E-001
352	4	-4.240664E-002	-6.597057E-003	-1.496436E-001	-2.327929E-001
352	5	-4.167773E-002	-6.658745E-003	-1.470685E-001	-2.349675E-001
352	6	-4.201987E-002	-6.720328E-003	-1.482755E-001	-2.371378E-001
352	7	-4.239275E-002	-6.658521E-003	-1.495986E-001	-2.349625E-001
352	8	-4.205010E-002	-6.597141E-003	-1.483836E-001	-2.327916E-001
352	9	-4.203519E-002	-6.658612E-003	-1.483297E-001	-2.349619E-001
353	1	-4.076479E-002	-6.839717E-003	-1.438487E-001	-2.413496E-001
353	2	-4.073234E-002	-6.954724E-003	-1.437389E-001	-2.454126E-001
353	3	-4.140114E-002	-6.954589E-003	-1.460915E-001	-2.454052E-001
353	4	-4.143117E-002	-6.839635E-003	-1.461974E-001	-2.413491E-001

353	5	-4.074795E-002	-6.897862E-003	-1.437879E-001	-2.433761E-001
353	6	-4.186667E-002	-6.954599E-003	-1.449187E-001	-2.454083E-001
353	7	-4.141607E-002	-6.896986E-003	-1.461465E-001	-2.433738E-001
353	8	-4.189803E-002	-6.839557E-003	-1.450226E-001	-2.413525E-001
353	9	-4.188240E-002	-6.896974E-003	-1.449679E-001	-2.433736E-001
354	1	-4.012702E-002	-7.012343E-003	-1.415976E-001	-2.474393E-001
354	2	-4.010431E-002	-7.086191E-003	-1.415162E-001	-2.500513E-001
354	3	-4.053375E-002	-7.086118E-003	-1.430314E-001	-2.500478E-001
354	4	-4.055558E-002	-7.012192E-003	-1.431083E-001	-2.474374E-001
354	5	-4.011532E-002	-7.049088E-003	-1.415551E-001	-2.487428E-001
354	6	-4.031888E-002	-7.086185E-003	-1.422730E-001	-2.500490E-001
354	7	-4.054441E-002	-7.049065E-003	-1.430690E-001	-2.487431E-001
354	8	-4.034132E-002	-7.012268E-003	-1.423523E-001	-2.474460E-001
354	9	-4.033019E-002	-7.049187E-003	-1.423138E-001	-2.487429E-001
355	1	-3.871236E-002	-7.094753E-003	-1.366051E-001	-2.503605E-001
355	2	-3.864462E-002	-7.294549E-003	-1.363663E-001	-2.574017E-001
355	3	-3.980616E-002	-7.294264E-003	-1.404639E-001	-2.573936E-001
355	4	-3.986971E-002	-7.094481E-003	-1.406980E-001	-2.503482E-001
355	5	-3.867881E-002	-7.194544E-003	-1.364864E-001	-2.538751E-001
355	6	-3.922490E-002	-7.294414E-003	-1.384142E-001	-2.573955E-001
355	7	-3.983877E-002	-7.194270E-003	-1.405775E-001	-2.538663E-001
355	8	-3.929119E-002	-7.094746E-003	-1.386466E-001	-2.503557E-001
355	9	-3.925832E-002	-7.194368E-003	-1.385387E-001	-2.538695E-001
356	1	-3.445045E-004	-6.705839E-005	-1.215665E-001	-2.366382E-001
356	2	-3.421812E-004	-7.343556E-005	-1.207448E-001	-2.591301E-001
356	3	-3.791998E-002	-7.342834E-003	-1.338092E-001	-2.591052E-001
356	4	-3.814063E-002	-6.705105E-003	-1.345808E-001	-2.366044E-001
356	5	-3.433426E-004	-7.024127E-005	-1.211568E-001	-2.478597E-001
356	6	-3.686939E-002	-7.343219E-003	-1.272773E-001	-2.591200E-001
356	7	-3.803040E-002	-7.023387E-003	-1.341982E-001	-2.478358E-001
356	8	-3.629564E-002	-6.705497E-003	-1.280759E-001	-2.366211E-001
356	9	-3.618270E-002	-7.023775E-003	-1.276768E-001	-2.478487E-001
357	1	-4.220157E-004	-4.372118E-005	-1.489176E-001	-1.542884E-001
357	2	-4.264029E-004	-3.251290E-005	-1.504647E-001	-1.147302E-001
357	3	-3.613399E-004	-3.252465E-005	-1.275070E-001	-1.147681E-001
357	4	-3.571745E-004	-4.373385E-005	-1.260357E-001	-1.543231E-001
357	5	-4.242061E-004	-3.812555E-005	-1.496887E-001	-1.345392E-001
357	6	-3.938704E-004	-3.251914E-005	-1.389859E-001	-1.147491E-001
357	7	-3.592497E-004	-3.813797E-005	-1.267689E-001	-1.345798E-001
357	8	-3.895977E-004	-4.372800E-005	-1.374702E-001	-1.543044E-001
357	9	-3.917312E-004	-3.813286E-005	-1.382311E-001	-1.345592E-001
358	1	-4.467722E-004	-4.384706E-005	-1.576521E-001	-1.518963E-001
358	2	-4.477197E-004	-4.077866E-005	-1.579874E-001	-1.438964E-001
358	3	-4.345258E-004	-4.078173E-005	-1.533329E-001	-1.439055E-001
358	4	-4.336252E-004	-4.384873E-005	-1.530137E-001	-1.519074E-001
358	5	-4.472451E-004	-4.191375E-005	-1.578204E-001	-1.479041E-001
358	6	-4.411262E-004	-4.078036E-005	-1.556604E-001	-1.439015E-001
358	7	-4.340830E-004	-4.191697E-005	-1.531734E-001	-1.479112E-001
358	8	-4.401988E-004	-4.384790E-005	-1.553340E-001	-1.519051E-001
358	9	-4.406603E-004	-4.191554E-005	-1.554956E-001	-1.479061E-001
359	1	-4.654239E-004	-3.650265E-005	-1.642332E-001	-1.288136E-001
359	2	-4.663852E-004	-3.439029E-005	-1.645716E-001	-1.213540E-001
359	3	-4.540993E-004	-3.439257E-005	-1.602389E-001	-1.213610E-001
359	4	-4.532092E-004	-3.650555E-005	-1.599228E-001	-1.288177E-001
359	5	-4.658994E-004	-3.544856E-005	-1.644029E-001	-1.250921E-001
359	6	-4.602377E-004	-3.439143E-005	-1.624043E-001	-1.213602E-001
359	7	-4.536503E-004	-3.545069E-005	-1.600803E-001	-1.250962E-001
359	8	-4.593137E-004	-3.650349E-005	-1.620781E-001	-1.288126E-001
359	9	-4.597758E-004	-3.545003E-005	-1.622418E-001	-1.250949E-001
360	1	-4.753983E-004	-2.726193E-005	-1.677537E-001	-9.620198E-002

360	2	-4.756829E-004	-2.666297E-005	-1.670527E-001	-9.488879E-002
360	3	-4.722071E-004	-2.666378E-005	-1.666269E-001	-9.488871E-002
360	4	-4.719250E-004	-2.726253E-005	-1.665389E-001	-9.620591E-002
360	5	-4.755382E-004	-2.696327E-005	-1.678034E-001	-9.514317E-002
360	6	-4.739413E-004	-2.666381E-005	-1.672400E-001	-9.488671E-002
360	7	-4.720668E-004	-2.696257E-005	-1.665774E-001	-9.514713E-002
360	8	-4.736618E-004	-2.726223E-005	-1.671407E-001	-9.620204E-002
360	9	-4.738018E-004	-2.696301E-005	-1.671905E-001	-9.514581E-002
361	1	-4.881235E-002	-4.679491E-004	-1.722455E-001	-1.651311E-002
361	2	-4.885247E-002	-4.679672E-004	-1.723868E-001	-1.651387E-002
361	3	-4.885254E-002	-4.608548E-004	-1.723871E-001	-1.626843E-002
361	4	-4.881229E-002	-4.607789E-004	-1.722441E-001	-1.626070E-002
361	5	-4.883223E-002	-4.678874E-004	-1.723158E-001	-1.651173E-002
361	6	-4.885247E-002	-4.644668E-004	-1.723879E-001	-1.638694E-002
361	7	-4.883223E-002	-4.608553E-004	-1.723158E-001	-1.626152E-002
361	8	-4.881263E-002	-4.643864E-004	-1.722454E-001	-1.638980E-002
361	9	-4.883223E-002	-4.644069E-004	-1.723158E-001	-1.638736E-002
362	1	-4.846755E-002	-1.438323E-003	-1.710291E-001	-5.875356E-002
362	2	-4.876358E-002	-1.438269E-003	-1.720720E-001	-5.875017E-002
362	3	-4.876346E-002	-1.386294E-003	-1.720713E-001	-4.891594E-002
362	4	-4.846825E-002	-1.386325E-003	-1.710288E-001	-4.891906E-002
362	5	-4.861597E-002	-1.438270E-003	-1.715506E-001	-5.875225E-002
362	6	-4.876318E-002	-1.412241E-003	-1.720708E-001	-4.983487E-002
362	7	-4.861553E-002	-1.386191E-003	-1.715503E-001	-4.891492E-002
362	8	-4.846797E-002	-1.412282E-003	-1.710296E-001	-4.983722E-002
362	9	-4.861602E-002	-1.412260E-003	-1.715505E-001	-4.983537E-002
363	1	-4.787241E-002	-2.366566E-003	-1.689262E-001	-8.358705E-002
363	2	-4.835473E-002	-2.366488E-003	-1.706293E-001	-8.358422E-002
363	3	-4.835532E-002	-2.281645E-003	-1.706314E-001	-8.051299E-002
363	4	-4.787314E-002	-2.281778E-003	-1.689298E-001	-8.051659E-002
363	5	-4.811355E-002	-2.366498E-003	-1.697794E-001	-8.358671E-002
363	6	-4.835468E-002	-2.324054E-003	-1.706307E-001	-8.200776E-002
363	7	-4.811389E-002	-2.281712E-003	-1.697801E-001	-8.051479E-002
363	8	-4.787286E-002	-2.324106E-003	-1.689299E-001	-8.201069E-002
363	9	-4.811384E-002	-2.324061E-003	-1.697803E-001	-8.200765E-002
364	1	-4.707764E-002	-3.233316E-003	-1.661233E-001	-1.140966E-001
364	2	-4.771882E-002	-3.233308E-003	-1.683556E-001	-1.140930E-001
364	3	-4.770992E-002	-3.121709E-003	-1.683547E-001	-1.101572E-001
364	4	-4.707741E-002	-3.121914E-003	-1.661230E-001	-1.101637E-001
364	5	-4.739401E-002	-3.233318E-003	-1.672394E-001	-1.140959E-001
364	6	-4.771879E-002	-3.177516E-003	-1.683559E-001	-1.121244E-001
364	7	-4.739396E-002	-3.121889E-003	-1.672394E-001	-1.101598E-001
364	8	-4.707698E-002	-3.177644E-003	-1.661225E-001	-1.121278E-001
364	9	-4.739386E-002	-3.177578E-003	-1.672391E-001	-1.121277E-001
365	1	-4.613810E-002	-4.020310E-003	-1.628065E-001	-1.418618E-001
365	2	-4.687734E-002	-4.020104E-003	-1.654171E-001	-1.418553E-001
365	3	-4.687722E-002	-3.890012E-003	-1.654167E-001	-1.372661E-001
365	4	-4.613677E-002	-3.890180E-003	-1.628057E-001	-1.372740E-001
365	5	-4.650740E-002	-4.020205E-003	-1.641117E-001	-1.418597E-001
365	6	-4.687798E-002	-3.955042E-003	-1.654176E-001	-1.395631E-001
365	7	-4.650756E-002	-3.890164E-003	-1.641116E-001	-1.372713E-001
365	8	-4.613744E-002	-3.955265E-003	-1.628039E-001	-1.395691E-001
365	9	-4.650717E-002	-3.955193E-003	-1.641094E-001	-1.395657E-001
366	1	-4.511508E-002	-4.716660E-003	-1.591970E-001	-1.664368E-001
366	2	-4.591418E-002	-4.716421E-003	-1.620152E-001	-1.664296E-001
366	3	-4.591326E-002	-4.575805E-003	-1.620145E-001	-1.614698E-001
366	4	-4.511484E-002	-4.576052E-003	-1.591993E-001	-1.614756E-001
366	5	-4.551434E-002	-4.716444E-003	-1.606063E-001	-1.664301E-001
366	6	-4.591320E-002	-4.646148E-003	-1.620154E-001	-1.639504E-001
366	7	-4.551434E-002	-4.575958E-003	-1.606063E-001	-1.614689E-001

366	8	-4.511520E-002	-4.646342E-003	-1.591982E-001	-1.639548E-001
366	9	-4.551434E-002	-4.646235E-003	-1.606063E-001	-1.639523E-001
367	1	-4.406122E-002	-5.317592E-003	-1.554822E-001	-1.876400E-001
367	2	-4.487940E-002	-5.317387E-003	-1.583682E-001	-1.876342E-001
367	3	-4.488004E-002	-5.173698E-003	-1.583692E-001	-1.825640E-001
367	4	-4.406144E-002	-5.173808E-003	-1.554836E-001	-1.825705E-001
367	5	-4.447082E-002	-5.317451E-003	-1.569242E-001	-1.876385E-001
367	6	-4.488020E-002	-5.245583E-003	-1.583687E-001	-1.851009E-001
367	7	-4.447082E-002	-5.173753E-003	-1.569242E-001	-1.825653E-001
367	8	-4.406109E-002	-5.245741E-003	-1.554810E-001	-1.851041E-001
367	9	-4.447082E-002	-5.245632E-003	-1.569242E-001	-1.851015E-001
368	1	-4.383079E-002	-5.822530E-003	-1.518437E-001	-2.054580E-001
368	2	-4.382700E-002	-5.822385E-003	-1.546521E-001	-2.054526E-001
368	3	-4.382650E-002	-5.682312E-003	-1.546517E-001	-2.005115E-001
368	4	-4.383160E-002	-5.682494E-003	-1.518444E-001	-2.005179E-001
368	5	-4.342914E-002	-5.822454E-003	-1.532491E-001	-2.054553E-001
368	6	-4.382723E-002	-5.752337E-003	-1.546519E-001	-2.029825E-001
368	7	-4.342914E-002	-5.682284E-003	-1.532491E-001	-2.005115E-001
368	8	-4.383207E-002	-5.752481E-003	-1.518456E-001	-2.029884E-001
368	9	-4.342914E-002	-5.752389E-003	-1.532491E-001	-2.029864E-001
369	1	-4.206061E-002	-6.235382E-003	-1.484177E-001	-2.288245E-001
369	2	-4.280722E-002	-6.235137E-003	-1.510527E-001	-2.288184E-001
369	3	-4.280692E-002	-6.104021E-003	-1.510520E-001	-2.153921E-001
369	4	-4.206077E-002	-6.104187E-003	-1.484177E-001	-2.153990E-001
369	5	-4.243361E-002	-6.235277E-003	-1.497371E-001	-2.288211E-001
369	6	-4.280680E-002	-6.169558E-003	-1.510529E-001	-2.177853E-001
369	7	-4.243341E-002	-6.104074E-003	-1.497349E-001	-2.153918E-001
369	8	-4.280814E-002	-6.169733E-003	-1.484183E-001	-2.177188E-001
369	9	-4.243341E-002	-6.169626E-003	-1.497368E-001	-2.177893E-001
370	1	-4.110285E-002	-6.562369E-003	-1.453215E-001	-2.315643E-001
370	2	-4.185406E-002	-6.562101E-003	-1.476902E-001	-2.315558E-001
370	3	-4.185367E-002	-6.444079E-003	-1.476891E-001	-2.273928E-001
370	4	-4.110299E-002	-6.444227E-003	-1.453227E-001	-2.273977E-001
370	5	-4.151849E-002	-6.562144E-003	-1.465060E-001	-2.315612E-001
370	6	-4.185485E-002	-6.503867E-003	-1.476915E-001	-2.294752E-001
370	7	-4.151861E-002	-6.444203E-003	-1.465962E-001	-2.273965E-001
370	8	-4.118301E-002	-6.503243E-003	-1.453221E-001	-2.294803E-001
370	9	-4.151862E-002	-6.503165E-003	-1.465082E-001	-2.294771E-001
371	1	-4.042897E-002	-6.888325E-003	-1.426335E-001	-2.402446E-001
371	2	-4.100133E-002	-6.888206E-003	-1.446029E-001	-2.402426E-001
371	3	-4.100155E-002	-6.796458E-003	-1.446030E-001	-2.366516E-001
371	4	-4.042252E-002	-6.796571E-003	-1.426372E-001	-2.366566E-001
371	5	-4.071134E-002	-6.888240E-003	-1.436602E-001	-2.402447E-001
371	6	-4.100140E-002	-6.757341E-003	-1.446029E-001	-2.384467E-001
371	7	-4.071143E-002	-6.796495E-003	-1.436583E-001	-2.366522E-001
371	8	-4.042142E-002	-6.757427E-003	-1.426360E-001	-2.384586E-001
371	9	-4.071138E-002	-6.757365E-003	-1.436601E-001	-2.384467E-001
372	1	-3.979121E-002	-6.989399E-003	-1.404101E-001	-2.466358E-001
372	2	-4.026759E-002	-6.989316E-003	-1.420937E-001	-2.466336E-001
372	3	-4.026806E-002	-6.905313E-003	-1.420943E-001	-2.436714E-001
372	4	-3.979135E-002	-6.905432E-003	-1.404087E-001	-2.436712E-001
372	5	-4.002952E-002	-6.989386E-003	-1.412526E-001	-2.466343E-001
372	6	-4.026818E-002	-6.947366E-003	-1.420939E-001	-2.451507E-001
372	7	-4.002952E-002	-6.905472E-003	-1.412526E-001	-2.436745E-001
372	8	-3.979152E-002	-6.947422E-003	-1.404113E-001	-2.451549E-001
372	9	-4.002952E-002	-6.947404E-003	-1.412526E-001	-2.451538E-001
373	1	-3.902643E-002	-7.050329E-003	-1.377111E-001	-2.487844E-001
373	2	-3.963275E-002	-7.050167E-003	-1.398543E-001	-2.487833E-001
373	3	-3.963298E-002	-6.943526E-003	-1.398535E-001	-2.450177E-001
373	4	-3.902639E-002	-6.943678E-003	-1.377122E-001	-2.450218E-001

373	5	-3.932941E-002	-7.050287E-003	-1.387816E-001	-2.487829E-001
373	6	-3.963306E-002	-6.996979E-003	-1.398538E-001	-2.469001E-001
373	7	-3.932970E-002	-6.943642E-003	-1.387832E-001	-2.450211E-001
373	8	-3.902626E-002	-6.997013E-003	-1.377104E-001	-2.469961E-001
373	9	-3.932947E-002	-6.996998E-003	-1.387835E-001	-2.469941E-001
374	1	-4.235722E-002	-6.688224E-005	-1.494657E-001	-2.360089E-001
374	2	-3.937209E-002	-6.688812E-003	-1.389325E-001	-2.360276E-001
374	3	-3.937240E-002	-7.213918E-003	-1.389321E-001	-2.545578E-001
374	4	-4.235799E-002	-7.213386E-003	-1.494656E-001	-2.545393E-001
374	5	-4.086472E-002	-6.688532E-003	-1.441992E-001	-2.360193E-001
374	6	-3.937168E-002	-6.951457E-003	-1.389323E-001	-2.452935E-001
374	7	-4.086473E-002	-7.213712E-003	-1.441988E-001	-2.545499E-001
374	8	-4.276214E-002	-7.017278E-003	-1.494663E-001	-2.452734E-001
374	9	-4.086484E-002	-6.951095E-003	-1.441994E-001	-2.452844E-001
375	1	-4.031271E-004	-4.479478E-005	-1.422532E-001	-1.580661E-001
375	2	-4.247689E-004	-4.479168E-005	-1.498869E-001	-1.580546E-001
375	3	-4.247688E-004	-4.098461E-005	-1.498878E-001	-1.446221E-001
375	4	-4.031300E-004	-4.098810E-005	-1.422533E-001	-1.446339E-001
375	5	-4.139493E-004	-4.479212E-005	-1.460696E-001	-1.580615E-001
375	6	-4.247682E-004	-4.288852E-005	-1.498880E-001	-1.513388E-001
375	7	-4.139493E-004	-4.098715E-005	-1.460696E-001	-1.446331E-001
375	8	-4.031271E-004	-4.289161E-005	-1.422526E-001	-1.513531E-001
375	9	-4.139493E-004	-4.288992E-005	-1.460696E-001	-1.513447E-001
376	1	-4.711511E-004	-4.495652E-005	-1.662572E-001	-1.586383E-001
376	2	-4.098164E-004	-4.496898E-005	-1.443317E-001	-1.586829E-001
376	3	-4.098248E-004	-5.587424E-005	-1.443318E-001	-1.971639E-001
376	4	-4.711526E-004	-5.586185E-005	-1.662586E-001	-1.971209E-001
376	5	-4.408869E-004	-4.496199E-005	-1.552934E-001	-1.586612E-001
376	6	-4.098184E-004	-5.842126E-005	-1.443317E-001	-1.779224E-001
376	7	-4.408868E-004	-5.586725E-005	-1.552935E-001	-1.971411E-001
376	8	-4.711526E-004	-5.840923E-005	-1.662567E-001	-1.778798E-001
376	9	-4.408865E-004	-5.841510E-005	-1.552931E-001	-1.779017E-001
377	1	-4.788892E-004	-3.677451E-005	-1.689577E-001	-1.297657E-001
377	2	-4.880197E-004	-3.677417E-005	-1.693866E-001	-1.297674E-001
377	3	-4.880228E-004	-3.656186E-005	-1.693864E-001	-1.290149E-001
377	4	-4.788834E-004	-3.656197E-005	-1.689587E-001	-1.290177E-001
377	5	-4.794159E-004	-3.677495E-005	-1.691725E-001	-1.297673E-001
377	6	-4.880186E-004	-3.666807E-005	-1.693838E-001	-1.293911E-001
377	7	-4.794159E-004	-3.656224E-005	-1.691725E-001	-1.290177E-001
377	8	-4.780152E-004	-3.666822E-005	-1.689589E-001	-1.293899E-001
377	9	-4.794159E-004	-3.666786E-005	-1.691725E-001	-1.293906E-001
378	1	-4.997769E-004	-2.781694E-005	-1.763591E-001	-9.815657E-002
378	2	-4.813198E-004	-2.782066E-005	-1.698436E-001	-9.817097E-002
378	3	-4.813191E-004	-3.106527E-005	-1.698458E-001	-1.096222E-001
378	4	-4.997784E-004	-3.106238E-005	-1.763585E-001	-1.096101E-001
378	5	-4.905486E-004	-2.781886E-005	-1.731004E-001	-9.816186E-002
378	6	-4.813219E-004	-2.944243E-005	-1.698443E-001	-1.038954E-001
378	7	-4.905486E-004	-3.106378E-005	-1.731004E-001	-1.096162E-001
378	8	-4.997732E-004	-2.943991E-005	-1.763591E-001	-1.038819E-001
378	9	-4.905486E-004	-2.944149E-005	-1.731004E-001	-1.038903E-001
379	1	-5.686127E-005	-2.195910E-005	-2.006396E-001	-7.748455E-001
379	2	-5.104802E-005	-2.339231E-005	-1.801254E-001	-8.254195E-001
379	3	-5.104791E-005	-2.656858E-005	-1.801262E-001	-9.374958E-001
379	4	-5.686191E-005	-2.529718E-005	-2.006404E-001	-8.926299E-001
379	5	-5.388240E-005	-2.263081E-005	-1.901297E-001	-8.807618E-001
379	6	-5.104763E-005	-2.498056E-005	-1.801254E-001	-8.814675E-001
379	7	-5.388268E-005	-2.594874E-005	-1.901309E-001	-9.156232E-001
379	8	-5.686136E-005	-2.362819E-005	-2.006409E-001	-8.337420E-001
379	9	-5.388302E-005	-2.432131E-005	-1.901309E-001	-8.581948E-001
380	1	-6.237092E-005	-2.440585E-005	-2.200811E-001	-8.611655E-001

380	2	-5.831340E-005	-2.539816E-005	-2.057631E-001	-8.961964E-001
380	3	-5.831336E-005	-2.745491E-005	-2.057619E-001	-9.687715E-001
380	4	-6.237013E-005	-2.657341E-005	-2.200787E-001	-9.376706E-001
380	5	-6.028038E-005	-2.491455E-005	-2.127333E-001	-8.791338E-001
380	6	-5.831328E-005	-2.642663E-005	-2.057630E-001	-9.324781E-001
380	7	-6.028038E-005	-2.782635E-005	-2.127333E-001	-9.536368E-001
380	8	-6.237093E-005	-2.548939E-005	-2.200776E-001	-8.994077E-001
380	9	-6.028038E-005	-2.597024E-005	-2.127333E-001	-9.163873E-001
381	1	-4.717698E-002	-4.583062E-004	-1.664711E-001	-1.617388E-002
381	2	-4.724964E-002	-4.582496E-004	-1.667288E-001	-1.617114E-002
381	3	-4.724924E-002	-4.455541E-004	-1.667290E-001	-1.572425E-002
381	4	-4.717654E-002	-4.454437E-004	-1.664735E-001	-1.572036E-002
381	5	-4.721329E-002	-4.582989E-004	-1.666018E-001	-1.616994E-002
381	6	-4.724924E-002	-4.519798E-004	-1.667290E-001	-1.594767E-002
381	7	-4.721329E-002	-4.454989E-004	-1.666018E-001	-1.572040E-002
381	8	-4.717735E-002	-4.518968E-004	-1.664748E-001	-1.594635E-002
381	9	-4.721329E-002	-4.518981E-004	-1.666018E-001	-1.594763E-002
382	1	-4.688573E-002	-1.372724E-003	-1.654466E-001	-4.843936E-002
382	2	-4.713041E-002	-1.372703E-003	-1.663098E-001	-4.843712E-002
382	3	-4.713098E-002	-1.329624E-003	-1.663100E-001	-4.691711E-002
382	4	-4.688645E-002	-1.329628E-003	-1.654464E-001	-4.691989E-002
382	5	-4.700856E-002	-1.372713E-003	-1.658708E-001	-4.844015E-002
382	6	-4.713094E-002	-1.351209E-003	-1.663100E-001	-4.767832E-002
382	7	-4.700864E-002	-1.329626E-003	-1.658786E-001	-4.692125E-002
382	8	-4.688585E-002	-1.351203E-003	-1.654471E-001	-4.768188E-002
382	9	-4.700860E-002	-1.351196E-003	-1.658778E-001	-4.767882E-002
383	1	-4.638264E-002	-2.259205E-003	-1.636712E-001	-7.972337E-002
383	2	-4.679138E-002	-2.259027E-003	-1.651122E-001	-7.971907E-002
383	3	-4.679104E-002	-2.187435E-003	-1.651124E-001	-7.718997E-002
383	4	-4.638308E-002	-2.187523E-003	-1.636717E-001	-7.719215E-002
383	5	-4.658738E-002	-2.259228E-003	-1.643908E-001	-7.972421E-002
383	6	-4.679127E-002	-2.223276E-003	-1.651117E-001	-7.845543E-002
383	7	-4.658659E-002	-2.187586E-003	-1.643924E-001	-7.719356E-002
383	8	-4.638341E-002	-2.223401E-003	-1.636712E-001	-7.845692E-002
383	9	-4.658703E-002	-2.223378E-003	-1.643925E-001	-7.845742E-002
384	1	-4.571284E-002	-3.092234E-003	-1.613058E-001	-1.091166E-001
384	2	-4.624617E-002	-3.092076E-003	-1.631898E-001	-1.091102E-001
384	3	-4.624636E-002	-2.998031E-003	-1.631889E-001	-1.057939E-001
384	4	-4.571167E-002	-2.998151E-003	-1.613048E-001	-1.057979E-001
384	5	-4.597885E-002	-3.092147E-003	-1.622460E-001	-1.091124E-001
384	6	-4.624585E-002	-3.045141E-003	-1.631869E-001	-1.074513E-001
384	7	-4.597874E-002	-2.998130E-003	-1.622458E-001	-1.057940E-001
384	8	-4.571281E-002	-3.045103E-003	-1.613036E-001	-1.074573E-001
384	9	-4.597892E-002	-3.045123E-003	-1.622456E-001	-1.074546E-001
385	1	-4.491565E-002	-3.855456E-003	-1.584946E-001	-1.360461E-001
385	2	-4.554326E-002	-3.855380E-003	-1.607082E-001	-1.360448E-001
385	3	-4.554272E-002	-3.745142E-003	-1.607078E-001	-1.321545E-001
385	4	-4.491529E-002	-3.745185E-003	-1.584939E-001	-1.321573E-001
385	5	-4.522883E-002	-3.855424E-003	-1.596001E-001	-1.360455E-001
385	6	-4.554312E-002	-3.800223E-003	-1.607075E-001	-1.340987E-001
385	7	-4.522917E-002	-3.745164E-003	-1.596008E-001	-1.321571E-001
385	8	-4.491499E-002	-3.800340E-003	-1.584927E-001	-1.341011E-001
385	9	-4.522936E-002	-3.800252E-003	-1.596006E-001	-1.341006E-001
386	1	-4.484676E-002	-4.538471E-003	-1.554286E-001	-1.601457E-001
386	2	-4.472507E-002	-4.538303E-003	-1.578226E-001	-1.601414E-001
386	3	-4.472511E-002	-4.418815E-003	-1.578229E-001	-1.559272E-001
386	4	-4.484656E-002	-4.418895E-003	-1.554310E-001	-1.559313E-001
386	5	-4.438650E-002	-4.538336E-003	-1.566256E-001	-1.601417E-001
386	6	-4.472538E-002	-4.478606E-003	-1.578227E-001	-1.580360E-001
386	7	-4.438658E-002	-4.418885E-003	-1.566256E-001	-1.559273E-001

386	8	-4.484698E-002	-4.478680E-003	-1.554279E-001	-1.580388E-001
386	9	-4.438658E-002	-4.478684E-003	-1.566256E-001	-1.580363E-001
387	1	-4.315065E-002	-5.135317E-003	-1.522633E-001	-1.812082E-001
387	2	-4.384731E-002	-5.135151E-003	-1.547231E-001	-1.812047E-001
387	3	-4.384636E-002	-5.012734E-003	-1.547209E-001	-1.768852E-001
387	4	-4.315036E-002	-5.012882E-003	-1.522666E-001	-1.768924E-001
387	5	-4.349833E-002	-5.135288E-003	-1.534938E-001	-1.812085E-001
387	6	-4.384710E-002	-5.073948E-003	-1.547236E-001	-1.790464E-001
387	7	-4.349833E-002	-5.012928E-003	-1.534938E-001	-1.768920E-001
387	8	-4.315050E-002	-5.074156E-003	-1.522640E-001	-1.790511E-001
387	9	-4.349833E-002	-5.074082E-003	-1.534938E-001	-1.790487E-001
388	1	-4.227205E-002	-5.644797E-003	-1.491668E-001	-1.991078E-001
388	2	-4.295013E-002	-5.644697E-003	-1.515598E-001	-1.991046E-001
388	3	-4.295023E-002	-5.525203E-003	-1.515594E-001	-1.949713E-001
388	4	-4.227236E-002	-5.525476E-003	-1.491661E-001	-1.949762E-001
388	5	-4.261103E-002	-5.644752E-003	-1.503616E-001	-1.991061E-001
388	6	-4.295041E-002	-5.585051E-003	-1.515596E-001	-1.970791E-001
388	7	-4.261103E-002	-5.525380E-003	-1.503616E-001	-1.949718E-001
388	8	-4.227173E-002	-5.585146E-003	-1.491636E-001	-1.970833E-001
388	9	-4.261103E-002	-5.585078E-003	-1.503616E-001	-1.970812E-001
389	1	-4.144585E-002	-6.868868E-003	-1.462513E-001	-2.141569E-001
389	2	-4.208077E-002	-6.868806E-003	-1.484918E-001	-2.141520E-001
389	3	-4.208090E-002	-5.957345E-003	-1.484919E-001	-2.102161E-001
389	4	-4.144551E-002	-5.957397E-003	-1.462494E-001	-2.102215E-001
389	5	-4.176365E-002	-6.868894E-003	-1.473720E-001	-2.141551E-001
389	6	-4.208084E-002	-6.813898E-003	-1.484918E-001	-2.121845E-001
389	7	-4.176322E-002	-5.957400E-003	-1.473719E-001	-2.102182E-001
389	8	-4.144489E-002	-6.813286E-003	-1.462487E-001	-2.121869E-001
389	9	-4.176351E-002	-6.813132E-003	-1.473718E-001	-2.121876E-001
390	1	-6.650684E-005	-2.684755E-005	-2.346748E-001	-9.198863E-001
390	2	-6.341989E-005	-2.680785E-005	-2.237812E-001	-9.459327E-001
390	3	-6.341925E-005	-2.827358E-005	-2.237792E-001	-9.976608E-001
390	4	-6.650590E-005	-2.759834E-005	-2.346758E-001	-9.738245E-001
390	5	-6.491943E-005	-2.643872E-005	-2.290718E-001	-9.328998E-001
390	6	-6.341989E-005	-2.754069E-005	-2.237807E-001	-9.718838E-001
390	7	-6.491903E-005	-2.794559E-005	-2.290713E-001	-9.860802E-001
390	8	-6.650681E-005	-2.682292E-005	-2.346742E-001	-9.464619E-001
390	9	-6.491870E-005	-2.719194E-005	-2.290718E-001	-9.594935E-001
391	1	-4.078093E-002	-6.412499E-003	-1.436212E-001	-2.262793E-001
391	2	-4.127067E-002	-6.412457E-003	-1.456319E-001	-2.262735E-001
391	3	-4.127054E-002	-6.312118E-003	-1.456322E-001	-2.227373E-001
391	4	-4.078074E-002	-6.312222E-003	-1.436205E-001	-2.227428E-001
391	5	-4.098549E-002	-6.412480E-003	-1.446262E-001	-2.262817E-001
391	6	-4.127037E-002	-6.362266E-003	-1.456314E-001	-2.245069E-001
391	7	-4.098540E-002	-6.312300E-003	-1.446253E-001	-2.227428E-001
391	8	-4.078059E-002	-6.362467E-003	-1.436199E-001	-2.245114E-001
391	9	-4.098560E-002	-6.362387E-003	-1.446254E-001	-2.245091E-001
392	1	-4.007721E-002	-6.679728E-003	-1.414206E-001	-2.357104E-001
392	2	-4.054932E-002	-6.679720E-003	-1.430870E-001	-2.357051E-001
392	3	-4.054937E-002	-6.596777E-003	-1.430859E-001	-2.327846E-001
392	4	-4.007683E-002	-6.596904E-003	-1.414210E-001	-2.327867E-001
392	5	-4.031298E-002	-6.679643E-003	-1.422536E-001	-2.357040E-001
392	6	-4.054921E-002	-6.638217E-003	-1.438856E-001	-2.342434E-001
392	7	-4.031368E-002	-6.596841E-003	-1.422538E-001	-2.327824E-001
392	8	-4.007765E-002	-6.638280E-003	-1.414217E-001	-2.342474E-001
392	9	-4.031337E-002	-6.638278E-003	-1.422535E-001	-2.342463E-001
393	1	-3.948227E-002	-6.881533E-003	-1.393229E-001	-2.428302E-001
393	2	-3.994140E-002	-6.881478E-003	-1.409412E-001	-2.428262E-001
393	3	-3.994233E-002	-6.800652E-003	-1.409438E-001	-2.399744E-001
393	4	-3.948257E-002	-6.800681E-003	-1.393209E-001	-2.399758E-001

393	5	-3.971229E-002	-6.881513E-003	-1.401333E-001	-2.428273E-001
393	6	-3.994133E-002	-6.841016E-003	-1.409435E-001	-2.413999E-001
393	7	-3.971229E-002	-6.800637E-003	-1.401333E-001	-2.399732E-001
393	8	-3.948257E-002	-6.841114E-003	-1.393241E-001	-2.414034E-001
393	9	-3.971229E-002	-6.841154E-003	-1.401333E-001	-2.414023E-001
394	1	-3.973396E-002	-6.935248E-003	-1.402089E-001	-2.447223E-001
394	2	-3.945632E-002	-6.935297E-003	-1.392285E-001	-2.447265E-001
394	3	-3.945655E-002	-6.983994E-003	-1.392296E-001	-2.464461E-001
394	4	-3.973391E-002	-6.984026E-003	-1.402081E-001	-2.464428E-001
394	5	-3.959502E-002	-6.935196E-003	-1.397182E-001	-2.447215E-001
394	6	-3.945664E-002	-6.959624E-003	-1.392299E-001	-2.455847E-001
394	7	-3.959478E-002	-6.983969E-003	-1.397195E-001	-2.464488E-001
394	8	-3.973361E-002	-6.959540E-003	-1.402088E-001	-2.455821E-001
394	9	-3.959505E-002	-6.959621E-003	-1.397199E-001	-2.455834E-001
395	1	-3.713409E-002	-7.231869E-003	-1.310367E-001	-2.551987E-001
395	2	-3.943906E-002	-7.231372E-003	-1.391602E-001	-2.551754E-001
395	3	-3.943889E-002	-6.826841E-003	-1.391602E-001	-2.408693E-001
395	4	-3.713486E-002	-6.826533E-003	-1.310385E-001	-2.408840E-001
395	5	-3.828683E-002	-7.231613E-003	-1.351036E-001	-2.551836E-001
395	6	-3.943882E-002	-7.028657E-003	-1.391681E-001	-2.480221E-001
395	7	-3.828688E-002	-6.826228E-003	-1.351033E-001	-2.408747E-001
395	8	-3.713505E-002	-7.029191E-003	-1.310373E-001	-2.480371E-001
395	9	-3.828730E-002	-7.028935E-003	-1.351038E-001	-2.480300E-001
396	1	-6.154516E-004	-4.592667E-005	-2.171730E-001	-1.620608E-001
396	2	-4.219074E-002	-4.855898E-003	-1.409439E-001	-1.621949E-001
396	3	-3.994265E-002	-8.396102E-003	-1.409447E-001	-2.962746E-001
396	4	-6.154588E-004	-8.392670E-005	-2.171739E-001	-2.961548E-001
396	5	-5.074301E-004	-4.594452E-005	-1.790563E-001	-1.621258E-001
396	6	-3.994221E-002	-6.496234E-003	-1.409447E-001	-2.292329E-001
396	7	-5.074301E-004	-8.394432E-005	-1.790563E-001	-2.962175E-001
396	8	-6.154531E-004	-6.492632E-005	-2.171732E-001	-2.291074E-001
396	9	-5.074301E-004	-6.494421E-005	-1.790563E-001	-2.291705E-001
397	1	-4.638521E-004	-5.336985E-005	-1.636797E-001	-1.883255E-001
397	2	-6.236395E-004	-5.333848E-005	-2.200641E-001	-1.882187E-001
397	3	-6.236393E-004	-2.529843E-005	-2.200640E-001	-8.927082E-002
397	4	-4.638536E-004	-2.532724E-005	-1.636792E-001	-8.937069E-002
397	5	-5.437498E-004	-5.335426E-005	-1.918722E-001	-1.882723E-001
397	6	-6.236422E-004	-3.931873E-005	-2.200639E-001	-1.387455E-001
397	7	-5.437492E-004	-2.531198E-005	-1.918721E-001	-8.932675E-002
397	8	-4.638536E-004	-3.934841E-005	-1.636811E-001	-1.388495E-001
397	9	-5.437517E-004	-3.933375E-005	-1.918747E-001	-1.387963E-001
398	1	-4.955127E-004	-3.775268E-005	-1.748589E-001	-1.332184E-001
398	2	-4.475730E-004	-3.776125E-005	-1.579368E-001	-1.332458E-001
398	3	-4.475759E-004	-4.617127E-005	-1.579361E-001	-1.629234E-001
398	4	-4.955030E-004	-4.616224E-005	-1.748499E-001	-1.628937E-001
398	5	-4.715427E-004	-3.775656E-005	-1.663933E-001	-1.332319E-001
398	6	-4.475770E-004	-4.196605E-005	-1.579367E-001	-1.480660E-001
398	7	-4.715427E-004	-4.616755E-005	-1.663933E-001	-1.629118E-001
398	8	-4.955060E-004	-4.195786E-005	-1.748528E-001	-1.480571E-001
398	9	-4.715427E-004	-4.196205E-005	-1.663933E-001	-1.480725E-001
399	1	-5.186781E-004	-3.189275E-005	-1.830261E-001	-1.125393E-001
399	2	-5.845332E-004	-3.189454E-005	-1.780358E-001	-1.125455E-001
399	3	-5.845412E-004	-3.438872E-005	-1.780371E-001	-1.213225E-001
399	4	-5.186759E-004	-3.437723E-005	-1.830255E-001	-1.213098E-001
399	5	-5.116058E-004	-3.189324E-005	-1.805306E-001	-1.125443E-001
399	6	-5.845389E-004	-3.313720E-005	-1.780376E-001	-1.169340E-001
399	7	-5.116058E-004	-3.438089E-005	-1.805306E-001	-1.213189E-001
399	8	-5.186744E-004	-3.313611E-005	-1.830242E-001	-1.169251E-001
399	9	-5.116058E-004	-3.313661E-005	-1.805306E-001	-1.169309E-001
400	1	-5.753914E-005	-2.683880E-005	-2.038294E-001	-9.188057E-001

400	2	-5.273575E-005	-2.705048E-005	-1.860827E-001	-9.544970E-001
400	3	-5.273618E-005	-2.967494E-005	-1.860837E-001	-1.047106E+000
400	4	-5.753863E-005	-2.879587E-005	-2.030275E-001	-1.016002E+000
400	5	-5.587845E-005	-2.655692E-005	-1.943492E-001	-9.370927E-001
400	6	-5.273624E-005	-2.836273E-005	-1.860830E-001	-1.000003E+000
400	7	-5.587817E-005	-2.924625E-005	-1.943479E-001	-1.031976E+000
400	8	-5.753912E-005	-2.741747E-005	-2.030304E-001	-9.674518E-001
400	9	-5.587826E-005	-2.798187E-005	-1.943479E-001	-9.845344E-001
401	1	-6.943781E-005	-2.729553E-005	-2.450160E-001	-9.631500E-001
401	2	-6.727925E-005	-2.782806E-005	-2.374002E-001	-9.819302E-001
401	3	-6.727938E-005	-2.877535E-005	-2.373995E-001	-1.015357E+000
401	4	-6.943900E-005	-2.830336E-005	-2.450183E-001	-9.986968E-001
401	5	-6.832533E-005	-2.756992E-005	-2.418915E-001	-9.728301E-001
401	6	-6.727866E-005	-2.830144E-005	-2.374012E-001	-9.986402E-001
401	7	-6.832533E-005	-2.854637E-005	-2.418915E-001	-1.007277E+000
401	8	-6.943876E-005	-2.779929E-005	-2.450190E-001	-9.809324E-001
401	9	-6.832533E-005	-2.805812E-005	-2.418915E-001	-9.900579E-001
402	1	-6.293970E-005	-2.708693E-005	-2.220861E-001	-9.557769E-001
402	2	-5.883984E-005	-2.794447E-005	-2.076208E-001	-9.868378E-001
402	3	-5.883924E-005	-3.002219E-005	-2.076201E-001	-1.059362E+000
402	4	-6.293935E-005	-2.927769E-005	-2.220855E-001	-1.033082E+000
402	5	-6.083518E-005	-2.752695E-005	-2.146625E-001	-9.713147E-001
402	6	-5.883995E-005	-2.898340E-005	-2.076216E-001	-1.022702E+000
402	7	-6.083518E-005	-2.965996E-005	-2.146625E-001	-1.046578E+000
402	8	-6.293862E-005	-2.818289E-005	-2.220844E-001	-9.944230E-001
402	9	-6.083518E-005	-2.859325E-005	-2.146625E-001	-1.000938E+000
403	1	-7.100406E-005	-2.813801E-005	-2.505453E-001	-9.928882E-001
403	2	-6.992102E-005	-2.840543E-005	-2.467210E-001	-1.002306E+000
403	3	-6.992101E-005	-2.884291E-005	-2.467206E-001	-1.017735E+000
403	4	-7.100518E-005	-2.860536E-005	-2.505474E-001	-1.009361E+000
403	5	-7.044535E-005	-2.827639E-005	-2.485736E-001	-9.977401E-001
403	6	-6.992141E-005	-2.862305E-005	-2.467219E-001	-1.010024E+000
403	7	-7.044502E-005	-2.872771E-005	-2.485732E-001	-1.013678E+000
403	8	-7.100586E-005	-2.837188E-005	-2.505525E-001	-1.001110E+000
403	9	-7.044501E-005	-2.850228E-005	-2.485725E-001	-1.005720E+000
404	1	-6.738486E-005	-2.788078E-005	-2.377727E-001	-9.838010E-001
404	2	-6.403105E-005	-2.858763E-005	-2.259392E-001	-1.008733E+000
404	3	-6.403099E-005	-3.018022E-005	-2.259396E-001	-1.064938E+000
404	4	-6.738477E-005	-2.956636E-005	-2.377727E-001	-1.043277E+000
404	5	-6.565954E-005	-2.824448E-005	-2.316865E-001	-9.966276E-001
404	6	-6.403819E-005	-2.938405E-005	-2.259353E-001	-1.036840E+000
404	7	-6.565955E-005	-2.988245E-005	-2.316869E-001	-1.054417E+000
404	8	-6.738630E-005	-2.872375E-005	-2.377736E-001	-1.013542E+000
404	9	-6.566006E-005	-2.906336E-005	-2.316869E-001	-1.025526E+000
405	1	-4.561865E-002	-4.422028E-004	-1.609761E-001	-1.560600E-002
405	2	-4.568895E-002	-4.421527E-004	-1.612225E-001	-1.560284E-002
405	3	-4.568903E-002	-4.299298E-004	-1.612226E-001	-1.516909E-002
405	4	-4.561957E-002	-4.299713E-004	-1.609759E-001	-1.517094E-002
405	5	-4.565400E-002	-4.422320E-004	-1.610991E-001	-1.560568E-002
405	6	-4.568895E-002	-4.360436E-004	-1.612225E-001	-1.538756E-002
405	7	-4.565400E-002	-4.299893E-004	-1.610991E-001	-1.517127E-002
405	8	-4.561911E-002	-4.361311E-004	-1.609760E-001	-1.538782E-002
405	9	-4.565400E-002	-4.360967E-004	-1.610991E-001	-1.538927E-002
406	1	-4.537026E-002	-1.318328E-003	-1.600995E-001	-4.651965E-002
406	2	-4.557855E-002	-1.318262E-003	-1.608335E-001	-4.651879E-002
406	3	-4.557846E-002	-1.281561E-003	-1.608340E-001	-4.522535E-002
406	4	-4.537006E-002	-1.281611E-003	-1.600993E-001	-4.522659E-002
406	5	-4.547448E-002	-1.318394E-003	-1.604654E-001	-4.651961E-002
406	6	-4.557796E-002	-1.299985E-003	-1.608336E-001	-4.587159E-002
406	7	-4.547453E-002	-1.281655E-003	-1.604650E-001	-4.522486E-002

406	8	-4.537008E-002	-1.300089E-003	-1.600988E-001	-4.587130E-002
406	9	-4.547451E-002	-1.299927E-003	-1.604652E-001	-4.587270E-002
407	1	-4.494322E-002	-2.168581E-003	-1.586143E-001	-7.652332E-002
407	2	-4.528987E-002	-2.168566E-003	-1.598152E-001	-7.652209E-002
407	3	-4.529002E-002	-2.108543E-003	-1.598169E-001	-7.440503E-002
407	4	-4.494936E-002	-2.108609E-003	-1.586138E-001	-7.440525E-002
407	5	-4.511964E-002	-2.168548E-003	-1.592131E-001	-7.652620E-002
407	6	-4.529012E-002	-2.138551E-003	-1.598157E-001	-7.546381E-002
407	7	-4.511993E-002	-2.108606E-003	-1.592155E-001	-7.440830E-002
407	8	-4.494889E-002	-2.138638E-003	-1.586111E-001	-7.546537E-002
407	9	-4.511942E-002	-2.138595E-003	-1.592129E-001	-7.546397E-002
408	1	-4.438582E-002	-2.973241E-003	-1.566210E-001	-1.049163E-001
408	2	-4.483416E-002	-2.973275E-003	-1.582064E-001	-1.049154E-001
408	3	-4.483445E-002	-2.894042E-003	-1.582078E-001	-1.021255E-001
408	4	-4.438435E-002	-2.894049E-003	-1.566228E-001	-1.021255E-001
408	5	-4.460984E-002	-2.973053E-003	-1.574143E-001	-1.049120E-001
408	6	-4.483440E-002	-2.933598E-003	-1.582066E-001	-1.035168E-001
408	7	-4.460984E-002	-2.894114E-003	-1.574139E-001	-1.021236E-001
408	8	-4.438547E-002	-2.933689E-003	-1.566235E-001	-1.035282E-001
408	9	-4.460932E-002	-2.933684E-003	-1.574138E-001	-1.035198E-001
409	1	-4.371643E-002	-3.715930E-003	-1.542634E-001	-1.311227E-001
409	2	-4.424362E-002	-3.715729E-003	-1.561226E-001	-1.311201E-001
409	3	-4.424308E-002	-3.623443E-003	-1.561220E-001	-1.278554E-001
409	4	-4.371753E-002	-3.623434E-003	-1.542659E-001	-1.278628E-001
409	5	-4.397958E-002	-3.715816E-003	-1.551920E-001	-1.311196E-001
409	6	-4.424292E-002	-3.669638E-003	-1.561215E-001	-1.294885E-001
409	7	-4.398034E-002	-3.623399E-003	-1.551915E-001	-1.278592E-001
409	8	-4.371721E-002	-3.669665E-003	-1.542628E-001	-1.294919E-001
409	9	-4.397984E-002	-3.669682E-003	-1.551914E-001	-1.294988E-001
410	1	-4.298625E-002	-4.387034E-003	-1.516855E-001	-1.548048E-001
410	2	-4.355696E-002	-4.386932E-003	-1.536994E-001	-1.548031E-001
410	3	-4.355748E-002	-4.286477E-003	-1.537018E-001	-1.512554E-001
410	4	-4.298688E-002	-4.286476E-003	-1.516861E-001	-1.512595E-001
410	5	-4.327141E-002	-4.387109E-003	-1.526926E-001	-1.548076E-001
410	6	-4.355671E-002	-4.336720E-003	-1.537015E-001	-1.530299E-001
410	7	-4.327141E-002	-4.286487E-003	-1.526926E-001	-1.512555E-001
410	8	-4.298688E-002	-4.336790E-003	-1.516829E-001	-1.530327E-001
410	9	-4.327141E-002	-4.336715E-003	-1.526926E-001	-1.530310E-001
411	1	-4.223287E-002	-4.980302E-003	-1.490268E-001	-1.757395E-001
411	2	-4.281722E-002	-4.980289E-003	-1.510985E-001	-1.757361E-001
411	3	-4.281725E-002	-4.877465E-003	-1.510914E-001	-1.721117E-001
411	4	-4.223255E-002	-4.877563E-003	-1.490261E-001	-1.721145E-001
411	5	-4.252479E-002	-4.980308E-003	-1.500581E-001	-1.757408E-001
411	6	-4.281804E-002	-4.928893E-003	-1.510911E-001	-1.739238E-001
411	7	-4.252479E-002	-4.877653E-003	-1.500581E-001	-1.721157E-001
411	8	-4.223271E-002	-4.928899E-003	-1.490255E-001	-1.739284E-001
411	9	-4.252479E-002	-4.928935E-003	-1.500581E-001	-1.739274E-001
412	1	-4.149537E-002	-5.493672E-003	-1.464272E-001	-1.930553E-001
412	2	-4.206440E-002	-5.493542E-003	-1.484333E-001	-1.930514E-001
412	3	-4.206451E-002	-5.393411E-003	-1.484347E-001	-1.903175E-001
412	4	-4.149567E-002	-5.393506E-003	-1.464265E-001	-1.903208E-001
412	5	-4.178022E-002	-5.493544E-003	-1.474288E-001	-1.930504E-001
412	6	-4.206518E-002	-5.443472E-003	-1.484347E-001	-1.920028E-001
412	7	-4.178022E-002	-5.393518E-003	-1.474288E-001	-1.903172E-001
412	8	-4.149599E-002	-5.443515E-003	-1.464240E-001	-1.920078E-001
412	9	-4.178022E-002	-5.443493E-003	-1.474288E-001	-1.920055E-001
413	1	-4.088335E-002	-5.927757E-003	-1.439853E-001	-2.091747E-001
413	2	-4.133606E-002	-5.927707E-003	-1.458618E-001	-2.091728E-001
413	3	-4.133561E-002	-5.834258E-003	-1.458600E-001	-2.058709E-001
413	4	-4.088442E-002	-5.834209E-003	-1.439839E-001	-2.058729E-001

413	5	-4.106899E-002	-5.927695E-003	-1.449219E-001	-2.091698E-001
413	6	-4.133553E-002	-5.888078E-003	-1.458620E-001	-2.075219E-001
413	7	-4.106980E-002	-5.834304E-003	-1.449229E-001	-2.058719E-001
413	8	-4.088332E-002	-5.881084E-003	-1.439827E-001	-2.075237E-001
413	9	-4.106935E-002	-5.881001E-003	-1.449227E-001	-2.075234E-001
414	1	-4.019139E-002	-6.285836E-003	-1.418233E-001	-2.218089E-001
414	2	-4.065847E-002	-6.285674E-003	-1.434707E-001	-2.218038E-001
414	3	-4.065815E-002	-6.203454E-003	-1.434710E-001	-2.189021E-001
414	4	-4.019053E-002	-6.203519E-003	-1.418205E-001	-2.189039E-001
414	5	-4.042436E-002	-6.285831E-003	-1.426465E-001	-2.218068E-001
414	6	-4.065816E-002	-6.244541E-003	-1.434714E-001	-2.203515E-001
414	7	-4.042469E-002	-6.203527E-003	-1.426463E-001	-2.189024E-001
414	8	-4.019087E-002	-6.244585E-003	-1.418219E-001	-2.203554E-001
414	9	-4.042429E-002	-6.244643E-003	-1.426466E-001	-2.203535E-001
415	1	-3.965952E-002	-6.574478E-003	-1.399496E-001	-2.319960E-001
415	2	-4.006404E-002	-6.574520E-003	-1.413743E-001	-2.319932E-001
415	3	-4.006372E-002	-6.503521E-003	-1.413746E-001	-2.294905E-001
415	4	-3.966008E-002	-6.503633E-003	-1.399493E-001	-2.294946E-001
415	5	-3.986212E-002	-6.574613E-003	-1.406628E-001	-2.319998E-001
415	6	-4.006412E-002	-6.539039E-003	-1.413745E-001	-2.307448E-001
415	7	-3.986207E-002	-6.503558E-003	-1.406613E-001	-2.294987E-001
415	8	-3.965995E-002	-6.539103E-003	-1.399469E-001	-2.307474E-001
415	9	-3.986221E-002	-6.539101E-003	-1.406610E-001	-2.307468E-001
416	1	-3.935424E-002	-6.783463E-003	-1.388696E-001	-2.393699E-001
416	2	-3.957014E-002	-6.783349E-003	-1.396301E-001	-2.393664E-001
416	3	-3.956944E-002	-6.745444E-003	-1.396387E-001	-2.380250E-001
416	4	-3.935436E-002	-6.745514E-003	-1.388694E-001	-2.380289E-001
416	5	-3.946184E-002	-6.783473E-003	-1.392494E-001	-2.393684E-001
416	6	-3.956952E-002	-6.764454E-003	-1.396304E-001	-2.386969E-001
416	7	-3.946184E-002	-6.745539E-003	-1.392494E-001	-2.380302E-001
416	8	-3.935406E-002	-6.764513E-003	-1.388683E-001	-2.386985E-001
416	9	-3.946184E-002	-6.764474E-003	-1.392494E-001	-2.386983E-001
417	1	-3.885636E-002	-6.980789E-003	-1.371118E-001	-2.463299E-001
417	2	-3.926382E-002	-6.980734E-003	-1.385484E-001	-2.463388E-001
417	3	-3.926310E-002	-6.909288E-003	-1.385490E-001	-2.438086E-001
417	4	-3.885581E-002	-6.909270E-003	-1.371103E-001	-2.438084E-001
417	5	-3.905949E-002	-6.980726E-003	-1.378295E-001	-2.463303E-001
417	6	-3.926318E-002	-6.944959E-003	-1.385480E-001	-2.450686E-001
417	7	-3.905944E-002	-6.909201E-003	-1.378297E-001	-2.438066E-001
417	8	-3.885552E-002	-6.945048E-003	-1.371111E-001	-2.450701E-001
417	9	-3.905934E-002	-6.945004E-003	-1.378293E-001	-2.450690E-001
418	1	-4.095187E-002	-6.814968E-003	-1.445059E-001	-2.404808E-001
418	2	-3.907809E-002	-6.815289E-003	-1.378674E-001	-2.404893E-001
418	3	-3.907865E-002	-7.146169E-003	-1.378674E-001	-2.521692E-001
418	4	-4.095130E-002	-7.145806E-003	-1.445063E-001	-2.521548E-001
418	5	-4.001162E-002	-6.815031E-003	-1.411861E-001	-2.404819E-001
418	6	-3.907809E-002	-6.980680E-003	-1.378675E-001	-2.463282E-001
418	7	-4.001077E-002	-7.146059E-003	-1.411861E-001	-2.521652E-001
418	8	-4.095054E-002	-6.980435E-003	-1.445051E-001	-2.463174E-001
418	9	-4.001004E-002	-6.980557E-003	-1.411883E-001	-2.463247E-001
419	1	-3.894140E-004	-8.720471E-005	-1.891835E-001	-3.877209E-001
419	2	-3.991916E-002	-8.719104E-003	-1.408634E-001	-3.876720E-001
419	3	-3.991885E-002	-7.139866E-003	-1.408622E-001	-2.519445E-001
419	4	-3.894095E-004	-7.141263E-005	-1.891837E-001	-2.519918E-001
419	5	-3.943000E-004	-8.719791E-005	-1.250222E-001	-3.876963E-001
419	6	-3.991847E-002	-7.929552E-003	-1.408612E-001	-2.798085E-001
419	7	-3.943000E-002	-7.140611E-003	-1.250222E-001	-2.519681E-001
419	8	-3.894192E-004	-7.930830E-005	-1.891810E-001	-2.798584E-001
419	9	-3.943000E-002	-7.930219E-003	-1.250222E-001	-2.798334E-001
420	1	-4.692825E-004	-2.510206E-005	-1.655966E-001	-8.857689E-002

420	2	-3.183119E-004	-2.512710E-005	-1.123231E-001	-8.866510E-002
420	3	-3.183117E-004	-5.161939E-005	-1.123230E-001	-1.821538E-001
420	4	-4.692766E-004	-5.159924E-005	-1.655942E-001	-1.820821E-001
420	5	-3.937905E-004	-2.511396E-005	-1.389571E-001	-8.862027E-002
420	6	-3.183095E-004	-3.837340E-005	-1.123229E-001	-1.354091E-001
420	7	-3.937911E-004	-5.161043E-005	-1.389570E-001	-1.821207E-001
420	8	-4.692840E-004	-3.835079E-005	-1.655961E-001	-1.353285E-001
420	9	-3.937932E-004	-3.836219E-005	-1.389557E-001	-1.353698E-001
421	1	-5.093081E-004	-4.778729E-005	-1.797169E-001	-1.686242E-001
421	2	-4.935501E-004	-4.778925E-005	-1.741585E-001	-1.686374E-001
421	3	-4.935483E-004	-5.855466E-005	-1.741584E-001	-1.783921E-001
421	4	-5.892982E-004	-5.855215E-005	-1.797197E-001	-1.783841E-001
421	5	-5.014203E-004	-4.778888E-005	-1.769371E-001	-1.686298E-001
421	6	-4.935486E-004	-4.917286E-005	-1.741576E-001	-1.735130E-001
421	7	-5.014203E-004	-5.855373E-005	-1.769371E-001	-1.783881E-001
421	8	-5.092976E-004	-4.916945E-005	-1.797167E-001	-1.735048E-001
421	9	-5.014203E-004	-4.917055E-005	-1.769371E-001	-1.735096E-001
422	1	-5.442994E-004	-3.546577E-005	-1.920677E-001	-1.251580E-001
422	2	-5.157453E-004	-3.547036E-005	-1.819914E-001	-1.251644E-001
422	3	-5.157459E-004	-4.049040E-005	-1.819937E-001	-1.428799E-001
422	4	-5.442957E-004	-4.048551E-005	-1.920671E-001	-1.428644E-001
422	5	-5.300245E-004	-3.546904E-005	-1.870290E-001	-1.251685E-001
422	6	-5.157479E-004	-3.798095E-005	-1.819923E-001	-1.340237E-001
422	7	-5.300245E-004	-4.048782E-005	-1.870290E-001	-1.428702E-001
422	8	-5.442920E-004	-3.797626E-005	-1.920671E-001	-1.340084E-001
422	9	-5.300245E-004	-3.797884E-005	-1.870290E-001	-1.340148E-001
423	1	-6.012681E-005	-2.912152E-005	-2.121613E-001	-1.027589E+000
423	2	-5.548556E-005	-2.993398E-005	-1.957848E-001	-1.056240E+000
423	3	-5.548532E-005	-3.246977E-005	-1.957845E-001	-1.145706E+000
423	4	-6.012655E-005	-3.178631E-005	-2.121605E-001	-1.121606E+000
423	5	-5.774945E-005	-2.953775E-005	-2.037717E-001	-1.042263E+000
423	6	-5.548549E-005	-3.120182E-005	-1.957855E-001	-1.100976E+000
423	7	-5.774896E-005	-3.213646E-005	-2.037704E-001	-1.133956E+000
423	8	-6.012668E-005	-3.045401E-005	-2.121630E-001	-1.074598E+000
423	9	-5.774869E-005	-3.083723E-005	-2.037709E-001	-1.088116E+000
424	1	-7.070369E-005	-2.834492E-005	-2.494820E-001	-1.000186E+000
424	2	-6.824052E-005	-2.886371E-005	-2.407944E-001	-1.018479E+000
424	3	-6.824049E-005	-2.994533E-005	-2.407930E-001	-1.056637E+000
424	4	-7.070386E-005	-2.949451E-005	-2.494800E-001	-1.040738E+000
424	5	-6.943448E-005	-2.861283E-005	-2.450049E-001	-1.009630E+000
424	6	-6.824185E-005	-2.940418E-005	-2.407939E-001	-1.037557E+000
424	7	-6.943448E-005	-2.972663E-005	-2.450049E-001	-1.048919E+000
424	8	-7.070355E-005	-2.892019E-005	-2.494824E-001	-1.020466E+000
424	9	-6.943448E-005	-2.916948E-005	-2.450049E-001	-1.029271E+000
425	1	-7.126427E-005	-2.838984E-005	-2.514585E-001	-1.001763E+000
425	2	-7.118526E-005	-2.840874E-005	-2.511834E-001	-1.002416E+000
425	3	-7.118552E-005	-2.843664E-005	-2.511850E-001	-1.003422E+000
425	4	-7.126306E-005	-2.842009E-005	-2.514592E-001	-1.002826E+000
425	5	-7.122369E-005	-2.839892E-005	-2.513182E-001	-1.002095E+000
425	6	-7.118519E-005	-2.842263E-005	-2.511831E-001	-1.002924E+000
425	7	-7.122369E-005	-2.842056E-005	-2.513182E-001	-1.003127E+000
425	8	-7.126425E-005	-2.840469E-005	-2.514593E-001	-1.002293E+000
425	9	-7.122369E-005	-2.841393E-005	-2.513182E-001	-1.002612E+000
426	1	-6.597035E-005	-2.940097E-005	-2.327784E-001	-1.037713E+000
426	2	-6.145929E-005	-3.019194E-005	-2.168634E-001	-1.065345E+000
426	3	-6.145986E-005	-3.247779E-005	-2.168648E-001	-1.146087E+000
426	4	-6.596858E-005	-3.181854E-005	-2.327758E-001	-1.122747E+000
426	5	-6.365484E-005	-2.981846E-005	-2.246113E-001	-1.051898E+000
426	6	-6.145890E-005	-3.133477E-005	-2.168641E-001	-1.105682E+000
426	7	-6.365484E-005	-3.215724E-005	-2.246113E-001	-1.134696E+000

426	8	-6.596900E-005	-3.061384E-005	-2.327747E-001	-1.000238E+000
426	9	-6.365484E-005	-3.098375E-005	-2.246113E-001	-1.093289E+000
427	1	-7.264719E-005	-2.840750E-005	-2.563374E-001	-1.002373E+000
427	2	-7.127241E-005	-2.869787E-005	-2.514989E-001	-1.012584E+000
427	3	-7.127246E-005	-2.925012E-005	-2.514985E-001	-1.032122E+000
427	4	-7.264483E-005	-2.899866E-005	-2.563343E-001	-1.023246E+000
427	5	-7.193648E-005	-2.855649E-005	-2.538371E-001	-1.007644E+000
427	6	-7.127283E-005	-2.897332E-005	-2.514899E-001	-1.022350E+000
427	7	-7.193705E-005	-2.912847E-005	-2.538344E-001	-1.027828E+000
427	8	-7.264566E-005	-2.870333E-005	-2.563378E-001	-1.012822E+000
427	9	-7.193664E-005	-2.884287E-005	-2.538345E-001	-1.017742E+000
428	1	-7.030186E-005	-2.889170E-005	-2.480613E-001	-9.912300E-001
428	2	-7.116081E-005	-2.787927E-005	-2.510965E-001	-9.837389E-001
428	3	-7.116127E-005	-2.759387E-005	-2.510987E-001	-9.736628E-001
428	4	-7.030038E-005	-2.778193E-005	-2.480596E-001	-9.803070E-001
428	5	-7.074026E-005	-2.798105E-005	-2.496416E-001	-9.873366E-001
428	6	-7.116050E-005	-2.773679E-005	-2.510986E-001	-9.787083E-001
428	7	-7.074052E-005	-2.768445E-005	-2.496409E-001	-9.768568E-001
428	8	-7.030188E-005	-2.793654E-005	-2.480657E-001	-9.857630E-001
428	9	-7.074022E-005	-2.783263E-005	-2.496424E-001	-9.820967E-001
429	1	-7.099249E-005	-2.944467E-005	-2.505064E-001	-1.038996E+000
429	2	-6.718559E-005	-3.011062E-005	-2.370696E-001	-1.062484E+000
429	3	-6.718566E-005	-3.191823E-005	-2.370726E-001	-1.126264E+000
429	4	-7.099302E-005	-3.135811E-005	-2.505053E-001	-1.106494E+000
429	5	-6.903552E-005	-2.978748E-005	-2.435964E-001	-1.051081E+000
429	6	-6.718516E-005	-3.101474E-005	-2.370693E-001	-1.094376E+000
429	7	-6.903499E-005	-3.164677E-005	-2.435957E-001	-1.116683E+000
429	8	-7.099356E-005	-3.040183E-005	-2.505058E-001	-1.072746E+000
429	9	-6.903565E-005	-3.071683E-005	-2.435963E-001	-1.083873E+000
430	1	-7.307344E-005	-2.884934E-005	-2.578423E-001	-9.897453E-001
430	2	-7.288653E-005	-2.808822E-005	-2.571854E-001	-9.911124E-001
430	3	-7.288658E-005	-2.815680E-005	-2.571825E-001	-9.935284E-001
430	4	-7.307393E-005	-2.812237E-005	-2.578462E-001	-9.923276E-001
430	5	-7.297644E-005	-2.806925E-005	-2.575056E-001	-9.904528E-001
430	6	-7.288699E-005	-2.812247E-005	-2.571840E-001	-9.923205E-001
430	7	-7.297644E-005	-2.814018E-005	-2.575056E-001	-9.929471E-001
430	8	-7.307415E-005	-2.808582E-005	-2.578461E-001	-9.910403E-001
430	9	-7.297644E-005	-2.810494E-005	-2.575056E-001	-9.917040E-001
431	1	-7.456409E-005	-2.914863E-005	-2.631072E-001	-1.028523E+000
431	2	-7.194187E-005	-2.960752E-005	-2.538510E-001	-1.044720E+000
431	3	-7.194207E-005	-3.075916E-005	-2.538586E-001	-1.085363E+000
431	4	-7.456439E-005	-3.037248E-005	-2.631075E-001	-1.071724E+000
431	5	-7.321309E-005	-2.938485E-005	-2.583356E-001	-1.036867E+000
431	6	-7.194135E-005	-3.018329E-005	-2.538502E-001	-1.065048E+000
431	7	-7.321309E-005	-3.057193E-005	-2.583356E-001	-1.078755E+000
431	8	-7.456401E-005	-2.976051E-005	-2.631078E-001	-1.050120E+000
431	9	-7.321309E-005	-2.997842E-005	-2.583356E-001	-1.057810E+000
432	1	-4.411954E-002	-4.268459E-004	-1.556836E-001	-1.506431E-002
432	2	-4.417866E-002	-4.269124E-004	-1.558947E-001	-1.506510E-002
432	3	-4.417874E-002	-4.164258E-004	-1.558949E-001	-1.469665E-002
432	4	-4.411905E-002	-4.164756E-004	-1.556823E-001	-1.469632E-002
432	5	-4.414858E-002	-4.268865E-004	-1.557872E-001	-1.506613E-002
432	6	-4.417866E-002	-4.216519E-004	-1.558947E-001	-1.488044E-002
432	7	-4.414858E-002	-4.165497E-004	-1.557872E-001	-1.469584E-002
432	8	-4.411953E-002	-4.217298E-004	-1.556836E-001	-1.488081E-002
432	9	-4.414858E-002	-4.217005E-004	-1.557872E-001	-1.488093E-002
433	1	-4.398858E-002	-1.272055E-003	-1.549407E-001	-4.488666E-002
433	2	-4.408513E-002	-1.271926E-003	-1.555625E-001	-4.488399E-002
433	3	-4.408474E-002	-1.240893E-003	-1.555635E-001	-4.378672E-002
433	4	-4.398793E-002	-1.240916E-003	-1.549406E-001	-4.379015E-002

433	5	-4.399684E-002	-1.272020E-003	-1.552515E-001	-4.488436E-002
433	6	-4.408471E-002	-1.256497E-003	-1.555613E-001	-4.433661E-002
433	7	-4.399686E-002	-1.240934E-003	-1.552519E-001	-4.378970E-002
433	8	-4.398857E-002	-1.256486E-003	-1.549413E-001	-4.433861E-002
433	9	-4.399685E-002	-1.256462E-003	-1.552512E-001	-4.433761E-002
434	1	-4.355763E-002	-2.892822E-003	-1.537029E-001	-7.384853E-002
434	2	-4.384208E-002	-2.892837E-003	-1.547062E-001	-7.384767E-002
434	3	-4.384185E-002	-2.843823E-003	-1.547062E-001	-7.209268E-002
434	4	-4.355810E-002	-2.843848E-003	-1.537035E-001	-7.209339E-002
434	5	-4.370023E-002	-2.892835E-003	-1.542047E-001	-7.385135E-002
434	6	-4.384189E-002	-2.867928E-003	-1.547036E-001	-7.297244E-002
434	7	-4.370018E-002	-2.843875E-003	-1.542051E-001	-7.209213E-002
434	8	-4.355842E-002	-2.867942E-003	-1.537047E-001	-7.297161E-002
434	9	-4.369977E-002	-2.867945E-003	-1.542044E-001	-7.297043E-002
435	1	-4.389066E-002	-2.873312E-003	-1.520557E-001	-1.013904E-001
435	2	-4.346326E-002	-2.873360E-003	-1.533682E-001	-1.013885E-001
435	3	-4.346307E-002	-2.807748E-003	-1.533680E-001	-9.907629E-002
435	4	-4.389097E-002	-2.807809E-003	-1.520537E-001	-9.907638E-002
435	5	-4.327738E-002	-2.873215E-003	-1.527118E-001	-1.013884E-001
435	6	-4.346281E-002	-2.840498E-003	-1.533684E-001	-1.002327E-001
435	7	-4.327660E-002	-2.807844E-003	-1.527103E-001	-9.908142E-002
435	8	-4.389113E-002	-2.840547E-003	-1.520563E-001	-1.002353E-001
435	9	-4.327707E-002	-2.840562E-003	-1.527122E-001	-1.002340E-001
436	1	-4.253625E-002	-3.599036E-003	-1.580980E-001	-1.269963E-001
436	2	-4.297357E-002	-3.598943E-003	-1.516409E-001	-1.269948E-001
436	3	-4.297298E-002	-3.522220E-003	-1.516386E-001	-1.242888E-001
436	4	-4.253657E-002	-3.522203E-003	-1.580967E-001	-1.242904E-001
436	5	-4.275467E-002	-3.598952E-003	-1.580695E-001	-1.269955E-001
436	6	-4.297282E-002	-3.560553E-003	-1.516381E-001	-1.256432E-001
436	7	-4.275491E-002	-3.522182E-003	-1.580679E-001	-1.242905E-001
436	8	-4.253625E-002	-3.560648E-003	-1.580993E-001	-1.256441E-001
436	9	-4.275491E-002	-3.560600E-003	-1.580699E-001	-1.256414E-001
437	1	-4.193208E-002	-4.259888E-003	-1.479649E-001	-1.503198E-001
437	2	-4.240417E-002	-4.259853E-003	-1.496310E-001	-1.503160E-001
437	3	-4.240480E-002	-4.176744E-003	-1.496314E-001	-1.473853E-001
437	4	-4.193131E-002	-4.176711E-003	-1.479643E-001	-1.473845E-001
437	5	-4.216772E-002	-4.259864E-003	-1.487964E-001	-1.503208E-001
437	6	-4.240391E-002	-4.218313E-003	-1.496311E-001	-1.488589E-001
437	7	-4.216772E-002	-4.176718E-003	-1.487964E-001	-1.473849E-001
437	8	-4.193225E-002	-4.218318E-003	-1.479643E-001	-1.488525E-001
437	9	-4.216772E-002	-4.218286E-003	-1.487964E-001	-1.488517E-001
438	1	-4.130979E-002	-4.850339E-003	-1.457727E-001	-1.711566E-001
438	2	-4.179226E-002	-4.850352E-003	-1.474752E-001	-1.711552E-001
438	3	-4.179239E-002	-4.765631E-003	-1.474751E-001	-1.681660E-001
438	4	-4.131037E-002	-4.765753E-003	-1.457738E-001	-1.681677E-001
438	5	-4.155158E-002	-4.850247E-003	-1.466231E-001	-1.711517E-001
438	6	-4.179317E-002	-4.807987E-003	-1.474726E-001	-1.696606E-001
438	7	-4.155158E-002	-4.765633E-003	-1.466231E-001	-1.681649E-001
438	8	-4.130960E-002	-4.808026E-003	-1.457713E-001	-1.696611E-001
438	9	-4.155158E-002	-4.808027E-003	-1.466231E-001	-1.696622E-001
439	1	-4.878434E-002	-5.367056E-003	-1.436344E-001	-1.893876E-001
439	2	-4.117211E-002	-5.367028E-003	-1.452846E-001	-1.893888E-001
439	3	-4.117217E-002	-5.284606E-003	-1.452842E-001	-1.864771E-001
439	4	-4.878463E-002	-5.284718E-003	-1.436355E-001	-1.864828E-001
439	5	-4.893830E-002	-5.367018E-003	-1.444591E-001	-1.893844E-001
439	6	-4.117189E-002	-5.325851E-003	-1.452845E-001	-1.879318E-001
439	7	-4.893830E-002	-5.284592E-003	-1.444591E-001	-1.864767E-001
439	8	-4.878481E-002	-5.325902E-003	-1.436330E-001	-1.879338E-001
439	9	-4.893830E-002	-5.325876E-003	-1.444591E-001	-1.879337E-001
440	1	-4.814085E-002	-5.809870E-003	-1.416439E-001	-2.058136E-001

440	2	-4.857314E-002	-5.809748E-003	-1.431712E-001	-2.058058E-001
440	3	-4.857334E-002	-5.733748E-003	-1.431714E-001	-2.023270E-001
440	4	-4.814142E-002	-5.733871E-003	-1.416455E-001	-2.023291E-001
440	5	-4.835711E-002	-5.809645E-003	-1.424095E-001	-2.050000E-001
440	6	-4.857321E-002	-5.771721E-003	-1.431714E-001	-2.036672E-001
440	7	-4.835711E-002	-5.733799E-003	-1.424079E-001	-2.023312E-001
440	8	-4.814081E-002	-5.771814E-003	-1.416463E-001	-2.036703E-001
440	9	-4.835703E-002	-5.771818E-003	-1.424095E-001	-2.036694E-001
441	1	-3.964256E-002	-6.181883E-003	-1.398890E-001	-2.181400E-001
441	2	-4.002255E-002	-6.181829E-003	-1.412291E-001	-2.181396E-001
441	3	-4.002262E-002	-6.114911E-003	-1.412262E-001	-2.157773E-001
441	4	-3.964265E-002	-6.114936E-003	-1.398862E-001	-2.157809E-001
441	5	-3.983257E-002	-6.181874E-003	-1.405564E-001	-2.181392E-001
441	6	-4.002319E-002	-6.148416E-003	-1.412285E-001	-2.169579E-001
441	7	-3.983252E-002	-6.115005E-003	-1.405580E-001	-2.157785E-001
441	8	-3.964317E-002	-6.148470E-003	-1.398857E-001	-2.169604E-001
441	9	-3.983262E-002	-6.148404E-003	-1.405573E-001	-2.169598E-001
442	1	-3.924378E-002	-6.485796E-003	-1.384784E-001	-2.288617E-001
442	2	-3.954357E-002	-6.485663E-003	-1.395382E-001	-2.288631E-001
442	3	-3.954334E-002	-6.433019E-003	-1.395386E-001	-2.270015E-001
442	4	-3.924424E-002	-6.433122E-003	-1.384799E-001	-2.270054E-001
442	5	-3.939349E-002	-6.485642E-003	-1.390085E-001	-2.288625E-001
442	6	-3.954317E-002	-6.459378E-003	-1.395382E-001	-2.279323E-001
442	7	-3.939358E-002	-6.433011E-003	-1.390091E-001	-2.270015E-001
442	8	-3.924364E-002	-6.459437E-003	-1.384808E-001	-2.279339E-001
442	9	-3.939346E-002	-6.459407E-003	-1.390087E-001	-2.279347E-001
443	1	-3.893980E-002	-6.734173E-003	-1.374044E-001	-2.376299E-001
443	2	-3.916661E-002	-6.734137E-003	-1.382079E-001	-2.376277E-001
443	3	-3.916788E-002	-6.694116E-003	-1.382085E-001	-2.362144E-001
443	4	-3.893848E-002	-6.694086E-003	-1.374043E-001	-2.362150E-001
443	5	-3.905279E-002	-6.734223E-003	-1.378068E-001	-2.376323E-001
443	6	-3.916652E-002	-6.714181E-003	-1.382082E-001	-2.369221E-001
443	7	-3.905279E-002	-6.693982E-003	-1.378068E-001	-2.362109E-001
443	8	-3.893914E-002	-6.714184E-003	-1.374037E-001	-2.369232E-001
443	9	-3.905279E-002	-6.714162E-003	-1.378068E-001	-2.369217E-001
444	1	-3.893933E-002	-6.900569E-003	-1.375653E-001	-2.435017E-001
444	2	-3.891565E-002	-6.900605E-003	-1.373234E-001	-2.435038E-001
444	3	-3.891540E-002	-6.912641E-003	-1.373207E-001	-2.439283E-001
444	4	-3.898546E-002	-6.912669E-003	-1.375643E-001	-2.439271E-001
444	5	-3.895071E-002	-6.900623E-003	-1.374442E-001	-2.435025E-001
444	6	-3.891557E-002	-6.906630E-003	-1.373231E-001	-2.437156E-001
444	7	-3.894988E-002	-6.912708E-003	-1.374443E-001	-2.439271E-001
444	8	-3.898422E-002	-6.906675E-003	-1.375632E-001	-2.437155E-001
444	9	-3.895021E-002	-6.906655E-003	-1.374439E-001	-2.437159E-001
445	1	-3.878054E-002	-7.189552E-003	-1.368442E-001	-2.536977E-001
445	2	-3.896676E-002	-7.189584E-003	-1.375044E-001	-2.536992E-001
445	3	-3.896714E-002	-7.156686E-003	-1.375046E-001	-2.525369E-001
445	4	-3.878064E-002	-7.156693E-003	-1.368459E-001	-2.525380E-001
445	5	-3.887342E-002	-7.189528E-003	-1.371748E-001	-2.536975E-001
445	6	-3.896803E-002	-7.173125E-003	-1.375045E-001	-2.531173E-001
445	7	-3.887414E-002	-7.156630E-003	-1.371749E-001	-2.525374E-001
445	8	-3.878016E-002	-7.173048E-003	-1.368434E-001	-2.531180E-001
445	9	-3.887419E-002	-7.173107E-003	-1.371751E-001	-2.531177E-001
446	1	-3.818635E-004	-6.897710E-005	-1.347482E-001	-2.433976E-001
446	2	-3.868076E-002	-6.897530E-003	-1.364938E-001	-2.433934E-001
446	3	-3.868099E-002	-6.810555E-003	-1.364954E-001	-2.403266E-001
446	4	-3.818619E-002	-6.810741E-003	-1.347484E-001	-2.403279E-001
446	5	-3.843321E-002	-6.897609E-003	-1.356198E-001	-2.433951E-001
446	6	-3.868175E-002	-6.854067E-003	-1.364935E-001	-2.418593E-001
446	7	-3.843321E-002	-6.810635E-003	-1.356198E-001	-2.403273E-001

446	8	-4.036872E-002	-7.245909E-003	-1.347477E-001	-2.418639E-001
446	9	-3.843321E-002	-6.854172E-003	-1.356198E-001	-2.418632E-001
447	1	-4.521621E-004	-5.704112E-005	-1.595534E-001	-2.012832E-001
447	2	-3.901653E-004	-5.704908E-005	-1.376771E-001	-2.013103E-001
447	3	-3.901647E-004	-6.793044E-005	-1.376778E-001	-2.397068E-001
447	4	-4.521711E-004	-6.792223E-005	-1.595547E-001	-2.396750E-001
447	5	-4.211594E-004	-5.704508E-005	-1.486160E-001	-2.012944E-001
447	6	-3.901623E-004	-6.248969E-005	-1.376772E-001	-2.205079E-001
447	7	-4.211669E-004	-6.792746E-005	-1.486155E-001	-2.396922E-001
447	8	-4.521636E-004	-6.248150E-005	-1.595566E-001	-2.204783E-001
447	9	-4.211581E-004	-6.248546E-005	-1.486154E-001	-2.204920E-001
448	1	-5.319859E-004	-5.252881E-005	-1.877234E-001	-1.853583E-001
448	2	-4.701788E-004	-5.253805E-005	-1.659131E-001	-1.853942E-001
448	3	-4.701815E-004	-6.338571E-005	-1.659128E-001	-2.236705E-001
448	4	-5.319886E-004	-6.337745E-005	-1.877242E-001	-2.236416E-001
448	5	-5.010834E-004	-5.253465E-005	-1.768182E-001	-1.853814E-001
448	6	-4.701780E-004	-5.796284E-005	-1.659124E-001	-2.045318E-001
448	7	-5.010834E-004	-6.338230E-005	-1.768182E-001	-2.236574E-001
448	8	-5.319992E-004	-5.795312E-005	-1.877263E-001	-2.045014E-001
448	9	-5.010834E-004	-5.795822E-005	-1.768182E-001	-2.045163E-001
449	1	-5.765693E-004	-4.208698E-005	-2.034549E-001	-1.482298E-001
449	2	-5.455051E-004	-4.201899E-005	-1.924935E-001	-1.482463E-001
449	3	-5.455056E-004	-4.747331E-005	-1.924924E-001	-1.675191E-001
449	4	-5.765709E-004	-4.746853E-005	-2.034543E-001	-1.675033E-001
449	5	-5.610382E-004	-4.208839E-005	-1.979742E-001	-1.482326E-001
449	6	-5.455031E-004	-4.474208E-005	-1.924929E-001	-1.578807E-001
449	7	-5.610382E-004	-4.746998E-005	-1.979742E-001	-1.675093E-001
449	8	-5.765672E-004	-4.473774E-005	-2.034543E-001	-1.578661E-001
449	9	-5.610382E-004	-4.473987E-005	-1.979742E-001	-1.578734E-001
450	1	-6.783476E-005	-2.747589E-005	-2.393614E-001	-9.695094E-001
450	2	-6.989459E-005	-2.696842E-005	-2.466238E-001	-9.515951E-001
450	3	-6.989389E-005	-2.635918E-005	-2.466237E-001	-9.301047E-001
450	4	-6.783479E-005	-2.681016E-005	-2.393622E-001	-9.460062E-001
450	5	-6.898984E-005	-2.721064E-005	-2.431537E-001	-9.601478E-001
450	6	-6.989361E-005	-2.666395E-005	-2.466266E-001	-9.408564E-001
450	7	-6.891009E-005	-2.657419E-005	-2.431547E-001	-9.376946E-001
450	8	-6.783407E-005	-2.714269E-005	-2.393565E-001	-9.577555E-001
450	9	-6.891009E-005	-2.689259E-005	-2.431540E-001	-9.489189E-001
451	1	-6.523832E-005	-3.196603E-005	-2.302020E-001	-1.127952E+000
451	2	-5.897269E-005	-3.283812E-005	-2.080099E-001	-1.158713E+000
451	3	-5.897226E-005	-3.626139E-005	-2.080098E-001	-1.279511E+000
451	4	-6.523942E-005	-3.556317E-005	-2.302018E-001	-1.254889E+000
451	5	-6.202036E-005	-3.241242E-005	-2.188720E-001	-1.143788E+000
451	6	-6.897202E-005	-3.454982E-005	-2.080088E-001	-1.219113E+000
451	7	-6.202086E-005	-3.592058E-005	-2.188727E-001	-1.267494E+000
451	8	-6.523874E-005	-3.376499E-005	-2.302036E-001	-1.191416E+000
451	9	-6.202867E-005	-3.416666E-005	-2.188736E-001	-1.205605E+000
452	1	-7.193369E-005	-2.733328E-005	-2.538165E-001	-9.644651E-001
452	2	-7.296525E-005	-2.711539E-005	-2.574644E-001	-9.567844E-001
452	3	-7.296482E-005	-2.677262E-005	-2.574631E-001	-9.446855E-001
452	4	-7.193186E-005	-2.696147E-005	-2.538217E-001	-9.513536E-001
452	5	-7.246977E-005	-2.722024E-005	-2.557136E-001	-9.604737E-001
452	6	-7.296540E-005	-2.694391E-005	-2.574616E-001	-9.507399E-001
452	7	-7.246888E-005	-2.686347E-005	-2.557138E-001	-9.478922E-001
452	8	-7.193184E-005	-2.714737E-005	-2.538177E-001	-9.579110E-001
452	9	-7.246957E-005	-2.704150E-005	-2.557158E-001	-9.541833E-001
453	1	-7.639798E-005	-2.849254E-005	-2.695001E-001	-1.005388E+000
453	2	-7.514399E-005	-2.871209E-005	-2.651516E-001	-1.013119E+000
453	3	-7.514405E-005	-2.921824E-005	-2.651514E-001	-1.030983E+000
453	4	-7.639824E-005	-2.903332E-005	-2.695782E-001	-1.024470E+000

453	5	-7.575069E-005	-2.860570E-005	-2.672941E-001	-1.009372E+000
453	6	-7.514435E-005	-2.896492E-005	-2.651522E-001	-1.022051E+000
453	7	-7.575020E-005	-2.912926E-005	-2.672925E-001	-1.027840E+000
453	8	-7.639962E-005	-2.876296E-005	-2.695791E-001	-1.014932E+000
453	9	-7.575114E-005	-2.886751E-005	-2.672921E-001	-1.018611E+000
454	1	-7.269160E-005	-3.165781E-005	-2.564979E-001	-1.117060E+000
454	2	-6.698564E-005	-3.244584E-005	-2.363636E-001	-1.144884E+000
454	3	-6.698617E-005	-3.533796E-005	-2.363648E-001	-1.246923E+000
454	4	-7.269098E-005	-3.470623E-005	-2.564944E-001	-1.224646E+000
454	5	-6.976342E-005	-3.206230E-005	-2.461655E-001	-1.131354E+000
454	6	-6.698614E-005	-3.389162E-005	-2.363642E-001	-1.195895E+000
454	7	-6.976342E-005	-3.503027E-005	-2.461655E-001	-1.236077E+000
454	8	-7.269094E-005	-3.318223E-005	-2.564953E-001	-1.170866E+000
454	9	-6.976342E-005	-3.354627E-005	-2.461655E-001	-1.183713E+000
455	1	-6.427107E-005	-2.627076E-005	-2.267825E-001	-9.269749E-001
455	2	-6.713088E-005	-2.557132E-005	-2.368744E-001	-9.022844E-001
455	3	-6.713084E-005	-2.483183E-005	-2.368792E-001	-8.762253E-001
455	4	-6.426914E-005	-2.545322E-005	-2.267841E-001	-8.981453E-001
455	5	-6.577439E-005	-2.590314E-005	-2.320877E-001	-9.139999E-001
455	6	-6.713077E-005	-2.528135E-005	-2.368750E-001	-8.892571E-001
455	7	-6.577439E-005	-2.512713E-005	-2.320877E-001	-8.866131E-001
455	8	-6.427082E-005	-2.586147E-005	-2.267848E-001	-9.125493E-001
455	9	-6.577439E-005	-2.551490E-005	-2.320877E-001	-9.003078E-001
456	1	-7.629758E-005	-2.754475E-005	-2.692189E-001	-9.719588E-001
456	2	-7.656114E-005	-2.749949E-005	-2.701525E-001	-9.703445E-001
456	3	-7.656117E-005	-2.740335E-005	-2.701501E-001	-9.669588E-001
456	4	-7.629738E-005	-2.744189E-005	-2.692203E-001	-9.683015E-001
456	5	-7.643375E-005	-2.752158E-005	-2.697016E-001	-9.711146E-001
456	6	-7.656044E-005	-2.745164E-005	-2.701505E-001	-9.686466E-001
456	7	-7.643375E-005	-2.742195E-005	-2.697016E-001	-9.676051E-001
456	8	-7.629755E-005	-2.749342E-005	-2.692201E-001	-9.701427E-001
456	9	-7.643375E-005	-2.747170E-005	-2.697016E-001	-9.693572E-001
457	1	-7.814033E-005	-3.090753E-005	-2.757550E-001	-1.090593E+000
457	2	-7.412306E-005	-3.146716E-005	-2.615502E-001	-1.110347E+000
457	3	-7.412204E-005	-3.337880E-005	-2.615466E-001	-1.177804E+000
457	4	-7.814052E-005	-3.293854E-005	-2.757527E-001	-1.161988E+000
457	5	-7.607796E-005	-3.119526E-005	-2.684486E-001	-1.100747E+000
457	6	-7.412337E-005	-3.242342E-005	-2.615489E-001	-1.144083E+000
457	7	-7.607803E-005	-3.316172E-005	-2.684486E-001	-1.170126E+000
457	8	-7.814923E-005	-3.191924E-005	-2.757558E-001	-1.126288E+000
457	9	-7.607852E-005	-3.217832E-005	-2.684484E-001	-1.135439E+000
458	1	-6.941866E-005	-2.627482E-005	-2.449545E-001	-9.271249E-001
458	2	-7.149563E-005	-2.583765E-005	-2.522783E-001	-9.116057E-001
458	3	-7.149474E-005	-2.522292E-005	-2.522759E-001	-8.900126E-001
458	4	-6.941934E-005	-2.560289E-005	-2.449483E-001	-9.034248E-001
458	5	-7.050380E-005	-2.604582E-005	-2.487806E-001	-9.190558E-001
458	6	-7.149557E-005	-2.553018E-005	-2.522783E-001	-9.008521E-001
458	7	-7.050320E-005	-2.540440E-005	-2.487788E-001	-8.964213E-001
458	8	-6.941853E-005	-2.593898E-005	-2.449498E-001	-9.152710E-001
458	9	-7.050420E-005	-2.572509E-005	-2.487776E-001	-9.077370E-001
459	1	-8.157540E-005	-2.971462E-005	-2.878442E-001	-1.048498E+000
459	2	-7.910954E-005	-3.005730E-005	-2.791426E-001	-1.060602E+000
459	3	-7.910977E-005	-3.114007E-005	-2.791423E-001	-1.098797E+000
459	4	-8.157468E-005	-3.086601E-005	-2.878441E-001	-1.089129E+000
459	5	-8.030378E-005	-2.989140E-005	-2.833598E-001	-1.054745E+000
459	6	-7.910929E-005	-3.059881E-005	-2.791429E-001	-1.079706E+000
459	7	-8.030378E-005	-3.100670E-005	-2.833598E-001	-1.094104E+000
459	8	-8.157538E-005	-3.028992E-005	-2.878442E-001	-1.068814E+000
459	9	-8.030378E-005	-3.044926E-005	-2.833598E-001	-1.074421E+000
460	1	-7.458760E-005	-2.635574E-005	-2.631896E-001	-9.299746E-001

460	2	-7.605913E-005	-2.689835E-005	-2.683790E-001	-9.209862E-001
460	3	-7.606011E-005	-2.560946E-005	-2.683842E-001	-9.036478E-001
460	4	-7.458741E-005	-2.582655E-005	-2.631826E-001	-9.113024E-001
460	5	-7.535201E-005	-2.622186E-005	-2.658874E-001	-9.252648E-001
460	6	-7.605839E-005	-2.585368E-005	-2.683799E-001	-9.122649E-001
460	7	-7.535259E-005	-2.571359E-005	-2.658845E-001	-9.073228E-001
460	8	-7.458679E-005	-2.689182E-005	-2.631827E-001	-9.206429E-001
460	9	-7.535259E-005	-2.596768E-005	-2.658871E-001	-9.162977E-001
461	1	-5.991700E-005	-2.464513E-005	-2.114182E-001	-8.696672E-001
461	2	-6.336468E-005	-2.379589E-005	-2.235931E-001	-8.396435E-001
461	3	-6.336338E-005	-2.302259E-005	-2.235849E-001	-8.123677E-001
461	4	-5.991615E-005	-2.377612E-005	-2.114181E-001	-8.389609E-001
461	5	-6.174055E-005	-2.419575E-005	-2.178568E-001	-8.537646E-001
461	6	-6.336677E-005	-2.340885E-005	-2.235913E-001	-8.259971E-001
461	7	-6.173969E-005	-2.337722E-005	-2.178558E-001	-8.248855E-001
461	8	-5.991657E-005	-2.421071E-005	-2.114182E-001	-8.543007E-001
461	9	-6.174079E-005	-2.378660E-005	-2.178548E-001	-8.393363E-001
462	1	-6.583817E-005	-2.480078E-005	-2.323184E-001	-8.779514E-001
462	2	-6.871139E-005	-2.428013E-005	-2.424532E-001	-8.567448E-001
462	3	-6.871140E-005	-2.353762E-005	-2.424512E-001	-8.305506E-001
462	4	-6.583922E-005	-2.406004E-005	-2.323199E-001	-8.489726E-001
462	5	-6.734754E-005	-2.456559E-005	-2.376414E-001	-8.668140E-001
462	6	-6.871113E-005	-2.390899E-005	-2.424503E-001	-8.436447E-001
462	7	-6.734754E-005	-2.378587E-005	-2.376414E-001	-8.393019E-001
462	8	-6.584061E-005	-2.447870E-005	-2.323164E-001	-8.634546E-001
462	9	-6.734754E-005	-2.417561E-005	-2.376414E-001	-8.530537E-001
463	1	-8.213515E-005	-2.830104E-005	-2.892230E-001	-9.986174E-001
463	2	-8.190104E-005	-2.832280E-005	-2.892759E-001	-9.993679E-001
463	3	-8.190108E-005	-2.838507E-005	-2.892757E-001	-1.001579E+000
463	4	-8.213497E-005	-2.836715E-005	-2.892223E-001	-1.000957E+000
463	5	-8.205599E-005	-2.831139E-005	-2.895437E-001	-9.989964E-001
463	6	-8.198055E-005	-2.835342E-005	-2.892778E-001	-1.000469E+000
463	7	-8.205690E-005	-2.837618E-005	-2.895415E-001	-1.001271E+000
463	8	-8.213506E-005	-2.833411E-005	-2.892226E-001	-9.997888E-001
463	9	-8.205615E-005	-2.834408E-005	-2.895424E-001	-1.000140E+000
464	1	-4.266644E-002	-4.138686E-004	-1.505543E-001	-1.460143E-002
464	2	-4.271667E-002	-4.139454E-004	-1.507344E-001	-1.460318E-002
464	3	-4.271675E-002	-4.049335E-004	-1.507347E-001	-1.429083E-002
464	4	-4.266644E-002	-4.049112E-004	-1.505568E-001	-1.429041E-002
464	5	-4.269085E-002	-4.138587E-004	-1.506453E-001	-1.460131E-002
464	6	-4.271675E-002	-4.093353E-004	-1.507346E-001	-1.444586E-002
464	7	-4.269085E-002	-4.049225E-004	-1.506453E-001	-1.428871E-002
464	8	-4.266612E-002	-4.093489E-004	-1.505549E-001	-1.444655E-002
464	9	-4.269085E-002	-4.094217E-004	-1.506453E-001	-1.444462E-002
465	1	-4.249311E-002	-1.232845E-003	-1.459479E-001	-4.350499E-002
465	2	-4.263733E-002	-1.232881E-003	-1.504554E-001	-4.350656E-002
465	3	-4.263729E-002	-1.207479E-003	-1.504556E-001	-4.260799E-002
465	4	-4.249390E-002	-1.207429E-003	-1.459479E-001	-4.260708E-002
465	5	-4.256563E-002	-1.232817E-003	-1.501999E-001	-4.350132E-002
465	6	-4.263727E-002	-1.220210E-003	-1.504556E-001	-4.305689E-002
465	7	-4.256483E-002	-1.207424E-003	-1.502822E-001	-4.260698E-002
465	8	-4.249343E-002	-1.220116E-003	-1.459473E-001	-4.305771E-002
465	9	-4.256531E-002	-1.220173E-003	-1.501996E-001	-4.305626E-002
466	1	-4.220467E-002	-2.030053E-003	-1.489291E-001	-7.163397E-002
466	2	-4.243839E-002	-2.029953E-003	-1.497517E-001	-7.162951E-002
466	3	-4.243818E-002	-1.988939E-003	-1.497515E-001	-7.018365E-002
466	4	-4.220467E-002	-1.988963E-003	-1.489278E-001	-7.018651E-002
466	5	-4.232125E-002	-2.029952E-003	-1.493399E-001	-7.163133E-002
466	6	-4.243821E-002	-2.009585E-003	-1.497522E-001	-7.090872E-002
466	7	-4.232124E-002	-1.988950E-003	-1.493402E-001	-7.018317E-002

466	8	-4.220435E-002	-2.009464E-003	-1.489259E-001	-7.090975E-002
466	9	-4.232124E-002	-2.009474E-003	-1.493406E-001	-7.090987E-002
467	1	-4.182211E-002	-2.790669E-003	-1.475778E-001	-9.847341E-002
467	2	-4.212674E-002	-2.790524E-003	-1.486522E-001	-9.847112E-002
467	3	-4.212624E-002	-2.737026E-003	-1.486530E-001	-9.658346E-002
467	4	-4.182196E-002	-2.737043E-003	-1.475798E-001	-9.658337E-002
467	5	-4.197428E-002	-2.790636E-003	-1.481142E-001	-9.847425E-002
467	6	-4.212670E-002	-2.763836E-003	-1.486526E-001	-9.752661E-002
467	7	-4.197424E-002	-2.737045E-003	-1.481154E-001	-9.658468E-002
467	8	-4.182275E-002	-2.763890E-003	-1.475804E-001	-9.752874E-002
467	9	-4.197426E-002	-2.763853E-003	-1.481135E-001	-9.752671E-002
468	1	-4.137151E-002	-3.502206E-003	-1.459895E-001	-1.235826E-001
468	2	-4.172653E-002	-3.502095E-003	-1.472390E-001	-1.235780E-001
468	3	-4.172617E-002	-3.439790E-003	-1.472405E-001	-1.213806E-001
468	4	-4.137248E-002	-3.439865E-003	-1.459902E-001	-1.213838E-001
468	5	-4.154923E-002	-3.502254E-003	-1.466157E-001	-1.235843E-001
468	6	-4.172661E-002	-3.470955E-003	-1.472412E-001	-1.224807E-001
468	7	-4.154917E-002	-3.439787E-003	-1.466139E-001	-1.213803E-001
468	8	-4.137136E-002	-3.470968E-003	-1.459889E-001	-1.224811E-001
468	9	-4.154920E-002	-3.470972E-003	-1.466160E-001	-1.224800E-001
469	1	-4.088339E-002	-4.155033E-003	-1.442667E-001	-1.466175E-001
469	2	-4.126538E-002	-4.154971E-003	-1.456124E-001	-1.466185E-001
469	3	-4.126424E-002	-4.088033E-003	-1.456097E-001	-1.442512E-001
469	4	-4.088376E-002	-4.087898E-003	-1.442656E-001	-1.442526E-001
469	5	-4.107416E-002	-4.154917E-003	-1.449373E-001	-1.466145E-001
469	6	-4.126511E-002	-4.121437E-003	-1.456127E-001	-1.454340E-001
469	7	-4.107416E-002	-4.087855E-003	-1.449373E-001	-1.442487E-001
469	8	-4.088358E-002	-4.121421E-003	-1.442661E-001	-1.454360E-001
469	9	-4.107416E-002	-4.121468E-003	-1.449373E-001	-1.454341E-001
470	1	-4.038223E-002	-4.743638E-003	-1.424991E-001	-1.673874E-001
470	2	-4.077164E-002	-4.743547E-003	-1.438717E-001	-1.673872E-001
470	3	-4.077165E-002	-4.675170E-003	-1.438715E-001	-1.649694E-001
470	4	-4.038278E-002	-4.675228E-003	-1.424963E-001	-1.649753E-001
470	5	-4.057660E-002	-4.743566E-003	-1.431840E-001	-1.673858E-001
470	6	-4.077087E-002	-4.709291E-003	-1.438698E-001	-1.661785E-001
470	7	-4.057660E-002	-4.675178E-003	-1.431840E-001	-1.649723E-001
470	8	-4.038202E-002	-4.709378E-003	-1.424977E-001	-1.661806E-001
470	9	-4.057660E-002	-4.709359E-003	-1.431840E-001	-1.661798E-001
471	1	-3.989983E-002	-5.263250E-003	-1.407984E-001	-1.857253E-001
471	2	-4.027159E-002	-5.263184E-003	-1.421070E-001	-1.857243E-001
471	3	-4.027133E-002	-5.197864E-003	-1.421067E-001	-1.834164E-001
471	4	-3.989977E-002	-5.197877E-003	-1.407938E-001	-1.834184E-001
471	5	-4.008581E-002	-5.263194E-003	-1.414511E-001	-1.857261E-001
471	6	-4.027196E-002	-5.230496E-003	-1.421068E-001	-1.845726E-001
471	7	-4.008581E-002	-5.197837E-003	-1.414511E-001	-1.834173E-001
471	8	-3.989996E-002	-5.230626E-003	-1.407951E-001	-1.845733E-001
471	9	-4.008581E-002	-5.230579E-003	-1.414511E-001	-1.845710E-001
472	1	-3.945522E-002	-5.714192E-003	-1.392259E-001	-2.016372E-001
472	2	-3.979638E-002	-5.714166E-003	-1.404297E-001	-2.016344E-001
472	3	-3.979674E-002	-5.654284E-003	-1.404298E-001	-1.995243E-001
472	4	-3.945578E-002	-5.654220E-003	-1.392275E-001	-1.995208E-001
472	5	-3.962605E-002	-5.714139E-003	-1.398284E-001	-2.016364E-001
472	6	-3.979618E-002	-5.684209E-003	-1.404298E-001	-2.005790E-001
472	7	-3.962602E-002	-5.654222E-003	-1.398307E-001	-1.995194E-001
472	8	-3.945535E-002	-5.684193E-003	-1.392283E-001	-2.005784E-001
472	9	-3.962616E-002	-5.684203E-003	-1.398285E-001	-2.005778E-001
473	1	-3.907178E-002	-6.897862E-003	-1.378712E-001	-2.151756E-001
473	2	-3.936264E-002	-6.897788E-003	-1.389017E-001	-2.151738E-001
473	3	-3.936344E-002	-6.846518E-003	-1.389019E-001	-2.133612E-001
473	4	-3.907136E-002	-6.846519E-003	-1.378721E-001	-2.133646E-001

473	5	-3.921753E-002	-6.897842E-003	-1.383882E-001	-2.151745E-001
473	6	-3.936328E-002	-6.872883E-003	-1.389025E-001	-2.142689E-001
473	7	-3.921777E-002	-6.846462E-003	-1.383886E-001	-2.133628E-001
473	8	-3.907190E-002	-6.872183E-003	-1.378735E-001	-2.142701E-001
473	9	-3.921789E-002	-6.872200E-003	-1.383880E-001	-2.142688E-001
474	1	-3.876470E-002	-6.419529E-003	-1.367877E-001	-2.265276E-001
474	2	-3.899589E-002	-6.419518E-003	-1.376041E-001	-2.265253E-001
474	3	-3.899654E-002	-6.378974E-003	-1.376062E-001	-2.250940E-001
474	4	-3.876455E-002	-6.379012E-003	-1.367890E-001	-2.250949E-001
474	5	-3.888065E-002	-6.419647E-003	-1.371979E-001	-2.265304E-001
474	6	-3.899598E-002	-6.399274E-003	-1.376041E-001	-2.258117E-001
474	7	-3.887999E-002	-6.379046E-003	-1.371976E-001	-2.250977E-001
474	8	-3.876510E-002	-6.399288E-003	-1.367906E-001	-2.258118E-001
474	9	-3.888032E-002	-6.399283E-003	-1.371981E-001	-2.258109E-001
475	1	-3.857415E-002	-6.684954E-003	-1.361195E-001	-2.358892E-001
475	2	-3.871089E-002	-6.684816E-003	-1.366003E-001	-2.358882E-001
475	3	-3.871134E-002	-6.660771E-003	-1.366009E-001	-2.350382E-001
475	4	-3.857473E-002	-6.660844E-003	-1.361188E-001	-2.350409E-001
475	5	-3.864264E-002	-6.684745E-003	-1.363609E-001	-2.358848E-001
475	6	-3.871079E-002	-6.672787E-003	-1.366006E-001	-2.354644E-001
475	7	-3.864264E-002	-6.660754E-003	-1.363609E-001	-2.350375E-001
475	8	-3.857397E-002	-6.672833E-003	-1.361188E-001	-2.354651E-001
475	9	-3.864264E-002	-6.672816E-003	-1.363609E-001	-2.354640E-001
476	1	-3.854847E-002	-6.914393E-003	-1.360270E-001	-2.439891E-001
476	2	-3.855424E-002	-6.914307E-003	-1.360468E-001	-2.439851E-001
476	3	-3.855351E-002	-6.913364E-003	-1.360441E-001	-2.439526E-001
476	4	-3.854838E-002	-6.913315E-003	-1.360288E-001	-2.439535E-001
476	5	-3.855154E-002	-6.914397E-003	-1.360364E-001	-2.439905E-001
476	6	-3.855463E-002	-6.913855E-003	-1.360465E-001	-2.439688E-001
476	7	-3.855082E-002	-6.913423E-003	-1.360363E-001	-2.439544E-001
476	8	-3.854761E-002	-6.913819E-003	-1.360243E-001	-2.439696E-001
476	9	-3.855125E-002	-6.913849E-003	-1.360358E-001	-2.439686E-001
477	1	-3.837125E-002	-7.148012E-003	-1.354003E-001	-2.522333E-001
477	2	-3.852550E-002	-7.148026E-003	-1.359442E-001	-2.522310E-001
477	3	-3.852546E-002	-7.120742E-003	-1.359442E-001	-2.512745E-001
477	4	-3.837086E-002	-7.120856E-003	-1.354019E-001	-2.512742E-001
477	5	-3.844764E-002	-7.148056E-003	-1.356717E-001	-2.522314E-001
477	6	-3.852460E-002	-7.134372E-003	-1.359443E-001	-2.517546E-001
477	7	-3.844865E-002	-7.120864E-003	-1.356720E-001	-2.512741E-001
477	8	-3.837057E-002	-7.134466E-003	-1.354000E-001	-2.517537E-001
477	9	-3.844819E-002	-7.134433E-003	-1.356722E-001	-2.517527E-001
478	1	-4.103985E-002	-6.857668E-003	-1.448170E-001	-2.419878E-001
478	2	-3.869188E-002	-6.858046E-003	-1.365269E-001	-2.419984E-001
478	3	-3.868959E-002	-7.271152E-003	-1.365263E-001	-2.565770E-001
478	4	-4.103977E-002	-7.271047E-003	-1.448172E-001	-2.565764E-001
478	5	-3.986451E-002	-6.857866E-003	-1.406717E-001	-2.419936E-001
478	6	-3.869030E-002	-7.064583E-003	-1.365268E-001	-2.492868E-001
478	7	-3.986451E-002	-7.271112E-003	-1.406717E-001	-2.565761E-001
478	8	-4.104072E-002	-7.064417E-003	-1.448178E-001	-2.492803E-001
478	9	-3.986451E-002	-7.064474E-003	-1.406717E-001	-2.492837E-001
479	1	-5.270868E-004	-7.201929E-005	-1.859943E-001	-2.541374E-001
479	2	-4.282112E-004	-7.203396E-005	-1.511035E-001	-2.541861E-001
479	3	-4.282129E-002	-8.938988E-003	-1.511035E-001	-3.154245E-001
479	4	-5.271012E-004	-8.936786E-005	-1.859951E-001	-3.153550E-001
479	5	-4.776659E-004	-7.202663E-005	-1.685527E-001	-2.541593E-001
479	6	-4.282124E-002	-8.071071E-003	-1.511014E-001	-2.848868E-001
479	7	-4.776551E-004	-8.937918E-005	-1.685520E-001	-3.153988E-001
479	8	-5.270922E-004	-8.069398E-005	-1.859976E-001	-2.847445E-001
479	9	-4.776642E-004	-8.070261E-005	-1.685520E-001	-2.847766E-001
480	1	-5.320730E-004	-6.474649E-005	-1.877563E-001	-2.284756E-001

480	2	-5.402819E-004	-6.474652E-005	-1.986496E-001	-2.284714E-001
480	3	-5.402850E-004	-6.330718E-005	-1.986495E-001	-2.233912E-001
480	4	-5.320867E-004	-6.330806E-005	-1.877552E-001	-2.233939E-001
480	5	-5.361793E-004	-6.474581E-005	-1.892028E-001	-2.284688E-001
480	6	-5.402805E-004	-6.402710E-005	-1.986498E-001	-2.259323E-001
480	7	-5.361793E-004	-6.330763E-005	-1.892028E-001	-2.233945E-001
480	8	-5.320734E-004	-6.402694E-005	-1.877541E-001	-2.259334E-001
480	9	-5.361793E-004	-6.402722E-005	-1.892028E-001	-2.259340E-001
481	1	-6.467419E-004	-5.884034E-005	-2.282155E-001	-1.794011E-001
481	2	-5.456093E-004	-5.885438E-005	-1.925282E-001	-1.794528E-001
481	3	-5.456096E-004	-6.863890E-005	-1.925284E-001	-2.422075E-001
481	4	-6.467278E-004	-6.861778E-005	-2.282138E-001	-2.421323E-001
481	5	-5.961815E-004	-5.884781E-005	-2.103741E-001	-1.794255E-001
481	6	-5.456072E-004	-5.974788E-005	-1.925276E-001	-2.108299E-001
481	7	-5.961815E-004	-6.862919E-005	-2.103741E-001	-2.421709E-001
481	8	-6.467382E-004	-5.972918E-005	-2.282149E-001	-2.107662E-001
481	9	-5.961815E-004	-5.973828E-005	-2.103741E-001	-2.107994E-001
482	1	-7.654194E-005	-3.563736E-005	-2.708821E-001	-1.257496E+000
482	2	-6.740258E-005	-3.658119E-005	-2.378368E-001	-1.298886E+000
482	3	-6.740233E-005	-4.157196E-005	-2.378370E-001	-1.466906E+000
482	4	-7.654208E-005	-4.088489E-005	-2.708814E-001	-1.442629E+000
482	5	-7.185870E-005	-3.612087E-005	-2.535581E-001	-1.274555E+000
482	6	-6.740318E-005	-3.987681E-005	-2.378366E-001	-1.378855E+000
482	7	-7.185882E-005	-4.123689E-005	-2.535599E-001	-1.455069E+000
482	8	-7.654155E-005	-3.826971E-005	-2.708817E-001	-1.350066E+000
482	9	-7.185847E-005	-3.867886E-005	-2.535593E-001	-1.364818E+000
483	1	-7.166850E-005	-2.499112E-005	-2.528862E-001	-8.818470E-001
483	2	-7.484073E-005	-2.457587E-005	-2.612606E-001	-8.671811E-001
483	3	-7.484083E-005	-2.387271E-005	-2.612580E-001	-8.423743E-001
483	4	-7.166697E-005	-2.422240E-005	-2.528852E-001	-8.547041E-001
483	5	-7.290642E-005	-2.477432E-005	-2.572571E-001	-8.741815E-001
483	6	-7.484136E-005	-2.422459E-005	-2.612605E-001	-8.547800E-001
483	7	-7.290752E-005	-2.483989E-005	-2.572602E-001	-8.482622E-001
483	8	-7.166794E-005	-2.468693E-005	-2.528819E-001	-8.682658E-001
483	9	-7.290744E-005	-2.448698E-005	-2.572589E-001	-8.612245E-001
484	1	-8.071292E-005	-2.672643E-005	-2.848035E-001	-9.430532E-001
484	2	-8.198977E-005	-2.654961E-005	-2.893060E-001	-9.368310E-001
484	3	-8.198912E-005	-2.688393E-005	-2.893035E-001	-9.203891E-001
484	4	-8.071195E-005	-2.622494E-005	-2.848014E-001	-9.253660E-001
484	5	-8.137456E-005	-2.663468E-005	-2.871372E-001	-9.398207E-001
484	6	-8.198863E-005	-2.631676E-005	-2.893048E-001	-9.286198E-001
484	7	-8.137456E-005	-2.615209E-005	-2.871372E-001	-9.228047E-001
484	8	-8.071381E-005	-2.647521E-005	-2.848010E-001	-9.342031E-001
484	9	-8.137456E-005	-2.639341E-005	-2.871372E-001	-9.313126E-001
485	1	-5.447324E-005	-2.274453E-005	-1.922158E-001	-8.025643E-001
485	2	-5.880139E-005	-2.167913E-005	-2.074843E-001	-7.649643E-001
485	3	-5.880080E-005	-2.086276E-005	-2.074872E-001	-7.361445E-001
485	4	-5.447288E-005	-2.180980E-005	-1.922167E-001	-7.695710E-001
485	5	-5.678401E-005	-2.217588E-005	-2.003642E-001	-7.824892E-001
485	6	-5.879853E-005	-2.127081E-005	-2.074794E-001	-7.505640E-001
485	7	-5.678401E-005	-2.130378E-005	-2.003642E-001	-7.517372E-001
485	8	-5.447435E-005	-2.227631E-005	-1.922171E-001	-7.860597E-001
485	9	-5.678401E-005	-2.174019E-005	-2.003642E-001	-7.671238E-001
486	1	-8.499146E-005	-3.432024E-005	-2.999814E-001	-1.211087E+000
486	2	-7.879803E-005	-3.495558E-005	-2.780470E-001	-1.233431E+000
486	3	-7.879888E-005	-3.809538E-005	-2.780477E-001	-1.344225E+000
486	4	-8.499126E-005	-3.762863E-005	-2.998996E-001	-1.327752E+000
486	5	-8.181451E-005	-3.464597E-005	-2.886891E-001	-1.222516E+000
486	6	-7.879885E-005	-3.652566E-005	-2.780471E-001	-1.288837E+000
486	7	-8.181451E-005	-3.786783E-005	-2.886891E-001	-1.336199E+000

486	8	-8.499194E-005	-3.597406E-005	-2.998996E-001	-1.269380E+000
486	9	-8.181451E-005	-3.625716E-005	-2.886891E-001	-1.279361E+000
487	1	-6.141968E-005	-2.319782E-005	-2.167276E-001	-8.185689E-001
487	2	-6.492447E-005	-2.246077E-005	-2.290931E-001	-7.925372E-001
487	3	-6.492418E-005	-2.167538E-005	-2.290939E-001	-7.648465E-001
487	4	-6.142182E-005	-2.231448E-005	-2.167338E-001	-7.873983E-001
487	5	-6.327538E-005	-2.280762E-005	-2.232723E-001	-8.047970E-001
487	6	-6.492433E-005	-2.280868E-005	-2.290870E-001	-7.787031E-001
487	7	-6.327518E-005	-2.197676E-005	-2.232723E-001	-7.754629E-001
487	8	-6.142075E-005	-2.275681E-005	-2.167277E-001	-8.029706E-001
487	9	-6.327529E-005	-2.239240E-005	-2.232718E-001	-7.901356E-001
488	1	-6.789495E-005	-2.345057E-005	-2.395730E-001	-8.274624E-001
488	2	-7.889555E-005	-2.292881E-005	-2.501662E-001	-8.098501E-001
488	3	-7.889489E-005	-2.215481E-005	-2.501607E-001	-7.817658E-001
488	4	-6.789628E-005	-2.259215E-005	-2.395729E-001	-7.971795E-001
488	5	-6.947422E-005	-2.317609E-005	-2.451436E-001	-8.177776E-001
488	6	-7.889642E-005	-2.254228E-005	-2.501630E-001	-7.954175E-001
488	7	-6.947422E-005	-2.236256E-005	-2.451436E-001	-7.898804E-001
488	8	-6.789582E-005	-2.302118E-005	-2.395782E-001	-8.123255E-001
488	9	-6.947422E-005	-2.276902E-005	-2.451436E-001	-8.034271E-001
489	1	-9.151737E-005	-3.214862E-005	-3.229271E-001	-1.134387E+000
489	2	-8.661784E-005	-3.265438E-005	-3.056338E-001	-1.152244E+000
489	3	-8.661757E-005	-3.498043E-005	-3.056369E-001	-1.234309E+000
489	4	-9.151716E-005	-3.461121E-005	-3.229292E-001	-1.221288E+000
489	5	-8.899665E-005	-3.248927E-005	-3.140336E-001	-1.143573E+000
489	6	-8.661750E-005	-3.381761E-005	-3.056370E-001	-1.193202E+000
489	7	-8.899679E-005	-3.480130E-005	-3.140332E-001	-1.227986E+000
489	8	-9.151715E-005	-3.338021E-005	-3.229253E-001	-1.177840E+000
489	9	-8.899701E-005	-3.360523E-005	-3.140327E-001	-1.185785E+000
490	1	-7.790307E-005	-2.515340E-005	-2.748891E-001	-8.875645E-001
490	2	-8.020532E-005	-2.483267E-005	-2.830135E-001	-8.762403E-001
490	3	-8.020494E-005	-2.406978E-005	-2.830090E-001	-8.493168E-001
490	4	-7.790453E-005	-2.432563E-005	-2.748889E-001	-8.583435E-001
490	5	-7.910146E-005	-2.498668E-005	-2.791139E-001	-8.816568E-001
490	6	-8.020481E-005	-2.445884E-005	-2.830115E-001	-8.627779E-001
490	7	-7.910135E-005	-2.419257E-005	-2.791161E-001	-8.536551E-001
490	8	-7.790359E-005	-2.473945E-005	-2.748886E-001	-8.729577E-001
490	9	-7.910187E-005	-2.458950E-005	-2.791169E-001	-8.676543E-001
491	1	-9.146564E-005	-2.992381E-005	-3.227452E-001	-1.055888E+000
491	2	-9.218253E-005	-2.984992E-005	-3.252741E-001	-1.053282E+000
491	3	-9.218269E-005	-2.953552E-005	-3.252736E-001	-1.042185E+000
491	4	-9.146600E-005	-2.958999E-005	-3.227438E-001	-1.044112E+000
491	5	-9.183507E-005	-2.986605E-005	-3.240482E-001	-1.054559E+000
491	6	-9.218199E-005	-2.969315E-005	-3.252734E-001	-1.047740E+000
491	7	-9.183507E-005	-2.956248E-005	-3.240482E-001	-1.043128E+000
491	8	-9.146501E-005	-2.975689E-005	-3.227454E-001	-1.050802E+000
491	9	-9.183507E-005	-2.972391E-005	-3.240482E-001	-1.048834E+000
492	1	-5.609784E-005	-2.119242E-005	-1.979529E-001	-7.477875E-001
492	2	-6.031574E-005	-2.030247E-005	-2.128211E-001	-7.163858E-001
492	3	-6.031466E-005	-1.950907E-005	-2.128232E-001	-6.883993E-001
492	4	-5.609918E-005	-2.028122E-005	-1.979535E-001	-7.156423E-001
492	5	-5.835267E-005	-2.071618E-005	-2.058960E-001	-7.309887E-001
492	6	-6.031252E-005	-1.990599E-005	-2.128152E-001	-7.023977E-001
492	7	-5.835267E-005	-1.986837E-005	-2.058960E-001	-7.010770E-001
492	8	-5.609851E-005	-2.073694E-005	-1.979464E-001	-7.316992E-001
492	9	-5.835267E-005	-2.029260E-005	-2.058960E-001	-7.160425E-001
493	1	-7.440565E-005	-2.358821E-005	-2.625431E-001	-8.323355E-001
493	2	-7.717250E-005	-2.320305E-005	-2.723104E-001	-8.187394E-001
493	3	-7.717279E-005	-2.238582E-005	-2.723118E-001	-7.898974E-001
493	4	-7.440428E-005	-2.269332E-005	-2.625418E-001	-8.007489E-001

493	5	-7.584978E-005	-2.338785E-005	-2.676467E-001	-8.252245E-001
493	6	-7.717289E-005	-2.279400E-005	-2.723078E-001	-8.043896E-001
493	7	-7.585128E-005	-2.253267E-005	-2.676456E-001	-7.950831E-001
493	8	-7.440238E-005	-2.314078E-005	-2.625390E-001	-8.165476E-001
493	9	-7.585074E-005	-2.295969E-005	-2.676448E-001	-8.101525E-001
494	1	-4.768436E-005	-2.836483E-005	-1.682569E-001	-7.185751E-001
494	2	-5.309053E-005	-1.982984E-005	-1.873383E-001	-6.714525E-001
494	3	-5.309129E-005	-1.820553E-005	-1.873385E-001	-6.424016E-001
494	4	-4.768618E-005	-1.938755E-005	-1.682591E-001	-6.840973E-001
494	5	-5.061982E-005	-1.963948E-005	-1.786143E-001	-6.929992E-001
494	6	-5.309338E-005	-1.861722E-005	-1.873410E-001	-6.569261E-001
494	7	-5.061673E-005	-1.874657E-005	-1.786156E-001	-6.614784E-001
494	8	-4.768473E-005	-1.987626E-005	-1.682588E-001	-7.013324E-001
494	9	-5.061901E-005	-1.919300E-005	-1.786084E-001	-6.772236E-001
495	1	-6.347875E-005	-2.169234E-005	-2.239970E-001	-7.654027E-001
495	2	-6.696167E-005	-2.108474E-005	-2.362759E-001	-7.439891E-001
495	3	-6.696202E-005	-2.030448E-005	-2.362749E-001	-7.164528E-001
495	4	-6.347914E-005	-2.081675E-005	-2.239960E-001	-7.345437E-001
495	5	-6.531801E-005	-2.137892E-005	-2.304826E-001	-7.540851E-001
495	6	-6.695844E-005	-2.069466E-005	-2.362700E-001	-7.302282E-001
495	7	-6.531828E-005	-2.054620E-005	-2.304827E-001	-7.249892E-001
495	8	-6.348174E-005	-2.125455E-005	-2.239973E-001	-7.499793E-001
495	9	-6.531871E-005	-2.095874E-005	-2.304826E-001	-7.395422E-001
496	1	-8.953795E-005	-2.747788E-005	-3.159420E-001	-9.695728E-001
496	2	-9.113945E-005	-2.731187E-005	-3.215946E-001	-9.637181E-001
496	3	-9.113936E-005	-2.666693E-005	-3.215955E-001	-9.409690E-001
496	4	-8.953873E-005	-2.678768E-005	-3.159445E-001	-9.452254E-001
496	5	-9.036614E-005	-2.739178E-005	-3.188666E-001	-9.665444E-001
496	6	-9.113981E-005	-2.698974E-005	-3.215931E-001	-9.523494E-001
496	7	-9.036674E-005	-2.672557E-005	-3.188672E-001	-9.430331E-001
496	8	-8.953776E-005	-2.713277E-005	-3.159443E-001	-9.574042E-001
496	9	-9.036592E-005	-2.705083E-005	-3.188648E-001	-9.547932E-001
497	1	-7.044557E-005	-2.197788E-005	-2.485716E-001	-7.755071E-001
497	2	-7.355335E-005	-2.155044E-005	-2.595354E-001	-7.604275E-001
497	3	-7.355156E-005	-2.074854E-005	-2.595370E-001	-7.321197E-001
497	4	-7.044612E-005	-2.109897E-005	-2.485722E-001	-7.442166E-001
497	5	-7.207717E-005	-2.175354E-005	-2.543284E-001	-7.675893E-001
497	6	-7.355282E-005	-2.114920E-005	-2.595353E-001	-7.462635E-001
497	7	-7.207717E-005	-2.091095E-005	-2.543284E-001	-7.378660E-001
497	8	-7.044631E-005	-2.153415E-005	-2.485764E-001	-7.598643E-001
497	9	-7.207717E-005	-2.133223E-005	-2.543284E-001	-7.527220E-001
498	1	-8.553178E-005	-2.545842E-005	-3.018069E-001	-8.980313E-001
498	2	-8.884255E-005	-2.511117E-005	-3.134885E-001	-8.860651E-001
498	3	-8.884412E-005	-2.390369E-005	-3.134886E-001	-8.434640E-001
498	4	-8.553248E-005	-2.415337E-005	-3.018089E-001	-8.522711E-001
498	5	-8.724695E-005	-2.527496E-005	-3.078558E-001	-8.918388E-001
498	6	-8.884224E-005	-2.450730E-005	-3.134878E-001	-8.647666E-001
498	7	-8.724695E-005	-2.402452E-005	-3.078558E-001	-8.477229E-001
498	8	-8.553328E-005	-2.480178E-005	-3.018113E-001	-8.751586E-001
498	9	-8.724695E-005	-2.464942E-005	-3.078558E-001	-8.697795E-001
499	1	-4.980427E-005	-1.881263E-005	-1.729152E-001	-6.638365E-001
499	2	-5.469425E-005	-1.761574E-005	-1.929946E-001	-6.215785E-001
499	3	-5.469358E-005	-1.674522E-005	-1.929942E-001	-5.908638E-001
499	4	-4.980295E-005	-1.778674E-005	-1.729182E-001	-6.276439E-001
499	5	-5.208237E-005	-1.816474E-005	-1.837710E-001	-6.409680E-001
499	6	-5.469271E-005	-1.718056E-005	-1.929848E-001	-6.062381E-001
499	7	-5.208220E-005	-1.722374E-005	-1.837692E-001	-6.077486E-001
499	8	-4.980101E-005	-1.830018E-005	-1.729822E-001	-6.457492E-001
499	9	-5.208166E-005	-1.769484E-005	-1.837769E-001	-6.243607E-001
500	1	-5.822823E-005	-1.963634E-005	-2.054684E-001	-6.928797E-001

500	2	-6.238067E-005	-1.890960E-005	-2.201175E-001	-6.672357E-001
500	3	-6.238315E-005	-1.812506E-005	-2.201195E-001	-6.395494E-001
500	4	-5.823321E-005	-1.873940E-005	-2.054763E-001	-6.612229E-001
500	5	-6.044663E-005	-1.924858E-005	-2.132919E-001	-6.791958E-001
500	6	-6.238426E-005	-1.851687E-005	-2.201256E-001	-6.533858E-001
500	7	-6.044663E-005	-1.841142E-005	-2.132919E-001	-6.496579E-001
500	8	-5.822925E-005	-1.918793E-005	-2.054617E-001	-6.770543E-001
500	9	-6.044663E-005	-1.882985E-005	-2.132919E-001	-6.644234E-001
501	1	-4.125201E-002	-4.029472E-004	-1.455651E-001	-1.421728E-002
501	2	-4.129331E-002	-4.029402E-004	-1.457103E-001	-1.421541E-002
501	3	-4.129291E-002	-3.956039E-004	-1.457186E-001	-1.396200E-002
501	4	-4.125170E-002	-3.956086E-004	-1.455658E-001	-1.396306E-002
501	5	-4.127249E-002	-4.029897E-004	-1.456380E-001	-1.421961E-002
501	6	-4.129331E-002	-3.993047E-004	-1.457184E-001	-1.408959E-002
501	7	-4.127249E-002	-3.957520E-004	-1.456380E-001	-1.396257E-002
501	8	-4.125170E-002	-3.992215E-004	-1.455638E-001	-1.408983E-002
501	9	-4.127249E-002	-3.992929E-004	-1.456380E-001	-1.409062E-002
502	1	-4.111158E-002	-1.200717E-003	-1.458698E-001	-4.237035E-002
502	2	-4.122880E-002	-1.200088E-003	-1.454849E-001	-4.237061E-002
502	3	-4.122895E-002	-1.188145E-003	-1.454840E-001	-4.164463E-002
502	4	-4.111145E-002	-1.188183E-003	-1.458699E-001	-4.164327E-002
502	5	-4.117012E-002	-1.200759E-003	-1.452769E-001	-4.237175E-002
502	6	-4.122845E-002	-1.190490E-003	-1.454837E-001	-4.200882E-002
502	7	-4.117010E-002	-1.188164E-003	-1.452772E-001	-4.164713E-002
502	8	-4.111176E-002	-1.190490E-003	-1.450724E-001	-4.200882E-002
502	9	-4.117011E-002	-1.190490E-003	-1.452794E-001	-4.200882E-002
503	1	-4.088140E-002	-1.978547E-003	-1.442577E-001	-6.981453E-002
503	2	-4.106778E-002	-1.978508E-003	-1.449159E-001	-6.981328E-002
503	3	-4.106744E-002	-1.945738E-003	-1.449168E-001	-6.866373E-002
503	4	-4.088141E-002	-1.945826E-003	-1.442565E-001	-6.866158E-002
503	5	-4.097408E-002	-1.978602E-003	-1.445875E-001	-6.981697E-002
503	6	-4.106831E-002	-1.962125E-003	-1.449167E-001	-6.923810E-002
503	7	-4.097476E-002	-1.945812E-003	-1.445877E-001	-6.865947E-002
503	8	-4.088141E-002	-1.962132E-003	-1.442578E-001	-6.923778E-002
503	9	-4.097430E-002	-1.962119E-003	-1.445862E-001	-6.923889E-002
504	1	-8.141791E-005	-2.366305E-005	-2.872922E-001	-8.349664E-001
504	2	-8.458726E-005	-2.333606E-005	-2.984748E-001	-8.234261E-001
504	3	-8.458745E-005	-2.220603E-005	-2.984724E-001	-7.863734E-001
504	4	-8.141963E-005	-2.252430E-005	-2.872941E-001	-7.947876E-001
504	5	-8.306719E-005	-2.349320E-005	-2.931098E-001	-8.289789E-001
504	6	-8.458598E-005	-2.281104E-005	-2.984755E-001	-8.049006E-001
504	7	-8.306802E-005	-2.240832E-005	-2.931103E-001	-7.904186E-001
504	8	-8.141924E-005	-2.289355E-005	-2.872913E-001	-8.148723E-001
504	9	-8.306788E-005	-2.294665E-005	-2.931122E-001	-8.096921E-001
505	1	-4.057606E-002	-2.723326E-003	-1.431812E-001	-9.609963E-002
505	2	-4.081910E-002	-2.723330E-003	-1.440381E-001	-9.609721E-002
505	3	-4.081869E-002	-2.680647E-003	-1.440372E-001	-9.459138E-002
505	4	-4.057594E-002	-2.680627E-003	-1.431813E-001	-9.458976E-002
505	5	-4.069753E-002	-2.723358E-003	-1.436101E-001	-9.609866E-002
505	6	-4.081912E-002	-2.701981E-003	-1.440385E-001	-9.534258E-002
505	7	-4.069745E-002	-2.680687E-003	-1.436101E-001	-9.459314E-002
505	8	-4.057656E-002	-2.701963E-003	-1.431819E-001	-9.534317E-002
505	9	-4.069765E-002	-2.701944E-003	-1.436083E-001	-9.534292E-002
506	1	-4.021910E-002	-3.423558E-003	-1.419213E-001	-1.200074E-001
506	2	-4.050034E-002	-3.423658E-003	-1.429118E-001	-1.200101E-001
506	3	-4.049951E-002	-3.374277E-003	-1.429114E-001	-1.190653E-001
506	4	-4.021962E-002	-3.374314E-003	-1.419221E-001	-1.190694E-001
506	5	-4.035927E-002	-3.423662E-003	-1.424174E-001	-1.200073E-001
506	6	-4.050042E-002	-3.398971E-003	-1.429142E-001	-1.199354E-001
506	7	-4.035987E-002	-3.374222E-003	-1.424173E-001	-1.190672E-001

506	8	-4.021896E-002	-3.398977E-003	-1.419207E-001	-1.199385E-001
506	9	-4.035945E-002	-3.398982E-003	-1.424165E-001	-1.199366E-001
507	1	-3.983743E-002	-4.070532E-003	-1.405752E-001	-1.436359E-001
507	2	-4.013501E-002	-4.070524E-003	-1.416249E-001	-1.436370E-001
507	3	-4.013500E-002	-4.018047E-003	-1.416239E-001	-1.417870E-001
507	4	-3.983689E-002	-4.018068E-003	-1.405724E-001	-1.417858E-001
507	5	-3.998584E-002	-4.070491E-003	-1.410987E-001	-1.436344E-001
507	6	-4.013539E-002	-4.044278E-003	-1.416250E-001	-1.427105E-001
507	7	-3.998584E-002	-4.017987E-003	-1.410987E-001	-1.417832E-001
507	8	-3.983764E-002	-4.044278E-003	-1.405729E-001	-1.427105E-001
507	9	-3.998584E-002	-4.044278E-003	-1.410987E-001	-1.427105E-001
508	1	-3.944970E-002	-4.657066E-003	-1.392065E-001	-1.643612E-001
508	2	-3.975032E-002	-4.657760E-003	-1.402678E-001	-1.643587E-001
508	3	-3.975027E-002	-4.604976E-003	-1.402656E-001	-1.624976E-001
508	4	-3.944974E-002	-4.605059E-003	-1.392093E-001	-1.624967E-001
508	5	-3.960020E-002	-4.657780E-003	-1.397377E-001	-1.643619E-001
508	6	-3.975033E-002	-4.631350E-003	-1.402664E-001	-1.634290E-001
508	7	-3.960020E-002	-4.605077E-003	-1.397377E-001	-1.625004E-001
508	8	-3.944996E-002	-4.631490E-003	-1.392069E-001	-1.634305E-001
508	9	-3.960020E-002	-4.631411E-003	-1.397377E-001	-1.634298E-001
509	1	-3.908239E-002	-5.181373E-003	-1.379122E-001	-1.820340E-001
509	2	-3.936569E-002	-5.181322E-003	-1.389092E-001	-1.820343E-001
509	3	-3.936551E-002	-5.131549E-003	-1.389089E-001	-1.810767E-001
509	4	-3.908246E-002	-5.131545E-003	-1.379094E-001	-1.810772E-001
509	5	-3.922415E-002	-5.181340E-003	-1.384097E-001	-1.820378E-001
509	6	-3.936545E-002	-5.156364E-003	-1.389090E-001	-1.815543E-001
509	7	-3.922415E-002	-5.131458E-003	-1.384097E-001	-1.810750E-001
509	8	-3.908299E-002	-5.156445E-003	-1.379127E-001	-1.815570E-001
509	9	-3.922415E-002	-5.156458E-003	-1.384097E-001	-1.815548E-001
510	1	-3.875398E-002	-5.639104E-003	-1.367506E-001	-1.989862E-001
510	2	-3.900580E-002	-5.639147E-003	-1.376366E-001	-1.989875E-001
510	3	-3.900468E-002	-5.595068E-003	-1.376366E-001	-1.974347E-001
510	4	-3.875385E-002	-5.595180E-003	-1.367527E-001	-1.974357E-001
510	5	-3.887964E-002	-5.639138E-003	-1.371944E-001	-1.989898E-001
510	6	-3.900460E-002	-5.617118E-003	-1.376366E-001	-1.982114E-001
510	7	-3.887942E-002	-5.595165E-003	-1.371950E-001	-1.974333E-001
510	8	-3.875392E-002	-5.617118E-003	-1.367517E-001	-1.982114E-001
510	9	-3.887953E-002	-5.617118E-003	-1.371945E-001	-1.982114E-001
511	1	-3.847574E-002	-6.033723E-003	-1.357689E-001	-2.129141E-001
511	2	-3.868652E-002	-6.033696E-003	-1.365142E-001	-2.129095E-001
511	3	-3.868676E-002	-5.996629E-003	-1.365144E-001	-2.116046E-001
511	4	-3.847530E-002	-5.996652E-003	-1.357678E-001	-2.116044E-001
511	5	-3.858054E-002	-6.033748E-003	-1.361422E-001	-2.129141E-001
511	6	-3.868773E-002	-6.015260E-003	-1.365150E-001	-2.122570E-001
511	7	-3.858192E-002	-5.996641E-003	-1.361424E-001	-2.116026E-001
511	8	-3.847471E-002	-6.015150E-003	-1.357693E-001	-2.122602E-001
511	9	-3.858135E-002	-6.015226E-003	-1.361401E-001	-2.122593E-001
512	1	-3.826299E-002	-6.368906E-003	-1.350199E-001	-2.247489E-001
512	2	-3.842159E-002	-6.368991E-003	-1.355804E-001	-2.247441E-001
512	3	-3.842186E-002	-6.340993E-003	-1.355806E-001	-2.237580E-001
512	4	-3.826301E-002	-6.341086E-003	-1.350174E-001	-2.237572E-001
512	5	-3.834224E-002	-6.369026E-003	-1.352991E-001	-2.247427E-001
512	6	-3.842177E-002	-6.355050E-003	-1.355806E-001	-2.242514E-001
512	7	-3.834234E-002	-6.341040E-003	-1.352990E-001	-2.237595E-001
512	8	-3.826243E-002	-6.355050E-003	-1.350151E-001	-2.242514E-001
512	9	-3.834241E-002	-6.355050E-003	-1.352975E-001	-2.242514E-001
513	1	-3.813354E-002	-6.655084E-003	-1.345646E-001	-2.348355E-001
513	2	-3.822656E-002	-6.655007E-003	-1.348882E-001	-2.348371E-001
513	3	-3.822658E-002	-6.638753E-003	-1.348886E-001	-2.342651E-001
513	4	-3.813411E-002	-6.638905E-003	-1.345644E-001	-2.342642E-001

513	5	-3.817981E-002	-6.655114E-003	-1.347260E-001	-2.348375E-001
513	6	-3.822555E-002	-6.646910E-003	-1.348884E-001	-2.345513E-001
513	7	-3.817981E-002	-6.638858E-003	-1.347260E-001	-2.342647E-001
513	8	-3.813383E-002	-6.647014E-003	-1.345633E-001	-2.345513E-001
513	9	-3.817981E-002	-6.646914E-003	-1.347260E-001	-2.345519E-001
514	1	-3.809953E-002	-6.912746E-003	-1.344422E-001	-2.439303E-001
514	2	-3.811774E-002	-6.912758E-003	-1.345056E-001	-2.439291E-001
514	3	-3.811814E-002	-6.909412E-003	-1.345081E-001	-2.438120E-001
514	4	-3.809834E-002	-6.909402E-003	-1.344392E-001	-2.438135E-001
514	5	-3.810843E-002	-6.912678E-003	-1.344743E-001	-2.439262E-001
514	6	-3.811823E-002	-6.911109E-003	-1.345066E-001	-2.438718E-001
514	7	-3.810847E-002	-6.909377E-003	-1.344740E-001	-2.438109E-001
514	8	-3.809866E-002	-6.911109E-003	-1.344414E-001	-2.438718E-001
514	9	-3.810859E-002	-6.911109E-003	-1.344738E-001	-2.438718E-001
515	1	-3.828253E-002	-7.121167E-003	-1.350093E-001	-2.512861E-001
515	2	-3.812058E-002	-7.121211E-003	-1.345147E-001	-2.512864E-001
515	3	-3.812048E-002	-7.149863E-003	-1.345147E-001	-2.522961E-001
515	4	-3.828261E-002	-7.149825E-003	-1.350090E-001	-2.522967E-001
515	5	-3.820184E-002	-7.121180E-003	-1.348023E-001	-2.518852E-001
515	6	-3.812063E-002	-7.135528E-003	-1.345148E-001	-2.517921E-001
515	7	-3.820137E-002	-7.149814E-003	-1.348018E-001	-2.522997E-001
515	8	-3.828281E-002	-7.135510E-003	-1.350098E-001	-2.517920E-001
515	9	-3.820161E-002	-7.135549E-003	-1.348019E-001	-2.517908E-001
516	1	-3.999697E-002	-7.368998E-003	-1.411356E-001	-2.690296E-001
516	2	-3.852116E-002	-7.369023E-003	-1.359297E-001	-2.690317E-001
516	3	-3.852132E-002	-7.628522E-003	-1.359312E-001	-2.691074E-001
516	4	-3.999622E-002	-7.628471E-003	-1.411340E-001	-2.691058E-001
516	5	-3.925857E-002	-7.368960E-003	-1.385321E-001	-2.690302E-001
516	6	-3.852205E-002	-7.498713E-003	-1.359315E-001	-2.646092E-001
516	7	-3.925857E-002	-7.628437E-003	-1.385321E-001	-2.691847E-001
516	8	-3.999669E-002	-7.498713E-003	-1.411364E-001	-2.646092E-001
516	9	-3.925857E-002	-7.498713E-003	-1.385321E-001	-2.646092E-001
517	1	-3.871145E-004	-8.982175E-005	-1.083720E-001	-3.169553E-001
517	2	-3.900405E-002	-8.980372E-003	-1.376324E-001	-3.168899E-001
517	3	-3.900422E-002	-7.524726E-003	-1.376336E-001	-2.655264E-001
517	4	-3.871161E-004	-7.526502E-005	-1.083728E-001	-2.655871E-001
517	5	-3.885789E-004	-8.981222E-005	-1.230037E-001	-3.169214E-001
517	6	-3.900411E-002	-8.252481E-003	-1.376337E-001	-2.912070E-001
517	7	-3.885824E-002	-7.525634E-003	-1.230038E-001	-2.655548E-001
517	8	-3.871199E-004	-8.254321E-005	-1.083733E-001	-2.912721E-001
517	9	-3.885782E-002	-8.253449E-003	-1.230038E-001	-2.912398E-001
518	1	-5.870163E-004	-6.782574E-005	-1.789100E-001	-2.393345E-001
518	2	-3.219734E-004	-6.782523E-005	-1.136149E-001	-2.393366E-001
518	3	-3.219774E-004	-1.003083E-004	-1.136149E-001	-3.539596E-001
518	4	-5.870133E-004	-1.003077E-004	-1.789107E-001	-3.539561E-001
518	5	-4.144933E-004	-6.782431E-005	-1.462619E-001	-2.393329E-001
518	6	-3.219803E-004	-8.406652E-005	-1.136163E-001	-2.966451E-001
518	7	-4.144933E-004	-1.003078E-004	-1.462619E-001	-3.539578E-001
518	8	-5.870183E-004	-8.406652E-005	-1.789118E-001	-2.966451E-001
518	9	-4.144933E-004	-8.406652E-005	-1.462619E-001	-2.966451E-001
519	1	-8.012871E-004	-7.714305E-005	-2.827224E-001	-2.722148E-001
519	2	-5.678577E-004	-7.718824E-005	-2.003801E-001	-2.723727E-001
519	3	-5.678580E-004	-1.181960E-004	-2.003804E-001	-4.170791E-001
519	4	-8.012851E-004	-1.181899E-004	-2.827219E-001	-4.170568E-001
519	5	-6.844684E-004	-7.716555E-005	-2.415309E-001	-2.722940E-001
519	6	-5.678547E-004	-9.769251E-005	-2.003775E-001	-3.447271E-001
519	7	-6.844684E-004	-1.181928E-004	-2.415309E-001	-4.170693E-001
519	8	-8.012188E-004	-9.766706E-005	-2.827224E-001	-3.446381E-001
519	9	-6.844684E-004	-9.767940E-005	-2.415309E-001	-3.446830E-001
520	1	-3.547996E-005	-1.786470E-005	-1.251956E-001	-6.303807E-001

520	2	-4.556690E-005	-1.539705E-005	-1.607883E-001	-5.433235E-001
520	3	-4.556345E-005	-1.422709E-005	-1.607880E-001	-5.020099E-001
520	4	-3.547912E-005	-1.642004E-005	-1.251948E-001	-5.793999E-001
520	5	-4.105091E-005	-1.650146E-005	-1.448516E-001	-5.822732E-001
520	6	-4.556413E-005	-1.481192E-005	-1.607819E-001	-5.226570E-001
520	7	-4.105091E-005	-1.520912E-005	-1.448516E-001	-5.366727E-001
520	8	-3.548326E-005	-1.714344E-005	-1.251952E-001	-6.049042E-001
520	9	-4.105091E-005	-1.585542E-005	-1.448516E-001	-5.594928E-001
521	1	-9.839794E-005	-4.118316E-005	-3.472053E-001	-1.453170E+000
521	2	-8.532247E-005	-4.206203E-005	-3.010669E-001	-1.484196E+000
521	3	-8.532211E-005	-4.920744E-005	-3.010665E-001	-1.736318E+000
521	4	-9.839817E-005	-4.868458E-005	-3.472052E-001	-1.717880E+000
521	5	-9.170167E-005	-4.163321E-005	-3.235742E-001	-1.469063E+000
521	6	-8.532246E-005	-4.563460E-005	-3.010641E-001	-1.610260E+000
521	7	-9.170128E-005	-4.895247E-005	-3.235757E-001	-1.727322E+000
521	8	-9.839736E-005	-4.493408E-005	-3.472043E-001	-1.585524E+000
521	9	-9.170142E-005	-4.529282E-005	-3.235752E-001	-1.598187E+000
522	1	-6.610173E-005	-2.018921E-005	-2.332421E-001	-7.123728E-001
522	2	-6.950644E-005	-1.971556E-005	-2.452552E-001	-6.956752E-001
522	3	-6.950490E-005	-1.895075E-005	-2.452468E-001	-6.686885E-001
522	4	-6.610264E-005	-1.933143E-005	-2.332507E-001	-6.821231E-001
522	5	-6.790069E-005	-1.993839E-005	-2.395918E-001	-7.035596E-001
522	6	-6.950477E-005	-1.933340E-005	-2.452561E-001	-6.821871E-001
522	7	-6.789975E-005	-1.913036E-005	-2.395929E-001	-6.750272E-001
522	8	-6.610477E-005	-1.976847E-005	-2.332502E-001	-6.972703E-001
522	9	-6.790012E-005	-1.953472E-005	-2.395933E-001	-6.892886E-001
523	1	-1.156527E-004	-3.696257E-005	-4.080988E-001	-1.304247E+000
523	2	-1.022464E-004	-3.706608E-005	-3.607844E-001	-1.336136E+000
523	3	-1.022457E-004	-4.466158E-005	-3.607833E-001	-1.575919E+000
523	4	-1.156529E-004	-4.412888E-005	-4.080918E-001	-1.557113E+000
523	5	-1.087716E-004	-3.742595E-005	-3.838069E-001	-1.320605E+000
523	6	-1.022456E-004	-4.126375E-005	-3.607830E-001	-1.456023E+000
523	7	-1.087716E-004	-4.440212E-005	-3.838069E-001	-1.566761E+000
523	8	-1.156518E-004	-4.054567E-005	-4.080889E-001	-1.430682E+000
523	9	-1.087716E-004	-4.091425E-005	-3.838069E-001	-1.443687E+000
524	1	-7.745252E-005	-2.209254E-005	-2.732956E-001	-7.795532E-001
524	2	-8.051129E-005	-2.177669E-005	-2.840899E-001	-7.684011E-001
524	3	-8.051137E-005	-2.087136E-005	-2.840908E-001	-7.364610E-001
524	4	-7.745183E-005	-2.110392E-005	-2.732949E-001	-7.446576E-001
524	5	-7.904870E-005	-2.192751E-005	-2.789333E-001	-7.737334E-001
524	6	-8.051065E-005	-2.132383E-005	-2.840906E-001	-7.524328E-001
524	7	-7.905891E-005	-2.098226E-005	-2.789334E-001	-7.403674E-001
524	8	-7.745264E-005	-2.159790E-005	-2.732956E-001	-7.621068E-001
524	9	-7.904958E-005	-2.145500E-005	-2.789324E-001	-7.570493E-001
525	1	-5.155473E-005	-1.704094E-005	-1.819120E-001	-6.013145E-001
525	2	-5.688424E-005	-1.610822E-005	-2.007245E-001	-5.683884E-001
525	3	-5.688650E-005	-1.529572E-005	-2.007298E-001	-5.397311E-001
525	4	-5.155695E-005	-1.607746E-005	-1.819141E-001	-5.672922E-001
525	5	-5.444941E-005	-1.653468E-005	-1.921285E-001	-5.834376E-001
525	6	-5.688530E-005	-1.570219E-005	-2.007274E-001	-5.540737E-001
525	7	-5.444767E-005	-1.565359E-005	-1.921228E-001	-5.523485E-001
525	8	-5.155638E-005	-1.655908E-005	-1.819267E-001	-5.843053E-001
525	9	-5.444881E-005	-1.609375E-005	-1.921272E-001	-5.678926E-001
526	1	-1.079598E-004	-3.317081E-005	-3.809468E-001	-1.170459E+000
526	2	-1.165534E-004	-3.259316E-005	-4.112684E-001	-1.150076E+000
526	3	-1.165534E-004	-2.850971E-005	-4.112671E-001	-1.005980E+000
526	4	-1.079605E-004	-2.885278E-005	-3.809453E-001	-1.018104E+000
526	5	-1.123768E-004	-3.287385E-005	-3.965296E-001	-1.159984E+000
526	6	-1.165527E-004	-3.055148E-005	-4.112649E-001	-1.078023E+000
526	7	-1.123769E-004	-2.867610E-005	-3.965295E-001	-1.011862E+000

526	8	-1.079607E-004	-3.101187E-005	-3.809461E-001	-1.094275E+000
526	9	-1.123760E-004	-3.077507E-005	-3.965288E-001	-1.085926E+000
527	1	-3.903888E-005	-1.528301E-005	-1.377561E-001	-5.392578E-001
527	2	-4.707841E-005	-1.359766E-005	-1.661283E-001	-4.797970E-001
527	3	-4.707896E-005	-1.266355E-005	-1.661244E-001	-4.468330E-001
527	4	-3.903719E-005	-1.412592E-005	-1.377550E-001	-4.984355E-001
527	5	-4.348792E-005	-1.434955E-005	-1.534515E-001	-5.063437E-001
527	6	-4.707955E-005	-1.313044E-005	-1.661226E-001	-4.633166E-001
527	7	-4.348792E-005	-1.331646E-005	-1.534515E-001	-4.698788E-001
527	8	-3.904511E-005	-1.470336E-005	-1.377555E-001	-5.188112E-001
527	9	-4.348792E-005	-1.383338E-005	-1.534515E-001	-4.881319E-001
528	1	-6.113636E-005	-1.806652E-005	-2.157185E-001	-6.374847E-001
528	2	-6.505225E-005	-1.751961E-005	-2.295379E-001	-6.181970E-001
528	3	-6.505108E-005	-1.678173E-005	-2.295388E-001	-5.921688E-001
528	4	-6.113567E-005	-1.721855E-005	-2.157185E-001	-6.075652E-001
528	5	-6.323052E-005	-1.777439E-005	-2.231157E-001	-6.271696E-001
528	6	-6.505260E-005	-1.715091E-005	-2.295385E-001	-6.051806E-001
528	7	-6.323052E-005	-1.698491E-005	-2.231157E-001	-5.993316E-001
528	8	-6.113323E-005	-1.764319E-005	-2.157177E-001	-6.225331E-001
528	9	-6.323052E-005	-1.737951E-005	-2.231157E-001	-6.132516E-001
529	1	-7.345528E-005	-2.051274E-005	-2.591918E-001	-7.238017E-001
529	2	-7.655704E-005	-2.019522E-005	-2.701388E-001	-7.126142E-001
529	3	-7.655715E-005	-1.939360E-005	-2.701361E-001	-6.843210E-001
529	4	-7.345516E-005	-1.962553E-005	-2.591936E-001	-6.925040E-001
529	5	-7.500506E-005	-2.034573E-005	-2.649434E-001	-7.179223E-001
529	6	-7.655888E-005	-1.979435E-005	-2.701391E-001	-6.984594E-001
529	7	-7.500506E-005	-1.950345E-005	-2.649434E-001	-6.882041E-001
529	8	-7.345463E-005	-2.006910E-005	-2.591893E-001	-7.081580E-001
529	9	-7.500506E-005	-1.992403E-005	-2.649434E-001	-7.030604E-001
530	1	-1.053617E-004	-2.846585E-005	-3.717770E-001	-1.004447E+000
530	2	-1.064764E-004	-2.839828E-005	-3.757188E-001	-1.001774E+000
530	3	-1.064765E-004	-2.790155E-005	-3.757182E-001	-9.845240E-001
530	4	-1.053686E-004	-2.794571E-005	-3.717771E-001	-9.860786E-001
530	5	-1.059365E-004	-2.842658E-005	-3.738035E-001	-1.003059E+000
530	6	-1.064762E-004	-2.814587E-005	-3.757898E-001	-9.931498E-001
530	7	-1.059365E-004	-2.792225E-005	-3.738035E-001	-9.852622E-001
530	8	-1.053618E-004	-2.820561E-005	-3.717738E-001	-9.952538E-001
530	9	-1.059365E-004	-2.817472E-005	-3.738035E-001	-9.941697E-001
531	1	-9.600787E-005	-2.572033E-005	-3.387743E-001	-9.075653E-001
531	2	-1.040949E-004	-2.517633E-005	-3.673073E-001	-8.883635E-001
531	3	-1.040949E-004	-2.191525E-005	-3.673087E-001	-7.733035E-001
531	4	-9.600892E-005	-2.223836E-005	-3.387733E-001	-7.846975E-001
531	5	-1.001840E-004	-2.543952E-005	-3.535095E-001	-8.976525E-001
531	6	-1.040946E-004	-2.354573E-005	-3.673062E-001	-8.308359E-001
531	7	-1.001850E-004	-2.207179E-005	-3.535097E-001	-7.788273E-001
531	8	-9.600922E-005	-2.397933E-005	-3.387781E-001	-8.461305E-001
531	9	-1.001840E-004	-2.375554E-005	-3.535077E-001	-8.382319E-001
532	1	-2.644490E-005	-9.607505E-006	-9.329952E-002	-3.389870E-001
532	2	-3.292875E-005	-8.008720E-006	-1.162088E-001	-2.825974E-001
532	3	-3.293271E-005	-7.403389E-006	-1.162133E-001	-2.640516E-001
532	4	-2.644475E-005	-8.981393E-006	-9.329946E-002	-3.141093E-001
532	5	-3.816114E-005	-8.691666E-006	-1.864301E-001	-3.066962E-001
532	6	-3.293329E-005	-7.746791E-006	-1.162018E-001	-2.733243E-001
532	7	-3.816321E-005	-8.088427E-006	-1.864304E-001	-2.854017E-001
532	8	-2.644872E-005	-9.253466E-006	-9.329794E-002	-3.265312E-001
532	9	-3.815938E-005	-8.390270E-006	-1.864303E-001	-2.960441E-001
533	1	-6.934857E-005	-1.873881E-005	-2.447071E-001	-6.612126E-001
533	2	-7.254112E-005	-1.840760E-005	-2.559712E-001	-6.495237E-001
533	3	-7.254128E-005	-1.769266E-005	-2.559696E-001	-6.242882E-001
533	4	-6.934920E-005	-1.793460E-005	-2.447069E-001	-6.328368E-001

533	5	-7.103867E-005	-1.856352E-005	-2.506639E-001	-6.558378E-001
533	6	-7.254301E-005	-1.804966E-005	-2.559728E-001	-6.368917E-001
533	7	-7.103930E-005	-1.780599E-005	-2.506639E-001	-6.283055E-001
533	8	-6.935021E-005	-1.833694E-005	-2.447002E-001	-6.470278E-001
533	9	-7.103795E-005	-1.818501E-005	-2.506638E-001	-6.416736E-001
534	1	-4.375468E-005	-1.299862E-005	-1.543940E-001	-4.583583E-001
534	2	-4.990740E-005	-1.192155E-005	-1.761040E-001	-4.206446E-001
534	3	-4.990466E-005	-1.121128E-005	-1.760982E-001	-3.955939E-001
534	4	-4.375442E-005	-1.210991E-005	-1.543958E-001	-4.272953E-001
534	5	-4.716101E-005	-1.239871E-005	-1.664071E-001	-4.374855E-001
534	6	-4.990731E-005	-1.156556E-005	-1.761041E-001	-4.081191E-001
534	7	-4.716101E-005	-1.161222E-005	-1.664071E-001	-4.097497E-001
534	8	-4.375798E-005	-1.255051E-005	-1.543933E-001	-4.428674E-001
534	9	-4.716101E-005	-1.200550E-005	-1.664071E-001	-4.236141E-001
535	1	-5.519139E-005	-1.529561E-005	-1.947469E-001	-5.397284E-001

546	8	-4.794278E-005	-4.374949E-006	-1.691640E-001	-1.543485E-001
546	9	-4.806708E-005	-4.359559E-006	-1.696028E-001	-1.538397E-001
547	1	-5.457363E-005	-9.677849E-006	-1.925791E-001	-3.414580E-001
547	2	-5.846879E-005	-9.278074E-006	-2.063070E-001	-3.273844E-001
547	3	-5.846973E-005	-8.826228E-006	-2.063115E-001	-3.114286E-001
547	4	-5.457611E-005	-9.117039E-006	-1.925845E-001	-3.217010E-001
547	5	-5.672905E-005	-9.456804E-006	-2.001716E-001	-3.336698E-001
547	6	-5.846730E-005	-9.052527E-006	-2.063091E-001	-3.194125E-001
547	7	-5.672905E-005	-8.955676E-006	-2.001716E-001	-3.160181E-001
547	8	-5.457673E-005	-9.397252E-006	-1.925780E-001	-3.315744E-001
547	9	-5.672905E-005	-9.206345E-006	-2.001716E-001	-3.248477E-001
548	1	-6.915486E-005	-1.529636E-005	-2.440179E-001	-5.397424E-001
548	2	-7.234459E-005	-1.508179E-005	-2.552747E-001	-5.321714E-001
548	3	-7.234398E-005	-1.447958E-005	-2.552767E-001	-5.109198E-001
548	4	-6.915622E-005	-1.468664E-005	-2.440187E-001	-5.182052E-001

560	2	-3.771285E-002	-6.635231E-003	-1.330764E-001	-2.341371E-001
560	3	-3.771286E-002	-6.626242E-003	-1.330771E-001	-2.338227E-001
560	4	-3.766873E-002	-6.626235E-003	-1.328924E-001	-2.338204E-001
560	5	-3.768675E-002	-6.635369E-003	-1.329850E-001	-2.341435E-001
560	6	-3.771232E-002	-6.630653E-003	-1.330769E-001	-2.339786E-001
560	7	-3.768675E-002	-6.626137E-003	-1.329850E-001	-2.338164E-001
560	8	-3.766045E-002	-6.630752E-003	-1.328918E-001	-2.339784E-001
560	9	-3.768675E-002	-6.630745E-003	-1.329850E-001	-2.339792E-001
561	1	-3.763677E-002	-6.980594E-003	-1.328082E-001	-2.437827E-001
561	2	-3.765097E-002	-6.980624E-003	-1.328593E-001	-2.437838E-001
561	3	-3.765137E-002	-6.980691E-003	-1.328596E-001	-2.436931E-001
561	4	-3.763617E-002	-6.980107E-003	-1.328072E-001	-2.436936E-001
561	5	-3.764400E-002	-6.980559E-003	-1.328348E-001	-2.437814E-001
561	6	-3.765146E-002	-6.980787E-003	-1.328599E-001	-2.437395E-001
561	7	-3.764399E-002	-6.980597E-003	-1.328343E-001	-2.436920E-001
561	8	-3.763657E-002	-6.980787E-003	-1.328093E-001	-2.437395E-001
561	9	-3.764366E-002	-6.980787E-003	-1.328342E-001	-2.437395E-001
562	1	-3.795766E-002	-7.161220E-003	-1.339394E-001	-2.526985E-001
562	2	-3.767578E-002	-7.161299E-003	-1.329467E-001	-2.527034E-001
562	3	-3.767567E-002	-7.211114E-003	-1.329466E-001	-2.544542E-001
562	4	-3.795794E-002	-7.210922E-003	-1.339410E-001	-2.544554E-001
562	5	-3.781649E-002	-7.161275E-003	-1.334428E-001	-2.526999E-001
562	6	-3.767583E-002	-7.186168E-003	-1.329465E-001	-2.535782E-001
562	7	-3.781655E-002	-7.210946E-003	-1.334434E-001	-2.544548E-001
562	8	-3.795746E-002	-7.186079E-003	-1.339405E-001	-2.535770E-001
562	9	-3.781628E-002	-7.186085E-003	-1.334435E-001	-2.535763E-001
563	1	-3.741807E-002	-7.653221E-003	-1.320385E-001	-2.700598E-001
563	2	-3.792477E-002	-7.653178E-003	-1.338259E-001	-2.700620E-001
563	3	-3.792492E-002	-7.564137E-003	-1.338254E-001	-2.669144E-001
563	4	-3.741828E-002	-7.564137E-003	-1.320388E-001	-2.669144E-001
563	5	-3.767125E-002	-7.653247E-003	-1.329313E-001	-2.700602E-001
563	6	-3.792523E-002	-7.608699E-003	-1.338256E-001	-2.684859E-001
563	7	-3.767125E-002	-7.564137E-003	-1.329313E-001	-2.669144E-001
563	8	-3.741807E-002	-7.608699E-003	-1.320379E-001	-2.684859E-001
563	9	-3.767125E-002	-7.608699E-003	-1.329313E-001	-2.684859E-001
564	1	-4.057575E-004	-7.384537E-005	-1.431798E-001	-2.605766E-001
564	2	-3.775369E-002	-7.385088E-003	-1.332234E-001	-2.685948E-001
564	3	-3.775434E-002	-7.879846E-003	-1.332248E-001	-2.700550E-001
564	4	-4.057528E-002	-7.879792E-003	-1.431811E-001	-2.700542E-001
564	5	-3.916478E-002	-7.384769E-003	-1.381995E-001	-2.685861E-001
564	6	-3.775428E-002	-7.632364E-003	-1.332235E-001	-2.693273E-001
564	7	-3.916402E-002	-7.879776E-003	-1.381994E-001	-2.700508E-001
564	8	-4.284198E-002	-8.058320E-003	-1.431811E-001	-2.693163E-001
564	9	-3.916435E-002	-7.632335E-003	-1.381996E-001	-2.693209E-001
565	1	-1.838236E-004	-1.000005E-004	-6.486580E-002	-3.528732E-001
565	2	-3.811236E-004	-9.999603E-005	-1.344882E-001	-3.528565E-001
565	3	-3.811279E-004	-6.536450E-005	-1.344897E-001	-2.386522E-001
565	4	-1.838254E-004	-6.540218E-005	-6.486458E-002	-2.387833E-001
565	5	-2.824249E-004	-9.999795E-005	-9.966044E-002	-3.528655E-001
565	6	-3.811231E-004	-8.268033E-005	-1.344888E-001	-2.917521E-001
565	7	-2.824249E-004	-6.538317E-005	-9.966044E-002	-2.387204E-001
565	8	-1.838196E-004	-8.270122E-005	-6.486355E-002	-2.918292E-001
565	9	-2.824249E-004	-8.269058E-005	-9.966044E-002	-2.917985E-001
566	1	-1.388813E-003	-1.517303E-004	-4.900705E-001	-5.354104E-001
566	2	-3.118388E-004	-1.517297E-004	-1.100389E-001	-5.354102E-001
566	3	-3.118385E-004	-3.412024E-004	-1.100398E-001	-1.204002E+000
566	4	-1.388814E-003	-3.412031E-004	-4.900700E-001	-1.204001E+000
566	5	-8.503267E-004	-1.517298E-004	-3.000548E-001	-5.354086E-001
566	6	-3.118411E-004	-2.464660E-004	-1.100396E-001	-8.697075E-001
566	7	-8.503267E-004	-3.412010E-004	-3.000548E-001	-1.204000E+000

566	8	-1.388814E-003	-2.464660E-004	-4.900719E-001	-8.697075E-001
566	9	-8.503267E-004	-2.464660E-004	-3.000548E-001	-8.697075E-001
567	1	-1.914720E-004	-4.914109E-005	-6.756226E-001	-1.733983E+000
567	2	-1.590186E-004	-5.017652E-005	-5.611082E-001	-1.770515E+000
567	3	-1.590186E-004	-6.791215E-005	-5.611088E-001	-2.396336E+000
567	4	-1.914719E-004	-6.770898E-005	-6.756214E-001	-2.391718E+000
567	5	-1.748421E-004	-4.967205E-005	-6.169437E-001	-1.752718E+000
567	6	-1.590183E-004	-5.904463E-005	-5.611095E-001	-2.083434E+000
567	7	-1.748428E-004	-6.784846E-005	-6.169447E-001	-2.394075E+000
567	8	-1.914719E-004	-5.846103E-005	-6.756222E-001	-2.062841E+000
567	9	-1.748423E-004	-5.876002E-005	-6.169447E-001	-2.073398E+000
568	1	-1.322703E-004	-4.018601E-005	-4.667296E-001	-1.417995E+000
568	2	-1.887388E-004	-3.839678E-005	-6.659796E-001	-1.354854E+000
568	3	-1.887387E-004	-9.773315E-006	-6.659814E-001	-3.448717E-001
568	4	-1.322712E-004	-1.000078E-005	-4.667295E-001	-3.528898E-001
568	5	-1.612553E-004	-3.926702E-005	-5.690015E-001	-1.385576E+000
568	6	-1.887389E-004	-2.408489E-005	-6.659805E-001	-8.498577E-001
568	7	-1.612553E-004	-9.884351E-006	-5.690015E-001	-3.487735E-001
568	8	-1.322705E-004	-2.509337E-005	-4.667267E-001	-8.854349E-001
568	9	-1.612553E-004	-2.457582E-005	-5.690015E-001	-8.671758E-001
569	1	-6.455344E-005	-1.245853E-005	-2.277820E-001	-4.393500E-001
569	2	-6.818090E-005	-1.228529E-005	-2.405786E-001	-4.366600E-001
569	3	-6.817822E-005	-1.165260E-005	-2.405784E-001	-4.111778E-001
569	4	-6.455451E-005	-1.179524E-005	-2.277790E-001	-4.162100E-001
569	5	-6.652101E-005	-1.231725E-005	-2.347298E-001	-4.346410E-001
569	6	-6.817882E-005	-1.192894E-005	-2.405759E-001	-4.209208E-001
569	7	-6.652243E-005	-1.171022E-005	-2.347229E-001	-4.134889E-001
569	8	-6.455211E-005	-1.212287E-005	-2.277844E-001	-4.277668E-001
569	9	-6.652172E-005	-1.201760E-005	-2.347259E-001	-4.240500E-001
570	1	-1.489664E-004	-2.838578E-005	-5.256392E-001	-1.001603E+000
570	2	-1.265888E-004	-2.909985E-005	-4.466784E-001	-1.026888E+000
570	3	-1.265883E-004	-3.971887E-005	-4.466769E-001	-1.401518E+000
570	4	-1.489665E-004	-3.962825E-005	-5.256392E-001	-1.398322E+000
570	5	-1.374584E-004	-2.875388E-005	-4.850315E-001	-1.014568E+000
570	6	-1.265886E-004	-3.440955E-005	-4.466780E-001	-1.214168E+000
570	7	-1.374584E-004	-3.967525E-005	-4.850311E-001	-1.399971E+000
570	8	-1.489659E-004	-3.400787E-005	-5.256373E-001	-1.199966E+000
570	9	-1.374572E-004	-3.421396E-005	-4.850292E-001	-1.207276E+000
571	1	-5.345964E-005	-3.758195E-006	-1.886449E-001	-1.326306E-001
571	2	-5.381183E-005	-3.722482E-006	-1.898722E-001	-1.313380E-001
571	3	-5.381578E-005	-3.693877E-006	-1.898845E-001	-1.303372E-001
571	4	-5.345942E-005	-3.721323E-006	-1.886441E-001	-1.312868E-001
571	5	-5.366310E-005	-3.738244E-006	-1.893603E-001	-1.318917E-001
571	6	-5.381194E-005	-3.708036E-006	-1.898722E-001	-1.308452E-001
571	7	-5.366445E-005	-3.705426E-006	-1.893663E-001	-1.307358E-001
571	8	-5.346325E-005	-3.739827E-006	-1.886445E-001	-1.319684E-001
571	9	-5.366098E-005	-3.721785E-006	-1.893675E-001	-1.313162E-001
572	1	-1.096676E-004	-2.516124E-005	-3.869690E-001	-8.878360E-001
572	2	-1.473278E-004	-2.398359E-005	-5.198578E-001	-8.462694E-001
572	3	-1.473282E-004	-7.442855E-006	-5.198580E-001	-2.626000E-001
572	4	-1.096665E-004	-7.591652E-006	-3.869670E-001	-2.678013E-001
572	5	-1.298648E-004	-2.455495E-005	-4.554178E-001	-8.664243E-001
572	6	-1.473284E-004	-1.571255E-005	-5.198577E-001	-5.544258E-001
572	7	-1.298648E-004	-7.514723E-006	-4.554178E-001	-2.651584E-001
572	8	-1.096670E-004	-1.637626E-005	-3.869680E-001	-5.778521E-001
572	9	-1.298648E-004	-1.603460E-005	-4.554178E-001	-5.657940E-001
573	1	-9.649902E-005	-2.131090E-005	-3.405072E-001	-7.519719E-001
573	2	-1.029275E-004	-2.110578E-005	-3.631888E-001	-7.447332E-001
573	3	-1.029274E-004	-1.851338E-005	-3.631863E-001	-6.532522E-001
573	4	-9.649987E-005	-1.853914E-005	-3.405092E-001	-6.541821E-001

573	5	-9.982137E-005	-2.120470E-005	-3.522280E-001	-7.482339E-001
573	6	-1.029277E-004	-1.980975E-005	-3.631875E-001	-6.990063E-001
573	7	-9.982148E-005	-1.852600E-005	-3.522262E-001	-6.537020E-001
573	8	-9.649935E-005	-1.992522E-005	-3.405049E-001	-7.030739E-001
573	9	-9.982062E-005	-1.986560E-005	-3.522269E-001	-7.009756E-001
574	1	-6.004319E-005	-8.576865E-006	-2.118644E-001	-3.026422E-001
574	2	-6.351223E-005	-8.345296E-006	-2.240982E-001	-2.944767E-001
574	3	-6.351254E-005	-7.941934E-006	-2.241061E-001	-2.802455E-001
574	4	-6.003883E-005	-8.079830E-006	-2.118572E-001	-2.851075E-001
574	5	-6.196024E-005	-8.448881E-006	-2.186265E-001	-2.981285E-001
574	6	-6.358992E-005	-8.144068E-006	-2.240984E-001	-2.873629E-001
574	7	-6.196024E-005	-8.004115E-006	-2.186265E-001	-2.824283E-001
574	8	-6.004622E-005	-8.328426E-006	-2.118707E-001	-2.938709E-001
574	9	-6.196024E-005	-8.226360E-006	-2.186265E-001	-2.902735E-001
575	1	-9.146882E-005	-2.104968E-005	-3.227528E-001	-7.427481E-001
575	2	-9.501496E-005	-2.093778E-005	-3.352659E-001	-7.387990E-001
575	3	-9.501502E-005	-1.964416E-005	-3.352669E-001	-6.931613E-001
575	4	-9.146887E-005	-1.965857E-005	-3.227547E-001	-6.936622E-001
575	5	-9.330739E-005	-2.099170E-005	-3.292430E-001	-7.406947E-001
575	6	-9.501460E-005	-2.029870E-005	-3.352685E-001	-7.159761E-001
575	7	-9.330739E-005	-1.965085E-005	-3.292430E-001	-6.934075E-001
575	8	-9.146885E-005	-2.035418E-005	-3.227575E-001	-7.182105E-001
575	9	-9.330739E-005	-2.032135E-005	-3.292430E-001	-7.170472E-001
576	1	-8.891283E-005	-2.024039E-005	-3.137312E-001	-7.141956E-001
576	2	-9.067494E-005	-2.018416E-005	-3.199496E-001	-7.122843E-001
576	3	-9.067354E-005	-1.959984E-005	-3.199487E-001	-6.913969E-001
576	4	-8.891102E-005	-1.960749E-005	-3.137360E-001	-6.918659E-001
576	5	-8.982791E-005	-2.021153E-005	-3.169666E-001	-7.131811E-001
576	6	-9.067347E-005	-1.989204E-005	-3.199475E-001	-7.019088E-001
576	7	-8.982822E-005	-1.960360E-005	-3.169649E-001	-6.917315E-001
576	8	-8.891147E-005	-1.992395E-005	-3.137370E-001	-7.030250E-001
576	9	-8.982798E-005	-1.990723E-005	-3.169662E-001	-7.024490E-001
577	1	-8.291296E-005	-1.913443E-005	-2.925668E-001	-6.751684E-001
577	2	-8.796640E-005	-1.897626E-005	-3.103950E-001	-6.695997E-001
577	3	-8.796659E-005	-1.748056E-005	-3.103960E-001	-6.168123E-001
577	4	-8.291304E-005	-1.750869E-005	-2.925674E-001	-6.175320E-001
577	5	-8.555185E-005	-1.905153E-005	-3.018782E-001	-6.722520E-001
577	6	-8.796619E-005	-1.822841E-005	-3.103950E-001	-6.432011E-001
577	7	-8.555169E-005	-1.748971E-005	-3.018770E-001	-6.171398E-001
577	8	-8.291459E-005	-1.831734E-005	-2.925676E-001	-6.463456E-001
577	9	-8.555120E-005	-1.827095E-005	-3.018747E-001	-6.447821E-001
578	1	-5.833895E-005	-3.348264E-006	-2.058448E-001	-1.181610E-001
578	2	-5.930051E-005	-3.203895E-006	-2.092452E-001	-1.158845E-001
578	3	-5.929716E-005	-3.205967E-006	-2.092427E-001	-1.131328E-001
578	4	-5.833970E-005	-3.244459E-006	-2.058327E-001	-1.144911E-001
578	5	-5.888800E-005	-3.311899E-006	-2.077839E-001	-1.168658E-001
578	6	-5.929791E-005	-3.245259E-006	-2.092454E-001	-1.145030E-001
578	7	-5.888613E-005	-3.222307E-006	-2.077824E-001	-1.137036E-001
578	8	-5.833895E-005	-3.297085E-006	-2.058449E-001	-1.163323E-001
578	9	-5.888762E-005	-3.267149E-006	-2.077824E-001	-1.152866E-001
579	1	-8.048453E-005	-1.754719E-005	-2.839802E-001	-6.332980E-001
579	2	-8.191406E-005	-1.790285E-005	-2.890399E-001	-6.316858E-001
579	3	-8.191440E-005	-1.753197E-005	-2.890413E-001	-6.186324E-001
579	4	-8.048292E-005	-1.753752E-005	-2.839801E-001	-6.188298E-001
579	5	-8.123455E-005	-1.792323E-005	-2.866426E-001	-6.324243E-001
579	6	-8.191347E-005	-1.771685E-005	-2.890413E-001	-6.251513E-001
579	7	-8.123455E-005	-1.753472E-005	-2.866426E-001	-6.187285E-001
579	8	-8.048285E-005	-1.774235E-005	-2.839805E-001	-6.260520E-001
579	9	-8.123455E-005	-1.772980E-005	-2.866426E-001	-6.255832E-001
580	1	-7.758084E-005	-1.641155E-005	-2.737441E-001	-5.790868E-001

580	2	-7.994462E-005	-1.633543E-005	-2.820949E-001	-5.764170E-001
580	3	-7.994651E-005	-1.580474E-005	-2.820997E-001	-5.576776E-001
580	4	-7.758025E-005	-1.581421E-005	-2.737387E-001	-5.580353E-001
580	5	-7.883227E-005	-1.637100E-005	-2.781596E-001	-5.776724E-001
580	6	-7.994786E-005	-1.607030E-005	-2.821019E-001	-5.670505E-001
580	7	-7.883066E-005	-1.580915E-005	-2.781620E-001	-5.578384E-001
580	8	-7.757888E-005	-1.611290E-005	-2.737490E-001	-5.685524E-001
580	9	-7.883050E-005	-1.609026E-005	-2.781622E-001	-5.677614E-001
581	1	-7.401698E-005	-1.424340E-005	-2.611723E-001	-5.025770E-001
581	2	-7.683185E-005	-1.415329E-005	-2.711095E-001	-4.993978E-001
581	3	-7.683218E-005	-1.362256E-005	-2.711118E-001	-4.806813E-001
581	4	-7.401382E-005	-1.363381E-005	-2.611667E-001	-4.810767E-001
581	5	-7.551999E-005	-1.419529E-005	-2.664843E-001	-5.008761E-001
581	6	-7.683306E-005	-1.388786E-005	-2.711172E-001	-4.900449E-001
581	7	-7.551999E-005	-1.362817E-005	-2.664843E-001	-4.808696E-001
581	8	-7.401258E-005	-1.393879E-005	-2.611665E-001	-4.918351E-001
581	9	-7.551999E-005	-1.391155E-005	-2.664843E-001	-4.908704E-001
582	1	-6.974002E-005	-1.142879E-005	-2.460012E-001	-4.032763E-001
582	2	-7.312468E-005	-1.132244E-005	-2.580276E-001	-3.995317E-001
582	3	-7.312573E-005	-1.080508E-005	-2.580282E-001	-3.812731E-001
582	4	-6.973802E-005	-1.081839E-005	-2.460807E-001	-3.817403E-001
582	5	-7.157133E-005	-1.137124E-005	-2.525433E-001	-4.012389E-001
582	6	-7.312416E-005	-1.106399E-005	-2.580179E-001	-3.903974E-001
582	7	-7.157156E-005	-1.081127E-005	-2.525382E-001	-3.814834E-001
582	8	-6.973735E-005	-1.112364E-005	-2.460779E-001	-3.925045E-001
582	9	-7.156977E-005	-1.109111E-005	-2.525408E-001	-3.913652E-001
583	1	-6.532171E-005	-7.747979E-006	-2.304091E-001	-2.733868E-001
583	2	-6.874981E-005	-7.639002E-006	-2.425888E-001	-2.695487E-001
583	3	-6.875055E-005	-7.240124E-006	-2.425842E-001	-2.554720E-001
583	4	-6.531720E-005	-7.253770E-006	-2.304737E-001	-2.559556E-001
583	5	-6.721536E-005	-7.687325E-006	-2.371800E-001	-2.712645E-001
583	6	-6.874731E-005	-7.439822E-006	-2.425828E-001	-2.625064E-001
583	7	-6.721536E-005	-7.246480E-006	-2.371800E-001	-2.556921E-001
583	8	-6.531423E-005	-7.580886E-006	-2.304829E-001	-2.646656E-001
583	9	-6.721536E-005	-7.466729E-006	-2.371800E-001	-2.634737E-001
584	1	-6.274181E-005	-3.043380E-006	-2.214011E-001	-1.073835E-001
584	2	-6.449586E-005	-2.987243E-006	-2.275795E-001	-1.054044E-001
584	3	-6.449314E-005	-2.845386E-006	-2.275652E-001	-1.004873E-001
584	4	-6.273981E-005	-2.852955E-006	-2.213897E-001	-1.006587E-001
584	5	-6.375827E-005	-3.011195E-006	-2.249359E-001	-1.062587E-001
584	6	-6.449277E-005	-2.916414E-006	-2.275786E-001	-1.029094E-001
584	7	-6.374815E-005	-2.848456E-006	-2.249335E-001	-1.005114E-001
584	8	-6.273895E-005	-2.947724E-006	-2.214015E-001	-1.040172E-001
584	9	-6.374865E-005	-2.929715E-006	-2.249355E-001	-1.033858E-001
585	1	-6.680432E-005	-2.783343E-006	-2.357166E-001	-9.821470E-002
585	2	-6.940812E-005	-2.794394E-006	-2.449074E-001	-9.858888E-002
585	3	-6.940791E-005	-2.582998E-006	-2.449204E-001	-9.114201E-002
585	4	-6.680183E-005	-2.499882E-006	-2.357214E-001	-8.821840E-002
585	5	-6.829673E-005	-2.789753E-006	-2.409983E-001	-9.843495E-002
585	6	-6.940792E-005	-2.688749E-006	-2.449059E-001	-9.487285E-002
585	7	-6.829732E-005	-2.547598E-006	-2.409858E-001	-8.989886E-002
585	8	-6.680458E-005	-2.641787E-006	-2.357175E-001	-9.321979E-002
585	9	-6.829795E-005	-2.668532E-006	-2.409806E-001	-9.416657E-002
586	1	-7.036658E-005	-7.105128E-006	-2.482896E-001	-2.507152E-001
586	2	-7.404379E-005	-7.120378E-006	-2.612696E-001	-2.512428E-001
586	3	-7.404737E-005	-6.692691E-006	-2.612720E-001	-2.361503E-001
586	4	-7.036935E-005	-6.575870E-006	-2.482888E-001	-2.320341E-001
586	5	-7.240137E-005	-7.113180E-006	-2.554791E-001	-2.509384E-001
586	6	-7.404772E-005	-6.906329E-006	-2.612784E-001	-2.436942E-001
586	7	-7.240137E-005	-6.640153E-006	-2.554791E-001	-2.343035E-001

586	8	-7.836574E-005	-6.840673E-006	-2.482877E-001	-2.413697E-001
586	9	-7.240137E-005	-6.876780E-006	-2.554791E-001	-2.426543E-001
587	1	-7.586042E-005	-1.064133E-005	-2.648584E-001	-3.754912E-001
587	2	-7.843693E-005	-1.065434E-005	-2.767739E-001	-3.759647E-001
587	3	-7.843604E-005	-1.013868E-005	-2.767732E-001	-3.577543E-001
587	4	-7.586021E-005	-1.003313E-005	-2.648590E-001	-3.540285E-001
587	5	-7.688849E-005	-1.064856E-005	-2.713021E-001	-3.757518E-001
587	6	-7.843532E-005	-1.039673E-005	-2.767636E-001	-3.668541E-001
587	7	-7.688810E-005	-1.009023E-005	-2.713057E-001	-3.560512E-001
587	8	-7.586162E-005	-1.033725E-005	-2.648633E-001	-3.647510E-001
587	9	-7.688615E-005	-1.036930E-005	-2.713001E-001	-3.658048E-001
588	1	-7.925178E-005	-1.347032E-005	-2.796564E-001	-4.753092E-001
588	2	-8.164320E-005	-1.347984E-005	-2.880823E-001	-4.756470E-001
588	3	-8.164216E-005	-1.302935E-005	-2.880837E-001	-4.597545E-001
588	4	-7.924918E-005	-1.295358E-005	-2.796412E-001	-4.570834E-001
588	5	-8.052843E-005	-1.347531E-005	-2.841566E-001	-4.754838E-001
588	6	-8.163993E-005	-1.325584E-005	-2.880764E-001	-4.677091E-001
588	7	-8.052843E-005	-1.299448E-005	-2.841566E-001	-4.585295E-001
588	8	-7.925216E-005	-1.321172E-005	-2.796488E-001	-4.661913E-001
588	9	-8.052843E-005	-1.323490E-005	-2.841566E-001	-4.670016E-001
589	1	-8.229393E-005	-1.564976E-005	-2.903819E-001	-5.522152E-001
589	2	-8.441303E-005	-1.565872E-005	-2.978606E-001	-5.525190E-001
589	3	-8.441145E-005	-1.518269E-005	-2.978566E-001	-5.357329E-001
589	4	-8.229051E-005	-1.511535E-005	-2.903748E-001	-5.333646E-001
589	5	-8.341367E-005	-1.565464E-005	-2.943350E-001	-5.523793E-001
589	6	-8.441496E-005	-1.542071E-005	-2.978622E-001	-5.441331E-001
589	7	-8.341426E-005	-1.515145E-005	-2.943354E-001	-5.346305E-001
589	8	-8.229240E-005	-1.538262E-005	-2.903734E-001	-5.427831E-001
589	9	-8.341434E-005	-1.540273E-005	-2.943361E-001	-5.434959E-001
590	1	-8.489155E-005	-1.742469E-005	-2.995534E-001	-6.148372E-001
590	2	-8.618156E-005	-1.742984E-005	-3.041046E-001	-6.150351E-001
590	3	-8.618345E-005	-1.709648E-005	-3.041028E-001	-6.032622E-001
590	4	-8.489298E-005	-1.705605E-005	-2.995561E-001	-6.018365E-001
590	5	-8.557142E-005	-1.742693E-005	-3.019446E-001	-6.149287E-001
590	6	-8.618311E-005	-1.726328E-005	-3.041018E-001	-6.091429E-001
590	7	-8.557142E-005	-1.707751E-005	-3.019446E-001	-6.025898E-001
590	8	-8.489413E-005	-1.724805E-005	-2.995525E-001	-6.083308E-001
590	9	-8.557142E-005	-1.725218E-005	-3.019446E-001	-6.087540E-001
591	1	-7.059128E-005	-2.539357E-006	-2.498915E-001	-8.961431E-002
591	2	-7.409983E-005	-2.679631E-006	-2.614679E-001	-9.456374E-002
591	3	-7.409987E-005	-2.395630E-006	-2.614658E-001	-8.452527E-002
591	4	-7.058979E-005	-2.157715E-006	-2.498819E-001	-7.613435E-002
591	5	-7.259933E-005	-2.620155E-006	-2.561662E-001	-9.245421E-002
591	6	-7.409981E-005	-2.537336E-006	-2.614671E-001	-8.952715E-002
591	7	-7.260187E-005	-2.293774E-006	-2.561846E-001	-8.094910E-002
591	8	-7.058867E-005	-2.347982E-006	-2.498775E-001	-8.286674E-002
591	9	-7.260265E-005	-2.456941E-006	-2.561876E-001	-8.669356E-002
592	1	-8.521764E-005	-1.759299E-005	-3.007853E-001	-6.207941E-001
592	2	-7.819336E-005	-1.756551E-005	-2.759132E-001	-6.198114E-001
592	3	-7.819349E-005	-1.964572E-005	-2.759189E-001	-6.932139E-001
592	4	-8.521791E-005	-1.986524E-005	-3.007928E-001	-7.009752E-001
592	5	-8.155159E-005	-1.757856E-005	-2.877627E-001	-6.202734E-001
592	6	-7.819344E-005	-1.860522E-005	-2.759137E-001	-6.565133E-001
592	7	-8.155206E-005	-1.975012E-005	-2.877694E-001	-6.969187E-001
592	8	-8.521898E-005	-1.872902E-005	-3.007817E-001	-6.608836E-001
592	9	-8.155159E-005	-1.866471E-005	-2.877595E-001	-6.585979E-001
593	1	-8.228493E-005	-1.787307E-005	-2.903488E-001	-6.306714E-001
593	2	-1.136999E-004	-1.800053E-005	-4.011996E-001	-6.351623E-001
593	3	-1.137005E-004	-7.589677E-006	-4.011990E-001	-2.678015E-001
593	4	-8.228634E-005	-6.587340E-006	-2.903528E-001	-2.324314E-001

593	5	-9.862641E-005	-1.793970E-005	-3.480114E-001	-6.330197E-001
593	6	-1.137002E-004	-1.279512E-005	-4.012012E-001	-4.514817E-001
593	7	-9.862675E-005	-7.108508E-006	-3.480124E-001	-2.508328E-001
593	8	-8.228497E-005	-1.223018E-005	-2.903504E-001	-4.315551E-001
593	9	-9.862574E-005	-1.252393E-005	-3.480104E-001	-4.419215E-001
594	1	-1.144271E-004	-2.869785E-005	-4.037622E-001	-7.303391E-001
594	2	-9.267357E-005	-2.861016E-005	-3.270062E-001	-7.272518E-001
594	3	-9.267359E-005	-2.854409E-005	-3.270076E-001	-1.007207E+000
594	4	-1.144266E-004	-2.923338E-005	-4.037654E-001	-1.031539E+000
594	5	-1.031527E-004	-2.865245E-005	-3.639834E-001	-7.287312E-001
594	6	-9.267489E-005	-2.457723E-005	-3.270125E-001	-8.672293E-001
594	7	-1.031527E-004	-2.887657E-005	-3.639834E-001	-1.018922E+000
594	8	-1.144263E-004	-2.496582E-005	-4.037596E-001	-8.809405E-001
594	9	-1.031527E-004	-2.476439E-005	-3.639834E-001	-8.738354E-001
595	1	-7.522354E-005	-6.587072E-006	-2.654290E-001	-2.324254E-001
595	2	-7.931372E-005	-6.749347E-006	-2.798611E-001	-2.381516E-001
595	3	-7.931417E-005	-6.274659E-006	-2.798555E-001	-2.214090E-001
595	4	-7.522241E-005	-6.801543E-006	-2.654276E-001	-2.117785E-001
595	5	-7.748199E-005	-6.676625E-006	-2.734018E-001	-2.355899E-001
595	6	-7.931313E-005	-6.512120E-006	-2.798622E-001	-2.297842E-001
595	7	-7.748198E-005	-6.152534E-006	-2.734018E-001	-2.170876E-001
595	8	-7.522334E-005	-6.294341E-006	-2.654298E-001	-2.221846E-001
595	9	-7.748198E-005	-6.414534E-006	-2.734018E-001	-2.263460E-001
596	1	-8.787212E-005	-1.921823E-005	-3.072481E-001	-6.778477E-001
596	2	-6.996137E-005	-1.914864E-005	-2.468621E-001	-6.753897E-001
596	3	-6.996134E-005	-2.604225E-005	-2.468635E-001	-9.189288E-001
596	4	-8.787277E-005	-2.658893E-005	-3.072455E-001	-9.382802E-001
596	5	-7.823192E-005	-1.917461E-005	-2.760484E-001	-6.765848E-001
596	6	-6.996101E-005	-2.259165E-005	-2.468647E-001	-7.971655E-001
596	7	-7.823233E-005	-2.630673E-005	-2.760495E-001	-9.282513E-001
596	8	-8.787347E-005	-2.289932E-005	-3.072443E-001	-8.080254E-001
596	9	-7.823241E-005	-2.274036E-005	-2.760480E-001	-8.024153E-001
597	1	-6.164215E-005	-7.651836E-006	-2.175056E-001	-2.699985E-001
597	2	-2.389011E-005	-7.498615E-006	-8.147429E-002	-2.645807E-001
597	3	-8.164927E-004	-8.639364E-004	-8.147377E-002	-8.621821E-001
597	4	-2.266323E-004	-9.426069E-005	-2.175087E-001	-9.046578E-001
597	5	-4.178481E-005	-7.573175E-006	-1.474407E-001	-2.672237E-001
597	6	-2.388988E-005	-1.596493E-005	-8.147451E-002	-5.633482E-001
597	7	-8.133447E-004	-4.869433E-004	-1.474407E-001	-8.827317E-001
597	8	-6.164196E-005	-1.664463E-005	-2.175057E-001	-5.873277E-001
597	9	-4.178481E-005	-1.629471E-005	-1.474407E-001	-5.749791E-001
598	1	-7.415291E-005	-2.288396E-006	-2.616524E-001	-8.873378E-002
598	2	-7.859553E-005	-2.625778E-006	-2.773270E-001	-9.265342E-002
598	3	-7.858869E-005	-2.265071E-006	-2.773270E-001	-7.993756E-002
598	4	-7.415097E-005	-1.804039E-006	-2.616439E-001	-6.365386E-002
598	5	-7.669807E-005	-2.481386E-006	-2.706317E-001	-8.755743E-002
598	6	-7.859560E-005	-2.445178E-006	-2.773274E-001	-8.628142E-002
598	7	-7.669844E-005	-2.868344E-006	-2.706476E-001	-7.298703E-002
598	8	-7.415045E-005	-2.845787E-006	-2.616420E-001	-7.218578E-002
598	9	-7.670887E-005	-2.274693E-006	-2.706359E-001	-8.026801E-002
599	1	-2.097391E-005	-3.979638E-005	-7.488826E-002	-1.484234E+000
599	2	-4.106410E-005	-3.987788E-005	-1.448993E-001	-1.487187E+000
599	3	-3.315849E-003	-1.711255E-003	-1.448989E-001	-1.078785E+000
599	4	-1.571778E-003	-2.225639E-003	-7.488799E-002	-1.648883E+000
599	5	-3.130591E-005	-3.983824E-005	-1.104621E-001	-1.485718E+000
599	6	-1.184396E-004	-1.812698E-004	-1.448957E-001	-1.238911E+000
599	7	-2.281565E-003	-2.188806E-003	-1.104623E-001	-1.059787E+000
599	8	-2.989351E-005	-4.820005E-005	-7.481803E-002	-1.226157E+000
599	9	-3.130465E-005	-3.493517E-005	-1.104624E-001	-1.232717E+000
600	1	-8.841522E-005	-1.803915E-005	-2.837513E-001	-3.542451E-001

600	2	-8.398436E-005	-1.017982E-005	-2.963409E-001	-3.591976E-001
600	3	-8.398476E-005	-9.636844E-006	-2.963471E-001	-3.480394E-001
600	4	-8.841682E-005	-9.394989E-006	-2.837515E-001	-3.314877E-001
600	5	-8.235127E-005	-1.011605E-005	-2.905845E-001	-3.569464E-001
600	6	-8.398200E-005	-9.988047E-006	-2.963378E-001	-3.496203E-001
600	7	-8.235307E-005	-9.525979E-006	-2.905847E-001	-3.361278E-001
600	8	-8.841284E-005	-9.716953E-006	-2.837491E-001	-3.428737E-001
600	9	-8.235245E-005	-9.820716E-006	-2.905861E-001	-3.465342E-001
601	1	-3.850420E-005	-8.272791E-006	-1.358665E-001	-2.919289E-001
601	2	-2.273088E-004	-4.345844E-004	-1.501397E-002	-2.870557E-001
601	3	-4.465284E-004	-2.675491E-003	-1.501346E-002	-8.996410E-001
601	4	-2.845193E-003	-1.964135E-003	-1.358701E-001	-9.379367E-001
601	5	-2.215409E-005	-8.683964E-006	-7.383772E-002	-2.894194E-001
601	6	-4.495611E-004	-1.776527E-003	-1.501488E-002	-5.933358E-001
601	7	-2.198193E-003	-2.733839E-003	-7.383772E-002	-9.182764E-001
601	8	-1.110575E-004	-5.026497E-005	-1.358674E-001	-6.149228E-001
601	9	-1.311779E-004	-1.072793E-004	-7.383772E-002	-6.038429E-001
602	1	-3.851106E-002	-3.871006E-004	-1.358933E-001	-1.365926E-002
602	2	-3.853510E-002	-3.871144E-004	-1.359784E-001	-1.365827E-002
602	3	-3.853566E-002	-3.827861E-004	-1.359805E-001	-1.350826E-002
602	4	-3.851142E-002	-3.827722E-004	-1.358934E-001	-1.350989E-002
602	5	-3.852284E-002	-3.871112E-004	-1.359376E-001	-1.365709E-002
602	6	-3.853566E-002	-3.850491E-004	-1.359805E-001	-1.358427E-002
602	7	-3.852284E-002	-3.828494E-004	-1.359376E-001	-1.351037E-002
602	8	-3.851108E-002	-3.849454E-004	-1.358933E-001	-1.358426E-002
602	9	-3.852284E-002	-3.849674E-004	-1.359376E-001	-1.358427E-002
603	1	-3.842922E-002	-1.154803E-003	-1.356056E-001	-4.875851E-002
603	2	-3.849742E-002	-1.154902E-003	-1.358462E-001	-4.875189E-002
603	3	-3.849738E-002	-1.142817E-003	-1.358456E-001	-4.832349E-002
603	4	-3.842913E-002	-1.142822E-003	-1.356058E-001	-4.832364E-002
603	5	-3.846337E-002	-1.154794E-003	-1.357249E-001	-4.874826E-002
603	6	-3.849773E-002	-1.148818E-003	-1.358466E-001	-4.853885E-002
603	7	-3.846321E-002	-1.142860E-003	-1.357269E-001	-4.832860E-002
603	8	-3.842926E-002	-1.148818E-003	-1.356063E-001	-4.853885E-002
603	9	-3.846325E-002	-1.148818E-003	-1.357244E-001	-4.853885E-002
604	1	-3.829787E-002	-1.905615E-003	-1.351441E-001	-6.724369E-002
604	2	-3.840336E-002	-1.905581E-003	-1.355160E-001	-6.724508E-002
604	3	-3.840396E-002	-1.887050E-003	-1.355161E-001	-6.658767E-002
604	4	-3.829823E-002	-1.887055E-003	-1.351442E-001	-6.658784E-002
604	5	-3.835133E-002	-1.905606E-003	-1.353301E-001	-6.724145E-002
604	6	-3.840375E-002	-1.896315E-003	-1.355154E-001	-6.691635E-002
604	7	-3.835045E-002	-1.887153E-003	-1.353282E-001	-6.658905E-002
604	8	-3.829836E-002	-1.896315E-003	-1.351442E-001	-6.691635E-002
604	9	-3.835097E-002	-1.896315E-003	-1.353296E-001	-6.691635E-002
605	1	-3.812758E-002	-2.628999E-003	-1.345407E-001	-9.276997E-002
605	2	-3.826287E-002	-2.628936E-003	-1.350192E-001	-9.276673E-002
605	3	-3.826321E-002	-2.605097E-003	-1.350197E-001	-9.192879E-002
605	4	-3.812749E-002	-2.605179E-003	-1.345409E-001	-9.192750E-002
605	5	-3.819525E-002	-2.628938E-003	-1.347810E-001	-9.276525E-002
605	6	-3.826329E-002	-2.617067E-003	-1.350195E-001	-9.234806E-002
605	7	-3.819579E-002	-2.605179E-003	-1.347806E-001	-9.192815E-002
605	8	-3.812825E-002	-2.617120E-003	-1.345415E-001	-9.234843E-002
605	9	-3.819564E-002	-2.617014E-003	-1.347810E-001	-9.234760E-002
606	1	-3.793714E-002	-3.315324E-003	-1.338705E-001	-1.169875E-001
606	2	-3.808589E-002	-3.315286E-003	-1.343956E-001	-1.169861E-001
606	3	-3.808625E-002	-3.289101E-003	-1.343950E-001	-1.160620E-001
606	4	-3.793769E-002	-3.289101E-003	-1.338714E-001	-1.160620E-001
606	5	-3.801211E-002	-3.315399E-003	-1.341319E-001	-1.169897E-001
606	6	-3.808692E-002	-3.302174E-003	-1.343960E-001	-1.165246E-001
606	7	-3.801110E-002	-3.289101E-003	-1.341315E-001	-1.160620E-001

606	8	-3.793702E-002	-3.302174E-003	-1.338681E-001	-1.165246E-001
606	9	-3.801169E-002	-3.302174E-003	-1.341318E-001	-1.165246E-001
607	1	-3.774271E-002	-3.956391E-003	-1.331843E-001	-1.396098E-001
607	2	-3.789322E-002	-3.956370E-003	-1.337145E-001	-1.396081E-001
607	3	-3.789314E-002	-3.929995E-003	-1.337150E-001	-1.386774E-001
607	4	-3.774319E-002	-3.929969E-003	-1.331874E-001	-1.386769E-001
607	5	-3.781043E-002	-3.956416E-003	-1.334505E-001	-1.396120E-001
607	6	-3.789367E-002	-3.943116E-003	-1.337147E-001	-1.391436E-001
607	7	-3.781043E-002	-3.929934E-003	-1.334505E-001	-1.386734E-001
607	8	-3.774247E-002	-3.943163E-003	-1.331839E-001	-1.391425E-001
607	9	-3.781043E-002	-3.943183E-003	-1.334505E-001	-1.391422E-001
608	1	-3.756436E-002	-4.545005E-003	-1.325564E-001	-1.603807E-001
608	2	-3.770179E-002	-4.545023E-003	-1.330378E-001	-1.603831E-001
608	3	-3.770227E-002	-4.521105E-003	-1.330374E-001	-1.595354E-001
608	4	-3.756482E-002	-4.521046E-003	-1.325551E-001	-1.595354E-001
608	5	-3.763314E-002	-4.545040E-003	-1.327956E-001	-1.603812E-001
608	6	-3.770147E-002	-4.533030E-003	-1.330383E-001	-1.599590E-001
608	7	-3.763314E-002	-4.521046E-003	-1.327956E-001	-1.595354E-001
608	8	-3.756554E-002	-4.533030E-003	-1.325567E-001	-1.599590E-001
608	9	-3.763314E-002	-4.533030E-003	-1.327956E-001	-1.599590E-001
609	1	-3.741462E-002	-5.077013E-003	-1.320248E-001	-1.791547E-001
609	2	-3.752871E-002	-5.077006E-003	-1.324255E-001	-1.791522E-001
609	3	-3.752846E-002	-5.056876E-003	-1.324284E-001	-1.784437E-001
609	4	-3.741458E-002	-5.056958E-003	-1.320256E-001	-1.784437E-001
609	5	-3.747174E-002	-5.077004E-003	-1.322256E-001	-1.791539E-001
609	6	-3.752797E-002	-5.066954E-003	-1.324253E-001	-1.787979E-001
609	7	-3.747174E-002	-5.056907E-003	-1.322256E-001	-1.784453E-001
609	8	-3.741439E-002	-5.067012E-003	-1.320252E-001	-1.787992E-001
609	9	-3.747174E-002	-5.067017E-003	-1.322256E-001	-1.787976E-001
610	1	-3.730238E-002	-5.548835E-003	-1.316323E-001	-1.957991E-001
610	2	-3.738611E-002	-5.548704E-003	-1.319243E-001	-1.957995E-001
610	3	-3.738593E-002	-5.534101E-003	-1.319244E-001	-1.952834E-001
610	4	-3.730269E-002	-5.534200E-003	-1.316324E-001	-1.952847E-001
610	5	-3.734460E-002	-5.548724E-003	-1.317782E-001	-1.957987E-001
610	6	-3.738584E-002	-5.541429E-003	-1.319244E-001	-1.955425E-001
610	7	-3.734471E-002	-5.534191E-003	-1.317781E-001	-1.952835E-001
610	8	-3.738325E-002	-5.541404E-003	-1.316295E-001	-1.955414E-001
610	9	-3.734478E-002	-5.541431E-003	-1.317785E-001	-1.955412E-001
611	1	-3.722954E-002	-5.960188E-003	-1.313736E-001	-2.103162E-001
611	2	-3.728308E-002	-5.960088E-003	-1.315608E-001	-2.103167E-001
611	3	-3.728279E-002	-5.958988E-003	-1.315597E-001	-2.099853E-001
611	4	-3.722954E-002	-5.958836E-003	-1.313724E-001	-2.099807E-001
611	5	-3.725616E-002	-5.960076E-003	-1.314665E-001	-2.103143E-001
611	6	-3.728210E-002	-5.955462E-003	-1.315604E-001	-2.101511E-001
611	7	-3.725625E-002	-5.958801E-003	-1.314663E-001	-2.099838E-001
611	8	-3.723011E-002	-5.955462E-003	-1.313720E-001	-2.101511E-001
611	9	-3.725635E-002	-5.955462E-003	-1.314661E-001	-2.101511E-001
612	1	-3.718834E-002	-6.314939E-003	-1.312258E-001	-2.228345E-001
612	2	-3.721699E-002	-6.314922E-003	-1.313287E-001	-2.228359E-001
612	3	-3.721770E-002	-6.309744E-003	-1.313309E-001	-2.226527E-001
612	4	-3.718832E-002	-6.309785E-003	-1.312271E-001	-2.226533E-001
612	5	-3.720317E-002	-6.314874E-003	-1.312787E-001	-2.228337E-001
612	6	-3.721759E-002	-6.312384E-003	-1.313308E-001	-2.227465E-001
612	7	-3.720336E-002	-6.309764E-003	-1.312798E-001	-2.226526E-001
612	8	-3.718898E-002	-6.312416E-003	-1.312281E-001	-2.227457E-001
612	9	-3.720338E-002	-6.312334E-003	-1.312792E-001	-2.227452E-001
613	1	-3.716371E-002	-6.624507E-003	-1.311406E-001	-2.337606E-001
613	2	-3.718194E-002	-6.624507E-003	-1.312040E-001	-2.337580E-001
613	3	-3.718222E-002	-6.621415E-003	-1.312030E-001	-2.336501E-001
613	4	-3.716359E-002	-6.621301E-003	-1.311398E-001	-2.336469E-001

613	5	-3.717266E-002	-6.624497E-003	-1.311716E-001	-2.337503E-001
613	6	-3.718151E-002	-6.622881E-003	-1.312030E-001	-2.337031E-001
613	7	-3.717266E-002	-6.621400E-003	-1.311716E-001	-2.336498E-001
613	8	-3.716283E-002	-6.622923E-003	-1.311417E-001	-2.337050E-001
613	9	-3.717266E-002	-6.622978E-003	-1.311716E-001	-2.337043E-001
614	1	-3.717845E-002	-6.906154E-003	-1.311922E-001	-2.436966E-001
614	2	-3.716376E-002	-6.906191E-003	-1.311389E-001	-2.436958E-001
614	3	-3.716351E-002	-6.908693E-003	-1.311381E-001	-2.437807E-001
614	4	-3.717737E-002	-6.908794E-003	-1.311911E-001	-2.437882E-001
614	5	-3.717072E-002	-6.906154E-003	-1.311644E-001	-2.436987E-001
14	6	-3.716367E-002	-6.907371E-003	-1.311386E-001	-2.437405E-001
14	7	-3.717067E-002	-6.908803E-003	-1.311647E-001	-2.437984E-001
14	8	-3.717873E-002	-6.907371E-003	-1.311895E-001	-2.437405E-001
614	9	-3.717069E-002	-6.907371E-003	-1.311647E-001	-2.437405E-001
615	1	-3.714784E-002	-7.217458E-003	-1.310835E-001	-2.546862E-001
615	2	-3.717693E-002	-7.217497E-003	-1.311851E-001	-2.546873E-001
615	3	-3.717626E-002	-7.212558E-003	-1.311848E-001	-2.545108E-001
615	4	-3.714811E-002	-7.212527E-003	-1.310851E-001	-2.545129E-001
615	5	-3.716265E-002	-7.217648E-003	-1.311362E-001	-2.546883E-001
615	6	-3.717660E-002	-7.215133E-003	-1.311850E-001	-2.545986E-001
615	7	-3.716181E-002	-7.212585E-003	-1.311342E-001	-2.545113E-001
615	8	-3.714832E-002	-7.215098E-003	-1.310840E-001	-2.545986E-001
615	9	-3.716247E-002	-7.215095E-003	-1.311360E-001	-2.545977E-001
616	1	-3.730329E-002	-7.554641E-003	-1.316312E-001	-2.665838E-001
616	2	-3.716329E-002	-7.554717E-003	-1.311406E-001	-2.665820E-001
616	3	-3.716461E-002	-7.579140E-003	-1.311415E-001	-2.674465E-001
616	4	-3.730419E-002	-7.579138E-003	-1.316315E-001	-2.674458E-001
616	5	-3.723349E-002	-7.554677E-003	-1.313866E-001	-2.665816E-001
616	6	-3.716421E-002	-7.566993E-003	-1.311417E-001	-2.670148E-001
616	7	-3.723349E-002	-7.579281E-003	-1.313866E-001	-2.674489E-001
616	8	-3.730358E-002	-7.566912E-003	-1.316320E-001	-2.670141E-001
616	9	-3.723349E-002	-7.566921E-003	-1.313866E-001	-2.670144E-001
617	1	-3.748408E-002	-7.955358E-003	-1.322697E-001	-2.807222E-001
617	2	-3.734403E-002	-7.955355E-003	-1.317766E-001	-2.807223E-001
617	3	-3.734374E-002	-7.979834E-003	-1.317766E-001	-2.815851E-001
617	4	-3.748382E-002	-7.979921E-003	-1.322785E-001	-2.815879E-001
617	5	-3.741410E-002	-7.955347E-003	-1.320231E-001	-2.807218E-001
617	6	-3.734361E-002	-7.967654E-003	-1.317767E-001	-2.811536E-001
617	7	-3.741388E-002	-7.979921E-003	-1.320229E-001	-2.815879E-001
617	8	-3.748382E-002	-7.967654E-003	-1.322711E-001	-2.811536E-001
617	9	-3.741412E-002	-7.967654E-003	-1.320231E-001	-2.811536E-001
618	1	-6.877498E-004	-6.723051E-005	-2.426882E-001	-2.372378E-001
618	2	-4.236992E-002	-6.874051E-003	-1.463425E-001	-2.374234E-001
618	3	-4.147238E-002	-1.151690E-002	-1.463426E-001	-4.063676E-001
618	4	-6.877595E-004	-1.151541E-004	-2.426888E-001	-4.063460E-001
618	5	-5.511730E-004	-6.725705E-005	-1.944935E-001	-2.373312E-001
618	6	-4.147279E-002	-9.122198E-003	-1.463450E-001	-3.218966E-001
618	7	-5.511730E-004	-1.151575E-004	-1.944935E-001	-4.063530E-001
618	8	-6.877463E-004	-9.119193E-005	-2.426878E-001	-3.217987E-001
618	9	-5.511730E-004	-9.120722E-005	-1.944935E-001	-3.218447E-001
619	1	-7.268211E-004	-3.687533E-004	-2.564715E-001	-1.301224E+000
619	2	-7.274352E-004	-3.687541E-004	-2.566907E-001	-1.301225E+000
619	3	-7.274351E-004	-3.686442E-004	-2.566900E-001	-1.300838E+000
619	4	-7.268119E-004	-3.686453E-004	-2.564725E-001	-1.300839E+000
619	5	-7.271299E-004	-3.687527E-004	-2.565816E-001	-1.301222E+000
619	6	-7.274299E-004	-3.686989E-004	-2.566894E-001	-1.301031E+000
619	7	-7.271299E-004	-3.686449E-004	-2.565816E-001	-1.300841E+000
619	8	-7.268174E-004	-3.686995E-004	-2.564730E-001	-1.301032E+000
619	9	-7.271299E-004	-3.686996E-004	-2.565816E-001	-1.301031E+000
620	1	-1.283360E-004	-1.018646E-003	-2.923818E-002	-2.328503E+000

620	2	-6.489409E-005	-6.599219E-005	-2.289838E-001	-2.328591E+000
620	3	-1.544000E-003	-8.340794E-004	-2.289828E-001	-1.236985E+000
620	4	-8.731059E-004	-3.503639E-003	-2.923742E-002	-1.173223E+000
620	5	-3.729381E-005	-6.588101E-005	-1.315961E-001	-2.324656E+000
620	6	-6.489405E-005	-5.052422E-005	-2.289840E-001	-1.782794E+000
620	7	-3.450972E-003	-3.162357E-003	-1.315933E-001	-1.265897E+000
620	8	-4.884280E-004	-2.918185E-003	-2.923788E-002	-1.746868E+000
620	9	-3.729386E-005	-5.882793E-005	-1.315942E-001	-1.765274E+000
621	1	-8.483988E-005	-1.299967E-005	-2.993650E-001	-4.587076E-001
621	2	-8.737187E-005	-1.310118E-005	-3.082996E-001	-4.622789E-001
621	3	-8.737404E-005	-1.262263E-005	-3.083084E-001	-4.454127E-001
621	4	-8.484266E-005	-1.245235E-005	-2.993645E-001	-4.393885E-001
621	5	-8.619345E-005	-1.305396E-005	-3.041402E-001	-4.606223E-001
621	6	-8.737408E-005	-1.286202E-005	-3.083074E-001	-4.538445E-001
621	7	-8.619345E-005	-1.254351E-005	-3.041402E-001	-4.426048E-001
621	8	-8.484198E-005	-1.272618E-005	-2.993724E-001	-4.490477E-001
621	9	-8.619345E-005	-1.279868E-005	-3.041402E-001	-4.516143E-001
622	1	-7.991338E-005	-6.152334E-006	-2.819652E-001	-2.178839E-001
622	2	-8.448897E-005	-6.494842E-006	-2.981064E-001	-2.291433E-001
622	3	-8.448157E-005	-5.962397E-006	-2.981026E-001	-2.104009E-001
622	4	-7.991200E-005	-5.494885E-006	-2.819785E-001	-1.930702E-001
622	5	-8.244161E-005	-6.341103E-006	-2.908946E-001	-2.237539E-001
622	6	-8.448226E-005	-6.228593E-006	-2.981010E-001	-2.197735E-001
622	7	-8.244161E-005	-5.753578E-006	-2.908946E-001	-2.030242E-001
622	8	-7.990929E-005	-5.823404E-006	-2.819657E-001	-2.054895E-001
622	9	-8.244161E-005	-6.047449E-006	-2.908946E-001	-2.133980E-001
623	1	-7.762449E-005	-2.026144E-006	-2.739062E-001	-7.148414E-002
623	2	-8.280679E-005	-2.686533E-006	-2.921929E-001	-9.196828E-002
623	3	-8.281058E-005	-2.182465E-006	-2.922058E-001	-7.701626E-002
623	4	-7.762357E-005	-1.461004E-006	-2.739816E-001	-5.154923E-002
623	5	-8.858817E-005	-2.358072E-006	-2.843587E-001	-8.320203E-002
623	6	-8.281031E-005	-2.394307E-006	-2.922065E-001	-8.449293E-002
623	7	-8.858787E-005	-1.873453E-006	-2.843567E-001	-6.610313E-002
623	8	-7.762217E-005	-1.743683E-006	-2.738963E-001	-6.150184E-002
623	9	-8.858855E-005	-2.115397E-006	-2.843608E-001	-7.465650E-002
624	1	-8.756602E-005	-1.525442E-005	-3.089798E-001	-5.382615E-001
624	2	-8.682186E-005	-1.522480E-005	-3.063597E-001	-5.372162E-001
624	3	-8.682204E-005	-1.539134E-005	-3.063577E-001	-5.430934E-001
624	4	-8.756234E-005	-1.544168E-005	-3.089807E-001	-5.448832E-001
624	5	-8.717110E-005	-1.523878E-005	-3.075906E-001	-5.377895E-001
624	6	-8.682178E-005	-1.530804E-005	-3.063529E-001	-5.401554E-001
624	7	-8.717132E-005	-1.541553E-005	-3.075878E-001	-5.439333E-001
624	8	-8.756568E-005	-1.534889E-005	-3.089814E-001	-5.415707E-001
624	9	-8.717084E-005	-1.532715E-005	-3.075873E-001	-5.408283E-001
625	1	-9.798167E-005	-1.679288E-005	-3.104585E-001	-5.925548E-001
625	2	-9.568054E-005	-1.709858E-005	-3.376145E-001	-6.033272E-001
625	3	-9.568084E-005	-1.511044E-005	-3.376164E-001	-5.331805E-001
625	4	-8.798374E-005	-1.459642E-005	-3.104562E-001	-5.150498E-001
625	5	-9.202304E-005	-1.695325E-005	-3.247099E-001	-5.982136E-001
625	6	-9.567976E-005	-1.610432E-005	-3.376119E-001	-5.682610E-001
625	7	-9.202304E-005	-1.486625E-005	-3.247099E-001	-5.245692E-001
625	8	-8.798224E-005	-1.569461E-005	-3.104501E-001	-5.538022E-001
625	9	-9.202304E-005	-1.598975E-005	-3.247099E-001	-5.613863E-001
626	1	-8.576084E-005	-9.572802E-006	-3.026146E-001	-3.377776E-001
626	2	-9.004126E-005	-9.898046E-006	-3.177174E-001	-3.492624E-001
626	3	-9.004209E-005	-9.243658E-006	-3.177168E-001	-3.261658E-001
626	4	-8.576201E-005	-8.801274E-006	-3.026114E-001	-3.105418E-001
626	5	-8.887465E-005	-9.748582E-006	-3.107879E-001	-3.439898E-001
626	6	-9.004389E-005	-9.570793E-006	-3.177288E-001	-3.377874E-001
626	7	-8.887681E-005	-9.840158E-006	-3.107902E-001	-3.189882E-001

626	8	-8.576235E-005	-9.187182E-006	-3.026138E-001	-3.241834E-001
626	9	-8.887694E-005	-9.394481E-006	-3.107826E-001	-3.314945E-001
627	1	-8.077575E-005	-1.725985E-006	-2.858448E-001	-6.898786E-002
627	2	-8.742001E-005	-2.702475E-006	-3.084695E-001	-9.538164E-002
627	3	-8.742401E-005	-2.165587E-006	-3.084845E-001	-7.641892E-002
627	4	-8.078113E-005	-1.988601E-006	-2.858354E-001	-3.557421E-002
627	5	-8.458147E-005	-2.285591E-006	-2.984533E-001	-8.864234E-002
627	6	-8.742057E-005	-2.434348E-006	-3.084704E-001	-8.589861E-002
627	7	-8.458121E-005	-1.670249E-006	-2.984455E-001	-5.893874E-002
627	8	-8.078030E-005	-1.366996E-006	-2.858477E-001	-4.820327E-002
627	9	-8.457687E-005	-1.977208E-006	-2.984425E-001	-6.977313E-002
628	1	-8.443084E-005	-5.759555E-006	-2.979182E-001	-2.032293E-001
628	2	-9.022270E-005	-6.398848E-006	-3.183599E-001	-2.257960E-001
628	3	-9.022596E-005	-5.726638E-006	-3.183681E-001	-2.028672E-001
628	4	-8.442933E-005	-4.930272E-006	-2.979387E-001	-1.739281E-001
628	5	-8.763424E-005	-6.112569E-006	-3.092148E-001	-2.156915E-001
628	6	-9.022715E-005	-6.862889E-006	-3.183677E-001	-2.139294E-001
628	7	-8.763424E-005	-5.370172E-006	-3.092148E-001	-1.894838E-001
628	8	-8.443718E-005	-5.344689E-006	-2.979383E-001	-1.885775E-001
628	9	-8.763424E-005	-5.741154E-006	-3.092148E-001	-2.025776E-001
629	1	-9.591776E-005	-2.879502E-005	-3.384570E-001	-7.337579E-001
629	2	-9.121088E-005	-2.860987E-005	-3.218431E-001	-7.272103E-001
629	3	-9.121011E-005	-2.280053E-005	-3.218409E-001	-7.763803E-001
629	4	-9.591787E-005	-2.232088E-005	-3.384514E-001	-7.875684E-001
629	5	-9.345600E-005	-2.869785E-005	-3.297665E-001	-7.303399E-001
629	6	-9.121001E-005	-2.130580E-005	-3.218441E-001	-7.517669E-001
629	7	-9.345549E-005	-2.215349E-005	-3.297695E-001	-7.816938E-001
629	8	-9.591920E-005	-2.155710E-005	-3.384576E-001	-7.606627E-001
629	9	-9.345621E-005	-2.142532E-005	-3.297678E-001	-7.560120E-001
630	1	-9.098033E-005	-1.274153E-005	-3.207494E-001	-4.496047E-001
630	2	-9.289827E-005	-1.289173E-005	-3.277968E-001	-4.549859E-001
630	3	-9.289855E-005	-1.251637E-005	-3.277989E-001	-4.416398E-001
630	4	-9.098270E-005	-1.231017E-005	-3.207546E-001	-4.343569E-001
630	5	-9.196816E-005	-1.282229E-005	-3.245149E-001	-4.524418E-001
630	6	-9.289589E-005	-1.270405E-005	-3.277900E-001	-4.482797E-001
630	7	-9.196816E-005	-1.241967E-005	-3.245149E-001	-4.382427E-001
630	8	-9.089988E-005	-1.252576E-005	-3.207490E-001	-4.419813E-001
630	9	-9.196816E-005	-1.262099E-005	-3.245149E-001	-4.453425E-001
631	1	-8.262572E-005	-7.570810E-006	-2.915545E-001	-2.671471E-001
631	2	-3.263398E-005	-5.574028E-006	-1.151511E-001	-1.966058E-001
631	3	-3.361348E-003	-2.283922E-003	-1.151500E-001	-7.823792E-001
631	4	-9.477074E-005	-2.928047E-005	-2.915500E-001	-9.910281E-001
631	5	-5.664209E-005	-6.533263E-006	-1.998673E-001	-2.305179E-001
631	6	-5.411006E-005	-2.300423E-005	-1.151487E-001	-4.895400E-001
631	7	-9.391869E-005	-3.944295E-005	-1.998684E-001	-8.393715E-001
631	8	-8.262489E-005	-1.655316E-005	-2.915488E-001	-5.840866E-001
631	9	-5.664253E-005	-1.516043E-005	-1.998652E-001	-5.349475E-001
632	1	-8.441672E-005	-1.461782E-006	-2.978778E-001	-5.156455E-002
632	2	-9.011439E-005	-2.500169E-006	-3.179798E-001	-8.824435E-002
632	3	-9.011096E-005	-2.038703E-006	-3.179648E-001	-7.196127E-002
632	4	-8.441195E-005	-8.409147E-007	-2.978571E-001	-2.967102E-002
632	5	-8.760243E-005	-2.057400E-006	-3.054018E-001	-7.260811E-002
632	6	-9.011439E-005	-2.269388E-006	-3.179789E-001	-8.009992E-002
632	7	-8.760519E-005	-1.528672E-006	-3.054067E-001	-5.391963E-002
632	8	-8.441770E-005	-1.151225E-006	-2.978812E-001	-4.059264E-002
632	9	-8.760660E-005	-1.792598E-006	-3.054043E-001	-6.326773E-002
633	1	-2.600243E-005	-2.731159E-005	-9.175605E-002	-9.637200E-001
633	2	-4.328686E-005	-4.529208E-005	-9.211139E-002	-9.638655E-001
633	3	-2.610449E-003	-2.727829E-003	-9.211218E-002	-9.625383E-001
633	4	-2.746754E-003	-2.880706E-003	-9.175552E-002	-9.622907E-001

633	5	-3.284729E-005	-3.359404E-005	-9.194088E-002	-9.637821E-001
633	6	-2.312133E-003	-2.417741E-003	-9.211370E-002	-9.631932E-001
633	7	-2.663653E-003	-2.788335E-003	-9.194088E-002	-9.624292E-001
633	8	-8.747228E-005	-9.188913E-005	-9.174966E-002	-9.629970E-001
633	9	-2.270502E-004	-2.378431E-004	-9.194088E-002	-9.630987E-001
634	1	-9.128637E-005	-9.222384E-006	-3.221163E-001	-3.254375E-001
634	2	-9.352208E-005	-9.471576E-006	-3.300012E-001	-3.342215E-001
634	3	-9.352285E-005	-9.131529E-006	-3.300011E-001	-3.222175E-001
634	4	-9.128869E-005	-8.818502E-006	-3.221191E-001	-3.111823E-001
634	5	-9.249988E-005	-9.357169E-006	-3.263966E-001	-3.301852E-001
634	6	-9.352207E-005	-9.301387E-006	-3.299982E-001	-3.282022E-001
634	7	-9.249968E-005	-8.988758E-006	-3.263925E-001	-3.171612E-001
634	8	-9.128921E-005	-9.021232E-006	-3.221139E-001	-3.183125E-001
634	9	-9.250056E-005	-9.172996E-006	-3.263957E-001	-3.236769E-001
635	1	-8.897804E-005	-5.355940E-006	-3.139537E-001	-1.889916E-001
635	2	-9.354436E-005	-6.021056E-006	-3.300754E-001	-2.124642E-001
635	3	-9.354519E-005	-5.492460E-006	-3.300852E-001	-1.938315E-001
635	4	-8.897189E-005	-4.699081E-006	-3.139558E-001	-1.657869E-001
635	5	-9.150677E-005	-5.724467E-006	-3.228923E-001	-2.019853E-001
635	6	-9.354287E-005	-5.756699E-006	-3.300769E-001	-2.031332E-001
635	7	-9.150677E-005	-5.139250E-006	-3.228923E-001	-1.813401E-001
635	8	-8.897310E-005	-5.027712E-006	-3.139505E-001	-1.774126E-001
635	9	-9.150677E-005	-5.432208E-006	-3.228923E-001	-1.916675E-001
636	1	-9.354377E-005	-1.581224E-005	-3.300821E-001	-5.579422E-001
636	2	-9.593589E-005	-1.599339E-005	-3.385193E-001	-5.643402E-001
636	3	-9.593574E-005	-1.545779E-005	-3.385212E-001	-5.454443E-001
636	4	-9.354361E-005	-1.520932E-005	-3.300745E-001	-5.366710E-001
636	5	-9.480919E-005	-1.598763E-005	-3.345423E-001	-5.613124E-001
636	6	-9.593419E-005	-1.572557E-005	-3.385133E-001	-5.548933E-001
636	7	-9.481014E-005	-1.534864E-005	-3.345408E-001	-5.413027E-001
636	8	-9.354387E-005	-1.551864E-005	-3.300740E-001	-5.473027E-001
636	9	-9.481860E-005	-1.562440E-005	-3.345410E-001	-5.513242E-001
637	1	-8.720026E-005	-1.236603E-006	-3.076984E-001	-4.365012E-002
637	2	-9.419927E-005	-2.766241E-006	-3.323974E-001	-9.758327E-002
637	3	-9.419932E-005	-2.198765E-006	-3.323976E-001	-7.757700E-002
637	4	-8.719955E-005	-4.757024E-007	-3.076941E-001	-1.674992E-002
637	5	-9.121395E-005	-2.113487E-006	-3.218544E-001	-7.456584E-002
637	6	-9.419985E-005	-2.482283E-006	-3.323835E-001	-8.756850E-002
637	7	-9.121149E-005	-1.462784E-006	-3.218594E-001	-5.161188E-002
637	8	-8.720141E-005	-8.575019E-007	-3.077024E-001	-3.022538E-002
637	9	-9.121458E-005	-1.788478E-006	-3.218576E-001	-6.310883E-002
638	1	-9.337037E-005	-9.372881E-005	-9.823380E-002	-9.057313E-001
638	2	-1.361774E-003	-1.596994E-003	-7.794400E-002	-9.880220E-001
638	3	-2.208893E-003	-2.693368E-003	-7.794610E-002	-9.583743E-001
638	4	-2.557277E-003	-2.716752E-003	-9.023486E-002	-9.586349E-001
638	5	-4.569653E-004	-4.919681E-004	-8.389103E-002	-9.031828E-001
638	6	-2.228495E-003	-2.646330E-003	-7.794696E-002	-9.255949E-001
638	7	-2.377407E-003	-2.704687E-003	-8.389804E-002	-9.543685E-001
638	8	-2.651998E-003	-2.739643E-003	-9.023188E-002	-9.321793E-001
638	9	-2.506216E-003	-2.774755E-003	-8.389078E-002	-9.287795E-001
639	1	-2.122092E-003	-2.714059E-003	-7.458958E-002	-9.539772E-001
639	2	-1.907473E-003	-2.841973E-003	-6.373949E-002	-9.496851E-001
639	3	-1.806392E-003	-2.826356E-003	-6.373915E-002	-9.972983E-001
639	4	-2.113817E-003	-2.847242E-003	-7.459004E-002	-1.004657E+000
639	5	-2.054949E-003	-2.834738E-003	-6.899510E-002	-9.517637E-001
639	6	-1.806432E-003	-2.758078E-003	-6.373988E-002	-9.734958E-001
639	7	-1.955319E-003	-2.836430E-003	-6.899510E-002	-1.000866E+000
639	8	-2.113874E-003	-2.775345E-003	-7.459076E-002	-9.793103E-001
639	9	-1.955319E-003	-2.766854E-003	-6.899510E-002	-9.763119E-001
640	1	-9.101163E-005	-1.582124E-005	-3.211374E-001	-5.582658E-001

640	2	-5.905185E-005	-1.343258E-005	-2.883708E-001	-4.739688E-001
640	3	-1.865709E-004	-3.913926E-005	-2.883719E-001	-7.652510E-001
640	4	-9.101036E-005	-2.496001E-005	-3.211316E-001	-8.807254E-001
640	5	-7.421908E-005	-1.456689E-005	-2.618914E-001	-5.139742E-001
640	6	-5.905182E-005	-1.755989E-005	-2.883708E-001	-6.196203E-001
640	7	-7.421908E-005	-2.324059E-005	-2.618914E-001	-8.209626E-001
640	8	-9.100996E-005	-2.039040E-005	-3.211406E-001	-7.194931E-001
640	9	-7.421908E-005	-1.898324E-005	-2.618914E-001	-6.670166E-001
641	1	-9.650888E-005	-1.234588E-005	-3.405259E-001	-4.356335E-001
641	2	-1.124756E-004	-1.412184E-005	-3.968824E-001	-4.982735E-001
641	3	-1.124765E-004	-1.110491E-005	-3.968849E-001	-3.918554E-001
641	4	-9.650508E-005	-8.893542E-006	-3.405321E-001	-3.138241E-001
641	5	-1.050284E-004	-1.329324E-005	-3.706059E-001	-4.690689E-001
641	6	-1.124744E-004	-1.261318E-005	-3.968774E-001	-4.450654E-001
641	7	-1.050284E-004	-1.007383E-005	-3.706059E-001	-3.554714E-001
641	8	-9.650676E-005	-1.061998E-005	-3.405252E-001	-3.747344E-001
641	9	-1.050284E-004	-1.168361E-005	-3.706059E-001	-4.122704E-001
642	1	-9.300920E-005	-5.063848E-006	-3.281781E-001	-1.786617E-001
642	2	-1.053183E-004	-7.302563E-006	-3.716312E-001	-2.576848E-001
642	3	-1.053189E-004	-5.872464E-006	-3.716277E-001	-2.072123E-001
642	4	-9.300658E-005	-3.292040E-006	-3.281787E-001	-1.161788E-001
642	5	-9.981747E-005	-6.301660E-006	-3.522135E-001	-2.223601E-001
642	6	-1.053194E-004	-6.587504E-006	-3.716324E-001	-2.324552E-001
642	7	-9.981747E-005	-4.720083E-006	-3.522135E-001	-1.665306E-001
642	8	-9.300789E-005	-4.177110E-006	-3.281823E-001	-1.474126E-001
642	9	-9.981747E-005	-5.510602E-006	-3.522135E-001	-1.944436E-001
643	1	-1.808690E-003	-2.968926E-003	-6.881832E-002	-9.983625E-001
643	2	-1.582267E-003	-2.983152E-003	-5.146743E-002	-9.946361E-001
643	3	-1.458675E-003	-2.944700E-003	-5.147107E-002	-1.039058E+000
643	4	-1.723629E-003	-2.962475E-003	-6.881779E-002	-1.045336E+000
643	5	-1.651816E-003	-2.938570E-003	-5.601126E-002	-9.964408E-001
643	6	-1.458657E-003	-2.881746E-003	-5.147068E-002	-1.016842E+000
643	7	-1.587377E-003	-2.953365E-003	-5.601124E-002	-1.042123E+000
643	8	-1.723632E-003	-2.895935E-003	-6.881805E-002	-1.021852E+000
643	9	-1.587422E-003	-2.888637E-003	-5.601099E-002	-1.019282E+000
644	1	-9.661527E-005	-9.146960E-006	-3.409154E-001	-3.227709E-001
644	2	-1.111134E-004	-1.129083E-005	-3.920750E-001	-3.983832E-001
644	3	-1.111128E-004	-9.074160E-006	-3.920749E-001	-3.201817E-001
644	4	-9.661869E-005	-6.534951E-006	-3.409209E-001	-2.305578E-001
644	5	-1.044596E-004	-1.030644E-005	-3.685933E-001	-3.636732E-001
644	6	-1.111147E-004	-1.018166E-005	-3.920783E-001	-3.592825E-001
644	7	-1.044616E-004	-7.988056E-006	-3.685907E-001	-2.798353E-001
644	8	-9.661529E-005	-7.840399E-006	-3.409150E-001	-2.766567E-001
644	9	-1.044589E-004	-9.107294E-006	-3.685939E-001	-3.213480E-001
645	1	-9.349031E-005	-1.597200E-006	-3.298816E-001	-5.636005E-002
645	2	-1.036675E-004	-4.144407E-006	-3.657911E-001	-1.462343E-001
645	3	-1.036024E-004	-1.793487E-006	-3.655727E-001	-6.327755E-002
645	4	-9.348415E-005	+7.375749E-007	-3.298618E-001	+2.598909E-002
645	5	-9.857591E-005	-2.869378E-006	-3.478289E-001	-1.012651E-001
645	6	-1.036364E-004	-2.965711E-006	-3.656843E-001	-1.046487E-001
645	7	-9.853839E-005	-5.278116E-007	-3.477001E-001	-1.861292E-002
645	8	-9.348544E-005	-4.259158E-007	-3.298753E-001	-1.506286E-002
645	9	-9.855648E-005	-1.695372E-006	-3.477787E-001	-5.981966E-002
646	1	-5.199479E-005	-2.023327E-005	-1.834674E-001	-7.139542E-001
646	2	-1.399619E-004	-7.788542E-005	-1.195834E-001	-6.654602E-001
646	3	-3.389124E-003	-2.421924E-003	-1.195861E-001	-8.545843E-001
646	4	-1.241625E-003	-6.229771E-004	-1.834699E-001	-9.205275E-001
646	5	-4.254344E-005	-1.951594E-005	-1.501184E-001	-6.886359E-001
646	6	-3.489179E-003	-2.217501E-003	-1.195847E-001	-7.600188E-001
646	7	-4.492388E-003	-2.651741E-003	-1.501183E-001	-8.861111E-001

646	8	-5.199351E-005	-2.316042E-005	-1.834698E-001	-8.172486E-001
646	9	-7.533989E-005	-3.951508E-005	-1.501201E-001	-7.873691E-001
647	1	-1.372886E-003	-2.952361E-003	-4.720752E-002	-1.015255E+000
647	2	-8.897717E-004	-2.921453E-003	-2.792918E-002	-1.007594E+000
647	3	-7.914922E-004	-3.132476E-003	-2.792799E-002	-1.105317E+000
647	4	-1.338084E-003	-3.169338E-003	-4.721118E-002	-1.118329E+000
647	5	-1.083460E-003	-2.936637E-003	-3.731328E-002	-1.011325E+000
647	6	-7.914784E-004	-2.994023E-003	-2.792793E-002	-1.056463E+000
647	7	-1.057450E-003	-3.150385E-003	-3.731328E-002	-1.111649E+000
647	8	-1.337871E-003	-3.023273E-003	-4.720849E-002	-1.066791E+000
647	9	-1.057458E-003	-3.008251E-003	-3.731328E-002	-1.061490E+000
648	1	-1.858827E-004	-1.834295E-005	-3.736212E-001	-6.472431E-001
648	2	-5.435614E-005	-1.257323E-005	-1.918010E-001	-4.436532E-001
648	3	-6.640964E-005	-2.947615E-005	-1.918000E-001	-8.513243E-001
648	4	-1.858842E-004	-3.133194E-005	-3.736242E-001	-1.105579E+000
648	5	-7.861354E-005	-1.528910E-005	-2.773913E-001	-5.394916E-001
648	6	-5.435653E-005	-1.834995E-005	-1.917960E-001	-6.474984E-001
648	7	-7.861179E-005	-2.751844E-005	-2.773911E-001	-9.710891E-001
648	8	-1.858844E-004	-2.483726E-005	-3.736258E-001	-8.764863E-001
648	9	-7.861174E-005	-2.140377E-005	-2.773864E-001	-7.552448E-001
649	1	-6.489732E-004	-2.960179E-003	-2.235734E-002	-1.019751E+000
649	2	-9.697181E-005	-2.968907E-003	-3.306305E-003	-1.012140E+000
649	3	-9.532498E-005	-3.218440E-003	-3.306093E-003	-1.116222E+000
649	4	-6.335863E-004	-3.199715E-003	-2.235457E-002	-1.129030E+000
649	5	-3.677356E-004	-2.964716E-003	-1.260154E-002	-1.015842E+000
649	6	-9.618859E-005	-3.055922E-003	-3.307244E-003	-1.064181E+000
649	7	-3.571195E-004	-3.181087E-003	-1.259982E-002	-1.122477E+000
649	8	-6.335824E-004	-3.044829E-003	-2.235500E-002	-1.074389E+000
649	9	-3.571411E-004	-3.030002E-003	-1.260113E-002	-1.069163E+000
650	1	-9.802078E-005	-3.758982E-006	-3.458922E-001	-1.326548E-001
650	2	-1.146884E-004	-7.383283E-006	-4.046849E-001	-2.605329E-001
650	3	-1.146888E-004	-5.448616E-006	-4.046856E-001	-1.922689E-001
650	4	-9.802469E-005	-1.371461E-006	-3.458844E-001	-4.845012E-002
650	5	-1.072271E-004	-5.760685E-006	-3.703648E-001	-2.032744E-001
650	6	-1.146865E-004	-6.415770E-006	-4.046866E-001	-2.263899E-001
650	7	-1.072271E-004	-3.623081E-006	-3.703648E-001	-1.278680E-001
650	8	-9.802611E-005	-2.565804E-006	-3.458883E-001	-9.056872E-002
650	9	-1.072271E-004	-4.692437E-006	-3.703648E-001	-1.655777E-001
651	1	-3.717054E-002	-3.820767E-004	-1.311634E-001	-1.340227E-002
651	2	-3.718769E-002	-3.820529E-004	-1.312252E-001	-1.340232E-002
651	3	-3.718777E-002	-3.788839E-004	-1.312255E-001	-1.336985E-002
651	4	-3.717018E-002	-3.789223E-004	-1.311604E-001	-1.337089E-002
651	5	-3.717896E-002	-3.820448E-004	-1.311951E-001	-1.340839E-002
651	6	-3.718777E-002	-3.804514E-004	-1.312253E-001	-1.342489E-002
651	7	-3.717896E-002	-3.788028E-004	-1.311951E-001	-1.337837E-002
651	8	-3.717041E-002	-3.804789E-004	-1.311635E-001	-1.342473E-002
651	9	-3.717896E-002	-3.804786E-004	-1.311951E-001	-1.342672E-002
652	1	-3.711417E-002	-1.139840E-003	-1.309670E-001	-4.822826E-002
652	2	-3.716888E-002	-1.139838E-003	-1.311312E-001	-4.822868E-002
652	3	-3.716888E-002	-1.131694E-003	-1.311283E-001	-3.993567E-002
652	4	-3.711475E-002	-1.131694E-003	-1.309686E-001	-3.993567E-002
652	5	-3.713826E-002	-1.139952E-003	-1.310488E-001	-4.822226E-002
652	6	-3.716118E-002	-1.135706E-003	-1.311296E-001	-4.807874E-002
652	7	-3.713736E-002	-1.131694E-003	-1.310488E-001	-3.993567E-002
652	8	-3.711518E-002	-1.135706E-003	-1.309678E-001	-4.807874E-002
652	9	-3.713788E-002	-1.135706E-003	-1.310485E-001	-4.807874E-002
653	1	-3.702705E-002	-1.882584E-003	-1.306560E-001	-6.642643E-002
653	2	-3.709747E-002	-1.882587E-003	-1.309056E-001	-6.642646E-002
653	3	-3.709766E-002	-1.869984E-003	-1.309057E-001	-6.598772E-002
653	4	-3.702710E-002	-1.869984E-003	-1.306568E-001	-6.598772E-002

653	5	-3.706231E-002	-1.882587E-003	-1.307811E-001	-6.642764E-002
653	6	-3.709739E-002	-1.876244E-003	-1.309068E-001	-6.620583E-002
653	7	-3.706164E-002	-1.869984E-003	-1.307810E-001	-6.598772E-002
653	8	-3.702668E-002	-1.876244E-003	-1.306548E-001	-6.620583E-002
653	9	-3.706193E-002	-1.876244E-003	-1.307806E-001	-6.620583E-002
654	1	-3.691632E-002	-2.599730E-003	-1.302702E-001	-9.173688E-002
654	2	-3.700364E-002	-2.599709E-003	-1.305759E-001	-9.173559E-002
654	3	-3.700364E-002	-2.584426E-003	-1.305744E-001	-9.119781E-002
654	4	-3.691673E-002	-2.584396E-003	-1.302686E-001	-9.119634E-002
654	5	-3.695982E-002	-2.599766E-003	-1.304214E-001	-9.173854E-002
654	6	-3.700364E-002	-2.592098E-003	-1.305743E-001	-9.146661E-002
654	7	-3.695983E-002	-2.584523E-003	-1.304209E-001	-9.119779E-002
654	8	-3.691685E-002	-2.592106E-003	-1.302678E-001	-9.146801E-002
654	9	-3.696042E-002	-2.592085E-003	-1.304213E-001	-9.146646E-002
655	1	-3.679999E-002	-3.282889E-003	-1.298578E-001	-1.158445E-001
655	2	-3.689078E-002	-3.282892E-003	-1.301763E-001	-1.158444E-001
655	3	-3.689047E-002	-3.266983E-003	-1.301771E-001	-1.152833E-001
655	4	-3.679975E-002	-3.266983E-003	-1.298575E-001	-1.152833E-001
655	5	-3.684522E-002	-3.282899E-003	-1.300176E-001	-1.158449E-001
655	6	-3.689030E-002	-3.274915E-003	-1.301766E-001	-1.155637E-001
655	7	-3.684521E-002	-3.266983E-003	-1.300171E-001	-1.152833E-001
655	8	-3.679987E-002	-3.274915E-003	-1.298560E-001	-1.155637E-001
655	9	-3.684533E-002	-3.274915E-003	-1.300175E-001	-1.155637E-001
656	1	-3.669275E-002	-3.923944E-003	-1.294746E-001	-1.384648E-001
656	2	-3.677476E-002	-3.923979E-003	-1.297661E-001	-1.384652E-001
656	3	-3.677459E-002	-3.909328E-003	-1.297664E-001	-1.379488E-001
656	4	-3.669164E-002	-3.909374E-003	-1.294746E-001	-1.379519E-001
656	5	-3.673340E-002	-3.924062E-003	-1.296196E-001	-1.384669E-001
656	6	-3.677452E-002	-3.916692E-003	-1.297664E-001	-1.382083E-001
656	7	-3.673340E-002	-3.909354E-003	-1.296196E-001	-1.379581E-001
656	8	-3.669139E-002	-3.916652E-003	-1.294749E-001	-1.382082E-001
656	9	-3.673340E-002	-3.916688E-003	-1.296196E-001	-1.382091E-001
657	1	-3.668088E-002	-4.515960E-003	-1.291802E-001	-1.593540E-001
657	2	-3.667088E-002	-4.515960E-003	-1.294005E-001	-1.593540E-001
657	3	-3.667092E-002	-4.504963E-003	-1.294003E-001	-1.589688E-001
657	4	-3.668875E-002	-4.504977E-003	-1.291807E-001	-1.589673E-001
657	5	-3.663945E-002	-4.515960E-003	-1.292910E-001	-1.593540E-001
657	6	-3.667087E-002	-4.510484E-003	-1.293998E-001	-1.591615E-001
657	7	-3.663945E-002	-4.504940E-003	-1.292910E-001	-1.589661E-001
657	8	-3.668854E-002	-4.510484E-003	-1.291805E-001	-1.591615E-001
657	9	-3.663945E-002	-4.510484E-003	-1.292910E-001	-1.591615E-001
658	1	-3.656118E-002	-5.053414E-003	-1.290155E-001	-1.783182E-001
658	2	-3.659461E-002	-5.053378E-003	-1.291307E-001	-1.783194E-001
658	3	-3.659451E-002	-5.047593E-003	-1.291324E-001	-1.781160E-001
658	4	-3.656186E-002	-5.047528E-003	-1.290144E-001	-1.781124E-001
658	5	-3.657806E-002	-5.053398E-003	-1.290721E-001	-1.783192E-001
658	6	-3.659442E-002	-5.050440E-003	-1.291307E-001	-1.782175E-001
658	7	-3.657806E-002	-5.047614E-003	-1.290721E-001	-1.781155E-001
658	8	-3.656128E-002	-5.050432E-003	-1.290159E-001	-1.782166E-001
658	9	-3.657806E-002	-5.050432E-003	-1.290721E-001	-1.782144E-001
659	1	-3.655791E-002	-5.532051E-003	-1.290008E-001	-1.952091E-001
659	2	-3.655669E-002	-5.532125E-003	-1.289977E-001	-1.952128E-001
659	3	-3.655641E-002	-5.532111E-003	-1.289977E-001	-1.952130E-001
659	4	-3.655723E-002	-5.532146E-003	-1.290002E-001	-1.952115E-001
659	5	-3.655701E-002	-5.532087E-003	-1.289984E-001	-1.952079E-001
659	6	-3.655679E-002	-5.532075E-003	-1.289977E-001	-1.952105E-001
659	7	-3.655669E-002	-5.532087E-003	-1.289985E-001	-1.952104E-001
659	8	-3.655685E-002	-5.532075E-003	-1.289980E-001	-1.952105E-001
659	9	-3.655721E-002	-5.532075E-003	-1.289978E-001	-1.952105E-001
660	1	-3.658864E-002	-5.950133E-003	-1.291102E-001	-2.099619E-001

660	2	-3.656085E-002	-5.950124E-003	-1.290151E-001	-2.099655E-001
660	3	-3.656103E-002	-5.955097E-003	-1.290121E-001	-2.101353E-001
660	4	-3.658909E-002	-5.954989E-003	-1.291128E-001	-2.101338E-001
660	5	-3.657509E-002	-5.950029E-003	-1.290637E-001	-2.099606E-001
660	6	-3.656035E-002	-5.952576E-003	-1.290128E-001	-2.100499E-001
660	7	-3.657513E-002	-5.955073E-003	-1.290634E-001	-2.101365E-001
660	8	-3.658900E-002	-5.952576E-003	-1.291125E-001	-2.100499E-001
660	9	-3.657525E-002	-5.952576E-003	-1.290632E-001	-2.100499E-001
661	1	-3.663765E-002	-6.310171E-003	-1.292827E-001	-2.226670E-001
661	2	-3.659893E-002	-6.310896E-003	-1.291466E-001	-2.226656E-001
661	3	-3.659869E-002	-6.316905E-003	-1.291469E-001	-2.229020E-001
661	4	-3.663761E-002	-6.316794E-003	-1.292801E-001	-2.229024E-001
661	5	-3.661769E-002	-6.310178E-003	-1.292135E-001	-2.226682E-001
661	6	-3.659850E-002	-6.313493E-003	-1.291467E-001	-2.227870E-001
661	7	-3.661769E-002	-6.316789E-003	-1.292139E-001	-2.229022E-001
661	8	-3.663658E-002	-6.313548E-003	-1.292798E-001	-2.227856E-001
661	9	-3.661793E-002	-6.313512E-003	-1.292141E-001	-2.227863E-001
662	1	-3.667187E-002	-6.621614E-003	-1.294075E-001	-2.336573E-001
662	2	-3.664612E-002	-6.621656E-003	-1.293136E-001	-2.336566E-001
662	3	-3.664630E-002	-6.626154E-003	-1.293140E-001	-2.338188E-001
662	4	-3.667310E-002	-6.626231E-003	-1.294091E-001	-2.338205E-001
662	5	-3.665949E-002	-6.621598E-003	-1.293616E-001	-2.336589E-001
662	6	-3.664685E-002	-6.623937E-003	-1.293155E-001	-2.337375E-001
662	7	-3.665949E-002	-6.626307E-003	-1.293616E-001	-2.338210E-001
662	8	-3.667310E-002	-6.623937E-003	-1.294067E-001	-2.337375E-001
662	9	-3.665949E-002	-6.623937E-003	-1.293616E-001	-2.337375E-001
663	1	-3.665403E-002	-6.908664E-003	-1.293410E-001	-2.437844E-001
663	2	-3.667360E-002	-6.908641E-003	-1.294101E-001	-2.437837E-001
663	3	-3.667406E-002	-6.905103E-003	-1.294107E-001	-2.436595E-001
663	4	-3.665341E-002	-6.905118E-003	-1.293418E-001	-2.436610E-001
663	5	-3.666393E-002	-6.908701E-003	-1.293758E-001	-2.437856E-001
663	6	-3.667415E-002	-6.906840E-003	-1.294110E-001	-2.437217E-001
663	7	-3.666383E-002	-6.905170E-003	-1.293750E-001	-2.436616E-001
663	8	-3.665430E-002	-6.906840E-003	-1.293426E-001	-2.437217E-001
663	9	-3.666354E-002	-6.906840E-003	-1.293750E-001	-2.437217E-001
664	1	-3.656402E-002	-7.289917E-003	-1.290295E-001	-2.544197E-001
664	2	-3.664068E-002	-7.289984E-003	-1.292931E-001	-2.544191E-001
664	3	-3.664048E-002	-7.196632E-003	-1.292932E-001	-2.539587E-001
664	4	-3.656535E-002	-7.196765E-003	-1.290297E-001	-2.539522E-001
664	5	-3.660310E-002	-7.289964E-003	-1.291606E-001	-2.544171E-001
664	6	-3.664016E-002	-7.203351E-003	-1.292931E-001	-2.541859E-001
664	7	-3.660301E-002	-7.196698E-003	-1.291606E-001	-2.539529E-001
664	8	-3.656556E-002	-7.203351E-003	-1.290287E-001	-2.541859E-001
664	9	-3.660270E-002	-7.203351E-003	-1.291614E-001	-2.541859E-001
665	1	-3.648718E-002	-7.579667E-003	-1.284713E-001	-2.674616E-001
665	2	-3.653551E-002	-7.579575E-003	-1.289224E-001	-2.674627E-001
665	3	-3.653568E-002	-7.557107E-003	-1.289251E-001	-2.666652E-001
665	4	-3.640761E-002	-7.557058E-003	-1.284716E-001	-2.666660E-001
665	5	-3.647161E-002	-7.579627E-003	-1.286972E-001	-2.674645E-001
665	6	-3.653476E-002	-7.568270E-003	-1.289239E-001	-2.670636E-001
665	7	-3.647161E-002	-7.556976E-003	-1.286972E-001	-2.666623E-001
665	8	-3.640739E-002	-7.568328E-003	-1.284700E-001	-2.670653E-001
665	9	-3.647161E-002	-7.568291E-003	-1.286972E-001	-2.670642E-001
666	1	-3.710388E-002	-8.881204E-003	-1.312186E-001	-2.823418E-001
666	2	-3.648892E-002	-8.881253E-003	-1.287608E-001	-2.823386E-001
666	3	-3.648945E-002	-8.123113E-003	-1.287607E-001	-2.866402E-001
666	4	-3.710388E-002	-8.123104E-003	-1.312120E-001	-2.866399E-001
666	5	-3.683611E-002	-8.881306E-003	-1.299862E-001	-2.823402E-001
666	6	-3.648898E-002	-8.862132E-003	-1.287608E-001	-2.844895E-001
666	7	-3.683704E-002	-8.123049E-003	-1.299857E-001	-2.866420E-001

666	8	-3.710380E-002	-8.062132E-003	-1.312106E-001	-2.844895E-001
666	9	-3.683645E-002	-8.062132E-003	-1.299861E-001	-2.844895E-001
667	1	-2.132302E-004	-1.185675E-002	-7.524025E-002	-4.183894E-001
667	2	-3.525726E-002	-1.185675E-002	-1.244130E-001	-4.183913E-001
667	3	-3.525711E-002	-9.410636E-003	-1.244129E-001	-3.320720E-001
667	4	-2.132269E-004	-9.410609E-005	-7.524275E-002	-3.320718E-001
667	5	-2.884610E-002	-1.208972E-002	-9.982827E-002	-4.183886E-001
667	6	-3.525704E-002	-1.063360E-002	-1.244134E-001	-3.752306E-001
667	7	-2.829039E-002	-9.410693E-003	-9.982827E-002	-3.320738E-001
667	8	-2.132267E-004	-1.063363E-004	-7.524175E-002	-3.752306E-001
667	9	-2.829039E-002	-1.063368E-002	-9.982827E-002	-3.752306E-001
668	1	-1.111492E-004	-1.727296E-003	-8.291171E-003	-1.287960E+000
668	2	-1.714509E-004	-3.649679E-004	-6.050040E-002	-1.287864E+000
668	3	-1.714499E-004	-3.389661E-004	-6.050042E-002	-1.196111E+000
668	4	-8.981512E-004	-1.284526E-002	-8.288803E-003	-1.196125E+000
668	5	-9.750552E-005	-3.649815E-004	-3.448637E-002	-1.287913E+000
668	6	-1.714540E-004	-3.519671E-004	-6.049957E-002	-1.241987E+000
668	7	-9.750552E-005	-3.389675E-004	-3.448637E-002	-1.196117E+000
668	8	-1.923595E-003	-2.881912E-002	-8.288803E-003	-1.242043E+000
668	9	-9.750552E-005	-3.519746E-004	-3.448637E-002	-1.242015E+000
669	1	-3.713490E-004	-2.939208E-004	-1.097271E-001	-8.685011E-001
669	2	-2.981688E-003	-2.484383E-003	-1.006403E-001	-8.616678E-001
669	3	-2.852044E-003	-2.527247E-003	-1.006349E-001	-8.917720E-001
669	4	-3.189643E-003	-2.553853E-003	-1.097222E-001	-9.011453E-001
669	5	-3.887262E-003	-2.543202E-003	-1.049983E-001	-8.649446E-001
669	6	-2.852126E-003	-2.484622E-003	-1.006414E-001	-8.767212E-001
669	7	-2.975592E-003	-2.540062E-003	-1.049989E-001	-8.962735E-001
669	8	-3.248030E-003	-2.619286E-003	-1.097251E-001	-8.848214E-001
669	9	-2.975631E-003	-2.495626E-003	-1.049959E-001	-8.806063E-001
670	1	-1.022779E-004	-1.116345E-005	-3.608952E-001	-3.939134E-001
670	2	-4.843006E-005	-2.098242E-006	-1.426623E-001	-7.403339E-002
670	3	-4.842939E-005	-1.374479E-005	-1.426643E-001	-4.849868E-001
670	4	-1.022770E-004	-2.456715E-005	-3.608078E-001	-8.668767E-001
670	5	-6.918203E-005	-6.312584E-006	-2.441195E-001	-2.227535E-001
670	6	-4.843086E-005	-7.921377E-006	-1.426640E-001	-2.794983E-001
670	7	-6.918203E-005	-1.877588E-005	-2.441195E-001	-6.625209E-001
670	8	-1.022750E-004	-1.786538E-005	-3.608003E-001	-6.303871E-001
670	9	-6.918203E-005	-1.254445E-005	-2.441195E-001	-4.426302E-001
671	1	-1.028229E-004	-7.847207E-006	-3.628268E-001	-2.769812E-001
671	2	-8.864114E-005	-3.785115E-006	-2.845484E-001	-1.335572E-001
671	3	-8.864044E-005	-7.177690E-006	-2.845495E-001	-2.532730E-001
671	4	-1.028215E-004	-1.184461E-005	-3.628123E-001	-4.179603E-001
671	5	-9.882362E-005	-5.650020E-006	-3.284775E-001	-1.993723E-001
671	6	-8.863937E-005	-5.481360E-006	-2.845380E-001	-1.934001E-001
671	7	-9.882328E-005	-9.319636E-006	-3.284726E-001	-3.288618E-001
671	8	-1.028231E-004	-9.846788E-006	-3.628195E-001	-3.474580E-001
671	9	-9.882315E-005	-7.485246E-006	-3.284758E-001	-2.641257E-001
672	1	-2.826256E-003	-2.739680E-003	-9.972362E-002	-9.667292E-001
672	2	-2.878022E-003	-2.743636E-003	-1.015818E-001	-9.681125E-001
672	3	-2.878924E-003	-2.724444E-003	-1.015831E-001	-9.613451E-001
672	4	-2.826268E-003	-2.719041E-003	-9.972703E-002	-9.594353E-001
672	5	-2.853468E-003	-2.741750E-003	-1.006894E-001	-9.674371E-001
672	6	-2.878077E-003	-2.734047E-003	-1.015838E-001	-9.647286E-001
672	7	-2.853468E-003	-2.721849E-003	-1.006894E-001	-9.604333E-001
672	8	-2.826227E-003	-2.729373E-003	-9.972954E-002	-9.630776E-001
672	9	-2.853468E-003	-2.731789E-003	-1.006894E-001	-9.639388E-001
673	1	-4.614406E-005	-2.193367E-005	-1.628278E-001	-7.739526E-001
673	2	-2.460278E-003	-1.424267E-003	-1.273339E-001	-7.347324E-001
673	3	-3.680590E-003	-2.342088E-003	-1.273347E-001	-8.264179E-001
673	4	-1.884737E-003	-9.703237E-004	-1.628276E-001	-8.754368E-001

673	5	-4.086172E-005	-2.134997E-005	-1.441807E-001	-7.533553E-001
673	6	-3.680634E-003	-2.212184E-003	-1.273342E-001	-7.805886E-001
673	7	-4.086164E-003	-2.407984E-003	-1.441807E-001	-8.496792E-001
673	8	-4.614624E-005	-2.337170E-005	-1.628293E-001	-8.246920E-001
673	9	-1.649166E-003	-9.167995E-004	-1.441807E-001	-8.015107E-001
674	1	-1.015705E-004	-6.561638E-007	-3.583960E-001	-2.316085E-002
674	2	-1.102853E-004	-2.835114E-006	-3.891512E-001	-1.000305E-001
674	3	-1.102298E-004	-8.293232E-007	-3.889491E-001	-2.926131E-002
674	4	-1.015645E-004	+1.334533E-006	-3.583792E-001	+4.712300E-002
674	5	-1.859242E-004	-1.744657E-006	-3.737657E-001	-6.156370E-002
674	6	-1.102568E-004	-1.828889E-006	-3.898488E-001	-6.454352E-002
674	7	-1.859220E-004	+2.532194E-007	-3.736536E-001	+8.934272E-003
674	8	-1.015658E-004	+3.425140E-007	-3.583884E-001	+1.207953E-002
674	9	-1.859098E-004	-7.428229E-007	-3.737068E-001	-2.621864E-002
675	1	-1.017419E-004	-2.722601E-006	-3.590111E-001	-9.600640E-002
675	2	-7.865588E-005	+3.019334E-006	-2.775398E-001	+1.065560E-001
675	3	-7.881959E-005	-2.310888E-006	-2.781158E-001	-8.154479E-002
675	4	-1.019065E-004	-8.078881E-006	-3.595851E-001	-2.850743E-001
675	5	-9.017047E-005	+1.556412E-007	-3.181721E-001	+5.496205E-003
675	6	-7.873640E-005	+3.546685E-007	-2.778316E-001	+1.252422E-002
675	7	-9.033523E-005	-5.187222E-006	-3.187609E-001	-1.830550E-001
675	8	-1.018272E-004	-5.400736E-006	-3.593019E-001	-1.905690E-001
675	9	-9.025458E-005	-2.516355E-006	-3.184634E-001	-8.877780E-002
676	1	-2.844071E-003	-2.775717E-003	-1.003545E-001	-9.794384E-001
676	2	-2.577884E-003	-2.755736E-003	-9.956688E-002	-9.723708E-001
676	3	-2.577893E-003	-2.863059E-003	-9.956464E-002	-1.010247E+000
676	4	-2.844106E-003	-2.890492E-003	-1.003573E-001	-1.019943E+000
676	5	-2.706637E-003	-2.765425E-003	-9.550509E-002	-9.757904E-001
676	6	-2.577879E-003	-2.889375E-003	-9.956553E-002	-9.913080E-001
676	7	-2.706613E-003	-2.876318E-003	-9.550584E-002	-1.014935E+000
676	8	-2.844016E-003	-2.833111E-003	-1.003536E-001	-9.996870E-001
676	9	-2.706627E-003	-2.820851E-003	-9.550656E-002	-9.953626E-001
677	1	-3.340329E-005	-2.264398E-005	-1.181421E-001	-7.990127E-001
677	2	-1.000621E-003	-6.156939E-004	-1.335684E-001	-8.217872E-001
677	3	-3.785049E-003	-2.230737E-003	-1.335601E-001	-7.871383E-001
677	4	-3.348303E-005	-2.154529E-005	-1.181491E-001	-7.682302E-001
677	5	-3.578047E-005	-2.298465E-005	-1.262804E-001	-8.118169E-001
677	6	-3.784829E-003	-2.279891E-003	-1.335517E-001	-8.044707E-001
677	7	-3.698563E-003	-2.268237E-003	-1.262797E-001	-7.744580E-001
677	8	-3.348316E-005	-2.289440E-005	-1.181468E-001	-7.796368E-001
678	1	-1.663412E-004	-1.844213E-004	-1.262791E-001	-7.927416E-001
678	2	-1.039789E-004	-1.454489E-005	-3.668758E-001	-5.132304E-001
678	3	-3.280345E-005	+1.807323E-006	-1.157491E-001	+3.554904E-002
678	4	-3.280435E-005	-9.833868E-006	-1.157556E-001	-3.478008E-001
678	5	-1.039693E-004	-2.740977E-005	-3.668768E-001	-9.671538E-001
678	6	-5.535306E-005	-6.184898E-006	-2.306838E-001	-2.154211E-001
678	7	-3.280355E-005	-4.413206E-006	-1.157463E-001	-1.557261E-001
678	8	-6.535320E-005	-1.787250E-005	-2.305991E-001	-6.386238E-001
678	9	-1.039744E-004	-2.897713E-005	-3.668672E-001	-7.481848E-001
678	9	-6.535157E-005	-1.198648E-005	-2.306087E-001	-4.230311E-001
679	1	-3.693842E-003	-2.648045E-003	-1.233568E-001	-8.843249E-001
679	2	-3.685577E-003	-2.518378E-003	-1.272221E-001	-8.886266E-001
679	3	-3.685451E-003	-2.485948E-003	-1.272237E-001	-8.771855E-001
679	4	-3.496017E-003	-2.470775E-003	-1.233596E-001	-8.718349E-001
679	5	-3.553135E-003	-2.512512E-003	-1.253761E-001	-8.865632E-001
679	6	-3.685467E-003	-2.502167E-003	-1.272231E-001	-8.829104E-001
679	7	-3.553195E-003	-2.478677E-003	-1.253769E-001	-8.746246E-001
679	8	-3.496058E-003	-2.489502E-003	-1.233586E-001	-8.780885E-001
679	9	-3.553218E-003	-2.495633E-003	-1.253784E-001	-8.806874E-001
680	1	-7.295488E-005	-2.218686E-005	-2.574266E-001	-7.828721E-001

680	2	-4.363844E-005	-1.681626E-005	-1.539780E-001	-5.933766E-001
680	3	-4.399623E-003	-2.251835E-003	-1.539810E-001	-7.880843E-001
680	4	-7.295344E-005	-2.852285E-005	-2.574165E-001	-1.006442E+000
680	5	-5.728492E-005	-1.931632E-005	-2.021393E-001	-6.815993E-001
680	6	-1.325862E-004	-5.948040E-005	-1.539724E-001	-6.907339E-001
680	7	-5.728492E-005	-2.521544E-005	-2.021393E-001	-8.897270E-001
680	8	-7.295340E-005	-2.535412E-005	-2.574178E-001	-8.946438E-001
680	9	-5.728492E-005	-2.226581E-005	-2.021393E-001	-7.856586E-001
681	1	-2.504838E-003	-2.912425E-003	-8.830255E-002	-1.027676E+000
681	2	-2.265389E-003	-2.894245E-003	-7.993825E-002	-1.021263E+000
681	3	-2.265417E-003	-2.999377E-003	-7.993731E-002	-1.058353E+000
681	4	-2.504756E-003	-3.024076E-003	-8.030210E-002	-1.067085E+000
681	5	-2.381498E-003	-2.983075E-003	-8.403210E-002	-1.024371E+000
681	6	-2.265479E-003	-2.946845E-003	-7.993843E-002	-1.039817E+000
681	7	-2.381498E-003	-3.011380E-003	-8.403210E-002	-1.062578E+000
681	8	-2.504725E-003	-2.968279E-003	-8.830192E-002	-1.047374E+000
681	9	-2.381498E-003	-2.957221E-003	-8.403210E-002	-1.043483E+000
682	1	-3.602582E-003	-2.625864E-003	-1.271101E-001	-9.265495E-001
682	2	-3.493565E-003	-2.613748E-003	-1.232709E-001	-9.222807E-001
682	3	-3.493369E-003	-2.649810E-003	-1.232693E-001	-9.350866E-001
682	4	-3.602561E-003	-2.664963E-003	-1.271167E-001	-9.403507E-001
682	5	-3.545704E-003	-2.619555E-003	-1.251159E-001	-9.243226E-001
682	6	-3.493578E-003	-2.631752E-003	-1.232684E-001	-9.286399E-001
682	7	-3.545803E-003	-2.657102E-003	-1.251141E-001	-9.375759E-001
682	8	-3.602678E-003	-2.645418E-003	-1.271151E-001	-9.334541E-001
682	9	-3.545729E-003	-2.638317E-003	-1.251171E-001	-9.309446E-001
683	1	-2.200668E-003	-3.031023E-003	-7.765494E-002	-1.069516E+000
683	2	-1.994085E-003	-3.015492E-003	-7.036450E-002	-1.064033E+000
683	3	-1.994102E-003	-3.113532E-003	-7.036381E-002	-1.098643E+000
683	4	-2.200713E-003	-3.134052E-003	-7.765406E-002	-1.106167E+000
683	5	-2.094402E-003	-3.023008E-003	-7.390356E-002	-1.066693E+000
683	6	-1.994053E-003	-3.064502E-003	-7.036099E-002	-1.081329E+000
683	7	-2.094405E-003	-3.123876E-003	-7.390322E-002	-1.102296E+000
683	8	-2.200813E-003	-3.082925E-003	-7.765747E-002	-1.087837E+000
683	9	-2.094442E-003	-3.073446E-003	-7.390365E-002	-1.084493E+000
684	1	-4.019203E-003	-2.585320E-003	-1.364262E-001	-8.584096E-001
684	2	-4.021848E-003	-2.432773E-003	-1.419139E-001	-8.584347E-001
684	3	-4.021631E-003	-2.392748E-003	-1.419115E-001	-8.442916E-001
684	4	-3.866359E-003	-2.365696E-003	-1.364294E-001	-8.347502E-001
684	5	-3.947966E-003	-2.422819E-003	-1.393089E-001	-8.546236E-001
684	6	-4.021790E-003	-2.412776E-003	-1.419109E-001	-8.513712E-001
684	7	-3.947966E-003	-2.379919E-003	-1.393089E-001	-8.397791E-001
684	8	-3.866152E-003	-2.387893E-003	-1.364205E-001	-8.425940E-001
684	9	-3.947966E-003	-2.400961E-003	-1.393089E-001	-8.472804E-001
685	1	-1.063358E-004	-3.629104E-007	-3.752138E-001	-1.288689E-002
685	2	-8.249492E-005	+5.592263E-006	-2.910889E-001	+1.973365E-001
685	3	-8.249379E-005	+1.609658E-007	-2.910888E-001	+5.668074E-003
685	4	-1.063357E-004	-5.820768E-006	-3.752189E-001	-2.053767E-001
685	5	-9.438705E-005	+2.621062E-006	-3.330496E-001	+9.253051E-002
685	6	-8.249352E-005	+2.876855E-006	-2.910854E-001	+1.015859E-001
685	7	-9.438705E-005	-2.822978E-006	-3.330496E-001	-9.961288E-002
685	8	-1.063339E-004	-3.891923E-006	-3.752087E-001	-1.090960E-001
685	9	-9.438705E-005	-1.003745E-007	-3.330496E-001	-3.541020E-003
686	1	-1.027693E-004	-1.115795E-005	-3.626293E-001	-3.937221E-001
686	2	-4.037113E-005	+4.446224E-006	-1.424537E-001	+1.568885E-001
686	3	-4.081555E-005	-9.999340E-006	-1.448259E-001	-3.528501E-001
686	4	-1.032162E-004	-2.563814E-005	-3.642091E-001	-9.046840E-001
686	5	-7.153257E-005	-3.346332E-006	-2.524024E-001	-1.180791E-001
686	6	-4.059679E-005	-2.776771E-006	-1.432437E-001	-9.797458E-002
686	7	-7.197798E-005	-1.788892E-005	-2.539792E-001	-6.284197E-001

686	8	-1.029901E-004	-1.839828E-005	-3.634184E-001	-6.491969E-001
686	9	-7.175629E-005	-1.057816E-005	-2.531911E-001	-3.732365E-001
687	1	-7.295755E-005	-2.223203E-005	-2.574301E-001	-7.844838E-001
687	2	-5.096868E-005	-1.671456E-005	-1.798508E-001	-5.897862E-001
687	3	-5.126779E-003	-2.185527E-003	-1.809043E-001	-7.711816E-001
687	4	-7.312989E-005	-2.732413E-005	-2.580578E-001	-9.641427E-001
687	5	-6.198271E-005	-1.947864E-005	-2.187164E-001	-6.873156E-001
687	6	-6.245446E-005	-2.357000E-005	-1.803799E-001	-6.807253E-001
687	7	-6.221839E-005	-2.459385E-005	-2.195438E-001	-8.670236E-001
687	8	-7.304423E-005	-2.478483E-005	-2.577445E-001	-8.745469E-001
687	9	-6.210082E-005	-2.284366E-005	-2.191299E-001	-7.778274E-001
688	1	-1.871619E-004	-1.847402E-004	-1.420922E-001	-7.951486E-001
688	2	-4.196124E-003	-2.284311E-003	-1.480622E-001	-8.060311E-001
688	3	-4.196085E-003	-2.246453E-003	-1.480599E-001	-7.926736E-001
688	4	-4.026900E-003	-2.210878E-003	-1.420894E-001	-7.801201E-001
688	5	-4.116303E-003	-2.269745E-003	-1.452505E-001	-8.009066E-001
688	6	-4.195984E-003	-2.265371E-003	-1.480595E-001	-7.993570E-001
688	7	-4.116347E-003	-2.229674E-003	-1.452481E-001	-7.867642E-001
688	8	-4.082521E-003	-2.263114E-003	-1.420908E-001	-7.876582E-001
688	9	-4.116366E-003	-2.249710E-003	-1.452478E-001	-7.938322E-001
689	1	-2.002033E-003	-3.241089E-003	-7.864516E-002	-1.143634E+000
689	2	-2.236224E-003	-3.258731E-003	-7.890714E-002	-1.149864E+000
689	3	-2.236236E-003	-3.140027E-003	-7.890791E-002	-1.107983E+000
689	4	-2.002054E-003	-3.115845E-003	-7.864205E-002	-1.099454E+000
689	5	-2.122270E-003	-3.258171E-003	-7.886555E-002	-1.146844E+000
689	6	-2.236217E-003	-3.199359E-003	-7.890770E-002	-1.128922E+000
689	7	-2.122270E-003	-3.128275E-003	-7.886555E-002	-1.103832E+000
689	8	-2.002119E-003	-3.178452E-003	-7.864603E-002	-1.121542E+000
689	9	-2.122270E-003	-3.189182E-003	-7.886555E-002	-1.125333E+000
690	1	-2.662655E-005	-1.984253E-005	-9.394665E-002	-6.719422E-001
690	2	-4.045675E-003	-2.287366E-003	-1.427564E-001	-7.789033E-001
690	3	-4.045866E-003	-1.946118E-003	-1.427657E-001	-6.867123E-001
690	4	-2.662322E-005	-1.685236E-005	-9.395171E-002	-5.664288E-001
690	5	-4.154969E-005	-2.524090E-005	-1.199962E-001	-7.290151E-001
690	6	-4.045850E-003	-2.876764E-003	-1.427641E-001	-7.327983E-001
690	7	-3.480847E-003	-1.787119E-003	-1.199962E-001	-6.306114E-001
690	8	-2.662586E-005	-1.754783E-005	-9.394536E-002	-6.191916E-001
690	9	-3.574355E-003	-2.025018E-003	-1.199962E-001	-6.798242E-001
691	1	-3.454549E-003	-2.792137E-003	-1.218991E-001	-9.852337E-001
691	2	-3.299429E-003	-2.774976E-003	-1.164266E-001	-9.791660E-001
691	3	-3.299613E-003	-2.831482E-003	-1.164306E-001	-9.991136E-001
691	4	-3.454685E-003	-2.852973E-003	-1.219826E-001	-1.006682E+000
691	5	-3.374264E-003	-2.783244E-003	-1.190646E-001	-9.820982E-001
691	6	-3.299478E-003	-2.803248E-003	-1.164249E-001	-9.891389E-001
691	7	-3.374264E-003	-2.841784E-003	-1.190646E-001	-1.002761E+000
691	8	-3.454712E-003	-2.822557E-003	-1.219804E-001	-9.959629E-001
691	9	-3.374264E-003	-2.812546E-003	-1.190646E-001	-9.924267E-001
692	1	-4.043271E-003	-2.543169E-003	-1.426672E-001	-8.973845E-001
692	2	-4.051562E-003	-2.544387E-003	-1.429610E-001	-8.978149E-001
692	3	-4.051555E-003	-2.542000E-003	-1.429588E-001	-8.969661E-001
692	4	-4.043198E-003	-2.540583E-003	-1.426703E-001	-8.964636E-001
692	5	-4.047675E-003	-2.543829E-003	-1.428221E-001	-8.976116E-001
692	6	-4.051654E-003	-2.543188E-003	-1.429655E-001	-8.973889E-001
692	7	-4.047562E-003	-2.541302E-003	-1.428213E-001	-8.967187E-001
692	8	-4.043235E-003	-2.541891E-003	-1.426722E-001	-8.969170E-001
692	9	-4.047529E-003	-2.542588E-003	-1.428205E-001	-8.971617E-001
693	1	-1.541140E-003	-3.703982E-003	-5.437943E-002	-1.306952E+000
693	2	+3.343358E-003	-3.521590E-003	+1.121754E-001	-1.181563E+000
693	3	+3.179847E-005	-5.928132E-005	+1.121750E-001	-2.091782E+000
693	4	-1.541126E-003	-6.414947E-003	-5.437782E-002	-2.263562E+000

693	5	+8.775977E-004	-3.521786E-003	+3.096685E-002	-1.242696E+000
693	6	+3.179016E-005	-4.638332E-005	+1.121743E-001	-1.636681E+000
693	7	+7.497616E-004	-5.267472E-003	+3.096632E-002	-2.175528E+000
693	8	-1.541126E-003	-5.859402E-003	-5.437841E-002	-1.785250E+000
693	9	+9.225192E-004	-5.891633E-003	+3.096519E-002	-1.709124E+000
694	1	-3.584334E-002	-3.784901E-004	-1.264821E-001	-1.335321E-002
694	2	-3.585258E-002	-3.784574E-004	-1.265139E-001	-1.335321E-002
694	3	-3.585266E-002	-3.767378E-004	-1.265152E-001	-1.329412E-002
694	4	-3.584292E-002	-3.768678E-004	-1.264791E-001	-1.329680E-002
694	5	-3.584808E-002	-3.784541E-004	-1.264985E-001	-1.335328E-002
694	6	-3.585314E-002	-3.776382E-004	-1.265151E-001	-1.332599E-002
694	7	-3.584808E-002	-3.768847E-004	-1.264985E-001	-1.329677E-002
694	8	-3.584304E-002	-3.775938E-004	-1.264798E-001	-1.332467E-002
694	9	-3.584808E-002	-3.776495E-004	-1.264985E-001	-1.332545E-002
695	1	-3.581178E-002	-1.129915E-003	-1.263684E-001	-3.987236E-002
695	2	-3.583808E-002	-1.129784E-003	-1.264625E-001	-3.986882E-002
695	3	-3.583791E-002	-1.125157E-003	-1.264628E-001	-3.970578E-002
695	4	-3.581165E-002	-1.125201E-003	-1.263688E-001	-3.970230E-002
695	5	-3.582463E-002	-1.129810E-003	-1.264136E-001	-3.986746E-002
695	6	-3.583808E-002	-1.127508E-003	-1.264626E-001	-3.978644E-002
695	7	-3.582442E-002	-1.125183E-003	-1.264135E-001	-3.970185E-002
695	8	-3.581111E-002	-1.127508E-003	-1.263642E-001	-3.978768E-002
695	9	-3.582472E-002	-1.127548E-003	-1.264140E-001	-3.978654E-002
696	1	-3.576211E-002	-1.867180E-003	-1.261931E-001	-6.588760E-002
696	2	-3.580209E-002	-1.867161E-003	-1.263347E-001	-6.588879E-002
696	3	-3.580214E-002	-1.860256E-003	-1.263345E-001	-6.564251E-002
696	4	-3.576218E-002	-1.860233E-003	-1.261959E-001	-6.564370E-002
696	5	-3.578176E-002	-1.867097E-003	-1.262641E-001	-6.588486E-002
696	6	-3.580145E-002	-1.863668E-003	-1.263339E-001	-6.576417E-002
696	7	-3.578211E-002	-1.860173E-003	-1.262639E-001	-6.563988E-002
696	8	-3.576247E-002	-1.863668E-003	-1.261933E-001	-6.576417E-002
696	9	-3.578178E-002	-1.863668E-003	-1.262645E-001	-6.576417E-002
697	1	-3.578712E-002	-2.581135E-003	-1.260002E-001	-9.108122E-002
697	2	-3.574967E-002	-2.581113E-003	-1.261505E-001	-9.108239E-002
697	3	-3.575049E-002	-2.573564E-003	-1.261529E-001	-9.081505E-002
697	4	-3.570675E-002	-2.573601E-003	-1.259993E-001	-9.081241E-002
697	5	-3.572914E-002	-2.581049E-003	-1.260772E-001	-9.107847E-002
697	6	-3.575002E-002	-2.577351E-003	-1.261508E-001	-9.094714E-002
697	7	-3.572829E-002	-2.573482E-003	-1.260765E-001	-9.081241E-002
697	8	-3.570782E-002	-2.577351E-003	-1.259997E-001	-9.094714E-002
697	9	-3.572867E-002	-2.577351E-003	-1.260770E-001	-9.094714E-002
698	1	-3.565899E-002	-3.263745E-003	-1.258288E-001	-1.151675E-001
698	2	-3.569549E-002	-3.263733E-003	-1.259607E-001	-1.151687E-001
698	3	-3.569592E-002	-3.257280E-003	-1.259681E-001	-1.149416E-001
698	4	-3.565958E-002	-3.257316E-003	-1.258317E-001	-1.149428E-001
698	5	-3.567779E-002	-3.263667E-003	-1.258958E-001	-1.151647E-001
698	6	-3.569605E-002	-3.260529E-003	-1.259611E-001	-1.150554E-001
698	7	-3.567692E-002	-3.257197E-003	-1.258960E-001	-1.149390E-001
698	8	-3.565969E-002	-3.260529E-003	-1.258302E-001	-1.150554E-001
698	9	-3.567731E-002	-3.260529E-003	-1.258955E-001	-1.150554E-001
699	1	-3.563131E-002	-3.907119E-003	-1.257322E-001	-1.378682E-001
699	2	-3.565090E-002	-3.907046E-003	-1.258015E-001	-1.378675E-001
699	3	-3.565032E-002	-3.903535E-003	-1.258028E-001	-1.377436E-001
699	4	-3.563137E-002	-3.903471E-003	-1.257317E-001	-1.377412E-001
699	5	-3.564133E-002	-3.906988E-003	-1.257672E-001	-1.378667E-001
699	6	-3.565086E-002	-3.905274E-003	-1.258017E-001	-1.378054E-001
699	7	-3.564133E-002	-3.903556E-003	-1.257672E-001	-1.377456E-001
699	8	-3.563110E-002	-3.905248E-003	-1.257319E-001	-1.378047E-001
699	9	-3.564133E-002	-3.905287E-003	-1.257672E-001	-1.378056E-001
700	1	-3.564056E-002	-4.503715E-003	-1.257646E-001	-1.589223E-001

700	2	-3.563017E-002	-4.503677E-003	-1.257263E-001	-1.589235E-001
700	3	-3.562957E-002	-4.505579E-003	-1.257261E-001	-1.589878E-001
700	4	-3.564067E-002	-4.505615E-003	-1.257670E-001	-1.589890E-001
700	5	-3.563531E-002	-4.503622E-003	-1.257465E-001	-1.589196E-001
700	6	-3.562939E-002	-4.504618E-003	-1.257288E-001	-1.589534E-001
700	7	-3.563531E-002	-4.505496E-003	-1.257465E-001	-1.589852E-001
700	8	-3.564028E-002	-4.504618E-003	-1.257668E-001	-1.589534E-001
700	9	-3.563531E-002	-4.504618E-003	-1.257465E-001	-1.589534E-001
701	1	-3.569648E-002	-5.847909E-003	-1.259630E-001	-1.781271E-001
701	2	-3.564886E-002	-5.847939E-003	-1.257949E-001	-1.781282E-001
701	3	-3.564902E-002	-5.856178E-003	-1.257965E-001	-1.784196E-001
701	4	-3.569600E-002	-5.856214E-003	-1.259618E-001	-1.784169E-001
701	5	-3.567233E-002	-5.847822E-003	-1.258782E-001	-1.781243E-001
701	6	-3.564971E-002	-5.852077E-003	-1.257946E-001	-1.782710E-001
701	7	-3.567233E-002	-5.856094E-003	-1.258782E-001	-1.784169E-001
701	8	-3.569705E-002	-5.852077E-003	-1.259615E-001	-1.782710E-001
701	9	-3.567233E-002	-5.852077E-003	-1.258782E-001	-1.782710E-001
702	1	-3.579954E-002	-5.534259E-003	-1.263265E-001	-1.952891E-001
702	2	-3.571544E-002	-5.534312E-003	-1.260293E-001	-1.952901E-001
702	3	-3.571516E-002	-5.549123E-003	-1.260294E-001	-1.958139E-001
702	4	-3.580048E-002	-5.549097E-003	-1.263296E-001	-1.958133E-001
702	5	-3.575803E-002	-5.534372E-003	-1.261783E-001	-1.952902E-001
702	6	-3.571554E-002	-5.541728E-003	-1.260293E-001	-1.955505E-001
702	7	-3.575751E-002	-5.549108E-003	-1.261786E-001	-1.958132E-001
702	8	-3.579977E-002	-5.541713E-003	-1.263287E-001	-1.955505E-001
702	9	-3.575801E-002	-5.541744E-003	-1.261788E-001	-1.955515E-001
703	1	-3.594188E-002	-5.958618E-003	-1.268277E-001	-2.102647E-001
703	2	-3.582840E-002	-5.958666E-003	-1.264285E-001	-2.102641E-001
703	3	-3.582870E-002	-5.978646E-003	-1.264288E-001	-2.109603E-001
703	4	-3.594218E-002	-5.978571E-003	-1.268284E-001	-2.109678E-001
703	5	-3.588598E-002	-5.958567E-003	-1.266298E-001	-2.102632E-001
703	6	-3.582885E-002	-5.968659E-003	-1.264292E-001	-2.106160E-001
703	7	-3.588516E-002	-5.978596E-003	-1.266295E-001	-2.109629E-001
703	8	-3.594162E-002	-5.968659E-003	-1.268281E-001	-2.106160E-001
703	9	-3.588564E-002	-5.968659E-003	-1.266294E-001	-2.106160E-001
704	1	-3.609109E-002	-6.320988E-003	-1.273534E-001	-2.230470E-001
704	2	-3.597588E-002	-6.320999E-003	-1.269472E-001	-2.230486E-001
704	3	-3.597527E-002	-6.341411E-003	-1.269474E-001	-2.237689E-001
704	4	-3.609883E-002	-6.341340E-003	-1.273564E-001	-2.237650E-001
704	5	-3.603370E-002	-6.320988E-003	-1.271499E-001	-2.230514E-001
704	6	-3.597587E-002	-6.331158E-003	-1.269471E-001	-2.234085E-001
704	7	-3.603279E-002	-6.341316E-003	-1.271515E-001	-2.237650E-001
704	8	-3.609096E-002	-6.331166E-003	-1.273537E-001	-2.234083E-001
704	9	-3.603324E-002	-6.331111E-003	-1.271496E-001	-2.234086E-001
705	1	-3.619444E-002	-6.628668E-003	-1.277176E-001	-2.339104E-001
705	2	-3.611876E-002	-6.628802E-003	-1.274532E-001	-2.339883E-001
705	3	-3.611925E-002	-6.641975E-003	-1.274540E-001	-2.343764E-001
705	4	-3.619483E-002	-6.642042E-003	-1.277173E-001	-2.343758E-001
705	5	-3.615657E-002	-6.628553E-003	-1.275852E-001	-2.339126E-001
705	6	-3.611933E-002	-6.635400E-003	-1.274536E-001	-2.341435E-001
705	7	-3.615657E-002	-6.641923E-003	-1.275852E-001	-2.343747E-001
705	8	-3.619355E-002	-6.635400E-003	-1.277149E-001	-2.341435E-001
705	9	-3.615657E-002	-6.635400E-003	-1.275852E-001	-2.341435E-001
706	1	-3.617369E-002	-6.903911E-003	-1.276448E-001	-2.436196E-001
706	2	-3.620119E-002	-6.903923E-003	-1.277413E-001	-2.436168E-001
706	3	-3.620045E-002	-6.899067E-003	-1.277419E-001	-2.434494E-001
706	4	-3.617306E-002	-6.899048E-003	-1.276475E-001	-2.434487E-001
706	5	-3.618653E-002	-6.903985E-003	-1.276940E-001	-2.436216E-001
706	6	-3.620062E-002	-6.901561E-003	-1.277410E-001	-2.435348E-001
706	7	-3.618734E-002	-6.899015E-003	-1.276948E-001	-2.434477E-001

706	8	-3.617280E-002	-6.901561E-003	-1.276426E-001	-2.435340E-001
706	9	-3.618741E-002	-6.901561E-003	-1.276942E-001	-2.435340E-001
707	1	-3.596175E-002	-7.190132E-003	-1.269001E-001	-2.537179E-001
707	2	-3.614255E-002	-7.190187E-003	-1.275372E-001	-2.537195E-001
707	3	-3.614234E-002	-7.158311E-003	-1.275371E-001	-2.525975E-001
707	4	-3.596180E-002	-7.158298E-003	-1.268979E-001	-2.525968E-001
707	5	-3.605187E-002	-7.190325E-003	-1.272177E-001	-2.537243E-001
707	6	-3.614251E-002	-7.174253E-003	-1.275378E-001	-2.531588E-001
707	7	-3.605289E-002	-7.158257E-003	-1.272178E-001	-2.525919E-001
707	8	-3.596132E-002	-7.174253E-003	-1.268974E-001	-2.531588E-001
707	9	-3.605231E-002	-7.174253E-003	-1.272195E-001	-2.531588E-001
708	1	-3.561255E-002	-7.546776E-003	-1.256702E-001	-2.663011E-001
708	2	-3.589441E-002	-7.546600E-003	-1.266609E-001	-2.662982E-001
708	3	-3.589456E-002	-7.497123E-003	-1.266605E-001	-2.645549E-001
708	4	-3.561299E-002	-7.497199E-003	-1.256673E-001	-2.645552E-001
708	5	-3.575396E-002	-7.546708E-003	-1.261649E-001	-2.663041E-001
708	6	-3.589484E-002	-7.521924E-003	-1.266605E-001	-2.654271E-001
708	7	-3.575396E-002	-7.497307E-003	-1.261649E-001	-2.645579E-001
708	8	-3.561277E-002	-7.521990E-003	-1.256697E-001	-2.654279E-001
708	9	-3.575396E-002	-7.521939E-003	-1.261649E-001	-2.654276E-001
709	1	-3.532067E-002	-8.135113E-003	-1.246355E-001	-2.870658E-001
709	2	-3.553979E-002	-8.135153E-003	-1.254110E-001	-2.870658E-001
709	3	-3.554000E-002	-8.096758E-003	-1.254109E-001	-2.857189E-001
709	4	-3.532042E-002	-8.096822E-003	-1.246364E-001	-2.857101E-001
709	5	-3.543000E-002	-8.135173E-003	-1.250237E-001	-2.870669E-001
709	6	-3.553986E-002	-8.115954E-003	-1.254110E-001	-2.863879E-001
709	7	-3.543054E-002	-8.096790E-003	-1.250231E-001	-2.857091E-001
709	8	-3.532067E-002	-8.115954E-003	-1.246350E-001	-2.863879E-001
709	9	-3.543045E-002	-8.115954E-003	-1.250236E-001	-2.863879E-001
710	1	-3.245698E-004	-8.991611E-005	-1.145342E-001	-3.172894E-001
710	2	-3.492866E-002	-8.991567E-003	-1.232530E-001	-3.172847E-001
710	3	-3.492821E-002	-8.557822E-003	-1.232529E-001	-3.019788E-001
710	4	-3.245774E-002	-8.558278E-003	-1.145310E-001	-3.019942E-001
710	5	-3.369249E-002	-8.991593E-003	-1.188985E-001	-3.172879E-001
710	6	-3.492844E-002	-8.774681E-003	-1.232536E-001	-3.096314E-001
710	7	-3.369249E-002	-8.557796E-003	-1.188985E-001	-3.019823E-001
710	8	-3.396523E-002	-9.182736E-003	-1.145300E-001	-3.096485E-001
710	9	-3.369249E-002	-8.774767E-003	-1.188985E-001	-3.096367E-001
711	1	+9.421913E-004	-9.973422E-004	+1.070849E-001	-1.133524E+000
711	2	-2.416631E-004	-3.212295E-004	-8.527530E-002	-1.133524E+000
711	3	-1.164485E-002	-1.085769E-002	-8.527561E-002	-7.951038E-001
711	4	+3.034680E-004	-2.253243E-004	+1.070854E-001	-7.951038E-001
711	5	+3.089935E-005	-3.212288E-004	+1.090400E-002	-1.133522E+000
711	6	-2.416661E-004	-2.732760E-004	-8.527616E-002	-9.643115E-001
711	7	+3.089935E-005	-2.253239E-004	+1.090400E-002	-7.951019E-001
711	8	+3.034642E-004	-2.732760E-004	+1.070854E-001	-9.643115E-001
711	9	+3.089935E-005	-2.732760E-004	+1.090400E-002	-9.643115E-001
712	1	-3.244621E-003	-2.963741E-003	-1.144986E-001	-1.045778E+000
712	2	-3.027583E-003	-2.939597E-003	-1.068330E-001	-1.037254E+000
712	3	-3.027691E-003	-3.026955E-003	-1.068346E-001	-1.068093E+000
712	4	-3.244768E-003	-3.057132E-003	-1.144938E-001	-1.078742E+000
712	5	-3.132547E-003	-2.951232E-003	-1.105344E-001	-1.041378E+000
712	6	-3.027686E-003	-2.983257E-003	-1.068321E-001	-1.052670E+000
712	7	-3.132566E-003	-3.041496E-003	-1.105348E-001	-1.073229E+000
712	8	-3.244588E-003	-3.010460E-003	-1.144903E-001	-1.062256E+000
712	9	-3.132556E-003	-2.996404E-003	-1.105365E-001	-1.057301E+000
713	1	-1.864533E-004	-8.940863E-006	-3.756358E-001	-3.154709E-001
713	2	-3.707645E-005	+8.469515E-006	-1.380246E-001	+2.988429E-001
713	3	-3.751126E-005	-7.375509E-006	-1.323631E-001	-2.602521E-001
713	4	-1.865102E-004	-2.463314E-005	-3.758295E-001	-8.692188E-001

713	5	-7.182755E-005	-2.511881E-007	-2.534482E-001	-8.869372E-003
713	6	-3.729447E-005	+5.253005E-007	-1.315993E-001	+1.852955E-002
713	7	-7.207360E-005	-1.602858E-005	-2.543146E-001	-5.652738E-001
713	8	-1.864023E-004	-1.680938E-005	-3.757272E-001	-5.931273E-001
713	9	-7.195085E-005	-8.157388E-006	-2.538869E-001	-2.876517E-001
714	1	-7.577451E-005	-2.160379E-005	-2.673703E-001	-7.623176E-001
714	2	-5.389704E-005	-1.592525E-005	-1.873618E-001	-5.619219E-001
714	3	-5.338372E-003	-2.115619E-003	-1.883654E-001	-7.465129E-001
714	4	-7.580023E-005	-2.673648E-005	-2.674989E-001	-9.434128E-001
714	5	-6.447662E-005	-1.877405E-005	-2.275145E-001	-6.624592E-001
714	6	-6.553158E-005	-2.283712E-005	-1.878660E-001	-6.547010E-001
714	7	-6.463689E-005	-2.395627E-005	-2.280737E-001	-8.453001E-001
714	8	-7.579238E-005	-2.418416E-005	-2.674289E-001	-8.533571E-001
714	9	-6.455757E-005	-2.137916E-005	-2.277947E-001	-7.543981E-001
715	1	-4.247358E-003	-2.419430E-003	-1.498727E-001	-8.537287E-001
715	2	-4.430931E-003	-2.452781E-003	-1.563470E-001	-8.654763E-001
715	3	-4.430923E-003	-2.405313E-003	-1.563479E-001	-8.487442E-001
715	4	-4.247519E-003	-2.366928E-003	-1.498753E-001	-8.351811E-001
715	5	-4.343882E-003	-2.436947E-003	-1.532756E-001	-8.598966E-001
715	6	-4.430876E-003	-2.429004E-003	-1.563479E-001	-8.571255E-001
715	7	-4.343882E-003	-2.387165E-003	-1.532756E-001	-8.423237E-001
715	8	-4.247438E-003	-2.393183E-003	-1.498736E-001	-8.444473E-001
715	9	-4.343882E-003	-2.412046E-003	-1.532756E-001	-8.511186E-001
716	1	-3.350751E-005	-1.781421E-005	-1.182342E-001	-6.285932E-001
716	2	-4.345690E-003	-2.030136E-003	-1.533382E-001	-7.163484E-001
716	3	-4.332253E-003	-1.799117E-003	-1.528711E-001	-6.340252E-001
716	4	-3.342951E-005	-1.552063E-005	-1.179603E-001	-5.476373E-001
716	5	-3.847986E-005	-1.985677E-005	-1.357765E-001	-6.724447E-001
716	6	-4.338011E-003	-1.914300E-003	-1.530958E-001	-6.754729E-001
716	7	-3.837364E-003	-1.675404E-003	-1.354049E-001	-5.911902E-001
716	8	-3.346777E-005	-1.666469E-005	-1.180986E-001	-5.880237E-001
716	9	-4.000123E-003	-1.863680E-003	-1.355876E-001	-6.317288E-001
717	1	-1.453924E-004	-6.375617E-005	-1.688400E-001	-7.403881E-001
717	2	-4.631951E-003	-2.059957E-003	-1.634388E-001	-7.268826E-001
717	3	-4.635034E-003	-2.059931E-003	-1.635479E-001	-7.395671E-001
717	4	-4.787265E-003	-2.133954E-003	-1.689197E-001	-7.529681E-001
717	5	-4.780409E-003	-2.879139E-003	-1.661406E-001	-7.336472E-001
717	6	-4.633570E-003	-2.878022E-003	-1.634988E-001	-7.332281E-001
717	7	-4.711887E-003	-2.114972E-003	-1.662419E-001	-7.462737E-001
717	8	-4.785902E-003	-2.116183E-003	-1.688765E-001	-7.466869E-001
717	9	-4.709819E-003	-2.897869E-003	-1.661985E-001	-7.399665E-001
718	1	-4.271872E-003	-2.245394E-003	-1.507066E-001	-7.923144E-001
718	2	-4.585826E-003	-2.314200E-003	-1.618162E-001	-8.165801E-001
718	3	-4.585920E-003	-2.243611E-003	-1.618139E-001	-7.916932E-001
718	4	-4.271113E-003	-2.166101E-003	-1.507103E-001	-7.643577E-001
718	5	-4.437552E-003	-2.281814E-003	-1.565827E-001	-8.051578E-001
718	6	-4.585705E-003	-2.270937E-003	-1.618094E-001	-8.041475E-001
718	7	-4.437533E-003	-2.207153E-003	-1.565828E-001	-7.788073E-001
718	8	-4.270914E-003	-2.285795E-003	-1.507040E-001	-7.783397E-001
718	9	-4.437524E-003	-2.244494E-003	-1.565827E-001	-7.919953E-001
719	1	-4.848774E-003	-2.735794E-003	-1.428615E-001	-9.653460E-001
719	2	-4.025460E-003	-2.732365E-003	-1.420399E-001	-9.641346E-001
719	3	-4.025619E-003	-2.740187E-003	-1.420418E-001	-9.668681E-001
719	4	-4.848956E-003	-2.744169E-003	-1.428627E-001	-9.683030E-001
719	5	-4.836753E-003	-2.734833E-003	-1.424373E-001	-9.647291E-001
719	6	-4.825387E-003	-2.736226E-003	-1.420412E-001	-9.655020E-001
719	7	-4.836656E-003	-2.742860E-003	-1.424368E-001	-9.675689E-001
719	8	-4.848865E-003	-2.740014E-003	-1.428659E-001	-9.660227E-001
719	9	-4.836591E-003	-2.738044E-003	-1.424363E-001	-9.661369E-001
720	1	-2.947335E-003	-3.189993E-003	-1.840804E-001	-1.097376E+000

720	2	-2.619000E-003	-3.073521E-003	-9.244128E-002	-1.884532E+000
720	3	-2.619854E-003	-3.217196E-003	-9.244131E-002	-1.135213E+000
720	4	-2.947259E-003	-3.262764E-003	-1.039963E-001	-1.151296E+000
720	5	-2.778486E-003	-3.091188E-003	-9.804012E-002	-1.090755E+000
720	6	-2.619748E-003	-3.145368E-003	-9.244063E-002	-1.109874E+000
720	7	-2.778486E-003	-3.239241E-003	-9.804012E-002	-1.143005E+000
720	8	-2.947258E-003	-3.186355E-003	-1.039968E-001	-1.124336E+000
720	9	-2.778486E-003	-3.165240E-003	-9.804012E-002	-1.116079E+000
721	1	-5.134245E-005	-1.327973E-005	-1.811686E-001	-4.685988E-001
721	2	-4.612881E-005	-1.197728E-005	-1.627639E-001	-4.226889E-001
721	3	-4.793165E-003	-1.365975E-003	-1.628824E-001	-4.642086E-001
721	4	-5.134428E-005	-1.444933E-005	-1.811764E-001	-5.098568E-001
721	5	-4.873763E-005	-1.262832E-005	-1.719717E-001	-4.456075E-001
721	6	-4.614486E-005	-1.256746E-005	-1.628264E-001	-4.434561E-001
721	7	-4.875621E-005	-1.380300E-005	-1.720405E-001	-4.870544E-001
721	8	-5.134283E-005	-1.386654E-005	-1.811740E-001	-4.892809E-001
721	9	-4.874793E-005	-1.321752E-005	-1.720031E-001	-4.663945E-001
722	1	-4.474792E-003	-2.611595E-003	-1.578983E-001	-9.215193E-001
722	2	-4.599413E-003	-2.634377E-003	-1.622917E-001	-9.295617E-001
722	3	-4.599399E-003	-2.597493E-003	-1.622931E-001	-9.165650E-001
722	4	-4.474729E-003	-2.571327E-003	-1.578979E-001	-9.073136E-001
722	5	-4.539803E-003	-2.623530E-003	-1.601894E-001	-9.257173E-001
722	6	-4.599392E-003	-2.615995E-003	-1.622922E-001	-9.230662E-001
722	7	-4.539828E-003	-2.584967E-003	-1.601930E-001	-9.121237E-001
722	8	-4.474760E-003	-2.591450E-003	-1.578996E-001	-9.144207E-001
722	9	-4.539834E-003	-2.604270E-003	-1.601928E-001	-9.189297E-001
723	1	-2.586022E-003	-3.215314E-003	-8.842630E-002	-1.134556E+000
723	2	-2.059878E-003	-3.165679E-003	-7.268337E-002	-1.117037E+000
723	3	-2.059814E-003	-3.377453E-003	-7.268184E-002	-1.191757E+000
723	4	-2.586057E-003	-3.439523E-003	-8.842503E-002	-1.213662E+000
723	5	-2.276595E-003	-3.189837E-003	-8.032905E-002	-1.125556E+000
723	6	-2.059866E-003	-3.271583E-003	-7.268385E-002	-1.154407E+000
723	7	-2.276497E-003	-3.407525E-003	-8.032832E-002	-1.202387E+000
723	8	-2.586069E-003	-3.327429E-003	-8.842757E-002	-1.174109E+000
723	9	-2.276479E-003	-3.298692E-003	-8.032784E-002	-1.163969E+000
724	1	-4.004717E-003	-2.946365E-003	-1.413072E-001	-1.039654E+000
724	2	-3.892308E-003	-2.929918E-003	-1.373395E-001	-1.033846E+000
724	3	-3.892301E-003	-2.971020E-003	-1.373440E-001	-1.048343E+000
724	4	-4.004618E-003	-2.990467E-003	-1.413071E-001	-1.055218E+000
724	5	-3.946418E-003	-2.937883E-003	-1.392511E-001	-1.036650E+000
724	6	-3.892132E-003	-2.950475E-003	-1.373417E-001	-1.041098E+000
724	7	-3.946410E-003	-2.980403E-003	-1.392511E-001	-1.051651E+000
724	8	-4.004787E-003	-2.968436E-003	-1.413057E-001	-1.047433E+000
724	9	-3.946410E-003	-2.959118E-003	-1.392511E-001	-1.044151E+000
725	1	-2.977279E-005	-1.557036E-005	-1.850553E-001	-5.494139E-001
725	2	-4.361064E-003	-1.981316E-003	-1.538848E-001	-6.708938E-001
725	3	-4.351528E-003	-1.586259E-003	-1.535452E-001	-5.597208E-001
725	4	-2.967268E-005	-1.240452E-005	-1.847096E-001	-4.377256E-001
725	5	-3.670806E-005	-1.729584E-005	-1.295286E-001	-6.103055E-001
725	6	-4.356478E-003	-1.743803E-003	-1.537181E-001	-6.153190E-001
725	7	-3.661161E-003	-1.413806E-003	-1.291887E-001	-4.988634E-001
725	8	-2.972298E-005	-1.398735E-005	-1.848844E-001	-4.935459E-001
725	9	-3.845608E-003	-1.648684E-003	-1.293596E-001	-5.545886E-001
726	1	-2.731698E-004	-1.057812E-004	-1.761716E-001	-6.822394E-001
726	2	-4.921155E-003	-1.915559E-003	-1.736489E-001	-6.759244E-001
726	3	-4.922329E-003	-1.932096E-003	-1.736072E-001	-6.817513E-001
726	4	-4.993837E-003	-1.958049E-003	-1.762144E-001	-6.880888E-001
726	5	-4.957140E-003	-1.924493E-003	-1.749128E-001	-6.790730E-001
726	6	-4.921555E-003	-1.923861E-003	-1.736615E-001	-6.788516E-001
726	7	-4.957860E-003	-1.941074E-003	-1.749493E-001	-6.849121E-001

733	5	-4.919094E-005	-1.399125E-005	-1.735697E-001	-4.936861E-001
733	6	-5.054542E-003	-1.402434E-003	-1.783507E-001	-4.948562E-001
733	7	-5.204210E-003	-1.415801E-003	-1.733381E-001	-4.721071E-001
733	8	-4.782454E-005	-1.334584E-005	-1.687532E-001	-4.788961E-001
733	9	-4.918473E-005	-1.368415E-005	-1.735512E-001	-4.828655E-001
734	1	-4.621873E-005	-1.592032E-005	-1.638876E-001	-5.617485E-001
734	2	-5.121311E-003	-1.716807E-003	-1.807085E-001	-6.058185E-001
734	3	-5.114811E-003	-1.603222E-003	-1.804830E-001	-5.656985E-001
734	4	-4.617979E-003	-1.479157E-003	-1.629422E-001	-5.219229E-001
734	5	-4.871402E-003	-1.654456E-003	-1.718927E-001	-5.837739E-001
734	6	-5.118066E-003	-1.659928E-003	-1.805989E-001	-5.857133E-001
734	7	-4.866184E-003	-1.541139E-003	-1.717095E-001	-5.437813E-001
734	8	-4.799659E-003	-1.595056E-003	-1.630206E-001	-5.417793E-001
734	9	-4.868872E-003	-1.597611E-003	-1.717992E-001	-5.637249E-001
735	1	-7.957186E-004	-6.845476E-003	-2.807472E-002	-2.416897E+000
735	2	+6.489401E-006	-6.689632E-005	+2.261639E-002	-2.368496E+000
735	3	+6.489891E-006	-7.473701E-005	+2.261598E-002	-2.637157E+000
735	4	-7.957601E-004	-7.673558E-003	-2.807489E-002	-2.707685E+000
735	5	-5.054323E-006	-5.741196E-004	-2.101460E-003	-2.387998E+000
735	6	+6.489172E-006	-7.081693E-005	+2.261669E-002	-2.498831E+000
735	7	-1.870728E-005	-1.362275E-003	-2.100233E-003	-2.671546E+000
735	8	-7.957164E-004	-7.261527E-003	-2.807598E-002	-2.562298E+000
735	9	-1.867801E-005	-1.286909E-003	-2.101289E-003	-2.529772E+000
736	1	-4.653447E-003	-1.845031E-003	-1.641946E-001	-6.510398E-001
736	2	-5.314023E-003	-2.010885E-003	-1.875061E-001	-7.095615E-001
736	3	-5.305481E-003	-1.858565E-003	-1.872046E-001	-6.557983E-001
736	4	-4.648360E-003	-1.693807E-003	-1.640185E-001	-5.976692E-001
736	5	-4.983457E-003	-1.927907E-003	-1.758492E-001	-6.802842E-001
736	6	-5.309673E-003	-1.934527E-003	-1.873559E-001	-6.826123E-001
736	7	-4.976563E-003	-1.776069E-003	-1.756047E-001	-6.267222E-001
736	8	-4.650666E-003	-1.769173E-003	-1.641052E-001	-6.242674E-001
736	9	-4.980105E-003	-1.851814E-003	-1.757288E-001	-6.534319E-001
737	1	-4.987261E-003	-2.044801E-003	-1.759758E-001	-7.215397E-001
737	2	-5.463663E-003	-2.163935E-003	-1.927973E-001	-7.635500E-001
737	3	-5.454229E-003	-2.053241E-003	-1.924506E-001	-7.245106E-001
737	4	-4.979980E-003	-1.935144E-003	-1.757252E-001	-6.828218E-001
737	5	-5.225349E-003	-2.104298E-003	-1.843818E-001	-7.425178E-001
737	6	-5.459023E-003	-2.108379E-003	-1.926254E-001	-7.439606E-001
737	7	-5.216922E-003	-1.994120E-003	-1.840835E-001	-7.036328E-001
737	8	-4.983632E-003	-1.989755E-003	-1.758478E-001	-7.021312E-001
737	9	-5.221177E-003	-2.049882E-003	-1.842293E-001	-7.230226E-001
738	1	-3.452427E-002	-3.764761E-004	-1.218264E-001	-1.328469E-002
738	2	-3.452641E-002	-3.764618E-004	-1.218334E-001	-1.328215E-002
738	3	-3.452650E-002	-3.760050E-004	-1.218337E-001	-1.327300E-002
738	4	-3.452408E-002	-3.761306E-004	-1.218292E-001	-1.327064E-002
738	5	-3.452525E-002	-3.764336E-004	-1.218319E-001	-1.328319E-002
738	6	-3.452641E-002	-3.762796E-004	-1.218336E-001	-1.327880E-002
738	7	-3.452525E-002	-3.761078E-004	-1.218319E-001	-1.327182E-002
738	8	-3.452445E-002	-3.762796E-004	-1.218291E-001	-1.327880E-002
738	9	-3.452525E-002	-3.762796E-004	-1.218319E-001	-1.327880E-002
739	1	-3.451196E-002	-1.124535E-003	-1.217854E-001	-3.968026E-002
739	2	-3.452275E-002	-1.124453E-003	-1.218209E-001	-3.967869E-002
739	3	-3.452266E-002	-1.122777E-003	-1.218212E-001	-3.961758E-002
739	4	-3.451239E-002	-1.122765E-003	-1.217840E-001	-3.961767E-002
739	5	-3.451781E-002	-1.124495E-003	-1.218016E-001	-3.968159E-002
739	6	-3.452266E-002	-1.123643E-003	-1.218210E-001	-3.964948E-002
739	7	-3.451757E-002	-1.122823E-003	-1.218033E-001	-3.962027E-002
739	8	-3.451298E-002	-1.123592E-003	-1.217863E-001	-3.964977E-002
739	9	-3.451788E-002	-1.123631E-003	-1.218029E-001	-3.964801E-002
740	1	-3.450109E-002	-1.859007E-003	-1.217431E-001	-6.560060E-002

726	8	-4.993387E-003	-1.941794E-003	-1.761912E-001	-6.851664E-001
726	9	-4.957525E-003	-1.932794E-003	-1.749284E-001	-6.820108E-001
727	1	-4.552985E-003	-2.065906E-003	-1.606530E-001	-7.289632E-001
727	2	-4.987591E-003	-2.174633E-003	-1.759960E-001	-7.673244E-001
727	3	-4.978879E-003	-2.072944E-003	-1.756789E-001	-7.314602E-001
727	4	-4.546285E-003	-1.964998E-003	-1.604214E-001	-6.933435E-001
727	5	-4.770262E-003	-2.120210E-003	-1.683202E-001	-7.481152E-001
727	6	-4.983241E-003	-2.123628E-003	-1.758372E-001	-7.493437E-001
727	7	-4.762367E-003	-2.018930E-003	-1.680454E-001	-7.123830E-001
727	8	-4.549442E-003	-2.015251E-003	-1.605372E-001	-7.111025E-001
727	9	-4.766228E-003	-2.089442E-003	-1.681802E-001	-7.382192E-001
728	1	-4.677032E-003	-2.244379E-003	-1.650303E-001	-7.919573E-001
728	2	-5.030252E-003	-2.332791E-003	-1.774955E-001	-8.231440E-001
728	3	-5.020529E-003	-2.249473E-003	-1.771496E-001	-7.937458E-001
728	4	-4.669167E-003	-2.161664E-003	-1.647610E-001	-7.627512E-001
728	5	-4.853403E-003	-2.288580E-003	-1.712589E-001	-8.075292E-001
728	6	-5.025470E-003	-2.291043E-003	-1.773224E-001	-8.084143E-001
728	7	-4.844664E-003	-2.205512E-003	-1.709452E-001	-7.782164E-001
728	8	-4.672852E-003	-2.202956E-003	-1.648952E-001	-7.773328E-001
728	9	-4.840985E-003	-2.246906E-003	-1.710975E-001	-7.928415E-001
729	1	-4.671040E-003	-2.438384E-003	-1.648198E-001	-8.603781E-001
729	2	-4.947845E-003	-2.498516E-003	-1.745983E-001	-8.816267E-001
729	3	-4.947959E-003	-2.426555E-003	-1.745912E-001	-8.563854E-001
729	4	-4.671007E-003	-2.359299E-003	-1.648218E-001	-8.325041E-001
729	5	-4.816485E-003	-2.469954E-003	-1.699534E-001	-8.715246E-001
729	6	-4.948189E-003	-2.462752E-003	-1.745938E-001	-8.690182E-001
729	7	-4.816485E-003	-2.394840E-003	-1.699534E-001	-8.450403E-001
729	8	-4.678896E-003	-2.398732E-003	-1.648212E-001	-8.464064E-001
729	9	-4.816485E-003	-2.432366E-003	-1.699534E-001	-8.582788E-001
730	1	-1.881617E-003	-3.143803E-003	-6.639276E-002	-1.189311E+000
730	2	-1.121242E-003	-3.059322E-003	-3.956386E-002	-1.079513E+000
730	3	-1.121258E-003	-3.444634E-003	-3.956312E-002	-1.215461E+000
730	4	-1.881519E-003	-3.549694E-003	-6.639343E-002	-1.252545E+000
730	5	-1.491479E-003	-3.100503E-003	-5.262821E-002	-1.094035E+000
730	6	-1.121217E-003	-3.251977E-003	-3.956432E-002	-1.147488E+000
730	7	-1.491470E-003	-3.495832E-003	-5.262821E-002	-1.233539E+000
730	8	-1.881492E-003	-3.346739E-003	-6.639866E-002	-1.180925E+000
730	9	-1.491479E-003	-3.298118E-003	-5.262821E-002	-1.163772E+000
731	1	-3.839000E-003	-3.171011E-003	-1.354653E-001	-1.118922E+000
731	2	-3.597668E-003	-3.135419E-003	-1.269446E-001	-1.106365E+000
731	3	-3.597675E-003	-3.232914E-003	-1.269465E-001	-1.140756E+000
731	4	-3.839123E-003	-3.275234E-003	-1.354720E-001	-1.155688E+000
731	5	-3.714409E-003	-3.152691E-003	-1.310636E-001	-1.112445E+000
731	6	-3.597681E-003	-3.184194E-003	-1.269439E-001	-1.123568E+000
731	7	-3.714398E-003	-3.253398E-003	-1.310650E-001	-1.147985E+000
731	8	-3.839161E-003	-3.223077E-003	-1.354725E-001	-1.137296E+000
731	9	-3.714398E-003	-3.203012E-003	-1.310660E-001	-1.130207E+000
732	1	-4.626155E-003	-2.845424E-003	-1.632365E-001	-1.004030E+000
732	2	-4.691250E-003	-2.857389E-003	-1.655310E-001	-1.008247E+000
732	3	-4.690972E-003	-2.835754E-003	-1.655256E-001	-1.000620E+000
732	4	-4.626189E-003	-2.822860E-003	-1.632341E-001	-9.957889E-001
732	5	-4.659890E-003	-2.851663E-003	-1.644267E-001	-1.006222E+000
732	6	-4.691171E-003	-2.846594E-003	-1.655283E-001	-1.004442E+000
732	7	-4.659964E-003	-2.829175E-003	-1.644255E-001	-9.982874E-001
732	8	-4.626144E-003	-2.833749E-003	-1.632338E-001	-9.999157E-001
732	9	-4.659849E-003	-2.840419E-003	-1.644273E-001	-1.002265E+000
733	1	-4.782587E-005	-1.365185E-005	-1.687577E-001	-4.816915E-001
733	2	-5.892432E-003	-1.443664E-003	-1.783783E-001	-5.057054E-001
733	3	-5.853517E-003	-1.371739E-003	-1.783249E-001	-4.840347E-001
733	4	-4.782388E-005	-1.384163E-005	-1.687515E-001	-4.681828E-001

740	2	-3.450985E-002	-1.858979E-003	-1.217756E-001	-6.559795E-002
740	3	-3.451017E-002	-1.857364E-003	-1.217758E-001	-6.554013E-002
740	4	-3.450898E-002	-1.857350E-003	-1.217439E-001	-6.554161E-002
740	5	-3.450542E-002	-1.858924E-003	-1.217598E-001	-6.559785E-002
740	6	-3.450977E-002	-1.858146E-003	-1.217758E-001	-6.556945E-002
740	7	-3.450527E-002	-1.857387E-003	-1.217587E-001	-6.553897E-002
740	8	-3.450079E-002	-1.858146E-003	-1.217438E-001	-6.556945E-002
740	9	-3.450534E-002	-1.858146E-003	-1.217584E-001	-6.556945E-002
741	1	-3.449669E-002	-2.572408E-003	-1.217271E-001	-9.077261E-002
741	2	-3.449853E-002	-2.572385E-003	-1.217365E-001	-9.077378E-002
741	3	-3.449899E-002	-2.571969E-003	-1.217377E-001	-9.075498E-002
741	4	-3.449666E-002	-2.571956E-003	-1.217276E-001	-9.075639E-002
741	5	-3.449735E-002	-2.572330E-003	-1.217319E-001	-9.076986E-002
741	6	-3.449852E-002	-2.572207E-003	-1.217355E-001	-9.076436E-002
741	7	-3.449823E-002	-2.571933E-003	-1.217320E-001	-9.075755E-002
741	8	-3.449618E-002	-2.572207E-003	-1.217280E-001	-9.076436E-002
741	9	-3.449767E-002	-2.572207E-003	-1.217317E-001	-9.076436E-002
742	1	-5.022939E-003	-2.671580E-003	-1.772361E-001	-9.426974E-001
742	2	-5.262836E-003	-2.724061E-003	-1.857044E-001	-9.612076E-001
742	3	-5.262840E-003	-2.653225E-003	-1.857064E-001	-9.362037E-001
742	4	-5.023029E-003	-2.593945E-003	-1.772361E-001	-9.152740E-001
742	5	-5.148410E-003	-2.699079E-003	-1.816659E-001	-9.523892E-001
742	6	-5.262838E-003	-2.688586E-003	-1.857056E-001	-9.487058E-001
742	7	-5.148348E-003	-2.624873E-003	-1.816650E-001	-9.262173E-001
742	8	-5.022816E-003	-2.632804E-003	-1.772345E-001	-9.289924E-001
742	9	-5.148415E-003	-2.661968E-003	-1.816635E-001	-9.393087E-001
743	1	-3.451041E-002	-3.256641E-003	-1.217770E-001	-1.149190E-001
743	2	-3.449797E-002	-3.256641E-003	-1.217339E-001	-1.149166E-001
743	3	-3.449757E-002	-3.258809E-003	-1.217333E-001	-1.149929E-001
743	4	-3.450925E-002	-3.258807E-003	-1.217749E-001	-1.149948E-001
743	5	-3.450412E-002	-3.256659E-003	-1.217533E-001	-1.149168E-001
743	6	-3.449740E-002	-3.257717E-003	-1.217328E-001	-1.149557E-001
743	7	-3.450401E-002	-3.258720E-003	-1.217552E-001	-1.149916E-001
743	8	-3.451016E-002	-3.257731E-003	-1.217766E-001	-1.149569E-001
743	9	-3.450385E-002	-3.257689E-003	-1.217539E-001	-1.149574E-001
744	1	-3.456018E-002	-3.984158E-003	-1.219513E-001	-1.377655E-001
744	2	-3.451816E-002	-3.984171E-003	-1.218038E-001	-1.377676E-001
744	3	-3.451766E-002	-3.911614E-003	-1.218039E-001	-1.380306E-001
744	4	-3.456027E-002	-3.911627E-003	-1.219547E-001	-1.380291E-001
744	5	-3.453943E-002	-3.984135E-003	-1.218782E-001	-1.377663E-001
744	6	-3.451809E-002	-3.987857E-003	-1.218051E-001	-1.378960E-001
744	7	-3.453943E-002	-3.911650E-003	-1.218782E-001	-1.380318E-001
744	8	-3.455999E-002	-3.987857E-003	-1.219538E-001	-1.378960E-001
744	9	-3.453943E-002	-3.987857E-003	-1.218782E-001	-1.378960E-001
745	1	-3.465842E-002	-4.507953E-003	-1.222982E-001	-1.590713E-001
745	2	-3.457807E-002	-4.507919E-003	-1.220175E-001	-1.590739E-001
745	3	-3.457816E-002	-4.522008E-003	-1.220174E-001	-1.595673E-001
745	4	-3.465831E-002	-4.521968E-003	-1.223005E-001	-1.595696E-001
745	5	-3.461841E-002	-4.507944E-003	-1.221579E-001	-1.590726E-001
745	6	-3.457816E-002	-4.514913E-003	-1.220149E-001	-1.593171E-001
745	7	-3.461841E-002	-4.521984E-003	-1.221579E-001	-1.595684E-001
745	8	-3.465765E-002	-4.514913E-003	-1.222965E-001	-1.593171E-001
745	9	-3.461841E-002	-4.514913E-003	-1.221579E-001	-1.593171E-001
746	1	-3.481431E-002	-5.060688E-003	-1.228485E-001	-1.785766E-001
746	2	-3.468804E-002	-5.060699E-003	-1.224023E-001	-1.785787E-001
746	3	-3.468782E-002	-5.082846E-003	-1.224038E-001	-1.793595E-001
746	4	-3.481415E-002	-5.082056E-003	-1.228473E-001	-1.793617E-001
746	5	-3.475112E-002	-5.060663E-003	-1.226272E-001	-1.785774E-001
746	6	-3.468775E-002	-5.071746E-003	-1.224042E-001	-1.789653E-001
746	7	-3.475112E-002	-5.082881E-003	-1.226272E-001	-1.793606E-001

746	8	-3.481406E-002	-5.071746E-003	-1.228469E-001	-1.789653E-001
746	9	-3.475112E-002	-5.071746E-003	-1.226272E-001	-1.789653E-001
747	1	-3.502900E-002	-5.555758E-003	-1.236070E-001	-1.960494E-001
747	2	-3.485881E-002	-5.555903E-003	-1.230032E-001	-1.960529E-001
747	3	-3.485738E-002	-5.586015E-003	-1.230012E-001	-1.971148E-001
747	4	-3.502781E-002	-5.586030E-003	-1.236049E-001	-1.971145E-001
747	5	-3.494352E-002	-5.555837E-003	-1.233044E-001	-1.960508E-001
747	6	-3.485728E-002	-5.570934E-003	-1.230011E-001	-1.965818E-001
747	7	-3.494304E-002	-5.585950E-003	-1.233039E-001	-1.971130E-001
747	8	-3.502841E-002	-5.570916E-003	-1.236070E-001	-1.965820E-001
747	9	-3.494304E-002	-5.570933E-003	-1.233040E-001	-1.965812E-001
748	1	-5.113527E-003	-2.247586E-003	-1.804298E-001	-7.930862E-001
748	2	-5.518790E-003	-2.348858E-003	-1.947329E-001	-8.288041E-001
748	3	-5.587725E-003	-2.253648E-003	-1.943427E-001	-7.952060E-001
748	4	-5.184634E-003	-2.153012E-003	-1.801230E-001	-7.596954E-001
748	5	-5.316040E-003	-2.298142E-003	-1.875887E-001	-8.109123E-001
748	6	-5.513249E-003	-2.301091E-003	-1.945372E-001	-8.119580E-001
748	7	-5.306003E-003	-2.203266E-003	-1.872321E-001	-7.774659E-001
748	8	-5.109347E-003	-2.200135E-003	-1.802875E-001	-7.763246E-001
748	9	-5.311103E-003	-2.250619E-003	-1.874112E-001	-7.941396E-001
749	1	-3.528985E-002	-5.986000E-003	-1.245294E-001	-2.112575E-001
749	2	-3.508458E-002	-5.986813E-003	-1.238008E-001	-2.112557E-001
749	3	-3.508365E-002	-6.023098E-003	-1.238010E-001	-2.125334E-001
749	4	-3.528932E-002	-6.022988E-003	-1.245262E-001	-2.125356E-001
749	5	-3.518687E-002	-5.986774E-003	-1.241642E-001	-2.112582E-001
749	6	-3.508312E-002	-6.004839E-003	-1.238004E-001	-2.118926E-001
749	7	-3.518682E-002	-6.023073E-003	-1.241646E-001	-2.125345E-001
749	8	-3.529040E-002	-6.004839E-003	-1.245278E-001	-2.118926E-001
749	9	-3.518685E-002	-6.004839E-003	-1.241645E-001	-2.118926E-001
750	1	-3.555751E-002	-6.349637E-003	-1.254733E-001	-2.240608E-001
750	2	-3.535000E-002	-6.349585E-003	-1.247394E-001	-2.240590E-001
750	3	-3.534983E-002	-6.386076E-003	-1.247396E-001	-2.253496E-001
750	4	-3.555770E-002	-6.386229E-003	-1.254729E-001	-2.253480E-001
750	5	-3.545485E-002	-6.349671E-003	-1.251072E-001	-2.240621E-001
750	6	-3.534964E-002	-6.367789E-003	-1.247395E-001	-2.247033E-001
750	7	-3.545367E-002	-6.386110E-003	-1.251071E-001	-2.253469E-001
750	8	-3.555784E-002	-6.367789E-003	-1.254721E-001	-2.247033E-001
750	9	-3.545362E-002	-6.367789E-003	-1.251070E-001	-2.247033E-001
751	1	-3.575235E-002	-6.647661E-003	-1.261584E-001	-2.345754E-001
751	2	-3.560841E-002	-6.647691E-003	-1.256526E-001	-2.345773E-001
751	3	-3.560823E-002	-6.672938E-003	-1.256540E-001	-2.354696E-001
751	4	-3.575240E-002	-6.672877E-003	-1.261600E-001	-2.354679E-001
751	5	-3.568067E-002	-6.647694E-003	-1.259062E-001	-2.345761E-001
751	6	-3.560832E-002	-6.660238E-003	-1.256518E-001	-2.350205E-001
751	7	-3.568067E-002	-6.672963E-003	-1.259062E-001	-2.354669E-001
751	8	-3.575166E-002	-6.660238E-003	-1.261608E-001	-2.350205E-001
751	9	-3.568067E-002	-6.660238E-003	-1.259062E-001	-2.350205E-001
752	1	-3.575549E-002	-6.898024E-003	-1.261725E-001	-2.434121E-001
752	2	-3.577178E-002	-6.898097E-003	-1.262259E-001	-2.434107E-001
752	3	-3.577152E-002	-6.895220E-003	-1.262269E-001	-2.433136E-001
752	4	-3.575601E-002	-6.895286E-003	-1.261689E-001	-2.433157E-001
752	5	-3.576300E-002	-6.898065E-003	-1.261974E-001	-2.434133E-001
752	6	-3.577169E-002	-6.896580E-003	-1.262255E-001	-2.433616E-001
752	7	-3.576353E-002	-6.895253E-003	-1.261972E-001	-2.433146E-001
752	8	-3.575575E-002	-6.896580E-003	-1.261697E-001	-2.433616E-001
752	9	-3.576315E-002	-6.896580E-003	-1.261974E-001	-2.433616E-001
753	1	-3.542509E-002	-7.146355E-003	-1.250055E-001	-2.521761E-001
753	2	-3.571153E-002	-7.146509E-003	-1.260151E-001	-2.521741E-001
753	3	-3.571194E-002	-7.095991E-003	-1.260149E-001	-2.503991E-001
753	4	-3.542561E-002	-7.096055E-003	-1.250032E-001	-2.503973E-001

753	5	-3.556858E-002	-7.146477E-003	-1.255100E-001	-2.521768E-001
753	6	-3.571110E-002	-7.121172E-003	-1.260151E-001	-2.512847E-001
753	7	-3.556858E-002	-7.096023E-003	-1.255102E-001	-2.504001E-001
753	8	-3.542487E-002	-7.121172E-003	-1.250060E-001	-2.512847E-001
753	9	-3.556870E-002	-7.121172E-003	-1.255109E-001	-2.512847E-001
754	1	-3.478112E-002	-7.476560E-003	-1.227315E-001	-2.638289E-001
754	2	-3.538696E-002	-7.476623E-003	-1.245897E-001	-2.638269E-001
754	3	-3.538715E-002	-7.384327E-003	-1.245891E-001	-2.605662E-001
754	4	-3.478157E-002	-7.384152E-003	-1.227338E-001	-2.605682E-001
754	5	-3.508458E-002	-7.476592E-003	-1.236608E-001	-2.638301E-001
754	6	-3.538706E-002	-7.430387E-003	-1.245896E-001	-2.621954E-001
754	7	-3.508458E-002	-7.384244E-003	-1.236608E-001	-2.605672E-001
754	8	-3.478252E-002	-7.430387E-003	-1.227362E-001	-2.621954E-001
754	9	-3.508459E-002	-7.430387E-003	-1.236608E-001	-2.621954E-001
755	1	-3.340810E-002	-8.062219E-003	-1.178883E-001	-2.844925E-001
755	2	-3.454063E-002	-8.062371E-003	-1.218838E-001	-2.844943E-001
755	3	-3.454031E-002	-7.863435E-003	-1.218840E-001	-2.774811E-001
755	4	-3.340903E-002	-7.863586E-003	-1.178892E-001	-2.774793E-001
755	5	-3.397435E-002	-8.062250E-003	-1.198869E-001	-2.844931E-001
755	6	-3.454071E-002	-7.962825E-003	-1.218838E-001	-2.809854E-001
755	7	-3.397423E-002	-7.863554E-003	-1.198852E-001	-2.774782E-001
755	8	-3.340833E-002	-7.962825E-003	-1.178878E-001	-2.809854E-001
755	9	-3.397441E-002	-7.962825E-003	-1.198848E-001	-2.809854E-001
756	1	-3.412861E-002	-8.514588E-003	-1.204321E-001	-3.004537E-001
756	2	-3.335622E-002	-8.514629E-003	-1.177039E-001	-3.004575E-001
756	3	-3.335656E-002	-8.650268E-003	-1.177039E-001	-3.052411E-001
756	4	-3.412934E-002	-8.650318E-003	-1.204307E-001	-3.052457E-001
756	5	-3.374212E-002	-8.514597E-003	-1.190669E-001	-3.004546E-001
756	6	-3.335630E-002	-8.582518E-003	-1.177031E-001	-3.028515E-001
756	7	-3.374212E-002	-8.650294E-003	-1.190669E-001	-3.052415E-001
756	8	-3.412933E-002	-8.582431E-003	-1.204330E-001	-3.028493E-001
756	9	-3.374212E-002	-8.582433E-003	-1.190669E-001	-3.028506E-001
757	1	+3.580654E-005	-2.029278E-004	+1.263384E-002	-7.160767E-001
757	2	-2.943776E-002	-2.029298E-002	-1.038772E-001	-7.160769E-001
757	3	-2.943778E-002	-1.449127E-002	-1.038775E-001	-5.113558E-001
757	4	+3.580277E-005	-1.449129E-004	+1.263478E-002	-5.113539E-001
757	5	-1.292893E-004	-2.029298E-004	-4.562235E-002	-7.160746E-001
757	6	-2.943779E-002	-1.739210E-002	-1.038786E-001	-6.137142E-001
757	7	-1.292893E-004	-1.449127E-004	-4.562235E-002	-5.113567E-001
757	8	+3.579720E-005	-1.739207E-004	+1.263431E-002	-6.137142E-001
757	9	-1.292893E-004	-1.739207E-004	-4.562235E-002	-6.137142E-001
758	1	-5.142540E-003	-2.453665E-003	-1.814569E-001	-8.657953E-001
758	2	-5.479408E-003	-2.537408E-003	-1.933431E-001	-8.953548E-001
758	3	-5.469786E-003	-2.458029E-003	-1.930084E-001	-8.673317E-001
758	4	-5.132989E-003	-2.373857E-003	-1.811187E-001	-8.376349E-001
758	5	-5.311438E-003	-2.495657E-003	-1.874167E-001	-8.806297E-001
758	6	-5.474410E-003	-2.497753E-003	-1.931739E-001	-8.813546E-001
758	7	-5.301663E-003	-2.415997E-003	-1.870745E-001	-8.525118E-001
758	8	-5.137587E-003	-2.413810E-003	-1.812866E-001	-8.517323E-001
758	9	-5.306594E-003	-2.455867E-003	-1.872426E-001	-8.665806E-001
759	1	-3.492994E-003	-3.394398E-003	-1.232522E-001	-1.197741E+000
759	2	-3.032072E-003	-3.326603E-003	-1.069898E-001	-1.173813E+000
759	3	-3.032059E-003	-3.529060E-003	-1.069888E-001	-1.245268E+000
759	4	-3.492983E-003	-3.689768E-003	-1.232522E-001	-1.273736E+000
759	5	-3.255411E-003	-3.359442E-003	-1.148707E-001	-1.185421E+000
759	6	-3.032133E-003	-3.427807E-003	-1.069902E-001	-1.209537E+000
759	7	-3.255411E-003	-3.568142E-003	-1.148707E-001	-1.259854E+000
759	8	-3.493031E-003	-3.502117E-003	-1.232507E-001	-1.235744E+000
759	9	-3.255411E-003	-3.463801E-003	-1.148707E-001	-1.222233E+000
760	1	-4.694828E-003	-3.120947E-003	-1.656626E-001	-1.101259E+000

760	2	-4.662975E-003	-3.115236E-003	-1.645395E-001	-1.099227E+000
760	3	-4.663078E-003	-3.126754E-003	-1.645402E-001	-1.103388E+000
760	4	-4.694663E-003	-3.133332E-003	-1.656597E-001	-1.105630E+000
760	5	-4.678356E-003	-3.117966E-003	-1.650765E-001	-1.100191E+000
760	6	-4.663127E-003	-3.120984E-003	-1.645377E-001	-1.101265E+000
760	7	-4.678356E-003	-3.129922E-003	-1.650765E-001	-1.104438E+000
760	8	-4.694686E-003	-3.127172E-003	-1.656573E-001	-1.103453E+000
760	9	-4.678356E-003	-3.123957E-003	-1.650765E-001	-1.102318E+000
761	1	-5.015431E-005	-1.342424E-005	-1.769654E-001	-4.736870E-001
761	2	-5.346946E-003	-1.425236E-003	-1.886730E-001	-5.028962E-001
761	3	-5.347112E-003	-1.351225E-003	-1.886729E-001	-4.768020E-001
761	4	-5.263668E-003	-1.330893E-003	-1.769605E-001	-4.674546E-001
761	5	-5.181332E-003	-1.383930E-003	-1.828241E-001	-4.883431E-001
761	6	-5.346917E-003	-1.388258E-003	-1.886727E-001	-4.898511E-001
761	7	-5.181332E-003	-1.309729E-003	-1.828241E-001	-4.621475E-001
761	8	-5.015122E-005	-1.305204E-005	-1.769630E-001	-4.605616E-001
761	9	-5.181332E-003	-1.346863E-003	-1.828241E-001	-4.752387E-001
762	1	-5.163249E-003	-1.584641E-003	-1.821844E-001	-5.591593E-001
762	2	-5.603524E-003	-1.694540E-003	-1.977273E-001	-5.979270E-001
762	3	-5.600487E-003	-1.594812E-003	-1.976172E-001	-5.627414E-001
762	4	-5.160030E-003	-1.484663E-003	-1.820707E-001	-5.238761E-001
762	5	-5.383844E-003	-1.639656E-003	-1.899617E-001	-5.785577E-001
762	6	-5.601849E-003	-1.644746E-003	-1.976634E-001	-5.803469E-001
762	7	-5.380502E-003	-1.539739E-003	-1.898562E-001	-5.433220E-001
762	8	-5.161699E-003	-1.534606E-003	-1.821390E-001	-5.415072E-001
762	9	-5.382034E-003	-1.589740E-003	-1.899092E-001	-5.609477E-001
763	1	-2.832268E-003	-3.583575E-003	-9.993829E-002	-1.264493E+000
763	2	-1.947377E-003	-3.453390E-003	-6.871632E-002	-1.218551E+000
763	3	-1.947407E-003	-3.873831E-003	-6.871591E-002	-1.366986E+000
763	4	-2.832230E-003	-4.028167E-003	-9.993848E-002	-1.421368E+000
763	5	-2.377357E-003	-3.516670E-003	-8.388751E-002	-1.240884E+000
763	6	-1.947337E-003	-3.663606E-003	-6.871237E-002	-1.292732E+000
763	7	-2.377396E-003	-3.948881E-003	-8.388919E-002	-1.393374E+000
763	8	-2.832215E-003	-3.805838E-003	-9.993827E-002	-1.342938E+000
763	9	-2.377398E-003	-3.732740E-003	-8.388856E-002	-1.317131E+000
764	1	-5.277331E-003	-1.811913E-003	-1.862132E-001	-6.393537E-001
764	2	-5.825127E-003	-1.949204E-003	-2.055503E-001	-6.877864E-001
764	3	-5.814189E-003	-1.823797E-003	-2.051500E-001	-6.435292E-001
764	4	-5.269225E-003	-1.687353E-003	-1.859291E-001	-5.954039E-001
764	5	-5.551067E-003	-1.880525E-003	-1.958776E-001	-6.635545E-001
764	6	-5.819590E-003	-1.886284E-003	-2.053550E-001	-6.655989E-001
764	7	-5.541428E-003	-1.755530E-003	-1.955329E-001	-6.194533E-001
764	8	-5.273332E-003	-1.749475E-003	-1.860698E-001	-6.173058E-001
764	9	-5.546301E-003	-1.817862E-003	-1.957064E-001	-6.414302E-001
765	1	-5.401783E-003	-2.028001E-003	-1.934210E-001	-7.155982E-001
765	2	-5.984173E-003	-2.153196E-003	-2.111598E-001	-7.597709E-001
765	3	-5.973853E-003	-2.037467E-003	-2.107912E-001	-7.189372E-001
765	4	-5.474251E-003	-1.913325E-003	-1.931685E-001	-6.751454E-001
765	5	-5.732426E-003	-2.038491E-003	-2.022709E-001	-7.376335E-001
765	6	-5.979881E-003	-2.095892E-003	-2.109772E-001	-7.392828E-001
765	7	-5.723554E-003	-1.975284E-003	-2.019628E-001	-6.969965E-001
765	8	-5.477821E-003	-1.970507E-003	-1.932964E-001	-6.953174E-001
765	9	-5.727948E-003	-2.032694E-003	-2.021166E-001	-7.172492E-001
766	1	-5.326222E-003	-2.958818E-003	-1.879403E-001	-1.044031E+000
766	2	-5.527043E-003	-3.082771E-003	-1.950269E-001	-1.059558E+000
766	3	-5.527203E-003	-2.936029E-003	-1.950322E-001	-1.036013E+000
766	4	-5.326398E-003	-2.886531E-003	-1.879412E-001	-1.018542E+000
766	5	-5.430724E-003	-2.981644E-003	-1.916243E-001	-1.052110E+000
766	6	-5.527071E-003	-2.969431E-003	-1.950281E-001	-1.047779E+000
766	7	-5.430645E-003	-2.912336E-003	-1.916242E-001	-1.027622E+000

766	8	-5.326202E-003	-2.922706E-003	-1.879404E-001	-1.031298E+000
766	9	-5.430661E-003	-2.946963E-003	-1.916263E-001	-1.039868E+000
767	1	-5.604211E-003	-2.249219E-003	-1.977548E-001	-7.936720E-001
767	2	-6.059403E-003	-2.362903E-003	-2.138103E-001	-8.337682E-001
767	3	-6.049826E-003	-2.256693E-003	-2.134722E-001	-7.963036E-001
767	4	-5.594814E-003	-2.142841E-003	-1.974127E-001	-7.561311E-001
767	5	-5.832223E-003	-2.306181E-003	-2.057968E-001	-8.137382E-001
767	6	-6.054712E-003	-2.389806E-003	-2.136432E-001	-8.150207E-001
767	7	-5.822495E-003	-2.199849E-003	-2.054586E-001	-7.762284E-001
767	8	-5.599657E-003	-2.196111E-003	-1.975878E-001	-7.749814E-001
767	9	-5.827414E-003	-2.253830E-003	-2.056270E-001	-7.949948E-001
768	1	-5.647744E-003	-2.478896E-003	-1.992842E-001	-8.743961E-001
768	2	-6.040767E-003	-2.576437E-003	-2.131496E-001	-9.091169E-001
768	3	-6.029407E-003	-2.483365E-003	-2.127588E-001	-8.762789E-001
768	4	-5.636318E-003	-2.384590E-003	-1.988861E-001	-8.414843E-001
768	5	-5.844645E-003	-2.527371E-003	-2.062347E-001	-8.917904E-001
768	6	-6.035123E-003	-2.529889E-003	-2.129508E-001	-8.927037E-001
768	7	-5.833359E-003	-2.434086E-003	-2.058348E-001	-8.588052E-001
768	8	-5.641994E-003	-2.431283E-003	-1.990027E-001	-8.579254E-001
768	9	-5.838994E-003	-2.488719E-003	-2.060308E-001	-8.753481E-001
769	1	-5.592850E-003	-2.715040E-003	-1.973468E-001	-9.580150E-001
769	2	-5.909310E-003	-2.794509E-003	-2.085204E-001	-9.860635E-001
769	3	-5.898512E-003	-2.718799E-003	-2.081344E-001	-9.593565E-001
769	4	-5.583491E-003	-2.640847E-003	-1.970137E-001	-9.315626E-001
769	5	-5.750787E-003	-2.754722E-003	-2.029239E-001	-9.720152E-001
769	6	-5.940888E-003	-2.756635E-003	-2.083243E-001	-9.726778E-001
769	7	-5.740592E-003	-2.679375E-003	-2.025598E-001	-9.454411E-001
769	8	-5.587978E-003	-2.677457E-003	-1.971807E-001	-9.447581E-001
769	9	-5.745640E-003	-2.716924E-003	-2.027407E-001	-9.586967E-001
770	1	-4.631118E-003	-3.443287E-003	-1.634153E-001	-1.214987E+000
770	2	-4.455322E-003	-3.411033E-003	-1.572103E-001	-1.203620E+000
770	3	-4.455321E-003	-3.482031E-003	-1.572088E-001	-1.228659E+000
770	4	-4.631221E-003	-3.519128E-003	-1.634133E-001	-1.241751E+000
770	5	-4.540312E-003	-3.426625E-003	-1.602068E-001	-1.209115E+000
770	6	-4.455326E-003	-3.446524E-003	-1.572091E-001	-1.216144E+000
770	7	-4.540339E-003	-3.500017E-003	-1.602089E-001	-1.235803E+000
770	8	-4.631169E-003	-3.481247E-003	-1.634148E-001	-1.228303E+000
770	9	-4.540281E-003	-3.463316E-003	-1.602095E-001	-1.222054E+000
771	1	-1.553219E-003	-3.699524E-003	-5.480658E-002	-1.305408E+000
771	2	+2.136965E-004	-3.441239E-003	+7.541884E-003	-1.214264E+000
771	3	+2.137248E-004	-4.336985E-003	+7.540947E-003	-1.530384E+000
771	4	-1.553226E-003	-4.644033E-003	-5.480723E-002	-1.638697E+000
771	5	-6.462925E-004	-3.566896E-003	-2.280651E-002	-1.258622E+000
771	6	+2.137628E-004	-3.889040E-003	+7.541323E-003	-1.372282E+000
771	7	-6.462925E-004	-4.486431E-003	-2.280651E-002	-1.583073E+000
771	8	-1.553246E-003	-4.171775E-003	-5.480934E-002	-1.472048E+000
771	9	-6.462925E-004	-4.026658E-003	-2.280651E-002	-1.420842E+000
772	1	-5.490777E-003	-1.531280E-003	-1.937441E-001	-5.403413E-001
772	2	-6.154989E-003	-1.697373E-003	-2.171845E-001	-5.989426E-001
772	3	-6.146870E-003	-1.547350E-003	-2.168989E-001	-5.459957E-001
772	4	-5.489733E-003	-1.384195E-003	-1.937187E-001	-4.883976E-001
772	5	-5.821824E-003	-1.614072E-003	-2.054262E-001	-5.695391E-001
772	6	-6.150863E-003	-1.621933E-003	-2.170434E-001	-5.723357E-001
772	7	-5.817040E-003	-1.465428E-003	-2.052612E-001	-5.170840E-001
772	8	-5.490298E-003	-1.457346E-003	-1.937320E-001	-5.142254E-001
772	9	-5.819394E-003	-1.539370E-003	-2.053384E-001	-5.431814E-001
773	1	-5.757288E-003	-1.771803E-003	-2.031503E-001	-6.251927E-001
773	2	-6.369912E-003	-1.925097E-003	-2.247648E-001	-6.793888E-001
773	3	-6.361697E-003	-1.785828E-003	-2.244814E-001	-6.301566E-001
773	4	-5.752607E-003	-1.633989E-003	-2.029876E-001	-5.765387E-001

773	5	-6.063020E-003	-1.848317E-003	-2.139346E-001	-6.521898E-001
773	6	-6.365702E-003	-1.855267E-003	-2.246227E-001	-6.546479E-001
773	7	-6.056751E-003	-1.709739E-003	-2.137897E-001	-6.033109E-001
773	8	-5.754855E-003	-1.702719E-003	-2.030638E-001	-6.008148E-001
773	9	-6.059784E-003	-1.778848E-003	-2.138254E-001	-6.276798E-001
774	1	-5.988306E-003	-2.006407E-003	-2.113028E-001	-7.079781E-001
774	2	-6.542653E-003	-2.144225E-003	-2.308612E-001	-7.566178E-001
774	3	-6.534620E-003	-2.017361E-003	-2.305797E-001	-7.118441E-001
774	4	-5.976806E-003	-1.877262E-003	-2.108929E-001	-6.623982E-001
774	5	-6.266879E-003	-2.075666E-003	-2.211363E-001	-7.324215E-001
774	6	-6.538678E-003	-2.080963E-003	-2.307225E-001	-7.342727E-001
774	7	-6.257208E-003	-1.947648E-003	-2.207984E-001	-6.872461E-001
774	8	-5.982371E-003	-1.942073E-003	-2.110960E-001	-6.852475E-001
774	9	-6.262105E-003	-2.011844E-003	-2.209623E-001	-7.099094E-001
775	1	-5.576243E-003	-3.314733E-003	-1.967629E-001	-1.169633E+000
775	2	-5.717273E-003	-3.345352E-003	-2.017366E-001	-1.180433E+000
775	3	-5.717273E-003	-3.293846E-003	-2.017381E-001	-1.162273E+000
775	4	-5.576179E-003	-3.259388E-003	-1.967632E-001	-1.150100E+000
775	5	-5.649399E-003	-3.330613E-003	-1.993428E-001	-1.175233E+000
775	6	-5.717338E-003	-3.319622E-003	-2.017398E-001	-1.171356E+000
775	7	-5.649399E-003	-3.277274E-003	-1.993428E-001	-1.156419E+000
775	8	-5.576199E-003	-3.287058E-003	-1.967688E-001	-1.159877E+000
775	9	-5.649399E-003	-3.303947E-003	-1.993428E-001	-1.165829E+000
776	1	-6.137451E-003	-2.246518E-003	-2.165688E-001	-7.927062E-001
776	2	-6.650388E-003	-2.375004E-003	-2.346622E-001	-8.380247E-001
776	3	-6.636288E-003	-2.255602E-003	-2.341705E-001	-7.958979E-001
776	4	-6.126176E-003	-2.127692E-003	-2.161661E-001	-7.507963E-001
776	5	-6.394042E-003	-2.210794E-003	-2.256169E-001	-8.153840E-001
776	6	-6.643282E-003	-2.315110E-003	-2.344097E-001	-8.169835E-001
776	7	-6.381203E-003	-2.191707E-003	-2.251668E-001	-7.733642E-001
776	8	-6.131683E-003	-2.187006E-003	-2.163573E-001	-7.716995E-001
776	9	-6.387662E-003	-2.251092E-003	-2.253898E-001	-7.943113E-001
777	1	-4.367434E-003	-3.825638E-003	-1.541070E-001	-1.349911E+000
777	2	-3.955770E-003	-3.750279E-003	-1.395825E-001	-1.323315E+000
777	3	-3.955739E-003	-3.931033E-003	-1.395831E-001	-1.387105E+000
777	4	-4.367312E-003	-4.017648E-003	-1.541034E-001	-1.417652E+000
777	5	-4.155279E-003	-3.786817E-003	-1.466246E-001	-1.336219E+000
777	6	-3.955755E-003	-3.840666E-003	-1.395829E-001	-1.355219E+000
777	7	-4.155279E-003	-3.973816E-003	-1.466246E-001	-1.401917E+000
777	8	-4.367296E-003	-3.921648E-003	-1.541037E-001	-1.383787E+000
777	9	-4.155279E-003	-3.879943E-003	-1.466246E-001	-1.369867E+000
778	1	-6.201812E-003	-2.498070E-003	-2.188331E-001	-8.814464E-001
778	2	-6.668567E-003	-2.615233E-003	-2.353022E-001	-9.228130E-001
778	3	-6.652691E-003	-2.585318E-003	-2.347474E-001	-8.840181E-001
778	4	-6.191285E-003	-2.390182E-003	-2.184657E-001	-8.434804E-001
778	5	-6.434448E-003	-2.556496E-003	-2.270384E-001	-9.020743E-001
778	6	-6.668486E-003	-2.559963E-003	-2.358186E-001	-9.033170E-001
778	7	-6.421187E-003	-2.447563E-003	-2.265750E-001	-8.636522E-001
778	8	-6.196728E-003	-2.443853E-003	-2.186537E-001	-8.623336E-001
778	9	-6.427838E-003	-2.501733E-003	-2.268110E-001	-8.827478E-001
779	1	-6.173937E-003	-2.764014E-003	-2.178556E-001	-9.752991E-001
779	2	-6.568979E-003	-2.862672E-003	-2.317929E-001	-1.010131E+000
779	3	-6.555189E-003	-2.768809E-003	-2.313011E-001	-9.770011E-001
779	4	-6.162606E-003	-2.671836E-003	-2.174479E-001	-9.425074E-001
779	5	-6.370977E-003	-2.813229E-003	-2.248059E-001	-9.926668E-001
779	6	-6.561963E-003	-2.815633E-003	-2.315429E-001	-9.935151E-001
779	7	-6.358364E-003	-2.719819E-003	-2.243612E-001	-9.596970E-001
779	8	-6.168298E-003	-2.717411E-003	-2.176546E-001	-9.588631E-001
779	9	-6.364708E-003	-2.766422E-003	-2.245806E-001	-9.761397E-001
780	1	+2.877878E-004	-7.547314E-003	+1.815489E-002	-2.663127E+000

780	2	-8.028079E-006	-7.707877E-005	-2.832795E-002	-2.719783E+000
780	3	-8.028082E-006	-7.111882E-005	-2.832646E-002	-2.509484E+000
780	4	+2.877308E-004	-6.928983E-003	+1.815297E-002	-2.442124E+000
780	5	-2.648739E-004	-7.454166E-003	-9.568237E-003	-2.692157E+000
780	6	-8.027920E-006	-7.409892E-005	-2.832721E-002	-2.614640E+000
780	7	-2.866486E-004	-7.420232E-003	-9.568338E-003	-2.476627E+000
780	8	+2.877434E-004	-7.234096E-003	+1.815324E-002	-2.552619E+000
780	9	-2.821317E-004	-7.621509E-003	-9.568033E-003	-2.584403E+000
781	1	-6.031623E-003	-3.043004E-003	-2.128379E-001	-1.073755E+000
781	2	-6.321686E-003	-3.115615E-003	-2.230674E-001	-1.099363E+000
781	3	-6.309413E-003	-3.046108E-003	-2.226304E-001	-1.074852E+000
781	4	-6.021294E-003	-2.974086E-003	-2.124644E-001	-1.049420E+000
781	5	-6.176688E-003	-3.079225E-003	-2.179460E-001	-1.086541E+000
781	6	-6.315613E-003	-3.000693E-003	-2.228481E-001	-1.087869E+000
781	7	-6.165152E-003	-3.018100E-003	-2.175412E-001	-1.062147E+000
781	8	-6.026363E-003	-3.008403E-003	-2.126410E-001	-1.061559E+000
781	9	-6.170873E-003	-3.044559E-003	-2.177426E-001	-1.074296E+000
782	1	-3.320593E-002	-3.761154E-004	-1.171754E-001	-1.327198E-002
782	2	-3.320318E-002	-3.760761E-004	-1.171654E-001	-1.327096E-002
782	3	-3.320374E-002	-3.764274E-004	-1.171657E-001	-1.328343E-002
782	4	-3.320602E-002	-3.764343E-004	-1.171725E-001	-1.328439E-002
782	5	-3.320465E-002	-3.761837E-004	-1.171696E-001	-1.327440E-002
782	6	-3.320374E-002	-3.763078E-004	-1.171656E-001	-1.327889E-002
782	7	-3.320465E-002	-3.764086E-004	-1.171696E-001	-1.328524E-002
782	8	-3.320564E-002	-3.763078E-004	-1.171723E-001	-1.327889E-002
782	9	-3.320465E-002	-3.763078E-004	-1.171696E-001	-1.327889E-002
783	1	-3.321632E-002	-1.122700E-003	-1.172101E-001	-3.961767E-002
783	2	-3.320721E-002	-1.122736E-003	-1.171786E-001	-3.961617E-002
783	3	-3.320747E-002	-1.124209E-003	-1.171789E-001	-3.967245E-002
783	4	-3.321582E-002	-1.124217E-003	-1.172106E-001	-3.966961E-002
783	5	-3.321288E-002	-1.122784E-003	-1.171935E-001	-3.961961E-002
783	6	-3.320742E-002	-1.123503E-003	-1.171788E-001	-3.964499E-002
783	7	-3.321135E-002	-1.124243E-003	-1.171942E-001	-3.967426E-002
783	8	-3.321641E-002	-1.123503E-003	-1.172891E-001	-3.964499E-002
783	9	-3.321191E-002	-1.123503E-003	-1.171939E-001	-3.964499E-002
784	1	-3.323747E-002	-1.857586E-003	-1.172861E-001	-6.554801E-002
784	2	-3.321977E-002	-1.857683E-003	-1.172223E-001	-6.554700E-002
784	3	-3.321990E-002	-1.860609E-003	-1.172222E-001	-6.565700E-002
784	4	-3.323755E-002	-1.860617E-003	-1.172851E-001	-6.565421E-002
784	5	-3.322924E-002	-1.857662E-003	-1.172532E-001	-6.555044E-002
784	6	-3.321970E-002	-1.859126E-003	-1.172236E-001	-6.560327E-002
784	7	-3.322826E-002	-1.860643E-003	-1.172540E-001	-6.565884E-002
784	8	-3.323765E-002	-1.859126E-003	-1.172868E-001	-6.560327E-002
784	9	-3.322835E-002	-1.859126E-003	-1.172545E-001	-6.560327E-002
785	1	-3.327801E-002	-2.572766E-003	-1.174298E-001	-9.078605E-002
785	2	-3.324487E-002	-2.572734E-003	-1.173125E-001	-9.078503E-002
785	3	-3.324476E-002	-2.578698E-003	-1.173098E-001	-9.099306E-002
785	4	-3.327848E-002	-2.578641E-003	-1.174322E-001	-9.099414E-002
785	5	-3.326153E-002	-2.572842E-003	-1.173692E-001	-9.078848E-002
785	6	-3.324515E-002	-2.575719E-003	-1.173128E-001	-9.088992E-002
785	7	-3.326188E-002	-2.578666E-003	-1.173692E-001	-9.099493E-002
785	8	-3.327858E-002	-2.575719E-003	-1.174307E-001	-9.088992E-002
785	9	-3.326149E-002	-2.575719E-003	-1.173717E-001	-9.088992E-002
786	1	-3.335207E-002	-3.260930E-003	-1.176917E-001	-1.150677E-001
786	2	-3.329265E-002	-3.260956E-003	-1.174802E-001	-1.150680E-001
786	3	-3.329206E-002	-3.271510E-003	-1.174777E-001	-1.154420E-001
786	4	-3.335255E-002	-3.271536E-003	-1.176929E-001	-1.154423E-001
786	5	-3.332228E-002	-3.268945E-003	-1.175853E-001	-1.153679E-001
786	6	-3.329189E-002	-3.266234E-003	-1.174772E-001	-1.152563E-001
786	7	-3.332252E-002	-3.271594E-003	-1.175845E-001	-1.154435E-001

786	8	-3.335198E-002	-3.266239E-003	-1.176913E-001	-1.152562E-001
786	9	-3.332247E-002	-3.266204E-003	-1.175843E-001	-1.152552E-001
787	1	-3.347417E-002	-3.915174E-003	-1.181169E-001	-1.381547E-001
787	2	-3.337542E-002	-3.915197E-003	-1.177721E-001	-1.381567E-001
787	3	-3.337574E-002	-3.932375E-003	-1.177724E-001	-1.387615E-001
787	4	-3.347476E-002	-3.932389E-003	-1.181185E-001	-1.387628E-001
787	5	-3.342439E-002	-3.915208E-003	-1.179460E-001	-1.381557E-001
787	6	-3.337552E-002	-3.923791E-003	-1.177722E-001	-1.384585E-001
787	7	-3.342439E-002	-3.932471E-003	-1.179460E-001	-1.387635E-001
787	8	-3.347399E-002	-3.923791E-003	-1.181187E-001	-1.384585E-001
787	9	-3.342439E-002	-3.923791E-003	-1.179460E-001	-1.384585E-001
788	1	-3.365659E-002	-4.527753E-003	-1.187672E-001	-1.597717E-001
788	2	-3.350975E-002	-4.527765E-003	-1.182428E-001	-1.597703E-001
788	3	-3.350865E-002	-4.553674E-003	-1.182427E-001	-1.606865E-001
788	4	-3.365645E-002	-4.553691E-003	-1.187656E-001	-1.606879E-001
788	5	-3.358315E-002	-4.527742E-003	-1.185047E-001	-1.597727E-001
788	6	-3.350893E-002	-4.540771E-003	-1.182454E-001	-1.602293E-001
788	7	-3.358315E-002	-4.553772E-003	-1.185047E-001	-1.606885E-001
788	8	-3.365675E-002	-4.540771E-003	-1.187654E-001	-1.602293E-001
788	9	-3.358315E-002	-4.540771E-003	-1.185047E-001	-1.602293E-001
789	1	-3.391264E-002	-5.091279E-003	-1.196678E-001	-1.796591E-001
789	2	-3.370828E-002	-5.091301E-003	-1.189464E-001	-1.796577E-001
789	3	-3.370847E-002	-5.127165E-003	-1.189478E-001	-1.809230E-001
789	4	-3.391212E-002	-5.127185E-003	-1.196666E-001	-1.809244E-001
789	5	-3.381029E-002	-5.091312E-003	-1.193070E-001	-1.796568E-001
789	6	-3.370870E-002	-5.109240E-003	-1.189482E-001	-1.802901E-001
789	7	-3.381029E-002	-5.127265E-003	-1.193070E-001	-1.809250E-001
789	8	-3.391320E-002	-5.109240E-003	-1.196662E-001	-1.802901E-001
789	9	-3.381029E-002	-5.109240E-003	-1.193070E-001	-1.802901E-001
790	1	-3.424313E-002	-5.597117E-003	-1.208344E-001	-1.975048E-001
790	2	-3.398035E-002	-5.597139E-003	-1.199070E-001	-1.975072E-001
790	3	-3.398066E-002	-5.643180E-003	-1.199080E-001	-1.991339E-001
790	4	-3.424381E-002	-5.643203E-003	-1.208361E-001	-1.991316E-001
790	5	-3.411183E-002	-5.597091E-003	-1.203718E-001	-1.975063E-001
790	6	-3.398046E-002	-5.620148E-003	-1.199079E-001	-1.983186E-001
790	7	-3.411188E-002	-5.643306E-003	-1.203705E-001	-1.991360E-001
790	8	-3.424300E-002	-5.620148E-003	-1.208353E-001	-1.983186E-001
790	9	-3.411185E-002	-5.620148E-003	-1.203706E-001	-1.983186E-001
791	1	-3.463402E-002	-6.036063E-003	-1.222138E-001	-2.129962E-001
791	2	-3.432717E-002	-6.036133E-003	-1.211284E-001	-2.129986E-001
791	3	-3.432624E-002	-6.090185E-003	-1.211285E-001	-2.149062E-001
791	4	-3.463442E-002	-6.090277E-003	-1.222162E-001	-2.149079E-001
791	5	-3.448025E-002	-6.036103E-003	-1.216706E-001	-2.129972E-001
791	6	-3.432570E-002	-6.063170E-003	-1.211277E-001	-2.139522E-001
791	7	-3.448039E-002	-6.090293E-003	-1.216700E-001	-2.149084E-001
791	8	-3.463504E-002	-6.063170E-003	-1.222160E-001	-2.139522E-001
791	9	-3.448020E-002	-6.063170E-003	-1.216708E-001	-2.139522E-001
792	1	-3.584362E-002	-6.399521E-003	-1.236585E-001	-2.258232E-001
792	2	-3.472551E-002	-6.399482E-003	-1.225363E-001	-2.258212E-001
792	3	-3.472529E-002	-6.455331E-003	-1.225365E-001	-2.277896E-001
792	4	-3.584332E-002	-6.455303E-003	-1.236581E-001	-2.277914E-001
792	5	-3.488446E-002	-6.399553E-003	-1.230974E-001	-2.258203E-001
792	6	-3.472515E-002	-6.427446E-003	-1.225364E-001	-2.268048E-001
792	7	-3.488436E-002	-6.455483E-003	-1.230973E-001	-2.277915E-001
792	8	-3.584347E-002	-6.427446E-003	-1.236593E-001	-2.268048E-001
792	9	-3.488430E-002	-6.427446E-003	-1.230972E-001	-2.268048E-001
793	1	-3.537177E-002	-6.682816E-003	-1.248183E-001	-2.358197E-001
793	2	-3.512542E-002	-6.682951E-003	-1.239490E-001	-2.358182E-001
793	3	-3.512522E-002	-6.726154E-003	-1.239482E-001	-2.373472E-001
793	4	-3.537134E-002	-6.726130E-003	-1.248161E-001	-2.373454E-001

793	5	-3.524879E-002	-6.682837E-003	-1.243836E-001	-2.358207E-001
793	6	-3.512532E-002	-6.704524E-003	-1.239479E-001	-2.365820E-001
793	7	-3.524879E-002	-6.726228E-003	-1.243836E-001	-2.373496E-001
793	8	-3.537155E-002	-6.704524E-003	-1.248188E-001	-2.365820E-001
793	9	-3.524879E-002	-6.704524E-003	-1.243836E-001	-2.365820E-001
794	1	-3.544220E-002	-6.895589E-003	-1.250627E-001	-2.433235E-001
794	2	-3.541254E-002	-6.895537E-003	-1.249585E-001	-2.433257E-001
794	3	-3.541228E-002	-6.900727E-003	-1.249595E-001	-2.435068E-001
794	4	-3.544224E-002	-6.900707E-003	-1.250629E-001	-2.435051E-001
794	5	-3.542674E-002	-6.895625E-003	-1.250112E-001	-2.433244E-001
794	6	-3.541246E-002	-6.898141E-003	-1.249600E-001	-2.434168E-001
794	7	-3.542675E-002	-6.900804E-003	-1.250108E-001	-2.435092E-001
794	8	-3.544199E-002	-6.898141E-003	-1.250638E-001	-2.434168E-001
794	9	-3.542710E-002	-6.898141E-003	-1.250111E-001	-2.434168E-001
795	1	-3.503045E-002	-7.879338E-003	-1.236134E-001	-2.498129E-001
795	2	-3.539356E-002	-7.879479E-003	-1.248927E-001	-2.498114E-001
795	3	-3.539343E-002	-7.915634E-003	-1.248928E-001	-2.475604E-001
795	4	-3.503048E-002	-7.915618E-003	-1.236138E-001	-2.475589E-001
795	5	-3.521247E-002	-7.879448E-003	-1.242525E-001	-2.498100E-001
795	6	-3.539265E-002	-7.847439E-003	-1.248928E-001	-2.486860E-001
795	7	-3.521204E-002	-7.915713E-003	-1.242520E-001	-2.475630E-001
795	8	-3.503070E-002	-7.847439E-003	-1.236139E-001	-2.486860E-001
795	9	-3.521190E-002	-7.847439E-003	-1.242526E-001	-2.486860E-001
796	1	-3.392241E-002	-7.347062E-003	-1.197012E-001	-2.592586E-001
796	2	-3.484406E-002	-7.347139E-003	-1.229539E-001	-2.592565E-001
796	3	-3.484375E-002	-7.184881E-003	-1.229533E-001	-2.535350E-001
796	4	-3.392121E-002	-7.184988E-003	-1.197017E-001	-2.535374E-001
796	5	-3.438345E-002	-7.347093E-003	-1.213286E-001	-2.592595E-001
796	6	-3.484447E-002	-7.266059E-003	-1.229538E-001	-2.563975E-001
796	7	-3.438345E-002	-7.184994E-003	-1.213286E-001	-2.535376E-001
796	8	-3.392312E-002	-7.266059E-003	-1.197022E-001	-2.563975E-001
796	9	-3.438345E-002	-7.266059E-003	-1.213286E-001	-2.563975E-001
797	1	-3.245443E-002	-7.804763E-003	-1.145214E-001	-2.754088E-001
797	2	-3.361887E-002	-7.804920E-003	-1.186318E-001	-2.754097E-001
797	3	-3.361989E-002	-7.680279E-003	-1.186317E-001	-2.681989E-001
797	4	-3.245419E-002	-7.680241E-003	-1.145204E-001	-2.681897E-001
797	5	-3.303633E-002	-7.804793E-003	-1.165771E-001	-2.754089E-001
797	6	-3.361895E-002	-7.702518E-003	-1.186318E-001	-2.717983E-001
797	7	-3.303666E-002	-7.680364E-003	-1.165762E-001	-2.681936E-001
797	8	-3.245396E-002	-7.702518E-003	-1.145209E-001	-2.717983E-001
797	9	-3.303614E-002	-7.702518E-003	-1.165749E-001	-2.717983E-001
798	1	-3.186456E-002	-8.642795E-003	-1.096178E-001	-3.049815E-001
798	2	-3.212962E-002	-8.642858E-003	-1.133761E-001	-3.049794E-001
798	3	-3.212944E-002	-8.455807E-003	-1.133761E-001	-2.983814E-001
798	4	-3.186481E-002	-8.455805E-003	-1.096183E-001	-2.983842E-001
798	5	-3.159732E-002	-8.642828E-003	-1.114972E-001	-3.049824E-001
798	6	-3.212918E-002	-8.549320E-003	-1.133754E-001	-3.016818E-001
798	7	-3.159732E-002	-8.455926E-003	-1.114972E-001	-2.983842E-001
798	8	-3.186528E-002	-8.549320E-003	-1.096187E-001	-3.016818E-001
798	9	-3.159732E-002	-8.549320E-003	-1.114972E-001	-3.016818E-001
799	1	-1.193674E-004	-1.322308E-004	-4.212013E-002	-4.666051E-001
799	2	-2.849988E-002	-1.322307E-002	-1.005676E-001	-4.666067E-001
799	3	-2.849987E-002	-1.038905E-002	-1.005658E-001	-3.637742E-001
799	4	-1.193618E-004	-1.038906E-004	-4.211966E-002	-3.637734E-001
799	5	-2.134470E-002	-1.396011E-002	-7.134311E-002	-4.666059E-001
799	6	-2.849988E-002	-1.176606E-002	-1.005682E-001	-4.151912E-001
799	7	-2.021702E-002	-1.038905E-002	-7.134311E-002	-3.637771E-001
799	8	-1.193618E-004	-1.176610E-004	-4.211775E-002	-4.151912E-001
799	9	-2.021782E-002	-1.176606E-002	-7.134311E-002	-4.151912E-001
800	1	-6.338995E-003	-1.741116E-003	-2.236784E-001	-6.143534E-001

800	2	-6.932299E-003	-1.889072E-003	-2.446148E-001	-6.665815E-001
800	3	-6.924271E-003	-1.755048E-003	-2.443272E-001	-6.192954E-001
800	4	-6.330554E-003	-1.606379E-003	-2.233856E-001	-5.660185E-001
800	5	-6.636558E-003	-1.815263E-003	-2.341715E-001	-6.485324E-001
800	6	-6.928496E-003	-1.822128E-003	-2.444808E-001	-6.429424E-001
800	7	-6.628242E-003	-1.688911E-003	-2.338820E-001	-5.931199E-001
800	8	-6.334893E-003	-1.673708E-003	-2.235339E-001	-5.985817E-001
800	9	-6.632380E-003	-1.748119E-003	-2.340271E-001	-6.168221E-001
801	1	-3.788802E-003	-4.316040E-003	-1.336650E-001	-1.522949E+000
801	2	-3.868648E-003	-4.184765E-003	-1.082795E-001	-1.476634E+000
801	3	-3.868786E-003	-4.526155E-003	-1.082826E-001	-1.597082E+000
801	4	-3.788066E-003	-4.677447E-003	-1.336646E-001	-1.650476E+000
801	5	-3.418867E-003	-4.248551E-003	-1.206090E-001	-1.499143E+000
801	6	-3.868747E-003	-4.355450E-003	-1.082840E-001	-1.536850E+000
801	7	-3.417999E-003	-4.599631E-003	-1.206092E-001	-1.623012E+000
801	8	-3.788000E-003	-4.496738E-003	-1.336647E-001	-1.586705E+000
801	9	-3.418086E-003	-4.424099E-003	-1.206094E-001	-1.561075E+000
802	1	-6.546643E-003	-1.982513E-003	-2.309942E-001	-6.995271E-001
802	2	-7.141178E-003	-2.131876E-003	-2.519788E-001	-7.522562E-001
802	3	-7.129013E-003	-1.995384E-003	-2.515559E-001	-7.040867E-001
802	4	-6.537697E-003	-1.846888E-003	-2.306822E-001	-6.517084E-001
802	5	-6.843684E-003	-2.057200E-003	-2.414838E-001	-7.258956E-001
802	6	-7.135108E-003	-2.063476E-003	-2.517683E-001	-7.281091E-001
802	7	-6.833384E-003	-1.921099E-003	-2.411122E-001	-6.778606E-001
802	8	-6.541805E-003	-1.914556E-003	-2.308352E-001	-6.755522E-001
802	9	-6.838361E-003	-1.988965E-003	-2.413020E-001	-7.018149E-001
803	1	-5.746638E-003	-3.765983E-003	-2.027735E-001	-1.328849E+000
803	2	-5.813968E-003	-3.780726E-003	-2.051512E-001	-1.334058E+000
803	3	-5.813992E-003	-3.753581E-003	-2.051493E-001	-1.324476E+000
803	4	-5.746661E-003	-3.736999E-003	-2.027749E-001	-1.318629E+000
803	5	-5.781468E-003	-3.773587E-003	-2.040045E-001	-1.331535E+000
803	6	-5.813980E-003	-3.767138E-003	-2.051499E-001	-1.329269E+000
803	7	-5.781459E-003	-3.745600E-003	-2.040018E-001	-1.321660E+000
803	8	-5.746616E-003	-3.751493E-003	-2.027757E-001	-1.323742E+000
803	9	-5.781496E-003	-3.759578E-003	-2.040039E-001	-1.326603E+000
804	1	-6.710360E-003	-2.238045E-003	-2.367819E-001	-7.897400E-001
804	2	-7.293438E-003	-2.384246E-003	-2.573573E-001	-8.413072E-001
804	3	-7.281491E-003	-2.249176E-003	-2.569353E-001	-7.936231E-001
804	4	-6.701688E-003	-2.104234E-003	-2.364732E-001	-7.425025E-001
804	5	-7.001288E-003	-2.311073E-003	-2.470585E-001	-8.154759E-001
804	6	-7.287502E-003	-2.316584E-003	-2.571484E-001	-8.173949E-001
804	7	-6.991892E-003	-2.176658E-003	-2.466886E-001	-7.680355E-001
804	8	-6.705653E-003	-2.170992E-003	-2.366202E-001	-7.660493E-001
804	9	-6.996154E-003	-2.243618E-003	-2.468688E-001	-7.916871E-001
805	1	-6.816833E-003	-2.512939E-003	-2.405386E-001	-8.867044E-001
805	2	-7.365468E-003	-2.649731E-003	-2.598976E-001	-9.349704E-001
805	3	-7.349808E-003	-2.521866E-003	-2.593459E-001	-8.898481E-001
805	4	-6.801536E-003	-2.384712E-003	-2.399899E-001	-8.414699E-001
805	5	-7.891312E-003	-2.581416E-003	-2.582234E-001	-9.108784E-001
805	6	-7.357717E-003	-2.585767E-003	-2.596168E-001	-9.124802E-001
805	7	-7.075899E-003	-2.453382E-003	-2.496833E-001	-8.657017E-001
805	8	-6.808932E-003	-2.448872E-003	-2.402562E-001	-8.641825E-001
805	9	-7.083681E-003	-2.517413E-003	-2.499514E-001	-8.882798E-001
806	1	-6.831652E-003	-2.808418E-003	-2.410573E-001	-9.909911E-001
806	2	-7.317149E-003	-2.929331E-003	-2.581903E-001	-1.033635E+000
806	3	-7.299809E-003	-2.815012E-003	-2.575834E-001	-9.933045E-001
806	4	-6.814483E-003	-2.693541E-003	-2.404468E-001	-9.504378E-001
806	5	-7.075869E-003	-2.869887E-003	-2.496472E-001	-1.012386E+000
806	6	-7.308433E-003	-2.872199E-003	-2.578858E-001	-1.013483E+000
806	7	-7.057657E-003	-2.754490E-003	-2.490445E-001	-9.719337E-001

806	8	-6.823866E-003	-2.751026E-003	-2.407591E-001	-9.707168E-001
806	9	-7.066413E-003	-2.811764E-003	-2.493441E-001	-9.921588E-001
807	1	-6.719529E-003	-3.125707E-003	-2.371039E-001	-1.102931E+000
807	2	-7.118452E-003	-3.225436E-003	-2.511770E-001	-1.138136E+000
807	3	-7.101522E-003	-3.130262E-003	-2.505898E-001	-1.104537E+000
807	4	-6.704871E-003	-3.031242E-003	-2.365865E-001	-1.069583E+000
807	5	-6.918638E-003	-3.175502E-003	-2.441375E-001	-1.120496E+000
807	6	-7.109875E-003	-3.177692E-003	-2.508759E-001	-1.121272E+000
807	7	-6.903213E-003	-3.080726E-003	-2.435853E-001	-1.087860E+000
807	8	-6.712586E-003	-3.078413E-003	-2.368512E-001	-1.086233E+000
807	9	-6.910986E-003	-3.127984E-003	-2.438641E-001	-1.103748E+000
808	1	-6.461896E-003	-3.462497E-003	-2.279327E-001	-1.221776E+000
808	2	-6.725315E-003	-3.528228E-003	-2.373098E-001	-1.244960E+000
808	3	-6.714035E-003	-3.464913E-003	-2.369123E-001	-1.222606E+000
808	4	-6.449882E-003	-3.398898E-003	-2.275827E-001	-1.199336E+000
808	5	-6.593636E-003	-3.495410E-003	-2.326571E-001	-1.233388E+000
808	6	-6.719757E-003	-3.496588E-003	-2.371069E-001	-1.233792E+000
808	7	-6.582183E-003	-3.431969E-003	-2.322553E-001	-1.210995E+000
808	8	-6.455520E-003	-3.430760E-003	-2.277989E-001	-1.210560E+000
808	9	-6.587982E-003	-3.463673E-003	-2.324594E-001	-1.222194E+000
809	1	-2.844685E-003	-5.874470E-003	-1.003750E-001	-1.790566E+000
809	2	-2.030587E-003	-4.926417E-003	-7.165013E-002	-1.730327E+000
809	3	-2.030598E-003	-5.339041E-003	-7.165108E-002	-1.883937E+000
809	4	-2.844585E-003	-5.509675E-003	-1.003756E-001	-1.944128E+000
809	5	-2.426835E-003	-4.998496E-003	-8.563136E-002	-1.763764E+000
809	6	-2.838621E-003	-5.132708E-003	-7.165060E-002	-1.811119E+000
809	7	-2.426835E-003	-5.422006E-003	-8.563136E-002	-1.913226E+000
809	8	-2.844651E-003	-5.292040E-003	-1.003777E-001	-1.867341E+000
809	9	-2.426835E-003	-5.210288E-003	-8.563136E-002	-1.838488E+000
810	1	-7.114258E-003	-1.950987E-003	-2.518346E-001	-6.884272E-001
810	2	-7.769205E-003	-2.115278E-003	-2.741447E-001	-7.463986E-001
810	3	-7.756113E-003	-1.965581E-003	-2.736778E-001	-6.935627E-001
810	4	-7.104765E-003	-1.882295E-003	-2.507803E-001	-6.639324E-001
810	5	-7.441638E-003	-2.033182E-003	-2.625861E-001	-7.174078E-001
810	6	-7.762521E-003	-2.040206E-003	-2.739818E-001	-7.199172E-001
810	7	-7.430369E-003	-1.883883E-003	-2.621819E-001	-6.647447E-001
810	8	-7.109892E-003	-1.876452E-003	-2.508765E-001	-6.621246E-001
810	9	-7.436046E-003	-1.958304E-003	-2.623840E-001	-6.910027E-001
811	1	-5.822314E-003	-4.357827E-003	-2.054440E-001	-1.537688E+000
811	2	-5.817703E-003	-4.356861E-003	-2.052814E-001	-1.537341E+000
811	3	-5.817637E-003	-4.358836E-003	-2.052811E-001	-1.538053E+000
811	4	-5.822320E-003	-4.359987E-003	-2.054427E-001	-1.538466E+000
811	5	-5.819914E-003	-4.357268E-003	-2.053601E-001	-1.537497E+000
811	6	-5.817687E-003	-4.357821E-003	-2.052816E-001	-1.537698E+000
811	7	-5.819914E-003	-4.359409E-003	-2.053601E-001	-1.538249E+000
811	8	-5.822308E-003	-4.358955E-003	-2.054428E-001	-1.538085E+000
811	9	-5.819914E-003	-4.358348E-003	-2.053601E-001	-1.537886E+000
812	1	-7.327136E-003	-2.219931E-003	-2.585382E-001	-7.833287E-001
812	2	-7.984433E-003	-2.384057E-003	-2.817411E-001	-8.412417E-001
812	3	-7.966899E-003	-2.233196E-003	-2.811174E-001	-7.880178E-001
812	4	-7.312812E-003	-2.078132E-003	-2.580399E-001	-7.304747E-001
812	5	-7.655750E-003	-2.382029E-003	-2.701342E-001	-8.122722E-001
812	6	-7.975828E-003	-2.388446E-003	-2.814291E-001	-8.145609E-001
812	7	-7.639723E-003	-2.151619E-003	-2.695727E-001	-7.592876E-001
812	8	-7.320225E-003	-2.144814E-003	-2.582934E-001	-7.568166E-001
812	9	-7.647712E-003	-2.226606E-003	-2.698528E-001	-7.856742E-001
813	1	-7.481129E-003	-2.515109E-003	-2.639810E-001	-8.874782E-001
813	2	-8.133546E-003	-2.678112E-003	-2.870007E-001	-9.449916E-001
813	3	-8.115525E-003	-2.526532E-003	-2.863693E-001	-8.915101E-001
813	4	-7.466915E-003	-2.364576E-003	-2.634785E-001	-8.343564E-001

813	5	-7.806961E-003	-2.596540E-003	-2.754804E-001	-9.162139E-001
813	6	-8.124412E-003	-2.602087E-003	-2.866782E-001	-9.181640E-001
813	7	-7.791185E-003	-2.445458E-003	-2.749155E-001	-8.629189E-001
813	8	-7.474047E-003	-2.439698E-003	-2.637293E-001	-8.608459E-001
813	9	-7.799024E-003	-2.520806E-003	-2.751932E-001	-8.894783E-001
814	1	-7.551858E-003	-2.841752E-003	-2.664703E-001	-1.002717E+000
814	2	-8.164463E-003	-2.995076E-003	-2.880866E-001	-1.056848E+000
814	3	-8.143247E-003	-2.850797E-003	-2.873488E-001	-1.005946E+000
814	4	-7.534173E-003	-2.698548E-003	-2.658522E-001	-9.522044E-001
814	5	-7.857952E-003	-2.918375E-003	-2.772711E-001	-1.029767E+000
814	6	-8.153845E-003	-2.922752E-003	-2.877148E-001	-1.031314E+000
814	7	-7.838546E-003	-2.774612E-003	-2.765874E-001	-9.790463E-001
814	8	-7.542937E-003	-2.770033E-003	-2.661619E-001	-9.774070E-001
814	9	-7.840242E-003	-2.846286E-003	-2.769329E-001	-1.004347E+000
815	1	-7.501510E-003	-3.198793E-003	-2.646975E-001	-1.128719E+000
815	2	-8.045193E-003	-3.334521E-003	-2.838806E-001	-1.176619E+000
815	3	-8.026029E-003	-3.285699E-003	-2.832802E-001	-1.131151E+000
815	4	-7.482186E-003	-3.069298E-003	-2.640281E-001	-1.083034E+000
815	5	-7.773932E-003	-3.266875E-003	-2.743140E-001	-1.152728E+000
815	6	-8.035315E-003	-3.270153E-003	-2.835375E-001	-1.153994E+000
815	7	-7.754671E-003	-3.137666E-003	-2.736333E-001	-1.107158E+000
815	8	-7.491943E-003	-3.134054E-003	-2.643575E-001	-1.105884E+000
815	9	-7.764359E-003	-3.202270E-003	-2.739769E-001	-1.129954E+000
816	1	-7.297905E-003	-3.587867E-003	-2.575016E-001	-1.266803E+000
816	2	-7.722068E-003	-3.693925E-003	-2.724768E-001	-1.303439E+000
816	3	-7.703842E-003	-3.592082E-003	-2.718369E-001	-1.267498E+000
816	4	-7.279477E-003	-3.485402E-003	-2.568671E-001	-1.229877E+000
816	5	-7.510524E-003	-3.641053E-003	-2.650855E-001	-1.284763E+000
816	6	-7.713026E-003	-3.643038E-003	-2.721617E-001	-1.285471E+000
816	7	-7.492314E-003	-3.538984E-003	-2.643738E-001	-1.248722E+000
816	8	-7.288898E-003	-3.536632E-003	-2.571929E-001	-1.247952E+000
816	9	-7.501391E-003	-3.589991E-003	-2.646933E-001	-1.266754E+000
817	1	-6.883045E-003	-4.008626E-003	-2.428739E-001	-1.414489E+000
817	2	-7.138627E-003	-4.072706E-003	-2.518957E-001	-1.437892E+000
817	3	-7.126502E-003	-4.010691E-003	-2.514605E-001	-1.415208E+000
817	4	-6.871704E-003	-3.947068E-003	-2.424803E-001	-1.392767E+000
817	5	-7.010950E-003	-4.040688E-003	-2.473826E-001	-1.425880E+000
817	6	-7.132491E-003	-4.041632E-003	-2.516763E-001	-1.426128E+000
817	7	-6.999180E-003	-3.978893E-003	-2.469664E-001	-1.403979E+000
817	8	-6.877200E-003	-3.977768E-003	-2.426696E-001	-1.403599E+000
817	9	-7.004941E-003	-4.009709E-003	-2.471747E-001	-1.414858E+000
818	1	-2.842579E-003	-7.188306E-003	-7.207647E-002	-2.533635E+000
818	2	-2.845945E-003	-7.327364E-003	-1.004212E-001	-2.585528E+000
818	3	-2.865777E-003	-6.984834E-003	-1.004213E-001	-2.438642E+000
818	4	-2.842674E-003	-6.719422E-003	-7.207836E-002	-2.371001E+000
818	5	-2.493988E-003	-7.373395E-003	-8.659776E-002	-2.560221E+000
818	6	-2.845959E-003	-7.107933E-003	-1.004220E-001	-2.508084E+000
818	7	-2.454179E-003	-6.866008E-003	-8.659675E-002	-2.401558E+000
818	8	-2.842679E-003	-6.949850E-003	-7.207764E-002	-2.452318E+000
818	9	-2.454176E-003	-7.030821E-003	-8.659630E-002	-2.480882E+000
819	1	-2.945308E-003	-9.904552E-003	-1.039300E-001	-3.495013E-001
819	2	-2.868915E-002	-9.904535E-003	-1.012335E-001	-3.495024E-001
819	3	-2.868873E-002	-1.003886E-002	-1.012357E-001	-3.542378E-001
819	4	-2.973584E-002	-1.013533E-002	-1.039296E-001	-3.542378E-001
819	5	-2.907051E-002	-9.904549E-003	-1.025820E-001	-3.495033E-001
819	6	-2.868913E-002	-9.971620E-003	-1.012343E-001	-3.518702E-001
819	7	-2.907051E-002	-1.003859E-002	-1.025820E-001	-3.542359E-001
819	8	-2.945196E-004	-9.971652E-005	-1.039262E-001	-3.518702E-001
819	9	-2.907051E-002	-9.971620E-003	-1.025820E-001	-3.518702E-001
820	1	-3.397034E-002	-6.188054E-003	-1.198720E-001	-2.155625E-001

820	2	-3.354971E-002	-6.188831E-003	-1.183872E-001	-2.155644E-001
820	3	-3.354996E-002	-6.182886E-003	-1.183873E-001	-2.181735E-001
820	4	-3.396998E-002	-6.182886E-003	-1.198724E-001	-2.181725E-001
820	5	-3.375957E-002	-6.180969E-003	-1.191299E-001	-2.155649E-001
820	6	-3.354991E-002	-6.145901E-003	-1.183879E-001	-2.168705E-001
820	7	-3.376039E-002	-6.182886E-003	-1.191299E-001	-2.181763E-001
820	8	-3.396992E-002	-6.145901E-003	-1.198722E-001	-2.168705E-001
820	9	-3.375974E-002	-6.145901E-003	-1.191301E-001	-2.168705E-001
821	1	-3.454811E-002	-6.474968E-003	-1.219104E-001	-2.284830E-001
821	2	-3.409662E-002	-6.474939E-003	-1.203181E-001	-2.284858E-001
821	3	-3.409728E-002	-6.554225E-003	-1.203183E-001	-2.312814E-001
821	4	-3.454848E-002	-6.554192E-003	-1.219094E-001	-2.312804E-001
821	5	-3.432268E-002	-6.475030E-003	-1.211151E-001	-2.284855E-001
821	6	-3.409627E-002	-6.514646E-003	-1.203180E-001	-2.298829E-001
821	7	-3.432297E-002	-6.554311E-003	-1.211152E-001	-2.312842E-001
821	8	-3.454912E-002	-6.514646E-003	-1.219125E-001	-2.298829E-001
821	9	-3.432264E-002	-6.514646E-003	-1.211150E-001	-2.298829E-001
822	1	-3.586186E-002	-6.742395E-003	-1.237219E-001	-2.379281E-001
822	2	-3.467056E-002	-6.742363E-003	-1.223434E-001	-2.379184E-001
822	3	-3.467107E-002	-6.811165E-003	-1.223439E-001	-2.403491E-001
822	4	-3.586132E-002	-6.811252E-003	-1.237216E-001	-2.403481E-001
822	5	-3.486636E-002	-6.742470E-003	-1.230329E-001	-2.379226E-001
822	6	-3.467117E-002	-6.776822E-003	-1.223436E-001	-2.391355E-001
822	7	-3.486636E-002	-6.811252E-003	-1.230329E-001	-2.403519E-001
822	8	-3.586201E-002	-6.776822E-003	-1.237225E-001	-2.391355E-001
822	9	-3.486636E-002	-6.776822E-003	-1.230329E-001	-2.391355E-001
823	1	-3.528699E-002	-6.905181E-003	-1.245183E-001	-2.436642E-001
823	2	-3.514004E-002	-6.905273E-003	-1.239991E-001	-2.436665E-001
823	3	-3.513930E-002	-6.931189E-003	-1.239975E-001	-2.445809E-001
823	4	-3.528750E-002	-6.931157E-003	-1.245190E-001	-2.445799E-001
823	5	-3.521383E-002	-6.905177E-003	-1.242594E-001	-2.436668E-001
823	6	-3.513548E-002	-6.918242E-003	-1.239968E-001	-2.441248E-001
823	7	-3.521394E-002	-6.931276E-003	-1.242589E-001	-2.445837E-001
823	8	-3.528677E-002	-6.918242E-003	-1.245174E-001	-2.441248E-001
823	9	-3.521337E-002	-6.918242E-003	-1.242593E-001	-2.441248E-001
824	1	-3.483996E-002	-6.995842E-003	-1.229489E-001	-2.468591E-001
824	2	-3.524901E-002	-6.995797E-003	-1.243841E-001	-2.468616E-001
824	3	-3.524885E-002	-6.923841E-003	-1.243840E-001	-2.443231E-001
824	4	-3.484069E-002	-6.923929E-003	-1.229485E-001	-2.443222E-001
824	5	-3.504436E-002	-6.995911E-003	-1.236626E-001	-2.468656E-001
824	6	-3.504859E-002	-6.959859E-003	-1.243840E-001	-2.455928E-001
824	7	-3.504528E-002	-6.923929E-003	-1.236633E-001	-2.443260E-001
824	8	-3.484043E-002	-6.959859E-003	-1.229414E-001	-2.455928E-001
824	9	-3.504488E-002	-6.959859E-003	-1.236628E-001	-2.455928E-001
825	1	-3.336386E-002	-7.129706E-003	-1.177292E-001	-2.515849E-001
825	2	-3.460057E-002	-7.129694E-003	-1.220957E-001	-2.515836E-001
825	3	-3.460138E-002	-6.912026E-003	-1.220948E-001	-2.439853E-001
825	4	-3.336352E-002	-6.911995E-003	-1.177296E-001	-2.439843E-001
825	5	-3.398154E-002	-7.129701E-003	-1.199125E-001	-2.515876E-001
825	6	-3.460058E-002	-7.020851E-003	-1.220937E-001	-2.477468E-001
825	7	-3.398154E-002	-6.912114E-003	-1.199125E-001	-2.439801E-001
825	8	-3.336281E-002	-7.020851E-003	-1.177301E-001	-2.477468E-001
825	9	-3.398154E-002	-7.020851E-003	-1.199125E-001	-2.477468E-001
826	1	-3.102350E-002	-7.522333E-003	-1.094743E-001	-2.654413E-001
826	2	-3.290824E-002	-7.522325E-003	-1.161242E-001	-2.654402E-001
826	3	-3.290886E-002	-7.191315E-003	-1.161242E-001	-2.537656E-001
826	4	-3.102421E-002	-7.191404E-003	-1.094738E-001	-2.537646E-001
826	5	-3.196602E-002	-7.522406E-003	-1.128000E-001	-2.654440E-001
826	6	-3.290830E-002	-7.356954E-003	-1.161240E-001	-2.596060E-001
826	7	-3.196678E-002	-7.191404E-003	-1.128000E-001	-2.537684E-001

826	8	-3.102421E-002	-7.356954E-003	-1.094738E-001	-2.596060E-001
826	9	-3.196651E-002	-7.356954E-003	-1.127996E-001	-2.596060E-001
827	1	-2.882298E-002	-8.385764E-003	-1.017076E-001	-2.959110E-001
827	2	-3.050466E-002	-8.385794E-003	-1.076443E-001	-2.959123E-001
827	3	-3.050568E-002	-8.098701E-003	-1.076441E-001	-2.854985E-001
827	4	-2.882321E-002	-8.098446E-003	-1.017100E-001	-2.854887E-001
827	5	-2.966433E-002	-8.385805E-003	-1.046756E-001	-2.959103E-001
827	6	-3.050493E-002	-8.238287E-003	-1.076434E-001	-2.907862E-001
827	7	-2.966433E-002	-8.098693E-003	-1.046756E-001	-2.854979E-001
827	8	-2.882250E-002	-8.238153E-003	-1.017052E-001	-2.906991E-001
827	9	-2.966433E-002	-8.238212E-003	-1.046756E-001	-2.907024E-001
828	1	-3.188668E-002	-3.767428E-004	-1.125162E-001	-1.329284E-002
828	2	-3.187738E-002	-3.767249E-004	-1.124864E-001	-1.329475E-002
828	3	-3.187746E-002	-3.783875E-004	-1.124867E-001	-1.335461E-002
828	4	-3.188582E-002	-3.783763E-004	-1.125171E-001	-1.335425E-002
828	5	-3.188203E-002	-3.767436E-004	-1.125023E-001	-1.329554E-002
828	6	-3.187738E-002	-3.775528E-004	-1.124866E-001	-1.332462E-002
828	7	-3.188203E-002	-3.783403E-004	-1.125023E-001	-1.334928E-002
828	8	-3.188673E-002	-3.775528E-004	-1.125183E-001	-1.332462E-002
828	9	-3.188203E-002	-3.775528E-004	-1.125023E-001	-1.332462E-002
829	1	-3.191549E-002	-1.125093E-003	-1.126228E-001	-3.970281E-002
829	2	-3.189139E-002	-1.125076E-003	-1.125361E-001	-3.970139E-002
829	3	-3.189149E-002	-1.129432E-003	-1.125350E-001	-3.985622E-002
829	4	-3.191549E-002	-1.129480E-003	-1.126233E-001	-3.985585E-002
829	5	-3.190377E-002	-1.125057E-003	-1.125704E-001	-3.970170E-002
829	6	-3.189103E-002	-1.127236E-003	-1.125348E-001	-3.977756E-002
829	7	-3.190359E-002	-1.129384E-003	-1.125790E-001	-3.985478E-002
829	8	-3.191620E-002	-1.127236E-003	-1.126224E-001	-3.977756E-002
829	9	-3.190368E-002	-1.127236E-003	-1.125787E-001	-3.977756E-002
830	1	-3.196630E-002	-1.862159E-003	-1.128009E-001	-6.570782E-002
830	2	-3.192541E-002	-1.862135E-003	-1.126561E-001	-6.570978E-002
830	3	-3.192602E-002	-1.869435E-003	-1.126561E-001	-6.596664E-002
830	4	-3.196639E-002	-1.869423E-003	-1.127999E-001	-6.596626E-002
830	5	-3.194608E-002	-1.862101E-003	-1.127280E-001	-6.571806E-002
830	6	-3.192526E-002	-1.865808E-003	-1.126553E-001	-6.583687E-002
830	7	-3.194589E-002	-1.869328E-003	-1.127286E-001	-6.596512E-002
830	8	-3.196682E-002	-1.865808E-003	-1.127992E-001	-6.583687E-002
830	9	-3.194598E-002	-1.865808E-003	-1.127283E-001	-6.583687E-002
831	1	-3.205049E-002	-2.581288E-003	-1.130979E-001	-9.108652E-002
831	2	-3.198228E-002	-2.581265E-003	-1.128565E-001	-9.108471E-002
831	3	-3.198261E-002	-2.593274E-003	-1.128569E-001	-9.151853E-002
831	4	-3.205051E-002	-2.593261E-003	-1.130966E-001	-9.151812E-002
831	5	-3.201698E-002	-2.581245E-003	-1.129765E-001	-9.108545E-002
831	6	-3.198263E-002	-2.587258E-003	-1.128568E-001	-9.129585E-002
831	7	-3.201624E-002	-2.593166E-003	-1.129763E-001	-9.150898E-002
831	8	-3.205026E-002	-2.587258E-003	-1.130956E-001	-9.129585E-002
831	9	-3.201668E-002	-2.587258E-003	-1.129778E-001	-9.129585E-002
832	1	-3.217951E-002	-3.275721E-003	-1.135525E-001	-1.155919E-001
832	2	-3.207502E-002	-3.275707E-003	-1.131858E-001	-1.155901E-001
832	3	-3.207545E-002	-3.294072E-003	-1.131844E-001	-1.162398E-001
832	4	-3.217934E-002	-3.294059E-003	-1.135523E-001	-1.162385E-001
832	5	-3.212800E-002	-3.275716E-003	-1.133686E-001	-1.155908E-001
832	6	-3.207558E-002	-3.284868E-003	-1.131853E-001	-1.159130E-001
832	7	-3.212699E-002	-3.293964E-003	-1.133683E-001	-1.162374E-001
832	8	-3.217942E-002	-3.284868E-003	-1.135508E-001	-1.159130E-001
832	9	-3.212769E-002	-3.284868E-003	-1.133681E-001	-1.159130E-001
833	1	-3.236760E-002	-3.938755E-003	-1.142180E-001	-1.389875E-001
833	2	-3.221630E-002	-3.938755E-003	-1.136825E-001	-1.389863E-001
833	3	-3.221625E-002	-3.965590E-003	-1.136816E-001	-1.399302E-001
833	4	-3.236775E-002	-3.965516E-003	-1.142178E-001	-1.399297E-001

833	5	-3.229219E-002	-3.938770E-003	-1.139500E-001	-1.389865E-001
833	6	-3.221669E-002	-3.952095E-003	-1.136827E-001	-1.394583E-001
833	7	-3.229219E-002	-3.965422E-003	-1.139500E-001	-1.399286E-001
833	8	-3.236791E-002	-3.952095E-003	-1.142179E-001	-1.394583E-001
833	9	-3.229219E-002	-3.952095E-003	-1.139500E-001	-1.394583E-001
834	1	-3.263349E-002	-4.562914E-003	-1.151555E-001	-1.610100E-001
834	2	-3.242103E-002	-4.562906E-003	-1.144048E-001	-1.610127E-001
834	3	-3.242110E-002	-4.600314E-003	-1.144046E-001	-1.623320E-001
834	4	-3.263428E-002	-4.600359E-003	-1.151556E-001	-1.623316E-001
834	5	-3.252699E-002	-4.562920E-003	-1.147797E-001	-1.610129E-001
834	6	-3.242114E-002	-4.581617E-003	-1.144042E-001	-1.616721E-001
834	7	-3.252699E-002	-4.600265E-003	-1.147797E-001	-1.623304E-001
834	8	-3.263364E-002	-4.581617E-003	-1.151536E-001	-1.616721E-001
834	9	-3.252699E-002	-4.581617E-003	-1.147797E-001	-1.616721E-001
835	1	-3.298702E-002	-5.139644E-003	-1.164020E-001	-1.813645E-001
835	2	-3.270536E-002	-5.139649E-003	-1.154082E-001	-1.813630E-001
835	3	-3.270570E-002	-5.189378E-003	-1.154077E-001	-1.831163E-001
835	4	-3.298683E-002	-5.189294E-003	-1.164007E-001	-1.831158E-001
835	5	-3.284630E-002	-5.139602E-003	-1.159058E-001	-1.813636E-001
835	6	-3.270511E-002	-5.164403E-003	-1.154079E-001	-1.822394E-001
835	7	-3.284630E-002	-5.189200E-003	-1.159058E-001	-1.831147E-001
835	8	-3.298628E-002	-5.164483E-003	-1.164004E-001	-1.822394E-001
835	9	-3.284630E-002	-5.164483E-003	-1.159058E-001	-1.822394E-001
836	1	-3.343625E-002	-5.659132E-003	-1.179891E-001	-1.996933E-001
836	2	-3.307980E-002	-5.659120E-003	-1.167293E-001	-1.996934E-001
836	3	-3.307969E-002	-5.721746E-003	-1.167295E-001	-2.019828E-001
836	4	-3.343692E-002	-5.721761E-003	-1.179888E-001	-2.019834E-001
836	5	-3.325851E-002	-5.658997E-003	-1.173590E-001	-1.996888E-001
836	6	-3.307958E-002	-5.690368E-003	-1.167292E-001	-2.007973E-001
836	7	-3.325860E-002	-5.721736E-003	-1.173597E-001	-2.019844E-001
836	8	-3.343659E-002	-5.690441E-003	-1.179899E-001	-2.007978E-001
836	9	-3.325888E-002	-5.690425E-003	-1.173597E-001	-2.007982E-001
837	1	-5.813383E-003	-5.166828E-003	-2.051261E-001	-1.822876E+000
837	2	-5.789322E-003	-5.160841E-003	-2.042826E-001	-1.821837E+000
837	3	-5.789417E-003	-5.172155E-003	-2.042861E-001	-1.825828E+000
837	4	-5.813283E-003	-5.178015E-003	-2.051267E-001	-1.827188E+000
837	5	-5.800915E-003	-5.163285E-003	-2.046895E-001	-1.821916E+000
837	6	-5.789487E-003	-5.166488E-003	-2.042858E-001	-1.823034E+000
837	7	-5.801019E-003	-5.174977E-003	-2.046907E-001	-1.826027E+000
837	8	-5.813323E-003	-5.172018E-003	-2.051245E-001	-1.824993E+000
837	9	-5.800893E-003	-5.169142E-003	-2.046899E-001	-1.823975E+000
838	1	-7.974932E-003	-2.189882E-003	-2.814847E-001	-7.727220E-001
838	2	-8.716855E-003	-2.374785E-003	-3.075562E-001	-8.379446E-001
838	3	-8.700787E-003	-2.285341E-003	-3.070135E-001	-7.781749E-001
838	4	-7.959495E-003	-2.019528E-003	-2.808567E-001	-7.126074E-001
838	5	-8.346650E-003	-2.282575E-003	-2.945117E-001	-8.054277E-001
838	6	-8.788244E-003	-2.289952E-003	-3.072037E-001	-8.080363E-001
838	7	-8.331210E-003	-2.112787E-003	-2.939697E-001	-7.454763E-001
838	8	-7.967174E-003	-2.184788E-003	-2.811370E-001	-7.427819E-001
838	9	-8.338740E-003	-2.197630E-003	-2.942436E-001	-7.754492E-001
839	1	-8.281363E-003	-2.581327E-003	-2.893920E-001	-8.826098E-001
839	2	-8.973414E-003	-2.694258E-003	-3.166369E-001	-9.586876E-001
839	3	-8.952125E-003	-2.515917E-003	-3.158781E-001	-8.877496E-001
839	4	-8.179516E-003	-2.322111E-003	-2.886220E-001	-8.193617E-001
839	5	-8.588395E-003	-2.597935E-003	-3.038481E-001	-9.167845E-001
839	6	-8.962844E-003	-2.605115E-003	-3.162583E-001	-9.192436E-001
839	7	-8.566808E-003	-2.419268E-003	-3.022814E-001	-8.536571E-001
839	8	-8.198603E-003	-2.411743E-003	-2.890135E-001	-8.510019E-001
839	9	-8.577595E-003	-2.508633E-003	-3.026678E-001	-8.851951E-001
840	1	-8.353533E-003	-2.858429E-003	-2.947599E-001	-1.008630E+000

840	2	-9.105589E-003	-3.046542E-003	-3.212956E-001	-1.074992E+000
840	3	-9.079882E-003	-2.870594E-003	-3.203923E-001	-1.012912E+000
840	4	-8.331876E-003	-2.683800E-003	-2.939920E-001	-9.469993E-001
840	5	-8.729323E-003	-2.952473E-003	-3.080181E-001	-1.041813E+000
840	6	-9.092689E-003	-2.958355E-003	-3.208474E-001	-1.043871E+000
840	7	-8.785751E-003	-2.777157E-003	-3.071806E-001	-9.799415E-001
840	8	-8.342672E-003	-2.770940E-003	-2.943826E-001	-9.777415E-001
840	9	-8.717413E-003	-2.864563E-003	-3.076002E-001	-1.010774E+000
841	1	-8.387719E-003	-3.255248E-003	-2.959734E-001	-1.148640E+000
841	2	-9.091556E-003	-3.431858E-003	-3.208064E-001	-1.210983E+000
841	3	-9.062611E-003	-3.265058E-003	-3.197761E-001	-1.152111E+000
841	4	-8.362362E-003	-3.089591E-003	-2.950721E-001	-1.090201E+000
841	5	-8.739608E-003	-3.343496E-003	-3.083811E-001	-1.179781E+000
841	6	-9.077156E-003	-3.348314E-003	-3.202901E-001	-1.181492E+000
841	7	-8.712241E-003	-3.177270E-003	-3.074237E-001	-1.121120E+000
841	8	-8.375189E-003	-3.172173E-003	-2.955231E-001	-1.119334E+000
841	9	-8.725837E-003	-3.260205E-003	-3.078969E-001	-1.150388E+000
842	1	-8.261354E-003	-3.697323E-003	-2.915146E-001	-1.304637E+000
842	2	-8.887735E-003	-3.854584E-003	-3.136031E-001	-1.360120E+000
842	3	-8.857208E-003	-3.704387E-003	-3.125388E-001	-1.307136E+000
842	4	-8.238513E-003	-3.550400E-003	-2.987028E-001	-1.252760E+000
842	5	-8.573128E-003	-3.775569E-003	-3.025122E-001	-1.332240E+000
842	6	-8.872453E-003	-3.779070E-003	-3.136693E-001	-1.333476E+000
842	7	-8.546652E-003	-3.627019E-003	-3.015750E-001	-1.279825E+000
842	8	-8.250134E-003	-3.623374E-003	-2.911091E-001	-1.278554E+000
842	9	-8.559732E-003	-3.700879E-003	-3.020416E-001	-1.305896E+000
843	1	-7.938119E-003	-4.188283E-003	-2.800982E-001	-1.477861E+000
843	2	-8.439797E-003	-4.313682E-003	-2.978078E-001	-1.522136E+000
843	3	-8.415381E-003	-4.192565E-003	-2.969446E-001	-1.479386E+000
843	4	-7.916272E-003	-4.068000E-003	-2.793294E-001	-1.435428E+000
843	5	-8.188685E-003	-4.250926E-003	-2.889484E-001	-1.499976E+000
843	6	-8.427584E-003	-4.252976E-003	-2.973756E-001	-1.500700E+000
843	7	-8.165776E-003	-4.130228E-003	-2.881306E-001	-1.457394E+000
843	8	-7.927242E-003	-4.128006E-003	-2.797188E-001	-1.456580E+000
843	9	-8.177145E-003	-4.190438E-003	-2.885357E-001	-1.478631E+000
844	1	-7.351797E-003	-4.733188E-003	-2.594128E-001	-1.670139E+000
844	2	-7.649968E-003	-4.807835E-003	-2.699338E-001	-1.696477E+000
844	3	-7.633134E-003	-4.735188E-003	-2.693366E-001	-1.670822E+000
844	4	-7.336442E-003	-4.661019E-003	-2.588758E-001	-1.644677E+000
844	5	-7.500644E-003	-4.770389E-003	-2.646675E-001	-1.683286E+000
844	6	-7.641486E-003	-4.771360E-003	-2.696321E-001	-1.683619E+000
844	7	-7.484600E-003	-4.698006E-003	-2.641026E-001	-1.657732E+000
844	8	-7.344052E-003	-4.696995E-003	-2.591414E-001	-1.657359E+000
844	9	-7.492610E-003	-4.734188E-003	-2.643854E-001	-1.670481E+000
845	1	-5.745576E-003	-6.212903E-003	-2.027376E-001	-2.192283E+000
845	2	-5.483228E-003	-6.155837E-003	-1.934809E-001	-2.172138E+000
845	3	-5.483229E-003	-6.288992E-003	-1.934799E-001	-2.219117E+000
845	4	-5.745521E-003	-6.353187E-003	-2.027362E-001	-2.241771E+000
845	5	-5.611052E-003	-6.183656E-003	-1.979900E-001	-2.181953E+000
845	6	-5.483261E-003	-6.222399E-003	-1.934794E-001	-2.195624E+000
845	7	-5.611052E-003	-6.320241E-003	-1.979900E-001	-2.230152E+000
845	8	-5.745601E-003	-6.283021E-003	-2.027350E-001	-2.217021E+000
845	9	-5.611052E-003	-6.251939E-003	-1.979900E-001	-2.206054E+000
846	1	-8.961031E-003	-2.462388E-003	-3.162016E-001	-8.680761E-001
846	2	-9.901106E-003	-2.698124E-003	-3.493683E-001	-9.520611E-001
846	3	-9.869780E-003	-2.480557E-003	-3.482668E-001	-8.752831E-001
846	4	-8.940538E-003	-2.249500E-003	-3.154700E-001	-7.937534E-001
846	5	-9.428942E-003	-2.579674E-003	-3.327045E-001	-9.102573E-001
846	6	-9.885411E-003	-2.588772E-003	-3.488179E-001	-9.134641E-001
846	7	-9.403024E-003	-2.364506E-003	-3.317869E-001	-8.343381E-001

846	8	-8.950675E-003	-2.355361E-003	-3.158299E-001	-8.311874E-001
846	9	-9.415780E-003	-2.471479E-003	-3.322465E-001	-8.720986E-001
847	1	-9.230013E-003	-2.853635E-003	-3.256843E-001	-1.006930E+000
847	2	-1.014442E-002	-3.001848E-003	-3.579533E-001	-1.087465E+000
847	3	-1.011326E-002	-2.869565E-003	-3.568597E-001	-1.012552E+000
847	4	-9.204032E-003	-2.642783E-003	-3.247730E-001	-9.325480E-001
847	5	-9.687028E-003	-2.967709E-003	-3.418117E-001	-1.047176E+000
847	6	-1.012891E-002	-2.975420E-003	-3.574100E-001	-1.049988E+000
847	7	-9.658588E-003	-2.756094E-003	-3.408029E-001	-9.724077E-001
847	8	-9.216867E-003	-2.747905E-003	-3.252254E-001	-9.696158E-001
847	9	-9.672588E-003	-2.861532E-003	-3.413867E-001	-1.009725E+000
848	1	-9.372799E-003	-3.290466E-003	-3.307310E-001	-1.161077E+000
848	2	-1.027195E-002	-3.515736E-003	-3.624588E-001	-1.240577E+000
848	3	-1.023507E-002	-3.384323E-003	-3.611583E-001	-1.165961E+000
848	4	-9.340692E-003	-3.008964E-003	-3.296014E-001	-1.007158E+000
848	5	-9.821648E-003	-3.402895E-003	-3.465652E-001	-1.200735E+000
848	6	-1.025346E-002	-3.409710E-003	-3.618004E-001	-1.203148E+000
848	7	-9.787102E-003	-3.192458E-003	-3.453440E-001	-1.126497E+000
848	8	-9.356815E-003	-3.185439E-003	-3.301647E-001	-1.124003E+000
848	9	-9.804300E-003	-3.297381E-003	-3.459587E-001	-1.163512E+000
849	1	-9.372953E-003	-3.783515E-003	-3.307307E-001	-1.335053E+000
849	2	-1.023362E-002	-3.997697E-003	-3.611859E-001	-1.410626E+000
849	3	-1.013735E-002	-3.793821E-003	-3.598250E-001	-1.338681E+000
849	4	-9.336286E-003	-3.578707E-003	-3.294296E-001	-1.262766E+000
849	5	-9.804616E-003	-3.890941E-003	-3.459567E-001	-1.372942E+000
849	6	-1.021556E-002	-3.895784E-003	-3.604642E-001	-1.374656E+000
849	7	-9.768188E-003	-3.686588E-003	-3.446723E-001	-1.300831E+000
849	8	-9.354529E-003	-3.681000E-003	-3.300825E-001	-1.298914E+000
849	9	-9.786301E-003	-3.788756E-003	-3.453164E-001	-1.336887E+000
850	1	-9.185066E-003	-4.342888E-003	-3.240997E-001	-1.532136E+000
850	2	-9.969978E-003	-4.538097E-003	-3.517992E-001	-1.601318E+000
850	3	-9.930938E-003	-4.350457E-003	-3.504215E-001	-1.535085E+000
850	4	-9.146047E-003	-4.153472E-003	-3.227320E-001	-1.465580E+000
850	5	-9.578449E-003	-4.440306E-003	-3.379800E-001	-1.566797E+000
850	6	-9.950281E-003	-4.444257E-003	-3.511115E-001	-1.568212E+000
850	7	-9.539502E-003	-4.252221E-003	-3.366053E-001	-1.500433E+000
850	8	-9.165620E-003	-4.247813E-003	-3.234189E-001	-1.498873E+000
850	9	-9.559014E-003	-4.346273E-003	-3.372984E-001	-1.533627E+000
851	1	-8.737633E-003	-4.979134E-003	-3.083115E-001	-1.756937E+000
851	2	-9.399290E-003	-5.144584E-003	-3.316604E-001	-1.815388E+000
851	3	-9.362286E-003	-4.983847E-003	-3.303548E-001	-1.758588E+000
851	4	-8.784196E-003	-4.819573E-003	-3.071339E-001	-1.700624E+000
851	5	-9.068266E-003	-5.061838E-003	-3.199795E-001	-1.786188E+000
851	6	-9.380716E-003	-5.063974E-003	-3.310859E-001	-1.786869E+000
851	7	-9.033003E-003	-4.901576E-003	-3.187375E-001	-1.729574E+000
851	8	-8.720650E-003	-4.899153E-003	-3.077208E-001	-1.728702E+000
851	9	-9.050603E-003	-4.981495E-003	-3.193583E-001	-1.757757E+000
852	1	-7.954764E-003	-5.704269E-003	-2.806915E-001	-2.012803E+000
852	2	-8.350723E-003	-5.883599E-003	-2.946592E-001	-2.047861E+000
852	3	-8.325410E-003	-5.706557E-003	-2.937785E-001	-2.013607E+000
852	4	-7.931875E-003	-5.600115E-003	-2.798854E-001	-1.978856E+000
852	5	-8.152226E-003	-5.753845E-003	-2.876596E-001	-2.030291E+000
852	6	-8.338009E-003	-5.754925E-003	-2.942107E-001	-2.030684E+000
852	7	-8.128132E-003	-5.657178E-003	-2.868111E-001	-1.996198E+000
852	8	-7.943527E-003	-5.656143E-003	-2.802877E-001	-1.995811E+000
852	9	-8.140214E-003	-5.705382E-003	-2.872323E-001	-2.013200E+000
853	1	-5.898442E-003	-7.496774E-003	-1.799004E-001	-2.645304E+000
853	2	-5.834394E-003	-7.802211E-003	-1.800129E-001	-2.470789E+000
853	3	-5.834369E-003	-8.239501E-003	-1.800138E-001	-2.907385E+000
853	4	-5.898458E-003	-8.797155E-003	-1.799016E-001	-3.104158E+000

853	5	-3.938323E-003	-7.243348E-003	-1.389670E-001	-2.555868E+000
853	6	-2.834384E-003	-7.620864E-003	-1.000143E-001	-2.689885E+000
853	7	-3.938321E-003	-8.511417E-003	-1.389687E-001	-3.003315E+000
853	8	-5.898427E-003	-8.146926E-003	-1.799831E-001	-2.874719E+000
853	9	-3.938337E-003	-7.877489E-003	-1.389669E-001	-2.779601E+000
854	1	-1.020265E-002	-2.827835E-003	-3.600845E-001	-9.978358E-001
854	2	-1.125964E-002	-3.891515E-003	-3.972999E-001	-1.098867E+000
854	3	-1.122292E-002	-2.847672E-003	-3.960803E-001	-1.004830E+000
854	4	-1.016572E-002	-2.582783E-003	-3.587020E-001	-9.113421E-001
854	5	-1.073226E-002	-2.959978E-003	-3.786945E-001	-1.044448E+000
854	6	-1.124115E-002	-2.969587E-003	-3.966509E-001	-1.047830E+000
854	7	-1.069547E-002	-2.715569E-003	-3.773994E-001	-9.581960E-001
854	8	-1.018396E-002	-2.705296E-003	-3.593512E-001	-9.546834E-001
854	9	-1.071397E-002	-2.837788E-003	-3.780501E-001	-1.001336E+000
855	1	-1.045926E-002	-3.294893E-003	-3.696641E-001	-1.162632E+000
855	2	-1.156476E-002	-3.570916E-003	-4.088684E-001	-1.260023E+000
855	3	-1.151957E-002	-3.312618E-003	-4.064696E-001	-1.168076E+000
855	4	-1.041995E-002	-3.038491E-003	-3.676818E-001	-1.072138E+000
855	5	-1.101171E-002	-3.432871E-003	-3.885547E-001	-1.211293E+000
855	6	-1.154209E-002	-3.441384E-003	-4.072751E-001	-1.214321E+000
855	7	-1.096942E-002	-3.175372E-003	-3.870623E-001	-1.120474E+000
855	8	-1.043951E-002	-3.166369E-003	-3.683681E-001	-1.117282E+000
855	9	-1.099058E-002	-3.383885E-003	-3.878100E-001	-1.165772E+000
856	1	-2.597341E-002	-7.974546E-003	-9.165394E-002	-2.813975E-001
856	2	-2.881121E-002	-7.975065E-003	-1.016647E-001	-2.814145E-001
856	3	-2.881151E-002	-7.476954E-003	-1.016664E-001	-2.638431E-001
856	4	-2.597316E-002	-7.476890E-003	-9.165056E-002	-2.638395E-001
856	5	-2.739134E-002	-7.974682E-003	-9.665707E-002	-2.814051E-001
856	6	-2.881076E-002	-7.726093E-003	-1.016638E-001	-2.726281E-001
856	7	-2.739134E-002	-7.476908E-003	-9.665707E-002	-2.638409E-001
856	8	-2.597412E-002	-7.725733E-003	-9.165297E-002	-2.726180E-001
856	9	-2.739134E-002	-7.725936E-003	-9.665707E-002	-2.726252E-001
857	1	-2.526742E-002	-1.005165E-002	-8.916151E-002	-3.546941E-001
857	2	-2.552365E-002	-1.005166E-002	-9.006520E-002	-3.546936E-001
857	3	-2.552370E-002	-1.000648E-002	-9.006543E-002	-3.531013E-001
857	4	-2.526742E-002	-1.000650E-002	-8.916296E-002	-3.531021E-001
857	5	-2.539569E-002	-1.005160E-002	-8.961319E-002	-3.546927E-001
857	6	-2.552372E-002	-1.002984E-002	-9.006604E-002	-3.538958E-001
857	7	-2.539569E-002	-1.000645E-002	-8.961319E-002	-3.530964E-001
857	8	-2.526742E-002	-1.002984E-002	-8.915960E-002	-3.538958E-001
857	9	-2.539569E-002	-1.002984E-002	-8.961319E-002	-3.538958E-001
858	1	-3.406579E-002	-6.581411E-003	-1.202070E-001	-2.322381E-001
858	2	-3.345671E-002	-6.581345E-003	-1.180597E-001	-2.322363E-001
858	3	-3.345699E-002	-6.688184E-003	-1.180599E-001	-2.360070E-001
858	4	-3.406544E-002	-6.688118E-003	-1.202064E-001	-2.360060E-001
858	5	-3.376108E-002	-6.581383E-003	-1.191339E-001	-2.322369E-001
858	6	-3.345678E-002	-6.634797E-003	-1.180596E-001	-2.341213E-001
858	7	-3.376130E-002	-6.688194E-003	-1.191342E-001	-2.360046E-001
858	8	-3.406562E-002	-6.634797E-003	-1.202096E-001	-2.341213E-001
858	9	-3.376119E-002	-6.634797E-003	-1.191349E-001	-2.341213E-001
859	1	-3.482870E-002	-6.836222E-003	-1.229806E-001	-2.412343E-001
859	2	-3.423950E-002	-6.836395E-003	-1.208223E-001	-2.412321E-001
859	3	-3.423934E-002	-6.939935E-003	-1.208235E-001	-2.448909E-001
859	4	-3.482873E-002	-6.939983E-003	-1.228988E-001	-2.448896E-001
859	5	-3.453425E-002	-6.836306E-003	-1.218624E-001	-2.412332E-001
859	6	-3.423945E-002	-6.888112E-003	-1.208211E-001	-2.430628E-001
859	7	-3.453425E-002	-6.939943E-003	-1.218624E-001	-2.448921E-001
859	8	-3.482895E-002	-6.888112E-003	-1.228997E-001	-2.430628E-001
859	9	-3.453425E-002	-6.888112E-003	-1.218624E-001	-2.430628E-001
860	1	-3.532584E-002	-6.944212E-003	-1.246549E-001	-2.450396E-001

860	2	-3.496751E-002	-6.944158E-003	-1.233884E-001	-2.450374E-001
860	3	-3.496724E-002	-7.007230E-003	-1.233875E-001	-2.472639E-001
860	4	-3.532681E-002	-7.007274E-003	-1.246569E-001	-2.472663E-001
860	5	-3.514651E-002	-6.944177E-003	-1.240224E-001	-2.450385E-001
860	6	-3.496742E-002	-6.975713E-003	-1.233888E-001	-2.461519E-001
860	7	-3.514643E-002	-7.007236E-003	-1.240227E-001	-2.472651E-001
860	8	-3.532656E-002	-6.975713E-003	-1.246578E-001	-2.461519E-001
860	9	-3.514659E-002	-6.975713E-003	-1.240222E-001	-2.461519E-001
861	1	-3.501922E-002	-6.985379E-003	-1.235715E-001	-2.436724E-001
861	2	-3.533348E-002	-6.985433E-003	-1.246803E-001	-2.436703E-001
861	3	-3.533341E-002	-6.850147E-003	-1.246804E-001	-2.417222E-001
861	4	-3.501875E-002	-6.850187E-003	-1.235735E-001	-2.417244E-001
861	5	-3.517618E-002	-6.985359E-003	-1.241265E-001	-2.436714E-001
861	6	-3.533257E-002	-6.877761E-003	-1.246803E-001	-2.426965E-001
861	7	-3.517632E-002	-6.850151E-003	-1.241264E-001	-2.417233E-001
861	8	-3.501946E-002	-6.877761E-003	-1.235744E-001	-2.426965E-001
861	9	-3.517613E-002	-6.877761E-003	-1.241268E-001	-2.426965E-001
862	1	-3.311584E-002	-6.838824E-003	-1.168553E-001	-2.413216E-001
862	2	-3.473776E-002	-6.838879E-003	-1.225801E-001	-2.413232E-001
862	3	-3.473743E-002	-6.553384E-003	-1.225797E-001	-2.312484E-001
862	4	-3.311480E-002	-6.553299E-003	-1.168525E-001	-2.312505E-001
862	5	-3.392638E-002	-6.838913E-003	-1.197160E-001	-2.413243E-001
862	6	-3.473816E-002	-6.696055E-003	-1.225800E-001	-2.362858E-001
862	7	-3.392630E-002	-6.553416E-003	-1.197160E-001	-2.312494E-001
862	8	-3.311584E-002	-6.696055E-003	-1.168549E-001	-2.362858E-001
862	9	-3.392630E-002	-6.696055E-003	-1.197160E-001	-2.362858E-001
863	1	-2.963651E-002	-7.071001E-003	-1.045801E-001	-2.495140E-001
863	2	-3.246753E-002	-7.071153E-003	-1.145687E-001	-2.495179E-001
863	3	-3.246723E-002	-6.574575E-003	-1.145687E-001	-2.320009E-001
863	4	-2.963627E-002	-6.574030E-003	-1.045797E-001	-2.319813E-001
863	5	-3.105314E-002	-7.071070E-003	-1.095747E-001	-2.495164E-001
863	6	-3.246761E-002	-6.822872E-003	-1.145687E-001	-2.407590E-001
863	7	-3.105231E-002	-6.574422E-003	-1.095745E-001	-2.319916E-001
863	8	-2.963555E-002	-6.822582E-003	-1.045763E-001	-2.407480E-001
863	9	-3.105279E-002	-6.822758E-003	-1.095743E-001	-2.407533E-001
864	1	-3.260058E-002	-5.742324E-003	-1.150386E-001	-2.026306E-001
864	2	-3.214885E-002	-5.742181E-003	-1.134434E-001	-2.026268E-001
864	3	-3.214855E-002	-5.821629E-003	-1.134436E-001	-2.054270E-001
864	4	-3.260097E-002	-5.821645E-003	-1.150377E-001	-2.054268E-001
864	5	-3.237506E-002	-5.742332E-003	-1.142427E-001	-2.026272E-001
864	6	-3.214843E-002	-5.781869E-003	-1.134435E-001	-2.040277E-001
864	7	-3.237495E-002	-5.821637E-003	-1.142407E-001	-2.054283E-001
864	8	-3.260125E-002	-5.781954E-003	-1.150394E-001	-2.040259E-001
864	9	-3.237512E-002	-5.781991E-003	-1.142425E-001	-2.040280E-001
865	1	-3.328934E-002	-6.287546E-003	-1.174671E-001	-2.198470E-001
865	2	-3.274559E-002	-6.287603E-003	-1.155585E-001	-2.198459E-001
865	3	-3.274592E-002	-6.303145E-003	-1.155510E-001	-2.224218E-001
865	4	-3.328923E-002	-6.303405E-003	-1.174675E-001	-2.224243E-001
865	5	-3.301751E-002	-6.287537E-003	-1.165089E-001	-2.198458E-001
865	6	-3.274573E-002	-6.255365E-003	-1.155482E-001	-2.207334E-001
865	7	-3.301686E-002	-6.303257E-003	-1.165088E-001	-2.224243E-001
865	8	-3.328823E-002	-6.255436E-003	-1.174673E-001	-2.207363E-001
865	9	-3.301742E-002	-6.255420E-003	-1.165090E-001	-2.207345E-001
866	1	-3.123802E-002	-3.974558E-003	-1.102344E-001	-1.402513E-001
866	2	-3.103811E-002	-3.974544E-003	-1.095236E-001	-1.402507E-001
866	3	-3.103794E-002	-4.009895E-003	-1.095246E-001	-1.414946E-001
866	4	-3.123962E-002	-4.009824E-003	-1.102343E-001	-1.414954E-001
866	5	-3.113875E-002	-3.974460E-003	-1.098787E-001	-1.402462E-001
866	6	-3.103791E-002	-3.992171E-003	-1.095259E-001	-1.408727E-001
866	7	-3.113875E-002	-4.009889E-003	-1.098787E-001	-1.414964E-001

866	8	-3.123930E-002	-3.992171E-003	-1.102343E-001	-1.408727E-001
866	9	-3.113875E-002	-3.992171E-003	-1.098787E-001	-1.408727E-001
867	1	-3.158124E-002	-4.612732E-003	-1.114420E-001	-1.627710E-001
867	2	-3.130786E-002	-4.612717E-003	-1.104783E-001	-1.627709E-001
867	3	-3.130881E-002	-4.660693E-003	-1.104778E-001	-1.644612E-001
867	4	-3.158200E-002	-4.660703E-003	-1.114440E-001	-1.644645E-001
867	5	-3.144465E-002	-4.612692E-003	-1.109602E-001	-1.627697E-001
867	6	-3.130881E-002	-4.636715E-003	-1.104773E-001	-1.636169E-001
867	7	-3.144465E-002	-4.660770E-003	-1.109602E-001	-1.644629E-001
867	8	-3.158234E-002	-4.636715E-003	-1.114440E-001	-1.636169E-001
867	9	-3.144465E-002	-4.636715E-003	-1.109602E-001	-1.636169E-001
868	1	-3.203144E-002	-5.285712E-003	-1.130276E-001	-1.836942E-001
868	2	-3.167279E-002	-5.285696E-003	-1.117648E-001	-1.836940E-001
868	3	-3.167351E-002	-5.268516E-003	-1.117642E-001	-1.859084E-001
868	4	-3.203088E-002	-5.268378E-003	-1.130282E-001	-1.859089E-001
868	5	-3.185186E-002	-5.285553E-003	-1.123978E-001	-1.836929E-001
868	6	-3.167320E-002	-5.237087E-003	-1.117646E-001	-1.848023E-001
868	7	-3.185186E-002	-5.268448E-003	-1.123978E-001	-1.859100E-001
868	8	-3.203082E-002	-5.237087E-003	-1.130260E-001	-1.848023E-001
868	9	-3.185186E-002	-5.237087E-003	-1.123978E-001	-1.848023E-001
869	1	-1.861030E-002	-3.831857E-003	-3.743955E-001	-1.352099E+000
869	2	-1.173615E-002	-4.113327E-003	-4.141224E-001	-1.451405E+000
869	3	-1.168183E-002	-3.847671E-003	-4.122036E-001	-1.357673E+000
869	4	-1.056242E-002	-3.568135E-003	-3.727017E-001	-1.259052E+000
869	5	-1.117389E-002	-3.972513E-003	-3.942495E-001	-1.401734E+000
869	6	-1.170882E-002	-3.980062E-003	-4.131524E-001	-1.404397E+000
869	7	-1.112192E-002	-3.707804E-003	-3.924459E-001	-1.308342E+000
869	8	-1.058643E-002	-3.699669E-003	-3.735556E-001	-1.305456E+000
869	9	-1.114742E-002	-3.839821E-003	-3.933443E-001	-1.354896E+000
870	1	-3.056125E-002	-3.790174E-004	-1.078413E-001	-1.337423E-002
870	2	-3.054351E-002	-3.789825E-004	-1.077784E-001	-1.337497E-002
870	3	-3.054312E-002	-3.822185E-004	-1.077788E-001	-1.340753E-002
870	4	-3.056102E-002	-3.821759E-004	-1.078423E-001	-1.340719E-002
870	5	-3.055228E-002	-3.789724E-004	-1.078089E-001	-1.337269E-002
870	6	-3.054351E-002	-3.806280E-004	-1.077786E-001	-1.343059E-002
870	7	-3.055228E-002	-3.822238E-004	-1.078089E-001	-1.340412E-002
870	8	-3.056097E-002	-3.806280E-004	-1.078421E-001	-1.343059E-002
870	9	-3.055228E-002	-3.806280E-004	-1.078089E-001	-1.343059E-002
871	1	-3.060783E-002	-1.130974E-003	-1.080076E-001	-3.991128E-002
871	2	-3.056935E-002	-1.131021E-003	-1.078706E-001	-3.990819E-002
871	3	-3.056945E-002	-1.137847E-003	-1.078698E-001	-4.015220E-002
871	4	-3.060785E-002	-1.137873E-003	-1.080044E-001	-4.015188E-002
871	5	-3.058851E-002	-1.130929E-003	-1.079378E-001	-3.990974E-002
871	6	-3.056898E-002	-1.134450E-003	-1.078693E-001	-4.003261E-002
871	7	-3.058855E-002	-1.137920E-003	-1.079374E-001	-4.014879E-002
871	8	-3.060808E-002	-1.134450E-003	-1.080006E-001	-4.003261E-002
871	9	-3.058865E-002	-1.134450E-003	-1.079380E-001	-4.003261E-002
872	1	-3.068756E-002	-1.872050E-003	-1.082859E-001	-6.606042E-002
872	2	-3.062319E-002	-1.872014E-003	-1.080688E-001	-6.605731E-002
872	3	-3.062326E-002	-1.883348E-003	-1.080598E-001	-6.645998E-002
872	4	-3.068733E-002	-1.883375E-003	-1.082869E-001	-6.645969E-002
872	5	-3.065478E-002	-1.872004E-003	-1.081724E-001	-6.605807E-002
872	6	-3.062256E-002	-1.877687E-003	-1.080590E-001	-6.625908E-002
872	7	-3.065481E-002	-1.883362E-003	-1.081729E-001	-6.645659E-002
872	8	-3.068727E-002	-1.877687E-003	-1.082848E-001	-6.625908E-002
872	9	-3.065491E-002	-1.877687E-003	-1.081726E-001	-6.625908E-002
873	1	-3.080810E-002	-2.597398E-003	-1.087100E-001	-9.165301E-002
873	2	-3.078990E-002	-2.597443E-003	-1.083672E-001	-9.165449E-002
873	3	-3.071070E-002	-2.614655E-003	-1.083694E-001	-9.226172E-002
873	4	-3.080812E-002	-2.614623E-003	-1.087107E-001	-9.226149E-002

873	5	-3.075944E-002	-2.597352E-003	-1.085406E-001	-9.165606E-002
873	6	-3.071024E-002	-2.606034E-003	-1.083674E-001	-9.196023E-002
873	7	-3.075866E-002	-2.614668E-003	-1.085412E-001	-9.226216E-002
873	8	-3.080788E-002	-2.606034E-003	-1.087129E-001	-9.196023E-002
873	9	-3.075912E-002	-2.606034E-003	-1.085410E-001	-9.196023E-002
874	1	-3.898731E-002	-3.300282E-003	-1.893483E-001	-1.164600E-001
874	2	-3.884307E-002	-3.300399E-003	-1.888364E-001	-1.164601E-001
874	3	-3.884297E-002	-3.325706E-003	-1.888361E-001	-1.173567E-001
874	4	-3.898715E-002	-3.325700E-003	-1.893482E-001	-1.173580E-001
874	5	-3.891536E-002	-3.300362E-003	-1.890985E-001	-1.164640E-001
874	6	-3.884324E-002	-3.313101E-003	-1.888369E-001	-1.169074E-001
874	7	-3.891537E-002	-3.325790E-003	-1.890981E-001	-1.173550E-001
874	8	-3.898723E-002	-3.313077E-003	-1.893466E-001	-1.169092E-001
874	9	-3.891550E-002	-3.313061E-003	-1.890989E-001	-1.169074E-001
875	1	-1.058917E-002	-4.452447E-003	-3.736534E-001	-1.571884E+000
875	2	-1.171308E-002	-4.734417E-003	-4.133053E-001	-1.670586E+000
875	3	-1.165837E-002	-4.465118E-003	-4.113714E-001	-1.575556E+000
875	4	-1.054084E-002	-4.185657E-003	-3.719459E-001	-1.476956E+000
875	5	-1.115020E-002	-4.593214E-003	-3.934484E-001	-1.620758E+000
875	6	-1.168541E-002	-4.599409E-003	-4.123304E-001	-1.622955E+000
875	7	-1.109862E-002	-4.325103E-003	-3.916264E-001	-1.526158E+000
875	8	-1.056498E-002	-4.318616E-003	-3.727975E-001	-1.523668E+000
875	9	-1.112436E-002	-4.458789E-003	-3.925354E-001	-1.573321E+000
876	1	-1.036047E-002	-5.174670E-003	-3.655778E-001	-1.825931E+000
876	2	-1.146120E-002	-5.449414E-003	-4.044222E-001	-1.922864E+000
876	3	-1.140002E-002	-5.184776E-003	-4.022684E-001	-1.829495E+000
876	4	-1.030544E-002	-4.911850E-003	-3.636376E-001	-1.733167E+000
876	5	-1.091085E-002	-5.312051E-003	-3.849988E-001	-1.874400E+000
876	6	-1.143041E-002	-5.316735E-003	-4.033316E-001	-1.876046E+000
876	7	-1.085258E-002	-5.048287E-003	-3.829435E-001	-1.781314E+000
876	8	-1.033285E-002	-5.042985E-003	-3.646024E-001	-1.779435E+000
876	9	-1.088165E-002	-5.179754E-003	-3.839637E-001	-1.827737E+000
877	1	-9.832909E-003	-6.037605E-003	-3.469593E-001	-2.130425E+000
877	2	-1.081405E-002	-6.282836E-003	-3.815884E-001	-2.216961E+000
877	3	-1.075204E-002	-6.043207E-003	-3.793950E-001	-2.132390E+000
877	4	-9.776417E-003	-5.800219E-003	-3.449757E-001	-2.046666E+000
877	5	-1.032255E-002	-6.160824E-003	-3.642420E-001	-2.173605E+000
877	6	-1.078306E-002	-6.162653E-003	-3.804862E-001	-2.174556E+000
877	7	-1.026346E-002	-5.921535E-003	-3.621538E-001	-2.089454E+000
877	8	-9.804394E-003	-5.918539E-003	-3.459571E-001	-2.088408E+000
877	9	-1.029300E-002	-6.040421E-003	-3.631940E-001	-2.131419E+000
878	1	-8.797032E-003	-7.128898E-003	-3.104127E-001	-2.512673E+000
878	2	-9.133411E-003	-7.204534E-003	-3.222820E-001	-2.542102E+000
878	3	-9.111917E-003	-7.122322E-003	-3.215208E-001	-2.513155E+000
878	4	-8.775481E-003	-7.038210E-003	-3.096481E-001	-2.483512E+000
878	5	-8.965749E-003	-7.162806E-003	-3.163649E-001	-2.527452E+000
878	6	-9.122692E-003	-7.163446E-003	-3.219037E-001	-2.527662E+000
878	7	-8.944216E-003	-7.080393E-003	-3.155937E-001	-2.498373E+000
878	8	-8.786237E-003	-7.079536E-003	-3.100286E-001	-2.498076E+000
878	9	-8.954951E-003	-7.121603E-003	-3.159864E-001	-2.512908E+000
879	1	-1.162078E-002	-3.258246E-003	-4.100434E-001	-1.149784E+000
879	2	-1.296217E-002	-3.593089E-003	-4.573708E-001	-1.267823E+000
879	3	-1.291595E-002	-3.281531E-003	-4.557506E-001	-1.157924E+000
879	4	-1.157374E-002	-2.945315E-003	-4.083952E-001	-1.039265E+000
879	5	-1.229316E-002	-3.426063E-003	-4.337679E-001	-1.208914E+000
879	6	-1.293915E-002	-3.437241E-003	-4.565670E-001	-1.212867E+000
879	7	-1.224655E-002	-3.113811E-003	-4.321194E-001	-1.098742E+000
879	8	-1.159712E-002	-3.101830E-003	-4.092154E-001	-1.094497E+000
879	9	-1.226972E-002	-3.269951E-003	-4.329423E-001	-1.153832E+000
880	1	-1.196491E-002	-3.835090E-003	-4.221986E-001	-1.353246E+000

880	2	-1.338817E-002	-4.190681E-003	-4.724095E-001	-1.470711E+000
880	3	-1.332871E-002	-3.856021E-003	-4.703148E-001	-1.360629E+000
880	4	-1.190497E-002	-3.498753E-003	-4.200707E-001	-1.234548E+000
880	5	-1.267846E-002	-4.013372E-003	-4.473661E-001	-1.416141E+000
880	6	-1.335054E-002	-4.023352E-003	-4.713698E-001	-1.419678E+000
880	7	-1.261865E-002	-3.677807E-003	-4.452586E-001	-1.297741E+000
880	8	-1.193472E-002	-3.666952E-003	-4.211326E-001	-1.293908E+000
880	9	-1.264854E-002	-3.845569E-003	-4.463127E-001	-1.356954E+000
881	1	-1.218078E-002	-4.509692E-003	-4.298098E-001	-1.591288E+000
881	2	-1.367661E-002	-4.883721E-003	-4.825982E-001	-1.723245E+000
881	3	-1.359397E-002	-4.528590E-003	-4.796709E-001	-1.597942E+000
881	4	-1.210612E-002	-4.156098E-003	-4.271784E-001	-1.466514E+000
881	5	-1.292913E-002	-4.696881E-003	-4.562083E-001	-1.657323E+000
881	6	-1.363521E-002	-4.705662E-003	-4.811307E-001	-1.660437E+000
881	7	-1.285057E-002	-4.342409E-003	-4.534420E-001	-1.532255E+000
881	8	-1.214334E-002	-4.332448E-003	-4.284924E-001	-1.528745E+000
881	9	-1.288970E-002	-4.519109E-003	-4.548249E-001	-1.594611E+000
882	1	-1.222589E-002	-5.297070E-003	-4.314018E-001	-1.869116E+000
882	2	-1.397334E-002	-5.732648E-003	-4.930610E-001	-2.022809E+000
882	3	-1.387676E-002	-5.315472E-003	-4.896550E-001	-1.875587E+000
882	4	-1.213878E-002	-4.882745E-003	-4.283330E-001	-1.722911E+000
882	5	-1.309894E-002	-5.514683E-003	-4.622075E-001	-1.945980E+000
882	6	-1.392580E-002	-5.523489E-003	-4.913522E-001	-1.948994E+000
882	7	-1.300729E-002	-5.098912E-003	-4.589720E-001	-1.799198E+000
882	8	-1.218241E-002	-5.089330E-003	-4.298647E-001	-1.795815E+000
882	9	-1.305382E-002	-5.306240E-003	-4.605874E-001	-1.872352E+000
883	1	-1.214566E-002	-6.275641E-003	-4.285660E-001	-2.214480E+000
883	2	-1.460975E-002	-6.889386E-003	-5.155191E-001	-2.430977E+000
883	3	-1.447077E-002	-6.293050E-003	-5.106080E-001	-2.220554E+000
883	4	-1.200498E-002	-5.676168E-003	-4.236068E-001	-2.002874E+000
883	5	-1.338082E-002	-6.583248E-003	-4.721527E-001	-2.322956E+000
883	6	-1.454819E-002	-6.591305E-003	-5.130640E-001	-2.325788E+000
883	7	-1.324083E-002	-5.985422E-003	-4.672188E-001	-2.112005E+000
883	8	-1.207529E-002	-5.975972E-003	-4.260874E-001	-2.108659E+000
883	9	-1.331082E-002	-6.284389E-003	-4.696807E-001	-2.217488E+000
884	1	-1.197228E-002	-7.664109E-003	-4.224528E-001	-2.704342E+000
884	2	-1.681127E-002	-8.874594E-003	-5.931959E-001	-3.131469E+000
884	3	-1.650170E-002	-7.688222E-003	-5.822751E-001	-2.712851E+000
884	4	-1.165982E-002	-6.471565E-003	-4.114221E-001	-2.283556E+000
884	5	-1.439751E-002	-8.270779E-003	-5.080239E-001	-2.918427E+000
884	6	-1.665627E-002	-8.281469E-003	-5.877319E-001	-2.922201E+000
884	7	-1.480645E-002	-7.081362E-003	-4.970510E-001	-2.498716E+000
884	8	-1.181605E-002	-7.067966E-003	-4.169423E-001	-2.493997E+000
884	9	-1.424209E-002	-7.676214E-003	-5.025428E-001	-2.708608E+000
885	1	-1.182825E-002	-1.021028E-002	-4.170921E-001	-3.602793E+000
885	2	-2.540157E-002	-1.362997E-002	-8.991328E-001	-4.808427E+000
885	3	-2.451460E-002	-1.024935E-002	-8.650209E-001	-3.616565E+000
885	4	-1.093144E-002	-6.853088E-003	-3.857296E-001	-2.418171E+000
885	5	-1.664684E-002	-1.191905E-002	-6.579689E-001	-4.205739E+000
885	6	-2.499677E-002	-1.193483E-002	-8.820274E-001	-4.211302E+000
885	7	-1.771907E-002	-8.550165E-003	-6.252315E-001	-3.017011E+000
885	8	-1.137468E-002	-8.526963E-003	-4.013666E-001	-3.008812E+000
885	9	-1.818158E-002	-1.022988E-002	-6.415538E-001	-3.609692E+000
886	1	-2.541401E-002	-7.009736E-003	-8.967587E-001	-2.473446E+000
886	2	-2.541401E-002	-7.009736E-003	-8.967587E-001	-2.473446E+000
886	3	-2.541401E-002	-7.009736E-003	-8.967587E-001	-2.473446E+000
887	1	-1.585365E-002	-9.218894E-003	-5.594170E-002	-3.253117E-001
887	2	-1.765734E-002	-9.840572E-003	-6.230989E-002	-3.472405E-001
887	3	-2.217634E-002	-9.867700E-003	-7.825201E-002	-3.482015E-001
887	4	-2.186850E-002	-9.385169E-003	-7.716416E-002	-3.311782E-001

888	1	-2.444534E-002	-7.310009E-003	-8.626201E-002	-2.579500E-001
888	2	-2.689990E-002	-7.312053E-003	-9.492017E-002	-2.580223E-001
888	3	-2.688332E-002	-7.061501E-003	-9.486543E-002	-2.491799E-001
888	4	-2.444643E-002	-7.054013E-003	-8.626159E-002	-2.489166E-001
889	1	-2.885888E-002	-6.378821E-003	-1.018340E-001	-2.250594E-001
889	2	-3.199162E-002	-6.380283E-003	-1.128883E-001	-2.251362E-001
889	3	-3.198584E-002	-6.044070E-003	-1.128693E-001	-2.132772E-001
889	4	-2.883743E-002	-6.037818E-003	-1.017556E-001	-2.130599E-001
890	1	-3.271660E-002	-6.327313E-003	-1.154476E-001	-2.232715E-001
890	2	-3.286943E-002	-6.327208E-003	-1.131640E-001	-2.232687E-001
890	3	-3.286914E-002	-6.397597E-003	-1.131635E-001	-2.257557E-001
890	4	-3.271748E-002	-6.397616E-003	-1.154501E-001	-2.257561E-001
890	5	-3.239289E-002	-6.327371E-003	-1.143047E-001	-2.232744E-001
890	6	-3.286928E-002	-6.362453E-003	-1.131637E-001	-2.245118E-001
890	7	-3.239287E-002	-6.397633E-003	-1.143059E-001	-2.257535E-001
890	8	-3.271834E-002	-6.362468E-003	-1.154545E-001	-2.245147E-001
890	9	-3.239311E-002	-6.362471E-003	-1.143046E-001	-2.245131E-001
891	1	-3.367451E-002	-6.715591E-003	-1.188286E-001	-2.369748E-001
891	2	-3.292084E-002	-6.715649E-003	-1.161710E-001	-2.369758E-001
891	3	-3.292143E-002	-6.797301E-003	-1.161718E-001	-2.398574E-001
891	4	-3.367466E-002	-6.797443E-003	-1.188319E-001	-2.398581E-001
891	5	-3.329811E-002	-6.715585E-003	-1.174976E-001	-2.369715E-001
891	6	-3.292143E-002	-6.756486E-003	-1.161692E-001	-2.384160E-001
891	7	-3.329821E-002	-6.797356E-003	-1.174987E-001	-2.398630E-001
891	8	-3.367554E-002	-6.756486E-003	-1.188289E-001	-2.384160E-001
891	9	-3.329839E-002	-6.756486E-003	-1.174984E-001	-2.384160E-001
892	1	-3.468671E-002	-6.967576E-003	-1.223971E-001	-2.458628E-001
892	2	-3.389854E-002	-6.967556E-003	-1.196195E-001	-2.458627E-001
892	3	-3.389870E-002	-7.053105E-003	-1.196194E-001	-2.488858E-001
892	4	-3.468677E-002	-7.053129E-003	-1.223963E-001	-2.488858E-001
892	5	-3.429285E-002	-6.967477E-003	-1.210078E-001	-2.458594E-001
892	6	-3.389904E-002	-7.010207E-003	-1.196192E-001	-2.473734E-001
892	7	-3.429285E-002	-7.053280E-003	-1.210078E-001	-2.488868E-001
892	8	-3.468722E-002	-7.010207E-003	-1.223981E-001	-2.473734E-001
892	9	-3.429285E-002	-7.010207E-003	-1.210078E-001	-2.473734E-001
893	1	-3.551809E-002	-7.026201E-003	-1.253326E-001	-2.479301E-001
893	2	-3.489288E-002	-7.026343E-003	-1.231263E-001	-2.479378E-001
893	3	-3.489229E-002	-7.094334E-003	-1.231232E-001	-2.503334E-001
893	4	-3.551914E-002	-7.094241E-003	-1.253360E-001	-2.503342E-001
893	5	-3.520467E-002	-7.026268E-003	-1.242277E-001	-2.479346E-001
893	6	-3.489324E-002	-7.060260E-003	-1.231246E-001	-2.491340E-001
893	7	-3.520557E-002	-7.094392E-003	-1.242289E-001	-2.503398E-001
893	8	-3.551859E-002	-7.060260E-003	-1.253332E-001	-2.491340E-001
893	9	-3.520499E-002	-7.060260E-003	-1.242295E-001	-2.491340E-001
894	1	-3.550986E-002	-6.840987E-003	-1.253063E-001	-2.413944E-001
894	2	-3.559344E-002	-6.840822E-003	-1.255978E-001	-2.413938E-001
894	3	-3.559154E-002	-6.831921E-003	-1.255955E-001	-2.410795E-001
894	4	-3.551184E-002	-6.831948E-003	-1.253074E-001	-2.410766E-001
894	5	-3.555209E-002	-6.840840E-003	-1.254512E-001	-2.413900E-001
894	6	-3.559259E-002	-6.836384E-003	-1.255970E-001	-2.412361E-001
894	7	-3.555104E-002	-6.831979E-003	-1.254514E-001	-2.410814E-001
894	8	-3.551013E-002	-6.836384E-003	-1.253078E-001	-2.412361E-001
894	9	-3.555153E-002	-6.836384E-003	-1.254502E-001	-2.412361E-001
895	1	-3.338752E-002	-6.482613E-003	-1.178150E-001	-2.287533E-001
895	2	-3.523128E-002	-6.482736E-003	-1.243185E-001	-2.287583E-001
895	3	-3.522969E-002	-6.282592E-003	-1.243164E-001	-2.216965E-001
895	4	-3.338775E-002	-6.282327E-003	-1.178159E-001	-2.216829E-001
895	5	-3.431027E-002	-6.482762E-003	-1.210689E-001	-2.287560E-001
895	6	-3.523139E-002	-6.382648E-003	-1.243212E-001	-2.252269E-001
895	7	-3.431027E-002	-6.282536E-003	-1.210689E-001	-2.216912E-001

895	8	-3.338800E-002	-6.382518E-003	-1.178169E-001	-2.252186E-001
895	9	-3.431027E-002	-6.382562E-003	-1.210689E-001	-2.252233E-001
896	1	-3.000840E-002	-3.332132E-003	-1.058070E-001	-1.175779E-001
896	2	-2.983373E-002	-3.331970E-003	-1.052760E-001	-1.175747E-001
896	3	-2.983502E-002	-3.350917E-003	-1.052773E-001	-1.182432E-001
896	4	-3.000836E-002	-3.350840E-003	-1.058018E-001	-1.182419E-001
896	5	-2.992066E-002	-3.331942E-003	-1.055818E-001	-1.175785E-001
896	6	-2.983390E-002	-3.341402E-003	-1.052767E-001	-1.179086E-001
896	7	-2.992082E-002	-3.350907E-003	-1.055822E-001	-1.182434E-001
896	8	-3.000852E-002	-3.341508E-003	-1.058013E-001	-1.179102E-001
896	9	-2.992104E-002	-3.341435E-003	-1.055823E-001	-1.179091E-001
897	1	-3.030463E-002	-4.018896E-003	-1.069397E-001	-1.418149E-001
897	2	-3.006836E-002	-4.018850E-003	-1.061012E-001	-1.418153E-001
897	3	-3.006807E-002	-4.044664E-003	-1.061028E-001	-1.427266E-001
897	4	-3.030582E-002	-4.044664E-003	-1.069391E-001	-1.427266E-001
897	5	-3.018620E-002	-4.018774E-003	-1.065208E-001	-1.418096E-001
897	6	-3.006846E-002	-4.031764E-003	-1.061032E-001	-1.422698E-001
897	7	-3.018620E-002	-4.044664E-003	-1.065208E-001	-1.427266E-001
897	8	-3.030652E-002	-4.031764E-003	-1.069446E-001	-1.422698E-001
897	9	-3.018620E-002	-4.031764E-003	-1.065208E-001	-1.422698E-001
898	1	-3.070737E-002	-4.672802E-003	-1.083611E-001	-1.648889E-001
898	2	-3.038805E-002	-4.672761E-003	-1.072283E-001	-1.648894E-001
898	3	-3.038727E-002	-4.707625E-003	-1.072292E-001	-1.661162E-001
898	4	-3.070968E-002	-4.707625E-003	-1.083578E-001	-1.661162E-001
898	5	-3.054793E-002	-4.672679E-003	-1.077953E-001	-1.648879E-001
898	6	-3.038804E-002	-4.690117E-003	-1.072274E-001	-1.655008E-001
898	7	-3.054793E-002	-4.707625E-003	-1.077953E-001	-1.661162E-001
898	8	-3.070832E-002	-4.690117E-003	-1.083562E-001	-1.655008E-001
898	9	-3.054793E-002	-4.690117E-003	-1.077953E-001	-1.655008E-001
899	1	-3.123241E-002	-5.284372E-003	-1.102101E-001	-1.864686E-001
899	2	-3.081511E-002	-5.284338E-003	-1.087396E-001	-1.864693E-001
899	3	-3.081466E-002	-5.329511E-003	-1.087373E-001	-1.880660E-001
899	4	-3.123179E-002	-5.329511E-003	-1.102099E-001	-1.880660E-001
899	5	-3.102480E-002	-5.284249E-003	-1.094744E-001	-1.864640E-001
899	6	-3.081528E-002	-5.306920E-003	-1.087384E-001	-1.872667E-001
899	7	-3.102480E-002	-5.329511E-003	-1.094744E-001	-1.880660E-001
899	8	-3.123322E-002	-5.306920E-003	-1.102095E-001	-1.872667E-001
899	9	-3.102480E-002	-5.306920E-003	-1.094744E-001	-1.872667E-001
900	1	-3.189791E-002	-5.841513E-003	-1.125560E-001	-2.061335E-001
900	2	-3.136982E-002	-5.841489E-003	-1.106916E-001	-2.061308E-001
900	3	-3.136791E-002	-5.898771E-003	-1.106896E-001	-2.081589E-001
900	4	-3.189987E-002	-5.898706E-003	-1.125634E-001	-2.081513E-001
900	5	-3.163382E-002	-5.841583E-003	-1.116262E-001	-2.061325E-001
900	6	-3.136989E-002	-5.870137E-003	-1.106947E-001	-2.071399E-001
900	7	-3.163283E-002	-5.898938E-003	-1.116262E-001	-2.081533E-001
900	8	-3.189828E-002	-5.870169E-003	-1.125564E-001	-2.071421E-001
900	9	-3.163344E-002	-5.870175E-003	-1.116257E-001	-2.071422E-001
901	1	-2.964457E-002	-1.886387E-003	-1.046016E-001	-6.655916E-002
901	2	-2.956482E-002	-1.886310E-003	-1.043240E-001	-6.655967E-002
901	3	-2.956366E-002	-1.894763E-003	-1.043196E-001	-6.686315E-002
901	4	-2.964249E-002	-1.894763E-003	-1.046010E-001	-6.686315E-002
901	5	-2.960352E-002	-1.886133E-003	-1.044633E-001	-6.655567E-002
901	6	-2.956407E-002	-1.890511E-003	-1.043255E-001	-6.671010E-002
901	7	-2.960333E-002	-1.894763E-003	-1.044633E-001	-6.686315E-002
901	8	-2.964305E-002	-1.890511E-003	-1.045994E-001	-6.671010E-002
901	9	-2.960335E-002	-1.890511E-003	-1.044639E-001	-6.671010E-002
902	1	-2.979114E-002	-2.618975E-003	-1.051257E-001	-9.241910E-002
902	2	-2.967270E-002	-2.619089E-003	-1.047029E-001	-9.241588E-002
902	3	-2.967158E-002	-2.631964E-003	-1.047028E-001	-9.287515E-002
902	4	-2.979148E-002	-2.631964E-003	-1.051283E-001	-9.287515E-002

902	5	-2.973138E-002	-2.618911E-003	-1.049152E-001	-9.241565E-002
902	6	-2.967229E-002	-2.625498E-003	-1.047054E-001	-9.264755E-002
902	7	-2.973172E-002	-2.631964E-003	-1.049118E-001	-9.287515E-002
902	8	-2.979193E-002	-2.625498E-003	-1.051289E-001	-9.264755E-002
902	9	-2.973179E-002	-2.625498E-003	-1.049157E-001	-9.264755E-002
903	1	-2.948501E-002	-3.832458E-004	-1.040464E-001	-1.352460E-002
903	2	-2.945255E-002	-3.832458E-004	-1.039266E-001	-1.352347E-002
903	3	-2.945168E-002	-3.868818E-004	-1.039269E-001	-1.365138E-002
903	4	-2.948455E-002	-3.868796E-004	-1.040495E-001	-1.365054E-002
903	5	-2.946841E-002	-3.830998E-004	-1.039859E-001	-1.351839E-002
903	6	-2.945160E-002	-3.850425E-004	-1.039266E-001	-1.358624E-002
903	7	-2.946841E-002	-3.868898E-004	-1.039859E-001	-1.365096E-002
903	8	-2.948606E-002	-3.850425E-004	-1.040442E-001	-1.358624E-002
903	9	-2.946841E-002	-3.850425E-004	-1.039859E-001	-1.358624E-002
904	1	-2.954512E-002	-1.139633E-003	-1.042547E-001	-4.021714E-002
904	2	-2.949812E-002	-1.139586E-003	-1.040900E-001	-4.021098E-002
904	3	-2.949692E-002	-1.144871E-003	-1.040898E-001	-4.039808E-002
904	4	-2.954648E-002	-1.144985E-003	-1.042572E-001	-4.039940E-002
904	5	-2.952119E-002	-1.139519E-003	-1.041731E-001	-4.021185E-002
904	6	-2.949758E-002	-1.142256E-003	-1.040874E-001	-4.030696E-002
904	7	-2.952115E-002	-1.144854E-003	-1.041732E-001	-4.039497E-002
904	8	-2.954495E-002	-1.142204E-003	-1.042540E-001	-4.030683E-002
904	9	-2.952165E-002	-1.142243E-003	-1.041719E-001	-4.030625E-002
905	1	-1.341932E-002	-3.775068E-003	-4.735875E-001	-1.332059E+000
905	2	-1.517368E-002	-4.215012E-003	-5.354203E-001	-1.487308E+000
905	3	-1.509088E-002	-3.802884E-003	-5.324927E-001	-1.341876E+000
905	4	-1.335650E-002	-3.771795E-003	-4.712956E-001	-1.189776E+000
905	5	-1.429225E-002	-3.993967E-003	-5.043128E-001	-1.409295E+000
905	6	-1.513192E-002	-4.007746E-003	-5.339451E-001	-1.414169E+000
905	7	-1.421952E-002	-3.586355E-003	-5.017474E-001	-1.265472E+000
905	8	-1.330782E-002	-3.572281E-003	-4.724036E-001	-1.260517E+000
905	9	-1.425577E-002	-3.788984E-003	-5.030236E-001	-1.336978E+000
906	1	-1.388856E-002	-4.494878E-003	-4.900788E-001	-1.586051E+000
906	2	-1.568991E-002	-4.945675E-003	-5.536328E-001	-1.745099E+000
906	3	-1.560325E-002	-4.519935E-003	-5.505728E-001	-1.594885E+000
906	4	-1.381227E-002	-4.073279E-003	-4.873810E-001	-1.437310E+000
906	5	-1.478765E-002	-4.719854E-003	-5.217910E-001	-1.665427E+000
906	6	-1.564663E-002	-4.732199E-003	-5.520978E-001	-1.669789E+000
906	7	-1.470624E-002	-4.296212E-003	-5.189165E-001	-1.515945E+000
906	8	-1.385041E-002	-4.283554E-003	-4.887232E-001	-1.511480E+000
906	9	-1.474681E-002	-4.507446E-003	-5.203531E-001	-1.590488E+000
907	1	-1.425860E-002	-5.286417E-003	-5.031211E-001	-1.865360E+000
907	2	-1.630124E-002	-5.795510E-003	-5.752050E-001	-2.044995E+000
907	3	-1.619963E-002	-5.309416E-003	-5.716181E-001	-1.873474E+000
907	4	-1.414404E-002	-4.793171E-003	-4.998822E-001	-1.691297E+000
907	5	-1.528407E-002	-5.542804E-003	-5.393891E-001	-1.955551E+000
907	6	-1.625066E-002	-5.553156E-003	-5.734156E-001	-1.959481E+000
907	7	-1.517626E-002	-5.052334E-003	-5.355068E-001	-1.782759E+000
907	8	-1.420156E-002	-5.040464E-003	-5.011081E-001	-1.778578E+000
907	9	-1.523033E-002	-5.297989E-003	-5.374123E-001	-1.869405E+000
908	1	-1.460336E-002	-6.176107E-003	-5.181104E-001	-2.179290E+000
908	2	-1.735893E-002	-6.845914E-003	-6.125283E-001	-2.415625E+000
908	3	-1.719116E-002	-6.198619E-003	-6.066836E-001	-2.187254E+000
908	4	-1.453032E-002	-5.533807E-003	-5.127113E-001	-1.952474E+000
908	5	-1.602039E-002	-6.510756E-003	-5.652930E-001	-2.297376E+000
908	6	-1.727501E-002	-6.521386E-003	-6.095601E-001	-2.301107E+000
908	7	-1.586001E-002	-5.865751E-003	-5.596360E-001	-2.069010E+000
908	8	-1.468682E-002	-5.853758E-003	-5.154134E-001	-2.065562E+000
908	9	-1.594004E-002	-6.187378E-003	-5.624553E-001	-2.183277E+000
909	1	-1.553408E-002	-7.154586E-003	-5.481336E-001	-2.524549E+000

909	2	-1.941349E-002	-8.129871E-003	-6.859237E-001	-2.868412E+000
909	3	-1.914415E-002	-7.179274E-003	-6.755208E-001	-2.533252E+000
909	4	-1.931889E-002	-6.222727E-003	-5.402544E-001	-2.195725E+000
909	5	-1.746696E-002	-7.640084E-003	-6.163385E-001	-2.695862E+000
909	6	-1.927828E-002	-7.651439E-003	-6.802458E-001	-2.699868E+000
909	7	-1.722087E-002	-6.699229E-003	-6.076540E-001	-2.363084E+000
909	8	-1.542188E-002	-6.685951E-003	-5.441700E-001	-2.359195E+000
909	9	-1.734332E-002	-7.166990E-003	-6.119722E-001	-2.528931E+000
910	1	-1.789588E-002	-7.977271E-003	-6.314403E-001	-2.814826E+000
910	2	-2.277903E-002	-9.198134E-003	-8.037764E-001	-3.245634E+000
910	3	-2.243573E-002	-7.994624E-003	-7.916681E-001	-2.820977E+000
910	4	-1.757966E-002	-6.782023E-003	-6.203027E-001	-2.393119E+000
910	5	-2.033598E-002	-8.587429E-003	-7.175716E-001	-3.030139E+000
910	6	-2.260712E-002	-8.594656E-003	-7.977079E-001	-3.032693E+000
910	7	-2.000655E-002	-7.388119E-003	-7.059551E-001	-2.606952E+000
910	8	-1.773682E-002	-7.377997E-003	-6.258581E-001	-2.603370E+000
910	9	-2.017006E-002	-7.986045E-003	-7.117429E-001	-2.817938E+000
911	1	-1.758810E-002	-8.985667E-003	-6.207138E-002	-3.170729E-001
911	2	-1.758810E-002	-8.985667E-003	-6.207138E-002	-3.170729E-001
911	3	-1.758810E-002	-8.985667E-003	-6.207138E-002	-3.170729E-001
912	1	-2.324802E-002	-6.879453E-003	-8.283255E-001	-2.427473E+000
912	2	-2.455115E-002	-6.879468E-003	-8.663105E-001	-2.427471E+000
912	3	-2.392404E-002	-6.679092E-003	-8.441809E-001	-2.356776E+000
912	4	-2.383763E-002	-6.679093E-003	-8.129833E-001	-2.356779E+000
913	1	-1.572790E-002	-4.430586E-003	-5.549742E-001	-1.563387E+000
913	2	-1.763593E-002	-4.986543E-003	-6.222934E-001	-1.731316E+000
913	3	-1.754361E-002	-4.459779E-003	-6.190404E-001	-1.573670E+000
913	4	-1.563464E-002	-3.981530E-003	-5.516029E-001	-1.404913E+000
913	5	-1.668433E-002	-4.669202E-003	-5.887160E-001	-1.647556E+000
913	6	-1.758987E-002	-4.683244E-003	-6.206737E-001	-1.652514E+000
913	7	-1.659143E-002	-4.221270E-003	-5.854436E-001	-1.489493E+000
913	8	-1.568149E-002	-4.206141E-003	-5.533291E-001	-1.484172E+000
913	9	-1.663789E-002	-4.445252E-003	-5.870774E-001	-1.568548E+000
914	1	-1.627773E-002	-5.192926E-003	-5.743691E-001	-1.832372E+000
914	2	-1.836172E-002	-5.716889E-003	-6.479101E-001	-2.017216E+000
914	3	-1.824638E-002	-5.219246E-003	-6.438448E-001	-1.841641E+000
914	4	-1.617406E-002	-4.698646E-003	-5.707081E-001	-1.658038E+000
914	5	-1.731901E-002	-5.454727E-003	-6.111147E-001	-1.924744E+000
914	6	-1.830402E-002	-5.467312E-003	-6.458678E-001	-1.929201E+000
914	7	-1.720979E-002	-4.958868E-003	-6.072558E-001	-1.749701E+000
914	8	-1.622575E-002	-4.945158E-003	-5.725369E-001	-1.744955E+000
914	9	-1.726425E-002	-5.286184E-003	-6.091858E-001	-1.837031E+000
915	1	-1.694676E-002	-5.970698E-003	-5.979711E-001	-2.106797E+000
915	2	-1.934146E-002	-6.569388E-003	-6.824800E-001	-2.318057E+000
915	3	-1.928917E-002	-5.994179E-003	-6.778128E-001	-2.115088E+000
915	4	-1.682752E-002	-5.399426E-003	-5.937747E-001	-1.905230E+000
915	5	-1.814346E-002	-6.269803E-003	-6.402004E-001	-2.212362E+000
915	6	-1.927517E-002	-6.288098E-003	-6.801391E-001	-2.216285E+000
915	7	-1.801765E-002	-5.696623E-003	-6.357656E-001	-2.010105E+000
915	8	-1.688706E-002	-5.684314E-003	-5.958727E-001	-2.005762E+000
915	9	-1.808023E-002	-5.982428E-003	-6.379760E-001	-2.110947E+000
916	1	-1.804809E-002	-6.698970E-003	-6.368392E-001	-2.368974E+000
916	2	-2.072528E-002	-7.358662E-003	-7.313897E-001	-2.596560E+000
916	3	-2.055598E-002	-6.711701E-003	-7.253386E-001	-2.368300E+000
916	4	-1.787777E-002	-6.042416E-003	-6.308334E-001	-2.132095E+000
916	5	-1.938833E-002	-7.025342E-003	-6.841332E-001	-2.478935E+000
916	6	-2.064051E-002	-7.035209E-003	-7.283161E-001	-2.482435E+000
916	7	-1.921864E-002	-6.377553E-003	-6.781465E-001	-2.258377E+000
916	8	-1.796275E-002	-6.366699E-003	-6.338335E-001	-2.246554E+000
916	9	-1.930352E-002	-6.701431E-003	-6.811389E-001	-2.364645E+000

917	1	-1.994892E-002	-7.140196E-003	-7.039163E-001	-2.519477E+000
917	2	-2.211922E-002	-7.682185E-003	-7.804961E-001	-2.718729E+000
917	3	-2.196562E-002	-7.150955E-003	-7.750723E-001	-2.523266E+000
917	4	-1.979439E-002	-6.607534E-003	-6.984589E-001	-2.331517E+000
917	5	-2.103533E-002	-7.411461E-003	-7.422478E-001	-2.615206E+000
917	6	-2.204230E-002	-7.416591E-003	-7.777842E-001	-2.617003E+000
917	7	-2.088136E-002	-6.879599E-003	-7.368125E-001	-2.427517E+000
917	8	-1.987169E-002	-6.873907E-003	-7.011915E-001	-2.425511E+000
917	9	-2.095833E-002	-7.145531E-003	-7.395306E-001	-2.521366E+000
918	1	-2.836572E-002	-5.753524E-003	-1.000979E-001	-2.030244E-001
918	2	-3.230645E-002	-5.763457E-003	-1.140008E-001	-2.033778E-001
918	3	-3.238495E-002	-5.333538E-003	-1.140000E-001	-1.882846E-001
918	4	-2.836596E-002	-5.322558E-003	-1.000932E-001	-1.870187E-001
919	1	-3.482441E-002	-6.222854E-003	-1.200617E-001	-2.195879E-001
919	2	-3.594957E-002	-6.223225E-003	-1.268555E-001	-2.196006E-001
919	3	-3.595078E-002	-6.013794E-003	-1.268562E-001	-2.122098E-001
919	4	-3.482369E-002	-6.013729E-003	-1.200589E-001	-2.122105E-001
919	5	-3.498611E-002	-6.223101E-003	-1.234567E-001	-2.195939E-001
919	6	-3.594965E-002	-6.118588E-003	-1.268573E-001	-2.159038E-001
919	7	-3.498611E-002	-6.013732E-003	-1.234567E-001	-2.122069E-001
919	8	-3.482488E-002	-6.118329E-003	-1.200637E-001	-2.158964E-001
919	9	-3.498611E-002	-6.118414E-003	-1.234567E-001	-2.159015E-001
920	1	-3.619174E-002	-6.835007E-003	-1.277052E-001	-2.411826E-001
920	2	-3.592845E-002	-6.834897E-003	-1.267510E-001	-2.411824E-001
920	3	-3.591877E-002	-6.864324E-003	-1.267498E-001	-2.422218E-001
920	4	-3.619056E-002	-6.864328E-003	-1.277042E-001	-2.422190E-001
920	5	-3.685503E-002	-6.834842E-003	-1.272278E-001	-2.411837E-001
920	6	-3.591833E-002	-6.849582E-003	-1.267488E-001	-2.417802E-001
920	7	-3.685543E-002	-6.864237E-003	-1.272280E-001	-2.422190E-001
920	8	-3.619183E-002	-6.849582E-003	-1.277099E-001	-2.417802E-001
920	9	-3.685583E-002	-6.849582E-003	-1.272286E-001	-2.417802E-001
921	1	-3.134188E-002	-5.916314E-003	-1.105998E-001	-2.807721E-001
921	2	-3.875501E-002	-5.916259E-003	-1.085221E-001	-2.807659E-001
921	3	-3.875398E-002	-5.980122E-003	-1.085225E-001	-2.810156E-001
921	4	-3.134208E-002	-5.979980E-003	-1.105987E-001	-2.810151E-001
921	5	-3.184885E-002	-5.916335E-003	-1.095611E-001	-2.807697E-001
921	6	-3.875332E-002	-5.948128E-003	-1.085208E-001	-2.898931E-001
921	7	-3.184882E-002	-5.980018E-003	-1.095622E-001	-2.810195E-001
921	8	-3.134934E-002	-5.948220E-003	-1.105983E-001	-2.898953E-001
921	9	-3.184880E-002	-5.948192E-003	-1.095611E-001	-2.898936E-001
922	1	-3.225946E-002	-6.419470E-003	-1.138335E-001	-2.265237E-001
922	2	-3.153260E-002	-6.419490E-003	-1.112705E-001	-2.265205E-001
922	3	-3.153376E-002	-6.498445E-003	-1.112700E-001	-2.293068E-001
922	4	-3.225868E-002	-6.498422E-003	-1.138293E-001	-2.293071E-001
922	5	-3.189524E-002	-6.419508E-003	-1.125494E-001	-2.265248E-001
922	6	-3.153233E-002	-6.458912E-003	-1.112703E-001	-2.279153E-001
922	7	-3.189518E-002	-6.498314E-003	-1.125484E-001	-2.293075E-001
922	8	-3.225929E-002	-6.458912E-003	-1.138328E-001	-2.279153E-001
922	9	-3.189592E-002	-6.458912E-003	-1.125491E-001	-2.279153E-001
923	1	-3.336313E-002	-6.822989E-003	-1.177321E-001	-2.407663E-001
923	2	-3.249143E-002	-6.823010E-003	-1.146543E-001	-2.407631E-001
923	3	-3.249198E-002	-6.917828E-003	-1.146518E-001	-2.441070E-001
923	4	-3.336447E-002	-6.917797E-003	-1.177288E-001	-2.441070E-001
923	5	-3.292888E-002	-6.823147E-003	-1.161936E-001	-2.407679E-001
923	6	-3.249107E-002	-6.870374E-003	-1.146525E-001	-2.424373E-001
923	7	-3.292822E-002	-6.917725E-003	-1.161948E-001	-2.441037E-001
923	8	-3.336249E-002	-6.870374E-003	-1.177323E-001	-2.424373E-001
923	9	-3.292744E-002	-6.870374E-003	-1.161944E-001	-2.424373E-001
924	1	-3.459992E-002	-7.080928E-003	-1.220944E-001	-2.498643E-001
924	2	-3.363231E-002	-7.080953E-003	-1.186800E-001	-2.498650E-001

924	3	-3.363245E-002	-7.186291E-003	-1.186798E-001	-2.535848E-001
924	4	-3.460138E-002	-7.186341E-003	-1.221002E-001	-2.535846E-001
924	5	-3.411733E-002	-7.880977E-003	-1.203891E-001	-2.498697E-001
924	6	-3.363185E-002	-7.133655E-003	-1.186796E-001	-2.517269E-001
924	7	-3.411733E-002	-7.186272E-003	-1.203891E-001	-2.535814E-001
924	8	-3.460113E-002	-7.133655E-003	-1.220992E-001	-2.517269E-001
924	9	-3.411733E-002	-7.133655E-003	-1.203891E-001	-2.517269E-001
925	1	-3.575118E-002	-7.118175E-003	-1.261579E-001	-2.511792E-001
925	2	-3.487115E-002	-7.118017E-003	-1.230493E-001	-2.511745E-001
925	3	-3.486992E-002	-7.213870E-003	-1.230493E-001	-2.545557E-001
925	4	-3.575143E-002	-7.213993E-003	-1.261589E-001	-2.545596E-001
925	5	-3.531050E-002	-7.118057E-003	-1.245979E-001	-2.511757E-001
925	6	-3.487048E-002	-7.165897E-003	-1.230470E-001	-2.528656E-001
925	7	-3.531006E-002	-7.213805E-003	-1.246018E-001	-2.545560E-001
925	8	-3.575048E-002	-7.165981E-003	-1.261589E-001	-2.528672E-001
925	9	-3.531010E-002	-7.165965E-003	-1.246030E-001	-2.528670E-001
926	1	-3.060215E-002	-5.343466E-003	-1.079878E-001	-1.885535E-001
926	2	-3.014260E-002	-5.343426E-003	-1.063674E-001	-1.885554E-001
926	3	-3.014300E-002	-5.393266E-003	-1.063612E-001	-1.903119E-001
926	4	-3.060047E-002	-5.393136E-003	-1.079800E-001	-1.903126E-001
926	5	-3.037241E-002	-5.343379E-003	-1.071748E-001	-1.885545E-001
926	6	-3.014292E-002	-5.368321E-003	-1.063662E-001	-1.894321E-001
926	7	-3.037241E-002	-5.393141E-003	-1.071748E-001	-1.903090E-001
926	8	-3.060131E-002	-5.368321E-003	-1.079844E-001	-1.894321E-001
926	9	-3.037241E-002	-5.368321E-003	-1.071740E-001	-1.894321E-001
927	1	-2.872945E-002	-1.146220E-003	-1.013797E-001	-4.044483E-002
927	2	-2.868241E-002	-1.146185E-003	-1.012886E-001	-4.044712E-002
927	3	-2.868189E-002	-1.151402E-003	-1.012886E-001	-4.062966E-002
927	4	-2.872979E-002	-1.151322E-003	-1.013822E-001	-4.062640E-002
927	5	-2.870605E-002	-1.146139E-003	-1.012946E-001	-4.044543E-002
927	6	-2.868192E-002	-1.148760E-003	-1.012112E-001	-4.053511E-002
927	7	-2.870584E-002	-1.151327E-003	-1.012945E-001	-4.062825E-002
927	8	-2.872928E-002	-1.148782E-003	-1.013798E-001	-4.053620E-002
927	9	-2.870540E-002	-1.148801E-003	-1.012914E-001	-4.053634E-002
928	1	-2.883952E-002	-1.897452E-003	-1.017702E-001	-6.695502E-002
928	2	-2.874882E-002	-1.897458E-003	-1.014488E-001	-6.695522E-002
928	3	-2.874945E-002	-1.907292E-003	-1.014503E-001	-6.730168E-002
928	4	-2.884031E-002	-1.907254E-003	-1.017734E-001	-6.730269E-002
928	5	-2.879476E-002	-1.897455E-003	-1.016084E-001	-6.695489E-002
928	6	-2.875007E-002	-1.902486E-003	-1.014493E-001	-6.712873E-002
928	7	-2.879407E-002	-1.907273E-003	-1.016083E-001	-6.730410E-002
928	8	-2.883991E-002	-1.902486E-003	-1.017680E-001	-6.712873E-002
928	9	-2.879411E-002	-1.902486E-003	-1.016098E-001	-6.712873E-002
929	1	-2.900810E-002	-2.636044E-003	-1.023636E-001	-9.301891E-002
929	2	-2.887277E-002	-2.636032E-003	-1.018838E-001	-9.301864E-002
929	3	-2.887319E-002	-2.650754E-003	-1.018842E-001	-9.353638E-002
929	4	-2.900874E-002	-2.650798E-003	-1.023635E-001	-9.353998E-002
929	5	-2.894031E-002	-2.636040E-003	-1.021241E-001	-9.301877E-002
929	6	-2.887369E-002	-2.643459E-003	-1.018820E-001	-9.327817E-002
929	7	-2.894061E-002	-2.650818E-003	-1.021225E-001	-9.354144E-002
929	8	-2.900898E-002	-2.643459E-003	-1.023630E-001	-9.327817E-002
929	9	-2.894070E-002	-2.643459E-003	-1.021226E-001	-9.327817E-002
930	1	-2.924857E-002	-3.356613E-003	-1.032110E-001	-1.184465E-001
930	2	-2.905738E-002	-3.356627E-003	-1.025350E-001	-1.184462E-001
930	3	-2.905613E-002	-3.377490E-003	-1.025296E-001	-1.191801E-001
930	4	-2.924855E-002	-3.377504E-003	-1.032120E-001	-1.191808E-001
930	5	-2.915282E-002	-3.356616E-003	-1.028696E-001	-1.184464E-001
930	6	-2.905588E-002	-3.367042E-003	-1.025298E-001	-1.188142E-001
930	7	-2.915260E-002	-3.377527E-003	-1.028679E-001	-1.191824E-001
930	8	-2.924878E-002	-3.367042E-003	-1.032115E-001	-1.188142E-001

930	9	-2.915219E-002	-3.367042E-003	-1.028694E-001	-1.188142E-001
931	1	-2.958057E-002	-4.052592E-003	-1.043813E-001	-1.430051E-001
931	2	-2.931515E-002	-4.052591E-003	-1.034440E-001	-1.438053E-001
931	3	-2.931580E-002	-4.081327E-003	-1.034451E-001	-1.440190E-001
931	4	-2.958016E-002	-4.081481E-003	-1.043808E-001	-1.440185E-001
931	5	-2.944722E-002	-4.052595E-003	-1.039115E-001	-1.430055E-001
931	6	-2.931512E-002	-4.067077E-003	-1.034459E-001	-1.435135E-001
931	7	-2.944722E-002	-4.081446E-003	-1.039115E-001	-1.440240E-001
931	8	-2.957983E-002	-4.067077E-003	-1.043797E-001	-1.435135E-001
931	9	-2.944722E-002	-4.067077E-003	-1.039115E-001	-1.435135E-001
932	1	-3.002377E-002	-4.718200E-003	-1.059465E-001	-1.664938E-001
932	2	-2.966991E-002	-4.718268E-003	-1.046953E-001	-1.664927E-001
932	3	-2.966999E-002	-4.756555E-003	-1.046957E-001	-1.678478E-001
932	4	-3.002442E-002	-4.756759E-003	-1.059442E-001	-1.678493E-001
932	5	-2.984725E-002	-4.718267E-003	-1.053194E-001	-1.664962E-001
932	6	-2.967059E-002	-4.737304E-003	-1.046971E-001	-1.671688E-001
932	7	-2.984725E-002	-4.756595E-003	-1.053194E-001	-1.678471E-001
932	8	-3.002376E-002	-4.737489E-003	-1.059453E-001	-1.671706E-001
932	9	-2.984725E-002	-4.737373E-003	-1.053194E-001	-1.671701E-001
933	1	-2.866424E-002	-3.883620E-004	-1.011515E-001	-1.370203E-002
933	2	-2.868211E-002	-3.882701E-004	-1.009278E-001	-1.370237E-002
933	3	-2.868219E-002	-3.951812E-004	-1.009281E-001	-1.394478E-002
933	4	-2.866474E-002	-3.951712E-004	-1.011509E-001	-1.394479E-002
933	5	-2.863350E-002	-3.883130E-004	-1.010378E-001	-1.370394E-002
933	6	-2.868211E-002	-3.918309E-004	-1.009278E-001	-1.382610E-002
933	7	-2.863350E-002	-3.952480E-004	-1.010378E-001	-1.394613E-002
933	8	-2.866538E-002	-3.918309E-004	-1.011493E-001	-1.382610E-002
933	9	-2.863350E-002	-3.918309E-004	-1.010370E-001	-1.382610E-002
934	1	-2.119863E-002	-6.704613E-003	-7.480247E-002	-2.394114E-001
934	2	-2.525219E-002	-6.786055E-003	-8.918919E-002	-2.394617E-001
934	3	-2.533708E-002	-6.333273E-003	-8.940945E-002	-2.234847E-001
934	4	-2.146592E-002	-6.366583E-003	-7.574587E-002	-2.246563E-001
935	1	-1.819935E-002	-8.910632E-003	-6.421886E-002	-3.144322E-001
935	2	-1.819935E-002	-8.910632E-003	-6.421886E-002	-3.144322E-001
935	3	-1.819935E-002	-8.910632E-003	-6.421886E-002	-3.144322E-001
936	1	-2.260772E-002	-6.563114E-003	-7.977338E-001	-2.315848E+000
936	2	-2.402393E-002	-6.563226E-003	-8.477046E-001	-2.315807E+000
936	3	-2.357706E-002	-6.424495E-003	-8.319340E-001	-2.266937E+000
936	4	-2.245823E-002	-6.424254E-003	-7.924579E-001	-2.266851E+000
937	1	-1.820897E-002	-5.076572E-003	-6.425156E-001	-1.791306E+000
937	2	-2.021299E-002	-5.579565E-003	-7.132316E-001	-1.968798E+000
937	3	-2.018296E-002	-5.184385E-003	-7.093531E-001	-1.801121E+000
937	4	-1.811018E-002	-4.684776E-003	-6.398328E-001	-1.624816E+000
937	5	-1.921042E-002	-5.327966E-003	-6.778522E-001	-1.880000E+000
937	6	-2.015702E-002	-5.341297E-003	-7.112843E-001	-1.884724E+000
937	7	-1.910602E-002	-4.854418E-003	-6.741747E-001	-1.712989E+000
937	8	-1.815955E-002	-4.839981E-003	-6.407738E-001	-1.707826E+000
937	9	-1.915808E-002	-5.090506E-003	-6.760067E-001	-1.796219E+000
938	1	-1.894557E-002	-5.782546E-003	-6.685057E-001	-2.040422E+000
938	2	-2.101070E-002	-6.298046E-003	-7.413803E-001	-2.222322E+000
938	3	-2.088387E-002	-5.805527E-003	-7.368706E-001	-2.048528E+000
938	4	-1.882954E-002	-5.293500E-003	-6.644869E-001	-1.867855E+000
938	5	-1.997749E-002	-6.040103E-003	-7.049103E-001	-2.131295E+000
938	6	-2.094661E-002	-6.051078E-003	-7.391191E-001	-2.135174E+000
938	7	-1.985534E-002	-5.549334E-003	-7.006115E-001	-1.958127E+000
938	8	-1.888719E-002	-5.537256E-003	-6.664529E-001	-1.953887E+000
938	9	-1.991626E-002	-5.794856E-003	-7.027569E-001	-2.044484E+000
939	1	-1.998971E-002	-6.394525E-003	-7.025288E-001	-2.256369E+000
939	2	-2.195702E-002	-6.906206E-003	-7.747728E-001	-2.436919E+000
939	3	-2.182953E-002	-6.411738E-003	-7.702723E-001	-2.262432E+000

939	4	-1.979354E-002	-5.903415E-003	-6.984335E-001	-2.083076E+000
939	5	-2.093280E-002	-6.650256E-003	-7.386274E-001	-2.346589E+000
939	6	-2.189307E-002	-6.658297E-003	-7.725137E-001	-2.349444E+000
939	7	-2.081096E-002	-6.157377E-003	-7.343296E-001	-2.172678E+000
939	8	-1.985143E-002	-6.148251E-003	-7.004691E-001	-2.169466E+000
939	9	-2.087173E-002	-6.483132E-003	-7.364773E-001	-2.259404E+000
940	1	-2.117014E-002	-6.826043E-003	-7.470112E-001	-2.408622E+000
940	2	-2.279774E-002	-7.233576E-003	-8.044394E-001	-2.552436E+000
940	3	-2.268473E-002	-6.836394E-003	-8.004444E-001	-2.412273E+000
940	4	-2.186556E-002	-6.430534E-003	-7.433133E-001	-2.269859E+000
940	5	-2.198482E-002	-7.030038E-003	-7.757524E-001	-2.480591E+000
940	6	-2.274132E-002	-7.034463E-003	-8.024436E-001	-2.482163E+000
940	7	-2.187584E-002	-6.633595E-003	-7.719074E-001	-2.340728E+000
940	8	-2.111770E-002	-6.627773E-003	-7.451630E-001	-2.338643E+000
940	9	-2.193027E-002	-6.831283E-003	-7.738245E-001	-2.410472E+000
941	1	-2.239144E-002	-5.842253E-003	-7.981023E-001	-2.061481E+000
941	2	-2.239144E-002	-5.842253E-003	-7.981023E-001	-2.061481E+000
941	3	-2.239144E-002	-5.842253E-003	-7.981023E-001	-2.061481E+000
942	1	-2.237169E-002	-6.424593E-003	-7.894009E-001	-2.266969E+000
942	2	-2.123584E-002	-6.424479E-003	-7.493284E-001	-2.266928E+000
942	3	-2.096454E-002	-6.555833E-003	-7.397466E-001	-2.313282E+000
942	4	-2.232717E-002	-6.555212E-003	-7.870284E-001	-2.313063E+000
943	1	-1.755002E-002	-5.479807E-003	-6.192838E-002	-1.933601E-001
943	2	-1.926096E-002	-6.802812E-003	-6.796736E-002	-2.146457E-001
943	3	-2.426589E-002	-6.856348E-003	-8.562689E-002	-2.137094E-001
943	4	-2.397966E-002	-5.585847E-003	-8.461612E-002	-1.971043E-001
944	1	-2.769040E-002	-4.940884E-003	-9.771214E-002	-1.743480E-001
944	2	-3.323551E-002	-4.957346E-003	-1.172758E-001	-1.749386E-001
944	3	-3.323662E-002	-4.352123E-003	-1.172779E-001	-1.535712E-001
944	4	-2.769065E-002	-4.334268E-003	-9.771124E-002	-1.529444E-001
945	1	-3.605263E-002	-7.246813E-003	-1.272221E-001	-2.557168E-001
945	2	-3.486158E-002	-7.246630E-003	-1.230158E-001	-2.557115E-001
945	3	-3.486142E-002	-7.376166E-003	-1.230158E-001	-2.602804E-001
945	4	-3.605287E-002	-7.376184E-003	-1.272192E-001	-2.602787E-001
945	5	-3.545773E-002	-7.246801E-003	-1.251214E-001	-2.557155E-001
945	6	-3.486219E-002	-7.311358E-003	-1.230148E-001	-2.579962E-001
945	7	-3.545736E-002	-7.376148E-003	-1.251213E-001	-2.602838E-001
945	8	-3.605263E-002	-7.311461E-003	-1.272183E-001	-2.579998E-001
945	9	-3.545778E-002	-7.311369E-003	-1.251168E-001	-2.579989E-001
946	1	-3.709764E-002	-6.880702E-003	-1.389078E-001	-2.427960E-001
946	2	-3.633614E-002	-6.880673E-003	-1.282192E-001	-2.427963E-001
946	3	-3.633676E-002	-6.963164E-003	-1.282210E-001	-2.457094E-001
946	4	-3.709741E-002	-6.963163E-003	-1.389069E-001	-2.457084E-001
946	5	-3.671718E-002	-6.880710E-003	-1.295653E-001	-2.427962E-001
946	6	-3.633735E-002	-6.921939E-003	-1.282199E-001	-2.442546E-001
946	7	-3.671715E-002	-6.963282E-003	-1.295657E-001	-2.457122E-001
946	8	-3.709788E-002	-6.921939E-003	-1.389088E-001	-2.442546E-001
946	9	-3.671764E-002	-6.921939E-003	-1.295648E-001	-2.442546E-001
947	1	-3.547856E-002	-5.959414E-003	-1.251935E-001	-2.102988E-001
947	2	-3.698923E-002	-5.959412E-003	-1.385269E-001	-2.102919E-001
947	3	-3.698877E-002	-5.795154E-003	-1.385238E-001	-2.044935E-001
947	4	-3.547984E-002	-5.795156E-003	-1.251954E-001	-2.044926E-001
947	5	-3.623385E-002	-5.959540E-003	-1.278601E-001	-2.102947E-001
947	6	-3.698931E-002	-5.877323E-003	-1.385249E-001	-2.073945E-001
947	7	-3.623385E-002	-5.795274E-003	-1.278601E-001	-2.044964E-001
947	8	-3.547833E-002	-5.877323E-003	-1.251964E-001	-2.073945E-001
947	9	-3.623385E-002	-5.877323E-003	-1.278601E-001	-2.073945E-001
948	1	-3.383585E-002	-6.947091E-003	-1.165725E-001	-2.451442E-001
948	2	-3.284351E-002	-6.947205E-003	-1.130716E-001	-2.451421E-001
948	3	-3.284277E-002	-7.054588E-003	-1.130701E-001	-2.489347E-001

948	4	-3.383542E-002	-7.054494E-003	-1.165729E-001	-2.489333E-001
948	5	-3.253894E-002	-6.947124E-003	-1.148194E-001	-2.451463E-001
948	6	-3.284276E-002	-7.000919E-003	-1.130707E-001	-2.470405E-001
948	7	-3.253913E-002	-7.054589E-003	-1.148188E-001	-2.489373E-001
948	8	-3.383441E-002	-7.000919E-003	-1.165727E-001	-2.470405E-001
948	9	-3.253962E-002	-7.000919E-003	-1.148198E-001	-2.470405E-001
949	1	-3.451721E-002	-7.220193E-003	-1.218057E-001	-2.547778E-001
949	2	-3.334911E-002	-7.220099E-003	-1.176814E-001	-2.547756E-001
949	3	-3.334906E-002	-7.347011E-003	-1.176888E-001	-2.592522E-001
949	4	-3.451725E-002	-7.346970E-003	-1.218049E-001	-2.592537E-001
949	5	-3.393343E-002	-7.220159E-003	-1.197408E-001	-2.547802E-001
949	6	-3.334974E-002	-7.283577E-003	-1.176815E-001	-2.570147E-001
949	7	-3.393343E-002	-7.346975E-003	-1.197408E-001	-2.592510E-001
949	8	-3.451771E-002	-7.283577E-003	-1.218039E-001	-2.570147E-001
949	9	-3.393343E-002	-7.283577E-003	-1.197408E-001	-2.570147E-001
950	1	-2.932496E-002	-4.760236E-003	-1.034804E-001	-1.682561E-001
950	2	-2.893929E-002	-4.760886E-003	-1.021147E-001	-1.682484E-001
950	3	-2.893938E-002	-4.809871E-003	-1.021198E-001	-1.697282E-001
950	4	-2.932463E-002	-4.809932E-003	-1.034788E-001	-1.697292E-001
950	5	-2.913258E-002	-4.760194E-003	-1.027973E-001	-1.682564E-001
950	6	-2.893929E-002	-4.788983E-003	-1.021200E-001	-1.689902E-001
950	7	-2.913258E-002	-4.809941E-003	-1.027973E-001	-1.697276E-001
950	8	-2.932588E-002	-4.789065E-003	-1.034754E-001	-1.689921E-001
950	9	-2.913258E-002	-4.789089E-003	-1.027973E-001	-1.689923E-001
951	1	-2.995375E-002	-5.480375E-003	-1.056961E-001	-1.908485E-001
951	2	-2.945361E-002	-5.480366E-003	-1.039334E-001	-1.908454E-001
951	3	-2.945408E-002	-5.462757E-003	-1.039339E-001	-1.927633E-001
951	4	-2.995370E-002	-5.462691E-003	-1.056987E-001	-1.927639E-001
951	5	-2.970400E-002	-5.480445E-003	-1.048180E-001	-1.908477E-001
951	6	-2.945377E-002	-5.435598E-003	-1.039351E-001	-1.918059E-001
951	7	-2.970400E-002	-5.462810E-003	-1.048180E-001	-1.927650E-001
951	8	-2.995386E-002	-5.435598E-003	-1.056993E-001	-1.918059E-001
951	9	-2.970400E-002	-5.435598E-003	-1.048180E-001	-1.918059E-001
952	1	-3.076151E-002	-5.999294E-003	-1.085483E-001	-2.117064E-001
952	2	-3.012038E-002	-5.999496E-003	-1.062849E-001	-2.117909E-001
952	3	-3.011979E-002	-6.069858E-003	-1.062849E-001	-2.141604E-001
952	4	-3.076360E-002	-6.069871E-003	-1.085556E-001	-2.141611E-001
952	5	-3.044125E-002	-5.999488E-003	-1.074173E-001	-2.117038E-001
952	6	-3.011930E-002	-6.034269E-003	-1.062828E-001	-2.129320E-001
952	7	-3.044174E-002	-6.069104E-003	-1.074181E-001	-2.141621E-001
952	8	-3.076187E-002	-6.034269E-003	-1.085525E-001	-2.129320E-001
952	9	-3.044102E-002	-6.034269E-003	-1.074179E-001	-2.129320E-001
953	1	-3.178031E-002	-6.522626E-003	-1.121463E-001	-2.301643E-001
953	2	-3.097333E-002	-6.522753E-003	-1.092964E-001	-2.301665E-001
953	3	-3.097353E-002	-6.610323E-003	-1.092958E-001	-2.332592E-001
953	4	-3.178116E-002	-6.610512E-003	-1.121440E-001	-2.332666E-001
953	5	-3.137698E-002	-6.522593E-003	-1.107211E-001	-2.301662E-001
953	6	-3.097297E-002	-6.566392E-003	-1.092961E-001	-2.317187E-001
953	7	-3.137675E-002	-6.610463E-003	-1.107162E-001	-2.332597E-001
953	8	-3.178134E-002	-6.566567E-003	-1.121455E-001	-2.317151E-001
953	9	-3.137670E-002	-6.566511E-003	-1.107170E-001	-2.317137E-001
954	1	-2.847965E-002	-3.383809E-003	-1.004958E-001	-1.194069E-001
954	2	-2.826624E-002	-3.383925E-003	-9.974163E-002	-1.194048E-001
954	3	-2.826658E-002	-3.406976E-003	-9.974680E-002	-1.202217E-001
954	4	-2.848059E-002	-3.406993E-003	-1.005087E-001	-1.202223E-001
954	5	-2.837325E-002	-3.383983E-003	-1.001219E-001	-1.194091E-001
954	6	-2.826641E-002	-3.395473E-003	-9.974231E-002	-1.198147E-001
954	7	-2.837347E-002	-3.407027E-003	-1.001220E-001	-1.202234E-001
954	8	-2.848141E-002	-3.395473E-003	-1.004964E-001	-1.198147E-001
954	9	-2.837326E-002	-3.395473E-003	-1.001222E-001	-1.198147E-001

955	1	-2.884117E-002	-4.090101E-003	-1.017723E-001	-1.443287E-001
955	2	-2.855385E-002	-4.090100E-003	-1.007540E-001	-1.443302E-001
955	3	-2.855257E-002	-4.121503E-003	-1.007547E-001	-1.454335E-001
955	4	-2.884146E-002	-4.121435E-003	-1.017757E-001	-1.454341E-001
955	5	-2.869728E-002	-4.090269E-003	-1.012620E-001	-1.443309E-001
955	6	-2.855278E-002	-4.105854E-003	-1.007569E-001	-1.448825E-001
955	7	-2.869728E-002	-4.121555E-003	-1.012620E-001	-1.454351E-001
955	8	-2.884145E-002	-4.105854E-003	-1.017707E-001	-1.448825E-001
955	9	-2.869728E-002	-4.105854E-003	-1.012620E-001	-1.448825E-001
956	1	-2.783654E-002	-3.965563E-004	-9.822784E-002	-1.399247E-002
956	2	-2.781950E-002	-3.965535E-004	-9.816739E-002	-1.399276E-002
956	3	-2.781973E-002	-3.982877E-004	-9.816813E-002	-1.405415E-002
956	4	-2.783705E-002	-3.983574E-004	-9.822641E-002	-1.405750E-002
956	5	-2.782764E-002	-3.964857E-004	-9.819835E-002	-1.399118E-002
956	6	-2.782022E-002	-3.974588E-004	-9.816743E-002	-1.402477E-002
956	7	-2.782756E-002	-3.983821E-004	-9.819964E-002	-1.405908E-002
956	8	-2.783781E-002	-3.974588E-004	-9.822792E-002	-1.402477E-002
956	9	-2.782038E-002	-3.974588E-004	-9.820010E-002	-1.402477E-002
957	1	-2.791360E-002	-1.153191E-003	-9.849992E-002	-4.069285E-002
957	2	-2.784911E-002	-1.153191E-003	-9.827128E-002	-4.069323E-002
957	3	-2.784883E-002	-1.160286E-003	-9.827118E-002	-4.094249E-002
957	4	-2.791478E-002	-1.160152E-003	-9.850496E-002	-4.094201E-002
957	5	-2.788228E-002	-1.153114E-003	-9.838668E-002	-4.068739E-002
957	6	-2.784848E-002	-1.156650E-003	-9.826938E-002	-4.081843E-002
957	7	-2.788154E-002	-1.160261E-003	-9.838536E-002	-4.094360E-002
957	8	-2.791439E-002	-1.156650E-003	-9.849910E-002	-4.081843E-002
957	9	-2.788147E-002	-1.156650E-003	-9.838626E-002	-4.081843E-002
958	1	-2.803058E-002	-1.910374E-003	-9.890863E-002	-6.741316E-002
958	2	-2.792484E-002	-1.910489E-003	-9.853837E-002	-6.741332E-002
958	3	-2.792365E-002	-1.921773E-003	-9.853591E-002	-6.781609E-002
958	4	-2.803043E-002	-1.921902E-003	-9.891094E-002	-6.781560E-002
958	5	-2.797733E-002	-1.910284E-003	-9.872550E-002	-6.740000E-002
958	6	-2.792424E-002	-1.916092E-003	-9.853504E-002	-6.761477E-002
958	7	-2.797702E-002	-1.921867E-003	-9.872198E-002	-6.781720E-002
958	8	-2.803009E-002	-1.916092E-003	-9.891059E-002	-6.761477E-002
958	9	-2.797701E-002	-1.916092E-003	-9.872106E-002	-6.761477E-002
959	1	-2.821414E-002	-2.655287E-003	-9.955461E-002	-9.370064E-002
959	2	-2.806749E-002	-2.655212E-003	-9.904001E-002	-9.369659E-002
959	3	-2.806636E-002	-2.671284E-003	-9.904112E-002	-9.426043E-002
959	4	-2.821384E-002	-2.671324E-003	-9.955452E-002	-9.426511E-002
959	5	-2.813995E-002	-2.655343E-003	-9.930152E-002	-9.369931E-002
959	6	-2.806719E-002	-2.663312E-003	-9.903994E-002	-9.397980E-002
959	7	-2.814022E-002	-2.671367E-003	-9.930173E-002	-9.426205E-002
959	8	-2.821562E-002	-2.663389E-003	-9.956164E-002	-9.398022E-002
959	9	-2.813998E-002	-2.663320E-003	-9.929888E-002	-9.398020E-002
960	1	-2.074339E-002	-5.647413E-003	-7.319462E-001	-1.992724E+000
960	2	-2.248459E-002	-6.081702E-003	-7.933863E-001	-2.145970E+000
960	3	-2.238826E-002	-5.669135E-003	-7.899874E-001	-2.000399E+000
960	4	-2.064633E-002	-5.232738E-003	-7.285233E-001	-1.846411E+000
960	5	-2.161607E-002	-5.864970E-003	-7.627456E-001	-2.069521E+000
960	6	-2.243642E-002	-5.875459E-003	-7.916905E-001	-2.073205E+000
960	7	-2.151923E-002	-5.451451E-003	-7.593301E-001	-1.923597E+000
960	8	-2.069493E-002	-5.440136E-003	-7.302359E-001	-1.919589E+000
960	9	-2.156775E-002	-5.650251E-003	-7.610329E-001	-1.996562E+000
961	1	-2.149186E-002	-6.206781E-003	-7.583593E-001	-2.198122E+000
961	2	-2.313127E-002	-6.616298E-003	-8.162085E-001	-2.334617E+000
961	3	-2.302854E-002	-6.222853E-003	-8.125781E-001	-2.195792E+000
961	4	-2.138034E-002	-5.811294E-003	-7.547069E-001	-2.050571E+000
961	5	-2.231329E-002	-6.412002E-003	-7.973485E-001	-2.262525E+000
961	6	-2.308002E-002	-6.419576E-003	-8.143981E-001	-2.265193E+000

961	7	-2.221025E-002	-6.017508E-003	-7.837062E-001	-2.123325E+000
961	8	-2.144030E-002	-6.009099E-003	-7.565391E-001	-2.128356E+000
961	9	-2.226184E-002	-6.214701E-003	-7.855289E-001	-2.192933E+000
962	1	-2.228924E-002	-6.655053E-003	-7.864923E-001	-2.348292E+000
962	2	-2.316708E-002	-6.875002E-003	-8.174719E-001	-2.425985E+000
962	3	-2.318619E-002	-6.661789E-003	-8.153166E-001	-2.350665E+000
962	4	-2.223354E-002	-6.443822E-003	-7.845247E-001	-2.273760E+000
962	5	-2.272711E-002	-6.764804E-003	-8.019502E-001	-2.387020E+000
962	6	-2.313655E-002	-6.768099E-003	-8.163924E-001	-2.388166E+000
962	7	-2.266882E-002	-6.552547E-003	-7.998912E-001	-2.312123E+000
962	8	-2.226141E-002	-6.549105E-003	-7.855108E-001	-2.310987E+000
962	9	-2.269798E-002	-6.658391E-003	-8.009187E-001	-2.349458E+000
963	1	-1.683043E-002	-5.174143E-003	-5.938726E-002	-1.825792E-001
963	2	-1.683043E-002	-5.174143E-003	-5.938726E-002	-1.825792E-001
963	3	-1.683043E-002	-5.174143E-003	-5.938726E-002	-1.825792E-001
964	1	-2.015506E-002	-5.733184E-003	-7.111868E-001	-2.023902E+000
964	2	-2.217795E-002	-5.720210E-003	-7.825634E-001	-2.021245E+000
964	3	-2.150677E-002	-5.520297E-003	-7.588858E-001	-1.947878E+000
964	4	-1.996926E-002	-5.521075E-003	-7.046317E-001	-1.948148E+000
965	1	-2.242487E-002	-6.718518E-003	-7.912779E-001	-2.376081E+000
965	2	-2.020430E-002	-6.719781E-003	-7.129287E-001	-2.371120E+000
965	3	-2.022164E-002	-7.004557E-003	-7.135364E-001	-2.471617E+000
965	4	-2.240975E-002	-7.004186E-003	-7.935725E-001	-2.471485E+000
966	1	-2.293963E-002	-6.895461E-003	-8.094461E-001	-2.150831E+000
966	2	-2.452537E-002	-6.492981E-003	-8.653940E-001	-2.291101E+000
966	3	-2.441754E-002	-6.113011E-003	-8.615888E-001	-2.157029E+000
966	4	-2.285056E-002	-5.723478E-003	-8.062977E-001	-2.019578E+000
966	5	-2.372867E-002	-6.293238E-003	-8.372859E-001	-2.220631E+000
966	6	-2.447094E-002	-6.302813E-003	-8.634827E-001	-2.223701E+000
966	7	-2.363000E-002	-5.917213E-003	-8.330898E-001	-2.087955E+000
966	8	-2.289484E-002	-5.908467E-003	-8.078623E-001	-2.084844E+000
966	9	-2.367928E-002	-6.184220E-003	-8.355417E-001	-2.153928E+000
967	1	-2.344363E-002	-6.788078E-003	-8.272293E-001	-2.364476E+000
967	2	-2.394689E-002	-6.826462E-003	-8.449855E-001	-2.480791E+000
967	3	-2.391214E-002	-6.785048E-003	-8.437646E-001	-2.365938E+000
967	4	-2.341194E-002	-6.580239E-003	-8.261042E-001	-2.321896E+000
967	5	-2.369514E-002	-6.763651E-003	-8.360982E-001	-2.386612E+000
967	6	-2.392961E-002	-6.765686E-003	-8.443818E-001	-2.387314E+000
967	7	-2.366198E-002	-6.642584E-003	-8.349281E-001	-2.343876E+000
967	8	-2.342768E-002	-6.640412E-003	-8.266641E-001	-2.343117E+000
967	9	-2.367843E-002	-6.702952E-003	-8.355123E-001	-2.365199E+000
968	1	-3.127606E-002	-6.637057E-003	-1.103624E-001	-2.342832E-001
968	2	-3.038911E-002	-6.636903E-003	-1.072334E-001	-2.341978E-001
968	3	-3.038974E-002	-6.733295E-003	-1.072323E-001	-2.375959E-001
968	4	-3.127429E-002	-6.733405E-003	-1.103581E-001	-2.376025E-001
968	5	-3.083259E-002	-6.637018E-003	-1.087992E-001	-2.342038E-001
968	6	-3.038998E-002	-6.685211E-003	-1.072331E-001	-2.358993E-001
968	7	-3.083244E-002	-6.733334E-003	-1.087999E-001	-2.376034E-001
968	8	-3.127613E-002	-6.685324E-003	-1.103617E-001	-2.359029E-001
968	9	-3.083228E-002	-6.685191E-003	-1.087988E-001	-2.359022E-001
969	1	-3.267781E-002	-7.087023E-003	-1.153103E-001	-2.501853E-001
969	2	-3.156565E-002	-7.087773E-003	-1.113072E-001	-2.501064E-001
969	3	-3.156614E-002	-7.206651E-003	-1.113070E-001	-2.543713E-001
969	4	-3.267753E-002	-7.206632E-003	-1.153101E-001	-2.543717E-001
969	5	-3.212086E-002	-7.087790E-003	-1.133467E-001	-2.501801E-001
969	6	-3.156615E-002	-7.146148E-003	-1.113055E-001	-2.522368E-001
969	7	-3.212196E-002	-7.206657E-003	-1.133521E-001	-2.543715E-001
969	8	-3.267745E-002	-7.146148E-003	-1.153078E-001	-2.522368E-001
969	9	-3.212178E-002	-7.146148E-003	-1.133504E-001	-2.522368E-001
970	1	-3.439876E-002	-7.386878E-003	-1.213838E-001	-2.606618E-001

970	2	-3.384281E-002	-7.386839E-003	-1.165970E-001	-2.606592E-001
970	3	-3.384476E-002	-7.534288E-003	-1.166032E-001	-2.658606E-001
970	4	-3.439992E-002	-7.534265E-003	-1.213877E-001	-2.658608E-001
970	5	-3.372038E-002	-7.386862E-003	-1.189908E-001	-2.606609E-001
970	6	-3.384197E-002	-7.460617E-003	-1.166010E-001	-2.632613E-001
970	7	-3.372192E-002	-7.534261E-003	-1.189966E-001	-2.658607E-001
970	8	-3.439862E-002	-7.460617E-003	-1.213848E-001	-2.632613E-001
970	9	-3.372158E-002	-7.460617E-003	-1.189954E-001	-2.632613E-001
971	1	-3.645368E-002	-7.420526E-003	-1.286331E-001	-2.618489E-001
971	2	-3.483280E-002	-7.420612E-003	-1.229148E-001	-2.618508E-001
971	3	-3.483335E-002	-7.596944E-003	-1.229152E-001	-2.680726E-001
971	4	-3.645488E-002	-7.596917E-003	-1.286341E-001	-2.680727E-001
971	5	-3.564289E-002	-7.420632E-003	-1.257743E-001	-2.618524E-001
971	6	-3.483221E-002	-7.508709E-003	-1.229166E-001	-2.649609E-001
971	7	-3.564296E-002	-7.596945E-003	-1.257740E-001	-2.680726E-001
971	8	-3.645368E-002	-7.508709E-003	-1.286369E-001	-2.649609E-001
971	9	-3.564340E-002	-7.508709E-003	-1.257734E-001	-2.649609E-001
972	1	-3.801392E-002	-6.993549E-003	-1.341408E-001	-2.467794E-001
972	2	-3.685701E-002	-6.993520E-003	-1.300607E-001	-2.467815E-001
972	3	-3.685868E-002	-7.119115E-003	-1.300625E-001	-2.512109E-001
972	4	-3.801630E-002	-7.119084E-003	-1.341428E-001	-2.512109E-001
972	5	-3.743728E-002	-6.993557E-003	-1.321016E-001	-2.467788E-001
972	6	-3.685746E-002	-7.056288E-003	-1.300580E-001	-2.489969E-001
972	7	-3.743634E-002	-7.119114E-003	-1.321021E-001	-2.512147E-001
972	8	-3.801686E-002	-7.056288E-003	-1.341418E-001	-2.489969E-001
972	9	-3.743633E-002	-7.056288E-003	-1.321011E-001	-2.489969E-001
973	1	-3.849812E-002	-5.775713E-003	-1.358510E-001	-2.038067E-001
973	2	-3.822349E-002	-5.775688E-003	-1.348788E-001	-2.038050E-001
973	3	-3.822372E-002	-5.805646E-003	-1.348786E-001	-2.048614E-001
973	4	-3.849861E-002	-5.805612E-003	-1.358492E-001	-2.048612E-001
973	5	-3.836073E-002	-5.775723E-003	-1.353638E-001	-2.038060E-001
973	6	-3.822451E-002	-5.790590E-003	-1.348807E-001	-2.043338E-001
973	7	-3.836073E-002	-5.805643E-003	-1.353638E-001	-2.048613E-001
973	8	-3.849789E-002	-5.790590E-003	-1.358501E-001	-2.043338E-001
973	9	-3.836073E-002	-5.790590E-003	-1.353638E-001	-2.043338E-001
974	1	-3.815777E-002	-6.090216E-003	-1.864194E-001	-2.149054E-001
974	2	-2.946510E-002	-6.090290E-003	-1.039734E-001	-2.149078E-001
974	3	-2.946548E-002	-6.165236E-003	-1.039739E-001	-2.175570E-001
974	4	-3.815889E-002	-6.165344E-003	-1.864267E-001	-2.175576E-001
974	5	-2.981236E-002	-6.090144E-003	-1.051983E-001	-2.149032E-001
974	6	-2.946482E-002	-6.127715E-003	-1.039722E-001	-2.162308E-001
974	7	-2.981243E-002	-6.165333E-003	-1.051992E-001	-2.175573E-001
974	8	-3.815880E-002	-6.127715E-003	-1.864198E-001	-2.162308E-001
974	9	-2.981203E-002	-6.127715E-003	-1.051985E-001	-2.162308E-001
975	1	-2.742016E-002	-2.676233E-003	-9.675661E-002	-9.443336E-002
975	2	-2.724942E-002	-2.676094E-003	-9.615597E-002	-9.443291E-002
975	3	-2.724928E-002	-2.694542E-003	-9.615871E-002	-9.508359E-002
975	4	-2.741981E-002	-2.694532E-003	-9.675143E-002	-9.508102E-002
975	5	-2.733475E-002	-2.676054E-003	-9.645613E-002	-9.443238E-002
975	6	-2.724981E-002	-2.685315E-003	-9.615356E-002	-9.475841E-002
975	7	-2.733530E-002	-2.694468E-003	-9.645393E-002	-9.508121E-002
975	8	-2.741918E-002	-2.685319E-003	-9.675815E-002	-9.475831E-002
975	9	-2.733462E-002	-2.685359E-003	-9.645546E-002	-9.475724E-002
976	1	-2.769971E-002	-3.414070E-003	-9.774167E-002	-1.204717E-001
976	2	-2.746285E-002	-3.414051E-003	-9.691036E-002	-1.204713E-001
976	3	-2.746340E-002	-3.439703E-003	-9.691121E-002	-1.213798E-001
976	4	-2.769992E-002	-3.439748E-003	-9.774260E-002	-1.213797E-001
976	5	-2.758155E-002	-3.414120E-003	-9.732696E-002	-1.204734E-001
976	6	-2.746398E-002	-3.426883E-003	-9.691143E-002	-1.209249E-001
976	7	-2.758187E-002	-3.439748E-003	-9.732743E-002	-1.213797E-001

976	8	-2.770858E-002	-3.426883E-003	-9.774185E-002	-1.209249E-001
976	9	-2.758134E-002	-3.426883E-003	-9.732513E-002	-1.209249E-001
977	1	-2.808720E-002	-4.130942E-003	-9.911387E-002	-1.457705E-001
977	2	-2.777393E-002	-4.130925E-003	-9.802314E-002	-1.457702E-001
977	3	-2.777890E-002	-4.164602E-003	-9.802438E-002	-1.469586E-001
977	4	-2.808847E-002	-4.164563E-003	-9.911347E-002	-1.469584E-001
977	5	-2.793380E-002	-4.130993E-003	-9.856925E-002	-1.457684E-001
977	6	-2.777962E-002	-4.147788E-003	-9.802684E-002	-1.463625E-001
977	7	-2.793380E-002	-4.164685E-003	-9.856925E-002	-1.469585E-001
977	8	-2.808913E-002	-4.147788E-003	-9.911584E-002	-1.463625E-001
977	9	-2.793380E-002	-4.147788E-003	-9.856925E-002	-1.463625E-001
978	1	-2.869696E-002	-4.822522E-003	-1.009432E-001	-1.701707E-001
978	2	-2.819248E-002	-4.822506E-003	-9.948396E-002	-1.701742E-001
978	3	-2.819258E-002	-4.867315E-003	-9.948830E-002	-1.717540E-001
978	4	-2.869501E-002	-4.867271E-003	-1.009407E-001	-1.717536E-001
978	5	-2.839917E-002	-4.822574E-003	-1.002154E-001	-1.701725E-001
978	6	-2.819320E-002	-4.844876E-003	-9.948548E-002	-1.709630E-001
978	7	-2.839917E-002	-4.867395E-003	-1.002154E-001	-1.717538E-001
978	8	-2.869601E-002	-4.844876E-003	-1.009420E-001	-1.709630E-001
978	9	-2.839917E-002	-4.844876E-003	-1.002154E-001	-1.709630E-001
979	1	-2.928381E-002	-5.479279E-003	-1.033364E-001	-1.933455E-001
979	2	-2.874400E-002	-5.479242E-003	-1.014313E-001	-1.933458E-001
979	3	-2.874350E-002	-5.538076E-003	-1.014294E-001	-1.954210E-001
979	4	-2.928538E-002	-5.538151E-003	-1.033427E-001	-1.954206E-001
979	5	-2.901480E-002	-5.479249E-003	-1.023829E-001	-1.933458E-001
979	6	-2.874502E-002	-5.508590E-003	-1.014306E-001	-1.943834E-001
979	7	-2.901480E-002	-5.538121E-003	-1.023829E-001	-1.954197E-001
979	8	-2.928650E-002	-5.508726E-003	-1.033396E-001	-1.943858E-001
979	9	-2.901480E-002	-5.508649E-003	-1.023829E-001	-1.943851E-001
980	1	-2.700626E-002	-3.982813E-004	-9.529873E-002	-1.405560E-002
980	2	-2.702902E-002	-3.983097E-004	-9.537857E-002	-1.405665E-002
980	3	-2.702880E-002	-3.957872E-004	-9.537840E-002	-1.396374E-002
980	4	-2.700515E-002	-3.957607E-004	-9.529811E-002	-1.396400E-002
980	5	-2.701787E-002	-3.981987E-004	-9.533927E-002	-1.405343E-002
980	6	-2.702897E-002	-3.969663E-004	-9.537872E-002	-1.400913E-002
980	7	-2.701810E-002	-3.957317E-004	-9.533938E-002	-1.396387E-002
980	8	-2.700762E-002	-3.969663E-004	-9.529652E-002	-1.400913E-002
980	9	-2.701806E-002	-3.969663E-004	-9.533865E-002	-1.400913E-002
981	1	-2.707923E-002	-1.162371E-003	-9.555636E-002	-4.101732E-002
981	2	-2.701274E-002	-1.162415E-003	-9.531784E-002	-4.101837E-002
981	3	-2.701203E-002	-1.169667E-003	-9.531602E-002	-4.127213E-002
981	4	-2.707895E-002	-1.169639E-003	-9.555144E-002	-4.127235E-002
981	5	-2.704585E-002	-1.162289E-003	-9.543499E-002	-4.101516E-002
981	6	-2.701278E-002	-1.165998E-003	-9.532116E-002	-4.114405E-002
981	7	-2.704561E-002	-1.169551E-003	-9.543512E-002	-4.127224E-002
981	8	-2.707991E-002	-1.165998E-003	-9.555525E-002	-4.114405E-002
981	9	-2.704556E-002	-1.165998E-003	-9.543819E-002	-4.114405E-002
982	1	-2.721059E-002	-1.925283E-003	-9.601407E-002	-6.793901E-002
982	2	-2.710497E-002	-1.925251E-003	-9.564261E-002	-6.793623E-002
982	3	-2.710449E-002	-1.936709E-003	-9.564586E-002	-6.834099E-002
982	4	-2.720949E-002	-1.936679E-003	-9.601348E-002	-6.834114E-002
982	5	-2.715675E-002	-1.925280E-003	-9.583008E-002	-6.793635E-002
982	6	-2.710467E-002	-1.930912E-003	-9.564598E-002	-6.813682E-002
982	7	-2.715700E-002	-1.936711E-003	-9.583025E-002	-6.834106E-002
982	8	-2.721004E-002	-1.930912E-003	-9.601949E-002	-6.813682E-002
982	9	-2.715694E-002	-1.930912E-003	-9.582567E-002	-6.813682E-002
983	1	-2.544904E-002	-3.721005E-003	-8.980237E-002	-1.313037E-001
983	2	-3.462258E-002	-3.706625E-003	-1.221710E-001	-1.307941E-001
983	3	-3.499930E-002	-2.698616E-003	-1.235057E-001	-9.494685E-002
983	4	-2.658754E-002	-2.800361E-003	-9.381656E-002	-9.881544E-002

984	1	-2.107961E-002	-4.700832E-003	-7.438252E-002	-1.658050E-001
984	2	-2.107961E-002	-4.700832E-003	-7.438252E-002	-1.658050E-001
984	3	-2.107961E-002	-4.700832E-003	-7.438252E-002	-1.658050E-001
985	1	-1.805994E-002	-4.452353E-003	-6.372628E-001	-1.571046E+000
985	2	-1.805994E-002	-4.452353E-003	-6.372628E-001	-1.571046E+000
985	3	-1.805994E-002	-4.452353E-003	-6.372628E-001	-1.571046E+000
986	1	-1.821344E-002	-5.549509E-003	-6.426765E-001	-1.958189E+000
986	2	-1.580960E-002	-5.549513E-003	-5.578541E-001	-1.958188E+000
986	3	-1.516878E-002	-5.838150E-003	-5.352461E-001	-2.060040E+000
986	4	-1.807216E-002	-5.838147E-003	-6.376927E-001	-2.060038E+000
987	1	-2.312110E-002	-7.243099E-003	-8.158474E-001	-2.555788E+000
987	2	-2.035108E-002	-7.243112E-003	-7.181023E-001	-2.555786E+000
987	3	-2.041458E-002	-7.607133E-003	-7.203475E-001	-2.684236E+000
987	4	-2.321587E-002	-7.607115E-003	-8.191603E-001	-2.684234E+000
988	1	-2.519547E-002	-6.930571E-003	-8.890439E-001	-2.445584E+000
988	2	-2.760236E-002	-7.539997E-003	-9.739692E-001	-2.657378E+000
988	3	-2.743598E-002	-6.955668E-003	-9.681008E-001	-2.454370E+000
988	4	-2.582723E-002	-6.352236E-003	-8.831058E-001	-2.241424E+000
988	5	-2.640185E-002	-7.231472E-003	-9.316061E-001	-2.551688E+000
988	6	-2.751916E-002	-7.243385E-003	-9.710331E-001	-2.555085E+000
988	7	-2.623460E-002	-6.654677E-003	-9.257149E-001	-2.348161E+000
988	8	-2.511146E-002	-6.641496E-003	-8.860740E-001	-2.343487E+000
988	9	-2.631819E-002	-6.943152E-003	-9.286599E-001	-2.449961E+000
989	1	-3.963646E-002	-7.173209E-003	-1.398674E-001	-2.531225E-001
989	2	-3.736157E-002	-7.173261E-003	-1.310360E-001	-2.531247E-001
989	3	-3.736008E-002	-7.419838E-003	-1.310353E-001	-2.618236E-001
989	4	-3.963788E-002	-7.419873E-003	-1.398692E-001	-2.618237E-001
989	5	-3.849927E-002	-7.173263E-003	-1.358533E-001	-2.531238E-001
989	6	-3.736106E-002	-7.296527E-003	-1.310371E-001	-2.574718E-001
989	7	-3.849934E-002	-7.419810E-003	-1.358521E-001	-2.618217E-001
989	8	-3.963669E-002	-7.296527E-003	-1.398645E-001	-2.574718E-001
989	9	-3.849803E-002	-7.296527E-003	-1.358525E-001	-2.574718E-001
990	1	-3.992418E-002	-5.889358E-003	-1.408814E-001	-2.049953E-001
990	2	-3.996207E-002	-5.889406E-003	-1.410155E-001	-2.049973E-001
990	3	-3.996326E-002	-5.885280E-003	-1.410161E-001	-2.048510E-001
990	4	-3.992517E-002	-5.885280E-003	-1.408862E-001	-2.048513E-001
990	5	-3.994394E-002	-5.889396E-003	-1.409514E-001	-2.049965E-001
990	6	-3.996328E-002	-5.887250E-003	-1.410172E-001	-2.049228E-001
990	7	-3.994394E-002	-5.885345E-003	-1.409514E-001	-2.048492E-001
990	8	-3.992395E-002	-5.887250E-003	-1.408843E-001	-2.049228E-001
990	9	-3.994394E-002	-5.887250E-003	-1.409514E-001	-2.049228E-001
991	1	-2.859238E-002	-5.555585E-003	-1.008938E-001	-1.960410E-001
991	2	-2.881722E-002	-5.555545E-003	-9.886628E-002	-1.960377E-001
991	3	-2.881936E-002	-5.617825E-003	-9.886713E-002	-1.982373E-001
991	4	-2.859256E-002	-5.617836E-003	-1.008935E-001	-1.982378E-001
991	5	-2.830539E-002	-5.555522E-003	-9.988006E-002	-1.960389E-001
991	6	-2.881823E-002	-5.586686E-003	-9.886837E-002	-1.971365E-001
991	7	-2.830539E-002	-5.617901E-003	-9.988006E-002	-1.982365E-001
991	8	-2.859152E-002	-5.586744E-003	-1.008904E-001	-1.971392E-001
991	9	-2.830539E-002	-5.586693E-003	-9.988006E-002	-1.971379E-001
992	1	-2.952684E-002	-6.187986E-003	-1.041923E-001	-2.183575E-001
992	2	-2.878303E-002	-6.187969E-003	-1.015677E-001	-2.183547E-001
992	3	-2.878453E-002	-6.268636E-003	-1.015690E-001	-2.212046E-001
992	4	-2.952864E-002	-6.268704E-003	-1.041995E-001	-2.212019E-001
992	5	-2.915535E-002	-6.187946E-003	-1.028795E-001	-2.183540E-001
992	6	-2.878457E-002	-6.228347E-003	-1.015693E-001	-2.197793E-001
992	7	-2.915545E-002	-6.268714E-003	-1.028844E-001	-2.212032E-001
992	8	-2.952786E-002	-6.228347E-003	-1.041964E-001	-2.197793E-001
992	9	-2.915564E-002	-6.228347E-003	-1.028803E-001	-2.197793E-001
993	1	-3.073158E-002	-6.762485E-003	-1.004438E-001	-2.386301E-001

993	2	-2.977585E-002	-6.762472E-003	-1.050681E-001	-2.386304E-001
993	3	-2.977452E-002	-6.866497E-003	-1.050670E-001	-2.423010E-001
993	4	-3.073215E-002	-6.866538E-003	-1.004461E-001	-2.422985E-001
993	5	-3.025359E-002	-6.762488E-003	-1.067534E-001	-2.386299E-001
993	6	-2.977488E-002	-6.814515E-003	-1.050673E-001	-2.404659E-001
993	7	-3.025341E-002	-6.866577E-003	-1.067548E-001	-2.422997E-001
993	8	-3.073139E-002	-6.814515E-003	-1.004392E-001	-2.404659E-001
993	9	-3.025326E-002	-6.814515E-003	-1.067549E-001	-2.404659E-001
994	1	-3.227927E-002	-7.245618E-003	-1.138997E-001	-2.556777E-001
994	2	-3.104999E-002	-7.245720E-003	-1.095688E-001	-2.556779E-001
994	3	-3.105044E-002	-7.379187E-003	-1.095692E-001	-2.603928E-001
994	4	-3.227786E-002	-7.379265E-003	-1.139007E-001	-2.603904E-001
994	5	-3.166435E-002	-7.245701E-003	-1.117329E-001	-2.556774E-001
994	6	-3.105016E-002	-7.312480E-003	-1.095664E-001	-2.580367E-001
994	7	-3.166435E-002	-7.379182E-003	-1.117329E-001	-2.603916E-001
994	8	-3.227786E-002	-7.312480E-003	-1.139045E-001	-2.580367E-001
994	9	-3.166435E-002	-7.312480E-003	-1.117329E-001	-2.580367E-001
995	1	-3.426834E-002	-7.580545E-003	-1.209202E-001	-2.674957E-001
995	2	-3.268685E-002	-7.580628E-003	-1.153435E-001	-2.674957E-001
995	3	-3.268783E-002	-7.752006E-003	-1.153452E-001	-2.735421E-001
995	4	-3.426646E-002	-7.751970E-003	-1.209155E-001	-2.735437E-001
995	5	-3.347759E-002	-7.580536E-003	-1.181291E-001	-2.674953E-001
995	6	-3.268631E-002	-7.666298E-003	-1.153442E-001	-2.705194E-001
995	7	-3.347748E-002	-7.752003E-003	-1.181311E-001	-2.735440E-001
995	8	-3.426788E-002	-7.666298E-003	-1.209173E-001	-2.705194E-001
995	9	-3.347658E-002	-7.666298E-003	-1.181303E-001	-2.705194E-001
996	1	-3.674187E-002	-7.653593E-003	-1.296561E-001	-2.708728E-001
996	2	-3.478287E-002	-7.653594E-003	-1.227353E-001	-2.708685E-001
996	3	-3.478257E-002	-7.866521E-003	-1.227352E-001	-2.775861E-001
996	4	-3.674426E-002	-7.866785E-003	-1.296542E-001	-2.775944E-001
996	5	-3.576121E-002	-7.653562E-003	-1.261929E-001	-2.708735E-001
996	6	-3.478234E-002	-7.759996E-003	-1.227338E-001	-2.738248E-001
996	7	-3.576218E-002	-7.866669E-003	-1.261925E-001	-2.775917E-001
996	8	-3.674402E-002	-7.760179E-003	-1.296571E-001	-2.738335E-001
996	9	-3.576169E-002	-7.760088E-003	-1.261939E-001	-2.738294E-001
997	1	-2.698521E-002	-3.447358E-003	-9.493859E-002	-1.216441E-001
997	2	-2.666381E-002	-3.447369E-003	-9.480519E-002	-1.216454E-001
997	3	-2.666288E-002	-3.473713E-003	-9.480327E-002	-1.225767E-001
997	4	-2.698522E-002	-3.473648E-003	-9.493975E-002	-1.225736E-001
997	5	-2.678375E-002	-3.447138E-003	-9.451257E-002	-1.216426E-001
997	6	-2.666312E-002	-3.460521E-003	-9.480288E-002	-1.221104E-001
997	7	-2.678398E-002	-3.473663E-003	-9.451238E-002	-1.225751E-001
997	8	-2.698699E-002	-3.460521E-003	-9.493917E-002	-1.221104E-001
997	9	-2.678407E-002	-3.460521E-003	-9.451275E-002	-1.221104E-001
998	1	-2.732060E-002	-4.174642E-003	-9.640855E-002	-1.473130E-001
998	2	-2.698889E-002	-4.174656E-003	-9.523584E-002	-1.473146E-001
998	3	-2.698871E-002	-4.210700E-003	-9.523731E-002	-1.485029E-001
998	4	-2.732894E-002	-4.210638E-003	-9.640823E-002	-1.485037E-001
998	5	-2.715455E-002	-4.174692E-003	-9.581071E-002	-1.473119E-001
998	6	-2.698935E-002	-4.192661E-003	-9.523491E-002	-1.479483E-001
998	7	-2.715455E-002	-4.210686E-003	-9.581071E-002	-1.485014E-001
998	8	-2.731995E-002	-4.192661E-003	-9.640320E-002	-1.479483E-001
998	9	-2.715455E-002	-4.192661E-003	-9.581071E-002	-1.479483E-001
999	1	-2.786997E-002	-4.880585E-003	-9.834864E-002	-1.722236E-001
999	2	-2.743160E-002	-4.880587E-003	-9.680032E-002	-1.722251E-001
999	3	-2.743172E-002	-4.928188E-003	-9.680089E-002	-1.739003E-001
999	4	-2.787150E-002	-4.928129E-003	-9.834883E-002	-1.739012E-001
999	5	-2.765148E-002	-4.880748E-003	-9.757761E-002	-1.722263E-001
999	6	-2.743242E-002	-4.904454E-003	-9.680220E-002	-1.730637E-001
999	7	-2.765148E-002	-4.928175E-003	-9.757761E-002	-1.738989E-001

999	8	-2.787155E-002	-4.984454E-003	-9.835012E-002	-1.730637E-001
999	9	-2.765148E-002	-4.984454E-003	-9.757761E-002	-1.730637E-001
1000	1	-2.616829E-002	-3.955485E-004	-9.233921E-002	-1.395663E-002
1000	2	-2.615928E-002	-3.955044E-004	-9.230725E-002	-1.395659E-002
1000	3	-2.615918E-002	-3.963801E-004	-9.230707E-002	-1.398698E-002
1000	4	-2.616719E-002	-3.964808E-004	-9.233480E-002	-1.398639E-002
1000	5	-2.616349E-002	-3.954147E-004	-9.232178E-002	-1.395685E-002
1000	6	-2.615923E-002	-3.959720E-004	-9.230740E-002	-1.397214E-002
1000	7	-2.616278E-002	-3.963112E-004	-9.232194E-002	-1.398859E-002
1000	8	-2.616774E-002	-3.959720E-004	-9.233700E-002	-1.397214E-002
00	9	-2.616272E-002	-3.959720E-004	-9.232118E-002	-1.397214E-002
01	1	-2.624251E-002	-1.171719E-003	-9.260614E-002	-4.134510E-002
01	2	-2.617808E-002	-1.171695E-003	-9.237635E-002	-4.134537E-002
1001	3	-2.617764E-002	-1.170716E-003	-9.237742E-002	-4.159364E-002
1001	4	-2.624319E-002	-1.170817E-003	-9.260505E-002	-4.159306E-002
1001	5	-2.621135E-002	-1.171729E-003	-9.248989E-002	-4.134564E-002
1001	6	-2.617705E-002	-1.175239E-003	-9.237204E-002	-4.146996E-002
1001	7	-2.621112E-002	-1.170707E-003	-9.249008E-002	-4.159525E-002
1001	8	-2.624414E-002	-1.175239E-003	-9.260505E-002	-4.146996E-002
1001	9	-2.621107E-002	-1.175239E-003	-9.248931E-002	-4.146996E-002
1002	1	-2.638535E-002	-1.940208E-003	-9.310833E-002	-6.846122E-002
1002	2	-2.626956E-002	-1.940161E-003	-9.269784E-002	-6.846108E-002
1002	3	-2.626994E-002	-1.952591E-003	-9.269725E-002	-6.890264E-002
1002	4	-2.638425E-002	-1.952692E-003	-9.310396E-002	-6.890208E-002
1002	5	-2.632718E-002	-1.940073E-003	-9.290101E-002	-6.846091E-002
1002	6	-2.627024E-002	-1.946412E-003	-9.269778E-002	-6.868266E-002
1002	7	-2.632744E-002	-1.952641E-003	-9.290124E-002	-6.890427E-002
1002	8	-2.638480E-002	-1.946412E-003	-9.310233E-002	-6.868266E-002
1002	9	-2.632738E-002	-1.946412E-003	-9.290045E-002	-6.868266E-002
1003	1	-2.660134E-002	-2.700017E-003	-9.386930E-002	-9.527615E-002
1003	2	-2.642773E-002	-2.700063E-003	-9.325539E-002	-9.527721E-002
1003	3	-2.642627E-002	-2.718807E-003	-9.324986E-002	-9.593967E-002
1003	4	-2.660161E-002	-2.718847E-003	-9.387149E-002	-9.594114E-002
1003	5	-2.651426E-002	-2.700119E-003	-9.355823E-002	-9.527436E-002
1003	6	-2.642756E-002	-2.709491E-003	-9.325471E-002	-9.560847E-002
1003	7	-2.651384E-002	-2.719006E-003	-9.355819E-002	-9.594148E-002
1003	8	-2.659984E-002	-2.709435E-003	-9.386712E-002	-9.560729E-002
1003	9	-2.651411E-002	-2.709458E-003	-9.355848E-002	-9.560808E-002
1004	1	-2.460556E-002	-8.204808E-003	-8.682251E-001	-2.895131E+000
1004	2	-1.649192E-002	-8.151738E-003	-5.819296E-001	-2.876407E+000
1004	3	-1.663876E-002	-9.294296E-003	-5.871153E-001	-3.279565E+000
1004	4	-2.491697E-002	-9.499042E-003	-8.792127E-001	-3.351815E+000
1005	1	-1.388594E-002	-5.956915E-003	-4.899802E-001	-2.101944E+000
1005	2	-1.417313E-002	-5.950785E-003	-5.001085E-001	-2.102607E+000
1005	3	-1.417605E-002	-5.989767E-003	-5.002166E-001	-2.085312E+000
1005	4	-1.388337E-002	-5.982498E-003	-4.898840E-001	-2.082739E+000
1006	1	-3.404619E-002	-1.849330E-003	-1.201396E-001	-6.525560E-002
1006	2	-3.540532E-002	-2.258950E-003	-1.249352E-001	-7.942849E-002
1006	3	-3.839697E-002	-2.172498E-003	-1.354901E-001	-7.666198E-002
1006	4	-3.776853E-002	-1.591384E-003	-1.332737E-001	-5.615541E-002
1007	1	-1.433732E-002	-4.468136E-003	-5.059054E-001	-1.576621E+000
1007	2	-1.415815E-002	-4.466862E-003	-4.995818E-001	-1.576173E+000
1007	3	-1.416584E-002	-4.504245E-003	-4.998243E-001	-1.589360E+000
1007	4	-1.433674E-002	-4.508533E-003	-5.058836E-001	-1.590880E+000
1008	1	-1.366145E-002	-2.743919E-003	-4.820568E-001	-9.682056E-001
1008	2	-1.366145E-002	-2.743919E-003	-4.820568E-001	-9.682056E-001
1008	3	-1.366145E-002	-2.743919E-003	-4.820568E-001	-9.682056E-001
1009	1	-4.654328E-003	-9.134519E-003	-1.642341E-001	-3.223188E+000
1009	2	-1.191545E-002	-9.343874E-003	-4.204474E-001	-3.297056E+000
1009	3	-1.136124E-002	-7.744432E-003	-4.008699E-001	-2.732685E+000

009	4	-4.870282E-003	-7.671725E-003	-1.436259E-001	-2.707029E+000
009	5	-8.122111E-003	-9.234476E-003	-2.865936E-001	-3.258462E+000
1009	6	-1.164006E-002	-8.548821E-003	-4.187272E-001	-3.016521E+000
1009	7	-7.550289E-003	-7.706447E-003	-2.664186E-001	-2.719278E+000
1009	8	-4.363793E-003	-8.407032E-003	-1.539842E-001	-2.966488E+000
1009	9	-7.837834E-003	-8.474720E-003	-2.765611E-001	-2.990375E+000
1010	1	-3.699598E-002	-7.934778E-003	-1.305449E-001	-2.799935E-001
1010	2	-3.466604E-002	-7.934267E-003	-1.223248E-001	-2.799778E-001
1010	3	-3.466490E-002	-8.187601E-003	-1.223251E-001	-2.889206E-001
1010	4	-3.699614E-002	-8.187640E-003	-1.305458E-001	-2.889196E-001
1010	5	-3.583099E-002	-7.934488E-003	-1.264389E-001	-2.799827E-001
1010	6	-3.466464E-002	-8.060951E-003	-1.223233E-001	-2.844474E-001
1010	7	-3.583182E-002	-8.187666E-003	-1.264383E-001	-2.889158E-001
1010	8	-3.699598E-002	-8.061158E-003	-1.305487E-001	-2.844564E-001
1010	9	-3.583136E-002	-8.061077E-003	-1.264379E-001	-2.844512E-001
1011	1	-4.118517E-002	-7.588753E-003	-1.453266E-001	-2.649609E-001
1011	2	-3.782289E-002	-7.588698E-003	-1.334645E-001	-2.649610E-001
1011	3	-3.782291E-002	-7.873532E-003	-1.334673E-001	-2.778318E-001
1011	4	-4.118396E-002	-7.873438E-003	-1.453256E-001	-2.778326E-001
1011	5	-3.950426E-002	-7.588713E-003	-1.393993E-001	-2.649629E-001
1011	6	-3.782317E-002	-7.691082E-003	-1.334691E-001	-2.713961E-001
1011	7	-3.950439E-002	-7.873471E-003	-1.394002E-001	-2.778336E-001
1011	8	-4.118445E-002	-7.691082E-003	-1.453275E-001	-2.713961E-001
1011	9	-3.950480E-002	-7.691082E-003	-1.394009E-001	-2.713961E-001
1012	1	-4.329209E-002	-5.827025E-003	-1.527565E-001	-2.056167E-001
1012	2	-4.187975E-002	-5.826871E-003	-1.477780E-001	-2.056170E-001
1012	3	-4.187923E-002	-5.980399E-003	-1.477827E-001	-2.110304E-001
1012	4	-4.329068E-002	-5.980384E-003	-1.527585E-001	-2.110311E-001
1012	5	-4.258506E-002	-5.826894E-003	-1.502722E-001	-2.056149E-001
1012	6	-4.187989E-002	-5.903665E-003	-1.477801E-001	-2.083248E-001
1012	7	-4.258506E-002	-5.980575E-003	-1.502722E-001	-2.110322E-001
1012	8	-4.329186E-002	-5.903665E-003	-1.527594E-001	-2.083248E-001
1012	9	-4.258506E-002	-5.903665E-003	-1.502722E-001	-2.083248E-001
1013	1	-3.406797E-002	-7.804911E-003	-1.202160E-001	-2.754156E-001
1013	2	-3.228688E-002	-7.804949E-003	-1.139261E-001	-2.754156E-001
1013	3	-3.228440E-002	-7.997902E-003	-1.139217E-001	-2.822202E-001
1013	4	-3.406687E-002	-7.997815E-003	-1.202112E-001	-2.822213E-001
1013	5	-3.317632E-002	-7.804940E-003	-1.170693E-001	-2.754152E-001
1013	6	-3.228556E-002	-7.901479E-003	-1.139272E-001	-2.788199E-001
1013	7	-3.317673E-002	-7.997963E-003	-1.170696E-001	-2.822260E-001
1013	8	-3.406725E-002	-7.901479E-003	-1.202131E-001	-2.788199E-001
1013	9	-3.317628E-002	-7.901479E-003	-1.170683E-001	-2.788199E-001
1014	1	-2.578053E-002	-2.724288E-003	-9.097141E-002	-9.613477E-002
1014	2	-2.559462E-002	-2.724355E-003	-9.031652E-002	-9.613472E-002
1014	3	-2.559655E-002	-2.744319E-003	-9.031801E-002	-9.683054E-002
1014	4	-2.578013E-002	-2.744453E-003	-9.097090E-002	-9.684006E-002
1014	5	-2.568793E-002	-2.724292E-003	-9.064452E-002	-9.613362E-002
1014	6	-2.559576E-002	-2.734338E-003	-9.031869E-002	-9.648624E-002
1014	7	-2.568762E-002	-2.744267E-003	-9.064437E-002	-9.684066E-002
1014	8	-2.577998E-002	-2.734299E-003	-9.097306E-002	-9.648706E-002
1014	9	-2.568738E-002	-2.734392E-003	-9.064472E-002	-9.648696E-002
1015	1	-2.610022E-002	-3.481533E-003	-9.210242E-002	-1.228518E-001
1015	2	-2.584378E-002	-3.481459E-003	-9.119442E-002	-1.228518E-001
1015	3	-2.584372E-002	-3.509477E-003	-9.119487E-002	-1.238368E-001
1015	4	-2.610025E-002	-3.509474E-003	-9.209980E-002	-1.238378E-001
1015	5	-2.597154E-002	-3.481476E-003	-9.164806E-002	-1.228529E-001
1015	6	-2.584369E-002	-3.495496E-003	-9.119441E-002	-1.233466E-001
1015	7	-2.597262E-002	-3.509459E-003	-9.164776E-002	-1.238373E-001
1015	8	-2.610185E-002	-3.495496E-003	-9.209920E-002	-1.233466E-001
1015	9	-2.597184E-002	-3.495496E-003	-9.164818E-002	-1.233466E-001

1016	1	-2.653606E-002	-4.221363E-003	-9.363299E-002	-1.489619E-001
1016	2	-2.618723E-002	-4.221430E-003	-9.240589E-002	-1.489585E-001
1016	3	-2.618775E-002	-4.259173E-003	-9.241114E-002	-1.502926E-001
1016	4	-2.653452E-002	-4.259167E-003	-9.363656E-002	-1.502935E-001
1016	5	-2.636186E-002	-4.221337E-003	-9.302142E-002	-1.489680E-001
1016	6	-2.618025E-002	-4.240313E-003	-9.240828E-002	-1.496264E-001
1016	7	-2.636186E-002	-4.259186E-003	-9.302142E-002	-1.502930E-001
1016	8	-2.653516E-002	-4.240313E-003	-9.363425E-002	-1.496264E-001
1016	9	-2.636186E-002	-4.240313E-003	-9.302142E-002	-1.496264E-001
1017	1	-2.711453E-002	-4.942279E-003	-9.568388E-002	-1.744007E-001
1017	2	-2.665333E-002	-4.942331E-003	-9.405100E-002	-1.744018E-001
1017	3	-2.665346E-002	-4.992625E-003	-9.405163E-002	-1.761734E-001
1017	4	-2.711604E-002	-4.992616E-003	-9.568781E-002	-1.761742E-001
1017	5	-2.688487E-002	-4.942366E-003	-9.486642E-002	-1.743989E-001
1017	6	-2.665263E-002	-4.967500E-003	-9.404971E-002	-1.752887E-001
1017	7	-2.688487E-002	-4.992637E-003	-9.486642E-002	-1.761738E-001
1017	8	-2.711541E-002	-4.967500E-003	-9.568637E-002	-1.752887E-001
1017	9	-2.688487E-002	-4.967500E-003	-9.486642E-002	-1.752887E-001
1018	1	-2.787193E-002	-5.636337E-003	-9.835101E-002	-1.988897E-001
1018	2	-2.727116E-002	-5.636411E-003	-9.623266E-002	-1.988985E-001
1018	3	-2.726979E-002	-5.701746E-003	-9.622630E-002	-2.011998E-001
1018	4	-2.787114E-002	-5.701853E-003	-9.835064E-002	-2.012005E-001
1018	5	-2.757138E-002	-5.636434E-003	-9.728964E-002	-1.988918E-001
1018	6	-2.727121E-002	-5.669101E-003	-9.623139E-002	-2.000475E-001
1018	7	-2.757138E-002	-5.701757E-003	-9.728964E-002	-2.012002E-001
1018	8	-2.787176E-002	-5.669101E-003	-9.835412E-002	-2.000475E-001
1018	9	-2.757138E-002	-5.669101E-003	-9.728964E-002	-2.000475E-001
1019	1	-2.886290E-002	-6.292846E-003	-1.018490E-001	-2.220568E-001
1019	2	-2.807318E-002	-6.292916E-003	-9.906263E-002	-2.220582E-001
1019	3	-2.807482E-002	-6.378366E-003	-9.906729E-002	-2.250752E-001
1019	4	-2.886234E-002	-6.378470E-003	-1.018457E-001	-2.250757E-001
1019	5	-2.846865E-002	-6.292807E-003	-1.004568E-001	-2.220552E-001
1019	6	-2.807473E-002	-6.335602E-003	-9.986431E-002	-2.235679E-001
1019	7	-2.846879E-002	-6.378462E-003	-1.004580E-001	-2.250754E-001
1019	8	-2.886202E-002	-6.335682E-003	-1.018454E-001	-2.235679E-001
1019	9	-2.846800E-002	-6.335682E-003	-1.004577E-001	-2.235679E-001
1020	1	-3.015096E-002	-6.897882E-003	-1.063919E-001	-2.434062E-001
1020	2	-2.912568E-002	-6.897852E-003	-1.027781E-001	-2.434078E-001
1020	3	-2.912622E-002	-7.009308E-003	-1.027770E-001	-2.473389E-001
1020	4	-3.015011E-002	-7.009321E-003	-1.063913E-001	-2.473393E-001
1020	5	-2.963875E-002	-6.897863E-003	-1.045851E-001	-2.434047E-001
1020	6	-2.912638E-002	-6.953634E-003	-1.027773E-001	-2.453725E-001
1020	7	-2.963853E-002	-7.009314E-003	-1.045855E-001	-2.473391E-001
1020	8	-3.015172E-002	-6.953634E-003	-1.063987E-001	-2.453725E-001
1020	9	-2.963793E-002	-6.953634E-003	-1.045846E-001	-2.453725E-001
1021	1	-3.183151E-002	-7.419754E-003	-1.123189E-001	-2.618216E-001
1021	2	-3.049428E-002	-7.419896E-003	-1.076855E-001	-2.618225E-001
1021	3	-3.049500E-002	-7.565009E-003	-1.076856E-001	-2.669436E-001
1021	4	-3.183176E-002	-7.565246E-003	-1.123237E-001	-2.669574E-001
1021	5	-3.116208E-002	-7.419792E-003	-1.099626E-001	-2.618238E-001
1021	6	-3.049471E-002	-7.492348E-003	-1.076841E-001	-2.643849E-001
1021	7	-3.116208E-002	-7.565076E-003	-1.099626E-001	-2.669494E-001
1021	8	-3.183080E-002	-7.492562E-003	-1.123237E-001	-2.643907E-001
1021	9	-3.116208E-002	-7.492477E-003	-1.099626E-001	-2.643891E-001
1022	1	-2.532805E-002	-3.972365E-004	-8.937350E-002	-1.401477E-002
1022	2	-2.528677E-002	-3.972143E-004	-8.922828E-002	-1.401686E-002
1022	3	-2.528692E-002	-4.015572E-004	-8.923113E-002	-1.417118E-002
1022	4	-2.532629E-002	-4.015583E-004	-8.936991E-002	-1.416850E-002
1022	5	-2.530656E-002	-3.972850E-004	-8.930056E-002	-1.401891E-002
1022	6	-2.528617E-002	-3.993734E-004	-8.923118E-002	-1.409412E-002

1022	7	-2.530646E-002	-4.015406E-004	-8.930154E-002	-1.416793E-002
1022	8	-2.532589E-002	-3.993734E-004	-8.937012E-002	-1.409412E-002
1022	9	-2.530665E-002	-3.993734E-004	-8.929957E-002	-1.409412E-002
1023	1	-2.540312E-002	-1.188948E-003	-8.964490E-002	-4.167404E-002
1023	2	-2.532795E-002	-1.181016E-003	-8.937642E-002	-4.167233E-002
1023	3	-2.532801E-002	-1.189252E-003	-8.937564E-002	-4.196513E-002
1023	4	-2.540399E-002	-1.189168E-003	-8.964156E-002	-4.196242E-002
1023	5	-2.536545E-002	-1.181086E-003	-8.951041E-002	-4.167819E-002
1023	6	-2.532897E-002	-1.185150E-003	-8.937562E-002	-4.181894E-002
1023	7	-2.536578E-002	-1.189151E-003	-8.951174E-002	-4.196187E-002
1023	8	-2.540457E-002	-1.185150E-003	-8.964595E-002	-4.181894E-002
1023	9	-2.536602E-002	-1.185150E-003	-8.958915E-002	-4.181894E-002
1024	1	-2.555088E-002	-1.956467E-003	-9.016226E-002	-6.903532E-002
1024	2	-2.543204E-002	-1.956342E-003	-8.974341E-002	-6.903363E-002
1024	3	-2.543250E-002	-1.969225E-003	-8.974312E-002	-6.949111E-002
1024	4	-2.555074E-002	-1.969225E-003	-9.016173E-002	-6.948837E-002
1024	5	-2.549196E-002	-1.956412E-003	-8.995418E-002	-6.903567E-002
1024	6	-2.543260E-002	-1.962792E-003	-8.974333E-002	-6.926063E-002
1024	7	-2.549176E-002	-1.969288E-003	-8.995256E-002	-6.948783E-002
1024	8	-2.555224E-002	-1.962792E-003	-9.016089E-002	-6.926063E-002
1024	9	-2.549169E-002	-1.962792E-003	-8.995364E-002	-6.926063E-002
1025	1	-1.187296E-002	-5.820546E-003	-4.189424E-001	-2.053826E+000
1025	2	-1.177741E-002	-5.817772E-003	-4.155782E-001	-2.052840E+000
1025	3	-1.178234E-002	-5.836353E-003	-4.157498E-001	-2.059485E+000
1025	4	-1.187841E-002	-5.837386E-003	-4.191377E-001	-2.059746E+000
1025	5	-1.182783E-002	-5.819194E-003	-4.173526E-001	-2.053358E+000
1025	6	-1.177997E-002	-5.826996E-003	-4.156643E-001	-2.056180E+000
1025	7	-1.183297E-002	-5.836877E-003	-4.175355E-001	-2.059589E+000
1025	8	-1.187572E-002	-5.828866E-003	-4.190458E-001	-2.056765E+000
1025	9	-1.183031E-002	-5.827989E-003	-4.174443E-001	-2.056449E+000
1026	1	-5.910208E-002	+1.206133E-004	-2.088347E-001	+4.240376E-003
1026	2	-4.672463E-002	-9.157714E-004	-1.648779E-001	-3.231302E-002
1026	3	-4.672473E-002	-2.521363E-003	-1.648778E-001	-8.896686E-002
1026	4	-5.910077E-002	-1.969714E-003	-2.088308E-001	-6.958019E-002
1027	1	-1.142792E-002	-4.420701E-003	-4.032470E-001	-1.562706E+000
1027	2	-1.153972E-002	-4.431917E-003	-4.071924E-001	-1.563843E+000
1027	3	-1.153696E-002	-4.412938E-003	-4.070918E-001	-1.557141E+000
1027	4	-1.142382E-002	-4.411807E-003	-4.031830E-001	-1.556748E+000
1027	5	-1.148067E-002	-4.430216E-003	-4.051066E-001	-1.563237E+000
1027	6	-1.153847E-002	-4.422488E-003	-4.071423E-001	-1.560515E+000
1027	7	-1.147785E-002	-4.412322E-003	-4.049796E-001	-1.556927E+000
1027	8	-1.142599E-002	-4.420318E-003	-4.031743E-001	-1.559744E+000
1027	9	-1.147899E-002	-4.421339E-003	-4.050408E-001	-1.560103E+000
1028	1	-1.087726E-002	-2.722512E-003	-3.838069E-001	-9.606624E-001
1028	2	-7.212237E-003	-2.616911E-003	-2.544848E-001	-9.233949E-001
1028	3	-7.221463E-003	-3.150459E-003	-2.548147E-001	-1.111672E+000
1028	4	-1.093303E-002	-3.187379E-003	-3.857821E-001	-1.124698E+000
1028	5	-9.171619E-003	-2.673355E-003	-3.236312E-001	-9.433163E-001
1028	6	-7.216815E-003	-2.881683E-003	-2.546485E-001	-1.016829E+000
1028	7	-9.207862E-003	-3.170286E-003	-3.249044E-001	-1.118635E+000
1028	8	-1.090494E-002	-2.953439E-003	-3.847876E-001	-1.042144E+000
1028	9	-9.189618E-003	-2.920872E-003	-3.242621E-001	-1.030372E+000
1029	1	-3.132637E-002	-7.609086E-003	-1.105378E-001	-2.685065E-001
1029	2	-2.988859E-002	-7.608731E-003	-1.054664E-001	-2.684802E-001
1029	3	-2.988739E-002	-7.764972E-003	-1.054665E-001	-2.740038E-001
1029	4	-3.132591E-002	-7.765129E-003	-1.105418E-001	-2.740079E-001
1029	5	-3.060729E-002	-7.688983E-003	-1.080031E-001	-2.684947E-001
1029	6	-2.988720E-002	-7.686920E-003	-1.054612E-001	-2.712481E-001
1029	7	-3.060729E-002	-7.765183E-003	-1.080031E-001	-2.740059E-001
1029	8	-3.132400E-002	-7.687067E-003	-1.105380E-001	-2.712527E-001

1029	9	-3.060729E-002	-7.686923E-003	-1.880031E-001	-2.712505E-001
1030	1	-3.375907E-002	-8.056633E-003	-1.191237E-001	-2.842933E-001
1030	2	-3.181652E-002	-8.056545E-003	-1.122748E-001	-2.842942E-001
1030	3	-3.181548E-002	-8.267253E-003	-1.122699E-001	-2.917292E-001
1030	4	-3.375812E-002	-8.267282E-003	-1.191228E-001	-2.917291E-001
1030	5	-3.278738E-002	-8.056686E-003	-1.156966E-001	-2.842952E-001
1030	6	-3.181688E-002	-8.161979E-003	-1.122720E-001	-2.880122E-001
1030	7	-3.278736E-002	-8.267222E-003	-1.156970E-001	-2.917272E-001
1030	8	-3.375859E-002	-8.161979E-003	-1.191188E-001	-2.880122E-001
1030	9	-3.278785E-002	-8.161979E-003	-1.156961E-001	-2.880122E-001
1031	1	-3.723257E-002	-8.268462E-003	-1.313863E-001	-2.917722E-001
1031	2	-3.444641E-002	-8.268578E-003	-1.215493E-001	-2.917731E-001
1031	3	-3.444622E-002	-8.571674E-003	-1.215496E-001	-3.024669E-001
1031	4	-3.723303E-002	-8.571710E-003	-1.313843E-001	-3.024671E-001
1031	5	-3.583875E-002	-8.268602E-003	-1.264658E-001	-2.917741E-001
1031	6	-3.444586E-002	-8.420139E-003	-1.215478E-001	-2.971207E-001
1031	7	-3.583866E-002	-8.571647E-003	-1.264669E-001	-3.024689E-001
1031	8	-3.723184E-002	-8.420139E-003	-1.313796E-001	-2.971207E-001
1031	9	-3.583918E-002	-8.420139E-003	-1.264666E-001	-2.971207E-001
1032	1	-4.289953E-002	-7.988048E-003	-1.485555E-001	-2.818758E-001
1032	2	-3.828411E-002	-7.987954E-003	-1.348137E-001	-2.818727E-001
1032	3	-3.828489E-002	-8.411460E-003	-1.348152E-001	-2.968183E-001
1032	4	-4.210545E-002	-8.411502E-003	-1.485814E-001	-2.968187E-001
1032	5	-4.015111E-002	-7.988112E-003	-1.416022E-001	-2.818776E-001
1032	6	-3.828449E-002	-8.199619E-003	-1.348147E-001	-2.893403E-001
1032	7	-4.015617E-002	-8.411527E-003	-1.417013E-001	-2.968166E-001
1032	8	-4.210240E-002	-8.199619E-003	-1.485686E-001	-2.893403E-001
1032	9	-4.015389E-002	-8.199619E-003	-1.416904E-001	-2.893403E-001
1033	1	-5.013942E-002	-6.186543E-003	-1.769270E-001	-2.154812E-001
1033	2	-4.358236E-002	-6.186461E-003	-1.537869E-001	-2.154788E-001
1033	3	-4.359483E-002	-6.818303E-003	-1.538329E-001	-2.406003E-001
1033	4	-5.014090E-002	-6.818352E-003	-1.769383E-001	-2.406009E-001
1033	5	-4.686097E-002	-6.186607E-003	-1.653584E-001	-2.154829E-001
1033	6	-4.358786E-002	-6.462741E-003	-1.538087E-001	-2.280512E-001
1033	7	-4.686811E-002	-6.818373E-003	-1.653855E-001	-2.405987E-001
1033	8	-5.014162E-002	-6.462741E-003	-1.769313E-001	-2.280512E-001
1033	9	-4.686462E-002	-6.462741E-003	-1.653712E-001	-2.280512E-001
1034	1	-5.259541E-002	-3.205798E-003	-1.855919E-001	-1.131261E-001
1034	2	-5.259468E-002	-3.952182E-003	-1.855928E-001	-1.394559E-001
1034	3	-5.839667E-002	-4.088168E-003	-2.060662E-001	-1.442555E-001
1034	4	-5.839549E-002	-3.114632E-003	-2.060633E-001	-1.099100E-001
1035	1	-2.712975E-002	-5.721270E-003	-9.573038E-002	-2.018858E-001
1035	2	-2.649816E-002	-5.721320E-003	-9.350579E-002	-2.018888E-001
1035	3	-2.649941E-002	-5.789723E-003	-9.350654E-002	-2.043085E-001
1035	4	-2.712964E-002	-5.789639E-003	-9.572893E-002	-2.042996E-001
1035	5	-2.681424E-002	-5.721299E-003	-9.461937E-002	-2.018869E-001
1035	6	-2.649928E-002	-5.755463E-003	-9.350736E-002	-2.030947E-001
1035	7	-2.681424E-002	-5.789681E-003	-9.461937E-002	-2.043019E-001
1035	8	-2.712861E-002	-5.755463E-003	-9.572966E-002	-2.030947E-001
1035	9	-2.681424E-002	-5.755463E-003	-9.461937E-002	-2.030947E-001
1036	1	-2.816544E-002	-6.403871E-003	-9.938877E-002	-2.259762E-001
1036	2	-2.734139E-002	-6.403924E-003	-9.648009E-002	-2.259752E-001
1036	3	-2.734020E-002	-6.493257E-003	-9.647680E-002	-2.291297E-001
1036	4	-2.816581E-002	-6.493267E-003	-9.938926E-002	-2.291298E-001
1036	5	-2.775322E-002	-6.403869E-003	-9.793426E-002	-2.259772E-001
1036	6	-2.734056E-002	-6.448613E-003	-9.647892E-002	-2.275528E-001
1036	7	-2.775340E-002	-6.493306E-003	-9.793559E-002	-2.291275E-001
1036	8	-2.816645E-002	-6.448613E-003	-9.938902E-002	-2.275528E-001
1036	9	-2.775403E-002	-6.448613E-003	-9.793468E-002	-2.275528E-001
1037	1	-2.952100E-002	-7.042581E-003	-1.041715E-001	-2.485129E-001

1037	2	-2.844389E-002	-7.042623E-003	-1.003663E-001	-2.485113E-001
1037	3	-2.844276E-002	-7.159601E-003	-1.003652E-001	-2.526422E-001
1037	4	-2.952189E-002	-7.159616E-003	-1.041708E-001	-2.526417E-001
1037	5	-2.898179E-002	-7.042598E-003	-1.022694E-001	-2.485138E-001
1037	6	-2.844292E-002	-7.101128E-003	-1.003660E-001	-2.505779E-001
1037	7	-2.898248E-002	-7.159652E-003	-1.022678E-001	-2.526439E-001
1037	8	-2.952175E-002	-7.101128E-003	-1.041745E-001	-2.505779E-001
1037	9	-2.898202E-002	-7.101128E-003	-1.022688E-001	-2.505779E-001
1038	1	-2.446724E-002	-4.031618E-004	-8.633603E-002	-1.422486E-002
1038	2	-2.440961E-002	-4.030466E-004	-8.613683E-002	-1.422471E-002
1038	3	-2.440888E-002	-4.094323E-004	-8.613078E-002	-1.444818E-002
1038	4	-2.446683E-002	-4.093813E-004	-8.634202E-002	-1.444920E-002
1038	5	-2.443795E-002	-4.032681E-004	-8.623414E-002	-1.422853E-002
1038	6	-2.441000E-002	-4.063001E-004	-8.613309E-002	-1.433621E-002
1038	7	-2.443910E-002	-4.093642E-004	-8.623386E-002	-1.444865E-002
1038	8	-2.446751E-002	-4.063001E-004	-8.634093E-002	-1.433621E-002
1038	9	-2.443822E-002	-4.063001E-004	-8.623469E-002	-1.433621E-002
1039	1	-2.454934E-002	-1.191467E-003	-8.662966E-002	-4.204215E-002
1039	2	-2.448536E-002	-1.191415E-003	-8.640128E-002	-4.204212E-002
1039	3	-2.448492E-002	-1.198587E-003	-8.640052E-002	-4.229242E-002
1039	4	-2.454987E-002	-1.198457E-003	-8.662476E-002	-4.228972E-002
1039	5	-2.451736E-002	-1.191429E-003	-8.651423E-002	-4.204547E-002
1039	6	-2.448477E-002	-1.194948E-003	-8.639970E-002	-4.216798E-002
1039	7	-2.451755E-002	-1.198440E-003	-8.651392E-002	-4.229298E-002
1039	8	-2.455097E-002	-1.194948E-003	-8.663239E-002	-4.216798E-002
1039	9	-2.451762E-002	-1.194948E-003	-8.651476E-002	-4.216798E-002
1040	1	-2.471563E-002	-1.973182E-003	-8.721612E-002	-6.963283E-002
1040	2	-2.457850E-002	-1.973278E-003	-8.673100E-002	-6.963277E-002
1040	3	-2.457891E-002	-1.980148E-003	-8.673510E-002	-7.015760E-002
1040	4	-2.471572E-002	-1.980218E-003	-8.721662E-002	-7.015802E-002
1040	5	-2.464785E-002	-1.973377E-003	-8.697345E-002	-6.963614E-002
1040	6	-2.457918E-002	-1.980758E-003	-8.673148E-002	-6.989368E-002
1040	7	-2.464711E-002	-1.980285E-003	-8.697287E-002	-7.015824E-002
1040	8	-2.471633E-002	-1.980758E-003	-8.721603E-002	-6.989368E-002
1040	9	-2.464730E-002	-1.980758E-003	-8.697488E-002	-6.989368E-002
1041	1	-2.494677E-002	-2.750441E-003	-8.803620E-002	-9.705184E-002
1041	2	-2.474988E-002	-2.750402E-003	-8.733054E-002	-9.705174E-002
1041	3	-2.474868E-002	-2.771951E-003	-8.733182E-002	-9.781384E-002
1041	4	-2.494765E-002	-2.771988E-003	-8.803139E-002	-9.781121E-002
1041	5	-2.484863E-002	-2.750416E-003	-8.768160E-002	-9.705513E-002
1041	6	-2.474823E-002	-2.761152E-003	-8.732967E-002	-9.743199E-002
1041	7	-2.484767E-002	-2.771850E-003	-8.768167E-002	-9.781862E-002
1041	8	-2.494728E-002	-2.761152E-003	-8.803272E-002	-9.743199E-002
1041	9	-2.484793E-002	-2.761152E-003	-8.768138E-002	-9.743199E-002
1042	1	-2.528032E-002	-3.517748E-003	-8.928681E-002	-1.241305E-001
1042	2	-2.501469E-002	-3.517737E-003	-8.827341E-002	-1.241303E-001
1042	3	-2.501403E-002	-3.546570E-003	-8.826716E-002	-1.251467E-001
1042	4	-2.528036E-002	-3.546523E-003	-8.928724E-002	-1.251480E-001
1042	5	-2.514763E-002	-3.517733E-003	-8.873518E-002	-1.241299E-001
1042	6	-2.501480E-002	-3.532145E-003	-8.826718E-002	-1.246388E-001
1042	7	-2.514676E-002	-3.546589E-003	-8.873858E-002	-1.251473E-001
1042	8	-2.528211E-002	-3.532145E-003	-8.921044E-002	-1.246388E-001
1042	9	-2.514757E-002	-3.532145E-003	-8.873898E-002	-1.246388E-001
1043	1	-2.573465E-002	-4.270432E-003	-9.000929E-002	-1.506928E-001
1043	2	-2.537192E-002	-4.270374E-003	-8.952802E-002	-1.506917E-001
1043	3	-2.537160E-002	-4.309953E-003	-8.952895E-002	-1.520821E-001
1043	4	-2.573408E-002	-4.309787E-003	-9.000531E-002	-1.520834E-001
1043	5	-2.555285E-002	-4.270390E-003	-9.016781E-002	-1.506914E-001
1043	6	-2.537162E-002	-4.290132E-003	-8.952706E-002	-1.513855E-001
1043	7	-2.555285E-002	-4.309767E-003	-9.016781E-002	-1.520828E-001

1043	8	-2.573402E-002	-4.290132E-003	-9.000783E-002	-1.513855E-001
1043	9	-2.555285E-002	-4.290132E-003	-9.016781E-002	-1.513855E-001
1044	1	-2.633698E-002	-5.007502E-003	-9.293687E-002	-1.766999E-001
1044	2	-2.585701E-002	-5.007558E-003	-9.124039E-002	-1.767002E-001
1044	3	-2.585707E-002	-5.059601E-003	-9.124058E-002	-1.785353E-001
1044	4	-2.633725E-002	-5.059583E-003	-9.293691E-002	-1.785414E-001
1044	5	-2.609647E-002	-5.007458E-003	-9.208645E-002	-1.766980E-001
1044	6	-2.585695E-002	-5.033598E-003	-9.124151E-002	-1.776167E-001
1044	7	-2.609647E-002	-5.059728E-003	-9.208645E-002	-1.785385E-001
1044	8	-2.633759E-002	-5.033649E-003	-9.293827E-002	-1.776193E-001
1044	9	-2.609647E-002	-5.033571E-003	-9.208645E-002	-1.776179E-001
1045	1	-8.891881E-003	-3.284490E-003	-3.137589E-001	-1.158961E+000
1045	2	-6.552765E-003	-3.274322E-003	-2.312200E-001	-1.155372E+000
1045	3	-6.560251E-003	-3.622874E-003	-2.314045E-001	-1.278364E+000
1045	4	-8.935706E-003	-3.586369E-003	-3.153002E-001	-1.265481E+000
1045	5	-7.805213E-003	-3.279756E-003	-2.754180E-001	-1.157289E+000
1045	6	-6.556374E-003	-3.447005E-003	-2.313454E-001	-1.216304E+000
1045	7	-7.833466E-003	-3.603315E-003	-2.764133E-001	-1.271459E+000
1045	8	-8.913632E-003	-3.434224E-003	-3.145291E-001	-1.211796E+000
1045	9	-7.813928E-003	-3.448161E-003	-2.759117E-001	-1.213889E+000
1046	1	-9.519954E-003	-4.398719E-003	-3.359220E-001	-1.552121E+000
1046	2	-9.382837E-003	-4.398135E-003	-3.310804E-001	-1.551919E+000
1046	3	-9.387115E-003	-4.421964E-003	-3.312270E-001	-1.560327E+000
1046	4	-9.525181E-003	-4.419832E-003	-3.361038E-001	-1.559572E+000
1046	5	-9.455498E-003	-4.398423E-003	-3.336450E-001	-1.552022E+000
1046	6	-9.384967E-003	-4.409984E-003	-3.311554E-001	-1.556100E+000
1046	7	-9.460230E-003	-4.420850E-003	-3.338122E-001	-1.559931E+000
1046	8	-9.522597E-003	-4.409199E-003	-3.360086E-001	-1.555827E+000
1046	9	-9.457824E-003	-4.409567E-003	-3.337286E-001	-1.555955E+000
1047	1	-8.016949E-003	-5.778966E-003	-2.828854E-001	-2.036325E+000
1047	2	-9.620237E-003	-5.777910E-003	-3.394616E-001	-2.038781E+000
1047	3	-9.536672E-003	-5.458006E-003	-3.365089E-001	-1.925985E+000
1047	4	-7.922147E-003	-5.482797E-003	-2.795369E-001	-1.934652E+000
1047	5	-8.777147E-003	-5.774258E-003	-3.097089E-001	-2.037489E+000
1047	6	-9.578749E-003	-5.619036E-003	-3.379962E-001	-1.982722E+000
1047	7	-8.686928E-003	-5.471042E-003	-3.065244E-001	-1.930501E+000
1047	8	-7.969901E-003	-5.627763E-003	-2.812253E-001	-1.985802E+000
1047	9	-8.732357E-003	-5.623633E-003	-3.081275E-001	-1.984343E+000
1048	1	-3.409005E-003	-7.326942E-003	-1.202901E-001	-2.585366E+000
1048	2	-7.657428E-003	-7.345415E-003	-2.701995E-001	-2.591890E+000
1048	3	-7.328032E-003	-6.390801E-003	-2.585702E-001	-2.255058E+000
1048	4	-3.074439E-003	-6.456202E-003	-1.084847E-001	-2.278123E+000
1048	5	-5.436245E-003	-7.335759E-003	-1.918270E-001	-2.588487E+000
1048	6	-7.493619E-003	-6.870225E-003	-2.644183E-001	-2.424217E+000
1048	7	-5.103420E-003	-6.425017E-003	-1.800778E-001	-2.267118E+000
1048	8	-3.242394E-003	-6.893325E-003	-1.144083E-001	-2.432364E+000
1048	9	-5.270556E-003	-6.882306E-003	-1.859762E-001	-2.428477E+000
1049	1	-5.876925E-002	-4.458206E-003	-2.073781E-001	-1.573170E-001
1049	2	-5.876925E-002	-4.458206E-003	-2.073781E-001	-1.573170E-001
1049	3	-5.876925E-002	-4.458206E-003	-2.073781E-001	-1.573170E-001
1050	1	-7.798673E-003	-3.683107E-003	-2.751790E-001	-1.299616E+000
1050	2	-6.159071E-003	-3.717888E-003	-2.173274E-001	-1.311887E+000
1050	3	-6.163561E-003	-3.968780E-003	-2.174849E-001	-1.400411E+000
1050	4	-7.824559E-003	-3.899364E-003	-2.761021E-001	-1.375925E+000
1050	5	-7.037818E-003	-3.699240E-003	-2.483380E-001	-1.305307E+000
1050	6	-6.161203E-003	-3.842357E-003	-2.174033E-001	-1.355804E+000
1050	7	-7.854708E-003	-3.931554E-003	-2.489338E-001	-1.387275E+000
1050	8	-7.811535E-003	-3.798486E-003	-2.756412E-001	-1.337507E+000
1050	9	-7.846354E-003	-3.814549E-003	-2.486343E-001	-1.345991E+000
1051	1	-7.768303E-003	-4.449128E-003	-2.741087E-001	-1.569318E+000

1051	2	-8.854748E-003	-4.442976E-003	-2.842187E-001	-1.567742E+000
1051	3	-8.846987E-003	-4.391599E-003	-2.839444E-001	-1.549610E+000
1051	4	-7.756431E-003	-4.403886E-003	-2.736962E-001	-1.553946E+000
1051	5	-7.902802E-003	-4.446251E-003	-2.788587E-001	-1.568902E+000
1051	6	-8.050929E-003	-4.417526E-003	-2.840858E-001	-1.558759E+000
1051	7	-7.892819E-003	-4.398120E-003	-2.785042E-001	-1.551914E+000
1051	8	-7.762453E-003	-4.426701E-003	-2.739086E-001	-1.562000E+000
1051	9	-7.897776E-003	-4.422407E-003	-2.786848E-001	-1.560482E+000
1052	1	-4.330389E-002	-8.551939E-003	-1.528029E-001	-3.017755E-001
1052	2	-3.831423E-002	-8.552011E-003	-1.351967E-001	-3.017770E-001
1052	3	-3.831409E-002	-9.093616E-003	-1.351981E-001	-3.208856E-001
1052	4	-4.330226E-002	-9.093469E-003	-1.528002E-001	-3.208876E-001
1052	5	-4.080835E-002	-8.551856E-003	-1.440003E-001	-3.017723E-001
1052	6	-3.831411E-002	-8.822798E-003	-1.351969E-001	-3.113317E-001
1052	7	-4.080835E-002	-9.093497E-003	-1.440003E-001	-3.208847E-001
1052	8	-4.330176E-002	-8.822798E-003	-1.528020E-001	-3.113317E-001
1052	9	-4.080835E-002	-8.822798E-003	-1.440003E-001	-3.113317E-001
1053	1	-5.421487E-002	-7.861795E-003	-1.913007E-001	-2.491900E-001
1053	2	-4.532227E-002	-7.861875E-003	-1.599315E-001	-2.491919E-001
1053	3	-4.532249E-002	-8.024933E-003	-1.599312E-001	-2.831751E-001
1053	4	-5.421421E-002	-8.024884E-003	-1.913099E-001	-2.831734E-001
1053	5	-4.976974E-002	-7.861760E-003	-1.756236E-001	-2.491883E-001
1053	6	-4.532238E-002	-7.943343E-003	-1.599311E-001	-2.661816E-001
1053	7	-4.976865E-002	-8.024911E-003	-1.756195E-001	-2.831742E-001
1053	8	-5.421443E-002	-7.943343E-003	-1.913108E-001	-2.661816E-001
1053	9	-4.976885E-002	-7.943343E-003	-1.756232E-001	-2.661816E-001
1054	1	-2.554108E-002	-5.074959E-003	-9.012897E-002	-1.798799E-001
1054	2	-2.503618E-002	-5.074813E-003	-8.834489E-002	-1.798803E-001
1054	3	-2.503618E-002	-5.129567E-003	-8.834333E-002	-1.810892E-001
1054	4	-2.553948E-002	-5.129594E-003	-9.011648E-002	-1.810802E-001
1054	5	-2.528860E-002	-5.075065E-003	-8.923476E-002	-1.798831E-001
1054	6	-2.503555E-002	-5.102183E-003	-8.834320E-002	-1.804421E-001
1054	7	-2.528759E-002	-5.129505E-003	-8.923211E-002	-1.810877E-001
1054	8	-2.553872E-002	-5.102259E-003	-9.012393E-002	-1.804442E-001
1054	9	-2.528779E-002	-5.102240E-003	-8.923589E-002	-1.804426E-001
1055	1	-2.635624E-002	-5.889951E-003	-9.300283E-002	-2.050154E-001
1055	2	-2.570713E-002	-5.889930E-003	-9.071543E-002	-2.050173E-001
1055	3	-2.570670E-002	-5.880609E-003	-9.071327E-002	-2.075088E-001
1055	4	-2.635778E-002	-5.880498E-003	-9.300516E-002	-2.075063E-001
1055	5	-2.603254E-002	-5.889756E-003	-9.185860E-002	-2.050128E-001
1055	6	-2.570717E-002	-5.885242E-003	-9.071411E-002	-2.062610E-001
1055	7	-2.603254E-002	-5.880554E-003	-9.185860E-002	-2.075062E-001
1055	8	-2.635796E-002	-5.885242E-003	-9.300972E-002	-2.062610E-001
1055	9	-2.603254E-002	-5.885242E-003	-9.185860E-002	-2.062610E-001
1056	1	-2.743064E-002	-6.519813E-003	-9.679411E-002	-2.300671E-001
1056	2	-2.657577E-002	-6.519909E-003	-9.378030E-002	-2.300654E-001
1056	3	-2.657629E-002	-6.612521E-003	-9.377751E-002	-2.333399E-001
1056	4	-2.743145E-002	-6.612615E-003	-9.680115E-002	-2.333401E-001
1056	5	-2.700401E-002	-6.519870E-003	-9.528072E-002	-2.300655E-001
1056	6	-2.657533E-002	-6.566191E-003	-9.377867E-002	-2.317010E-001
1056	7	-2.700422E-002	-6.612671E-003	-9.528027E-002	-2.333419E-001
1056	8	-2.743069E-002	-6.566191E-003	-9.679813E-002	-2.317010E-001
1056	9	-2.700340E-002	-6.566191E-003	-9.528779E-002	-2.317010E-001
1057	1	-2.884348E-002	-7.194552E-003	-9.817808E-001	-2.538726E-001
1057	2	-2.771987E-002	-7.194524E-003	-9.781286E-002	-2.538711E-001
1057	3	-2.771936E-002	-7.316883E-003	-9.781223E-002	-2.581873E-001
1057	4	-2.884401E-002	-7.316887E-003	-1.017829E-001	-2.581874E-001
1057	5	-2.828216E-002	-7.194389E-003	-9.979753E-002	-2.538702E-001
1057	6	-2.771898E-002	-7.255584E-003	-9.781254E-002	-2.560284E-001
1057	7	-2.828186E-002	-7.316826E-003	-9.979577E-002	-2.581893E-001

1057	8	-2.884518E-002	-7.255584E-003	-1.017838E-001	-2.560284E-001
1057	9	-2.828130E-002	-7.255584E-003	-9.979690E-002	-2.560284E-001
1058	1	-3.073861E-002	-7.811695E-003	-1.084734E-001	-2.756556E-001
1058	2	-2.922744E-002	-7.811888E-003	-1.031348E-001	-2.756543E-001
1058	3	-2.922782E-002	-7.976053E-003	-1.031349E-001	-2.814527E-001
1058	4	-3.073909E-002	-7.976145E-003	-1.084743E-001	-2.814528E-001
1058	5	-2.998324E-002	-7.811644E-003	-1.058026E-001	-2.756491E-001
1058	6	-2.922834E-002	-7.893856E-003	-1.031363E-001	-2.785527E-001
1058	7	-2.998324E-002	-7.976115E-003	-1.058026E-001	-2.814547E-001
1058	8	-3.073909E-002	-7.893856E-003	-1.084667E-001	-2.785527E-001
58	9	-2.998324E-002	-7.893856E-003	-1.058026E-001	-2.785527E-001
59	1	-3.337200E-002	-8.331183E-003	-1.177574E-001	-2.939824E-001
1059	2	-3.126508E-002	-8.331895E-003	-1.103253E-001	-2.939852E-001
1059	3	-3.126571E-002	-8.559666E-003	-1.103271E-001	-3.020444E-001
1059	4	-3.337184E-002	-8.559546E-003	-1.177526E-001	-3.020443E-001
1059	5	-3.231829E-002	-8.331173E-003	-1.140420E-001	-2.939807E-001
1059	6	-3.126630E-002	-8.445351E-003	-1.103299E-001	-2.980129E-001
1059	7	-3.231831E-002	-8.559606E-003	-1.140426E-001	-3.020424E-001
1059	8	-3.337152E-002	-8.445351E-003	-1.177583E-001	-2.980129E-001
1059	9	-3.231878E-002	-8.445351E-003	-1.140435E-001	-2.980129E-001
1060	1	-3.714583E-002	-8.663576E-003	-1.310724E-001	-3.057130E-001
1060	2	-3.411700E-002	-8.663598E-003	-1.203885E-001	-3.057154E-001
1060	3	-3.411751E-002	-8.992365E-003	-1.203888E-001	-3.173146E-001
1060	4	-3.714558E-002	-8.993030E-003	-1.310743E-001	-3.173341E-001
1060	5	-3.562965E-002	-8.663557E-003	-1.257301E-001	-3.057099E-001
1060	6	-3.411654E-002	-8.827919E-003	-1.203870E-001	-3.115141E-001
1060	7	-3.563036E-002	-8.992662E-003	-1.257273E-001	-3.173242E-001
1060	8	-3.714511E-002	-8.828277E-003	-1.310772E-001	-3.115255E-001
1060	9	-3.562959E-002	-8.828118E-003	-1.257270E-001	-3.115202E-001
1061	1	-2.385505E-002	-1.992389E-003	-8.417757E-002	-7.030928E-002
1061	2	-2.372418E-002	-1.992458E-003	-8.371519E-002	-7.030700E-002
1061	3	-2.372427E-002	-2.006768E-003	-8.371553E-002	-7.080913E-002
1061	4	-2.385601E-002	-2.006784E-003	-8.417757E-002	-7.080961E-002
1061	5	-2.379000E-002	-1.992382E-003	-8.394600E-002	-7.030476E-002
1061	6	-2.372427E-002	-1.999529E-003	-8.371553E-002	-7.055880E-002
1061	7	-2.379000E-002	-2.006717E-003	-8.394600E-002	-7.081127E-002
1061	8	-2.385601E-002	-1.999529E-003	-8.417757E-002	-7.055880E-002
1061	9	-2.379000E-002	-1.999529E-003	-8.394600E-002	-7.055880E-002
1062	1	-2.410213E-002	-2.778102E-003	-8.504766E-002	-9.803373E-002
1062	2	-2.390311E-002	-2.778149E-003	-8.434796E-002	-9.803540E-002
1062	3	-2.390374E-002	-2.799758E-003	-8.435174E-002	-9.879465E-002
1062	4	-2.410175E-002	-2.799731E-003	-8.504722E-002	-9.879510E-002
1062	5	-2.400279E-002	-2.778081E-003	-8.469888E-002	-9.803361E-002
1062	6	-2.390340E-002	-2.788955E-003	-8.434634E-002	-9.841448E-002
1062	7	-2.400279E-002	-2.799783E-003	-8.469888E-002	-9.879670E-002
1062	8	-2.410064E-002	-2.788955E-003	-8.504936E-002	-9.841448E-002
1062	9	-2.400279E-002	-2.788955E-003	-8.469888E-002	-9.841448E-002
1063	1	-2.444688E-002	-3.555072E-003	-8.626506E-002	-1.254485E-001
1063	2	-2.417131E-002	-3.555047E-003	-8.529382E-002	-1.254503E-001
1063	3	-2.417049E-002	-3.584935E-003	-8.528963E-002	-1.265039E-001
1063	4	-2.444693E-002	-3.585035E-003	-8.626633E-002	-1.265043E-001
1063	5	-2.430816E-002	-3.555067E-003	-8.577598E-002	-1.254480E-001
1063	6	-2.417038E-002	-3.570102E-003	-8.529347E-002	-1.259775E-001
1063	7	-2.430821E-002	-3.585002E-003	-8.577836E-002	-1.265069E-001
1063	8	-2.444677E-002	-3.570102E-003	-8.626951E-002	-1.259775E-001
1063	9	-2.430843E-002	-3.570102E-003	-8.577889E-002	-1.259775E-001
1064	1	-2.492242E-002	-4.321607E-003	-8.794233E-002	-1.524978E-001
1064	2	-2.454138E-002	-4.321584E-003	-8.660250E-002	-1.524950E-001
1064	3	-2.454247E-002	-4.362767E-003	-8.660234E-002	-1.539524E-001
1064	4	-2.492198E-002	-4.362865E-003	-8.794435E-002	-1.539528E-001

1064	5	-2.473198E-002	-4.321514E-003	-8.727389E-002	-1.524934E-001
1064	6	-2.454166E-002	-4.342233E-003	-8.660803E-002	-1.532245E-001
1064	7	-2.473218E-002	-4.362919E-003	-8.727220E-002	-1.539545E-001
1064	8	-2.492313E-002	-4.342233E-003	-8.794653E-002	-1.532245E-001
1064	9	-2.473233E-002	-4.342233E-003	-8.727408E-002	-1.532245E-001
1065	1	-2.360446E-002	-4.107487E-004	-8.329623E-002	-1.449313E-002
1065	2	-2.358338E-002	-4.106989E-004	-8.321834E-002	-1.449851E-002
1065	3	-2.358220E-002	-4.130484E-004	-8.321701E-002	-1.457505E-002
1065	4	-2.360490E-002	-4.130212E-004	-8.329339E-002	-1.457552E-002
1065	5	-2.359344E-002	-4.106663E-004	-8.325446E-002	-1.448974E-002
1065	6	-2.358238E-002	-4.118980E-004	-8.321460E-002	-1.453502E-002
1065	7	-2.359403E-002	-4.131758E-004	-8.325505E-002	-1.458046E-002
1065	8	-2.360523E-002	-4.118980E-004	-8.329589E-002	-1.453502E-002
1065	9	-2.359368E-002	-4.118980E-004	-8.325411E-002	-1.453502E-002
1066	1	-2.369389E-002	-1.200722E-003	-8.360551E-002	-4.236870E-002
1066	2	-2.361966E-002	-1.200668E-003	-8.334561E-002	-4.236922E-002
1066	3	-2.361829E-002	-1.200760E-003	-8.334483E-002	-4.265564E-002
1066	4	-2.369362E-002	-1.200825E-003	-8.360825E-002	-4.265721E-002
1066	5	-2.365595E-002	-1.200659E-003	-8.347602E-002	-4.236670E-002
1066	6	-2.361989E-002	-1.204752E-003	-8.334356E-002	-4.251200E-002
1066	7	-2.365674E-002	-1.200798E-003	-8.347566E-002	-4.265362E-002
1066	8	-2.369362E-002	-1.204781E-003	-8.361206E-002	-4.251227E-002
1066	9	-2.365682E-002	-1.204774E-003	-8.347461E-002	-4.251318E-002
1067	1	-6.177625E-002	-4.532075E-003	-2.179930E-001	-1.599154E-001
1067	2	-5.679755E-002	-4.844186E-003	-2.004241E-001	-1.709340E-001
1067	3	-5.679774E-002	-5.483842E-003	-2.004233E-001	-1.935100E-001
1067	4	-6.177579E-002	-5.365698E-003	-2.179886E-001	-1.893354E-001
1068	1	-6.008489E-003	-5.429958E-003	-2.120195E-001	-1.916002E+000
1068	2	-7.709170E-003	-5.393835E-003	-2.720224E-001	-1.903269E+000
1068	3	-7.611408E-003	-5.047092E-003	-2.685764E-001	-1.788915E+000
1068	4	-5.905875E-003	-5.118372E-003	-2.083681E-001	-1.806064E+000
1068	5	-6.814596E-003	-5.412824E-003	-2.404568E-001	-1.909965E+000
1068	6	-7.660480E-003	-5.221347E-003	-2.703099E-001	-1.842391E+000
1068	7	-6.713335E-003	-5.804627E-003	-2.368848E-001	-1.794153E+000
1068	8	-5.957025E-003	-5.274861E-003	-2.102842E-001	-1.861275E+000
1068	9	-6.764133E-003	-5.249501E-003	-2.386774E-001	-1.852332E+000
1069	1	-2.796699E-003	-6.247811E-003	-9.868110E-002	-2.204592E+000
1069	2	-5.588714E-003	-6.188449E-003	-1.971992E-001	-2.183637E+000
1069	3	-5.367375E-003	-5.546617E-003	-1.893901E-001	-1.957179E+000
1069	4	-2.572912E-003	-5.664371E-003	-9.878722E-002	-1.998724E+000
1069	5	-4.127187E-003	-6.219531E-003	-1.456319E-001	-2.194612E+000
1069	6	-5.478526E-003	-5.868926E-003	-1.933140E-001	-2.070984E+000
1069	7	-3.983927E-003	-5.608267E-003	-1.377564E-001	-1.978926E+000
1069	8	-2.685180E-003	-5.957287E-003	-9.474834E-002	-2.182072E+000
1069	9	-4.016066E-003	-5.915195E-003	-1.417091E-001	-2.087225E+000
1070	1	-7.124641E-003	-3.974862E-003	-2.513996E-001	-1.402273E+000
1070	2	-6.545088E-003	-4.001828E-003	-2.309503E-001	-1.412001E+000
1070	3	-6.546856E-003	-4.092998E-003	-2.310147E-001	-1.444242E+000
1070	4	-7.135978E-003	-4.051845E-003	-2.517939E-001	-1.429723E+000
1070	5	-6.856582E-003	-3.986893E-003	-2.419409E-001	-1.406818E+000
1070	6	-6.545997E-003	-4.046988E-003	-2.309801E-001	-1.428013E+000
1070	7	-6.863957E-003	-4.070844E-003	-2.421986E-001	-1.436435E+000
1070	8	-7.138211E-003	-4.012616E-003	-2.515948E-001	-1.415884E+000
1070	9	-6.868224E-003	-4.028499E-003	-2.420708E-001	-1.421498E+000
1071	1	-6.523684E-003	-4.438242E-003	-2.381924E-001	-1.566076E+000
1071	2	-7.157997E-003	-4.407481E-003	-2.525781E-001	-1.555219E+000
1071	3	-7.138004E-003	-4.291181E-003	-2.518726E-001	-1.514184E+000
1071	4	-6.498945E-003	-4.335955E-003	-2.293189E-001	-1.529981E+000
1071	5	-6.821379E-003	-4.423844E-003	-2.406989E-001	-1.560984E+000
1071	6	-7.148172E-003	-4.349711E-003	-2.522286E-001	-1.534829E+000

1071	7	-6.798682E-003	-4.314975E-003	-2.398962E-001	-1.522576E+000
1071	8	-6.511427E-003	-4.387383E-003	-2.297620E-001	-1.548119E+000
1071	9	-6.810163E-003	-4.369710E-003	-2.403000E-001	-1.541807E+000
1072	1	-4.770380E-003	-5.080343E-003	-1.683229E-001	-1.792638E+000
1072	2	-6.325210E-003	-5.005805E-003	-2.231866E-001	-1.766336E+000
1072	3	-6.239722E-003	-4.679509E-003	-2.201733E-001	-1.651203E+000
1072	4	-4.674436E-003	-4.788953E-003	-1.649404E-001	-1.689822E+000
1072	5	-5.505521E-003	-5.045091E-003	-1.942666E-001	-1.780195E+000
1072	6	-6.282635E-003	-4.843771E-003	-2.216804E-001	-1.709165E+000
1072	7	-5.413915E-003	-4.737261E-003	-1.910404E-001	-1.671577E+000
1072	8	-4.722614E-003	-4.935538E-003	-1.666410E-001	-1.741547E+000
1072	9	-5.460095E-003	-4.892169E-003	-1.926624E-001	-1.726240E+000
1073	1	-3.698667E-002	-9.092586E-003	-1.302335E-001	-3.208494E-001
1073	2	-3.363439E-002	-9.091704E-003	-1.186852E-001	-3.208243E-001
1073	3	-3.363498E-002	-9.447639E-003	-1.186854E-001	-3.333815E-001
1073	4	-3.698713E-002	-9.447820E-003	-1.302315E-001	-3.333854E-001
1073	5	-3.527207E-002	-9.092209E-003	-1.244623E-001	-3.208351E-001
1073	6	-3.363464E-002	-9.269806E-003	-1.186841E-001	-3.271020E-001
1073	7	-3.527130E-002	-9.447701E-003	-1.244631E-001	-3.333840E-001
1073	8	-3.698698E-002	-9.270183E-003	-1.302344E-001	-3.271148E-001
1073	9	-3.527103E-002	-9.269932E-003	-1.244630E-001	-3.271089E-001
1074	1	-4.367081E-002	-9.259228E-003	-1.541031E-001	-3.267327E-001
1074	2	-3.818053E-002	-9.259212E-003	-1.347284E-001	-3.267387E-001
1074	3	-3.818121E-002	-9.856496E-003	-1.347293E-001	-3.478068E-001
1074	4	-4.367256E-002	-9.856438E-003	-1.541109E-001	-3.478059E-001
1074	5	-4.092683E-002	-9.259203E-003	-1.444175E-001	-3.267319E-001
1074	6	-3.818041E-002	-9.557864E-003	-1.347287E-001	-3.372674E-001
1074	7	-4.092683E-002	-9.856453E-003	-1.444175E-001	-3.478063E-001
1074	8	-4.367227E-002	-9.557864E-003	-1.541089E-001	-3.372674E-001
1074	9	-4.092683E-002	-9.557864E-003	-1.444175E-001	-3.372674E-001
1075	1	-5.830095E-002	-8.355534E-003	-2.057246E-001	-2.948441E-001
1075	2	-4.622817E-002	-8.355519E-003	-1.631238E-001	-2.948425E-001
1075	3	-4.623116E-002	-9.668228E-003	-1.631347E-001	-3.411627E-001
1075	4	-5.832390E-002	-9.668251E-003	-2.058028E-001	-3.411613E-001
1075	5	-5.226481E-002	-8.355629E-003	-1.844265E-001	-2.948433E-001
1075	6	-4.622953E-002	-9.011282E-003	-1.631310E-001	-3.179821E-001
1075	7	-5.227735E-002	-9.668180E-003	-1.844686E-001	-3.411620E-001
1075	8	-5.831258E-002	-9.011282E-003	-2.057654E-001	-3.179821E-001
1075	9	-5.227084E-002	-9.011282E-003	-1.844471E-001	-3.179821E-001
1076	1	-6.537010E-002	-6.610081E-003	-2.306713E-001	-2.332466E-001
1076	2	-6.536565E-002	-5.897661E-003	-2.306521E-001	-2.081125E-001
1076	3	-6.118996E-002	-5.877655E-003	-2.156368E-001	-2.074129E-001
1076	4	-6.111934E-002	-6.425100E-003	-2.156687E-001	-2.267199E-001
1077	1	-3.007603E-002	-8.024802E-003	-1.061282E-001	-2.831722E-001
1077	2	-2.850945E-002	-8.024857E-003	-1.006029E-001	-2.831714E-001
1077	3	-2.850987E-002	-8.194902E-003	-1.006033E-001	-2.891721E-001
1077	4	-3.007627E-002	-8.194964E-003	-1.061292E-001	-2.891722E-001
1077	5	-2.929331E-002	-8.024615E-003	-1.033667E-001	-2.831697E-001
1077	6	-2.850972E-002	-8.109813E-003	-1.005980E-001	-2.861713E-001
1077	7	-2.929331E-002	-8.194874E-003	-1.033667E-001	-2.891722E-001
1077	8	-3.007627E-002	-8.109813E-003	-1.061330E-001	-2.861713E-001
1077	9	-2.929331E-002	-8.109813E-003	-1.033667E-001	-2.861713E-001
1078	1	-3.283570E-002	-8.627809E-003	-1.158700E-001	-3.044460E-001
1078	2	-3.062572E-002	-8.627655E-003	-1.080700E-001	-3.044452E-001
1078	3	-3.062731E-002	-8.866961E-003	-1.080719E-001	-3.128985E-001
1078	4	-3.283545E-002	-8.866926E-003	-1.158660E-001	-3.128983E-001
1078	5	-3.173286E-002	-8.627607E-003	-1.119710E-001	-3.044435E-001
1078	6	-3.062680E-002	-8.747272E-003	-1.080746E-001	-3.086685E-001
1078	7	-3.173117E-002	-8.867048E-003	-1.119717E-001	-3.128984E-001
1078	8	-3.283593E-002	-8.747272E-003	-1.158718E-001	-3.086685E-001

1078	9	-3.173150E-002	-8.747272E-003	-1.119721E-001	-3.086685E-001
1079	1	-2.282729E-002	-1.211172E-003	-8.055180E-002	-4.274005E-002
1079	2	-2.274441E-002	-1.211121E-003	-8.025774E-002	-4.273523E-002
1079	3	-2.274407E-002	-1.220860E-003	-8.025694E-002	-4.305195E-002
1079	4	-2.282797E-002	-1.220154E-003	-8.055374E-002	-4.305773E-002
1079	5	-2.278632E-002	-1.211118E-003	-8.040556E-002	-4.273689E-002
1079	6	-2.274479E-002	-1.215647E-003	-8.025996E-002	-4.289654E-002
1079	7	-2.278649E-002	-1.220219E-003	-8.040515E-002	-4.305895E-002
1079	8	-2.282893E-002	-1.215637E-003	-8.054993E-002	-4.289454E-002
1079	9	-2.278657E-002	-1.215649E-003	-8.040603E-002	-4.289643E-002
1080	1	-2.299397E-002	-2.010902E-003	-8.114251E-002	-7.995648E-002
1080	2	-2.285911E-002	-2.010918E-003	-8.066359E-002	-7.995714E-002
1080	3	-2.285848E-002	-2.025374E-003	-8.066187E-002	-7.147337E-002
1080	4	-2.299397E-002	-2.025450E-003	-8.113869E-002	-7.147092E-002
1080	5	-2.292616E-002	-2.010958E-003	-8.090215E-002	-7.995855E-002
1080	6	-2.285919E-002	-2.010860E-003	-8.066393E-002	-7.121383E-002
1080	7	-2.292616E-002	-2.025412E-003	-8.090215E-002	-7.147077E-002
1080	8	-2.299397E-002	-2.010860E-003	-8.113869E-002	-7.121383E-002
1080	9	-2.292616E-002	-2.010860E-003	-8.090215E-002	-7.121383E-002
1081	1	-2.324599E-002	-2.006146E-003	-8.203198E-002	-9.901960E-002
1081	2	-2.304236E-002	-2.006179E-003	-8.131059E-002	-9.902022E-002
1081	3	-2.304275E-002	-2.028259E-003	-8.131052E-002	-9.979986E-002
1081	4	-2.324562E-002	-2.028218E-003	-8.202773E-002	-9.980131E-002
1081	5	-2.314469E-002	-2.006098E-003	-8.166832E-002	-9.901736E-002
1081	6	-2.304226E-002	-2.017154E-003	-8.130800E-002	-9.941065E-002
1081	7	-2.314469E-002	-2.028179E-003	-8.166832E-002	-9.979738E-002
1081	8	-2.324615E-002	-2.017154E-003	-8.202684E-002	-9.941065E-002
1081	9	-2.314469E-002	-2.017154E-003	-8.166832E-002	-9.941065E-002
1082	1	-2.360198E-002	-3.593939E-003	-8.328299E-002	-1.268175E-001
1082	2	-2.331676E-002	-3.593955E-003	-8.227890E-002	-1.268176E-001
1082	3	-2.331848E-002	-3.624922E-003	-8.227931E-002	-1.279898E-001
1082	4	-2.360204E-002	-3.624885E-003	-8.328430E-002	-1.279106E-001
1082	5	-2.345972E-002	-3.593875E-003	-8.278185E-002	-1.268152E-001
1082	6	-2.331678E-002	-3.609329E-003	-8.227934E-002	-1.273617E-001
1082	7	-2.345927E-002	-3.624758E-003	-8.278233E-002	-1.279065E-001
1082	8	-2.360188E-002	-3.609329E-003	-8.328365E-002	-1.273617E-001
1082	9	-2.345997E-002	-3.609329E-003	-8.278100E-002	-1.273617E-001
1083	1	-2.408254E-002	-4.374881E-003	-8.497782E-002	-1.543775E-001
1083	2	-2.369733E-002	-4.374805E-003	-8.362253E-002	-1.543788E-001
1083	3	-2.369899E-002	-4.416498E-003	-8.362465E-002	-1.558446E-001
1083	4	-2.408123E-002	-4.416465E-003	-8.497366E-002	-1.558425E-001
1083	5	-2.389032E-002	-4.374805E-003	-8.430167E-002	-1.543757E-001
1083	6	-2.369889E-002	-4.395646E-003	-8.362461E-002	-1.551092E-001
1083	7	-2.389835E-002	-4.416335E-003	-8.430248E-002	-1.558421E-001
1083	8	-2.408175E-002	-4.395646E-003	-8.497955E-002	-1.551092E-001
1083	9	-2.389858E-002	-4.395646E-003	-8.430234E-002	-1.551092E-001
1084	1	-2.471815E-002	-5.145661E-003	-8.722509E-002	-1.815705E-001
1084	2	-2.421870E-002	-5.145555E-003	-8.543373E-002	-1.815709E-001
1084	3	-2.421249E-002	-5.280661E-003	-8.543492E-002	-1.835173E-001
1084	4	-2.471825E-002	-5.280752E-003	-8.722272E-002	-1.835192E-001
1084	5	-2.446418E-002	-5.145595E-003	-8.632523E-002	-1.815725E-001
1084	6	-2.421872E-002	-5.173147E-003	-8.543415E-002	-1.825449E-001
1084	7	-2.446408E-002	-5.280619E-003	-8.632689E-002	-1.835150E-001
1084	8	-2.471807E-002	-5.173147E-003	-8.722199E-002	-1.825449E-001
1084	9	-2.446437E-002	-5.173147E-003	-8.632497E-002	-1.825449E-001
1085	1	-2.555406E-002	-5.901406E-003	-9.017504E-002	-2.082396E-001
1085	2	-2.488813E-002	-5.901287E-003	-8.782552E-002	-2.082400E-001
1085	3	-2.488768E-002	-5.973814E-003	-8.782332E-002	-2.107990E-001
1085	4	-2.555488E-002	-5.973703E-003	-9.016969E-002	-2.107972E-001
1085	5	-2.522099E-002	-5.901339E-003	-8.899542E-002	-2.082411E-001

1085	6	-2.488828E-002	-5.937569E-003	-8.782419E-002	-2.095183E-001
1085	7	-2.522099E-002	-5.973774E-003	-8.899942E-002	-2.107929E-001
1085	8	-2.555482E-002	-5.937569E-003	-9.017427E-002	-2.095183E-001
1085	9	-2.522099E-002	-5.937569E-003	-8.899942E-002	-2.095183E-001
1086	1	-2.665540E-002	-6.639856E-003	-9.405845E-002	-2.343043E-001
1086	2	-2.577037E-002	-6.639929E-003	-9.096530E-002	-2.343046E-001
1086	3	-2.577878E-002	-6.735047E-003	-9.096507E-002	-2.376618E-001
1086	4	-2.665574E-002	-6.735149E-003	-9.405883E-002	-2.376640E-001
1086	5	-2.621675E-002	-6.639997E-003	-9.251363E-002	-2.343024E-001
1086	6	-2.577794E-002	-6.687507E-003	-9.096701E-002	-2.359813E-001
1086	7	-2.621795E-002	-6.735099E-003	-9.251330E-002	-2.376596E-001
1086	8	-2.665474E-002	-6.687507E-003	-9.405864E-002	-2.359813E-001
1086	9	-2.621712E-002	-6.687507E-003	-9.251276E-002	-2.359813E-001
1087	1	-2.811238E-002	-7.352859E-003	-9.920228E-002	-2.594624E-001
1087	2	-2.695124E-002	-7.352917E-003	-9.510379E-002	-2.594609E-001
1087	3	-2.695098E-002	-7.478901E-003	-9.510314E-002	-2.639891E-001
1087	4	-2.811148E-002	-7.479259E-003	-9.919772E-002	-2.639182E-001
1087	5	-2.753081E-002	-7.352894E-003	-9.715068E-002	-2.594627E-001
1087	6	-2.695107E-002	-7.415866E-003	-9.510347E-002	-2.616862E-001
1087	7	-2.753083E-002	-7.479872E-003	-9.715069E-002	-2.639158E-001
1087	8	-2.811241E-002	-7.416811E-003	-9.919858E-002	-2.616901E-001
1087	9	-2.753088E-002	-7.415964E-003	-9.715188E-002	-2.616887E-001
1088	1	-2.273433E-002	-4.133448E-004	-8.022039E-002	-1.458544E-002
1088	2	-2.274747E-002	-4.133691E-004	-8.026669E-002	-1.458368E-002
1088	3	-2.274707E-002	-4.119189E-004	-8.027007E-002	-1.453626E-002
1088	4	-2.273391E-002	-4.119919E-004	-8.022255E-002	-1.453379E-002
1088	5	-2.274058E-002	-4.132452E-004	-8.024532E-002	-1.458313E-002
1088	6	-2.274733E-002	-4.125693E-004	-8.027028E-002	-1.456023E-002
1088	7	-2.274041E-002	-4.117506E-004	-8.024578E-002	-1.453361E-002
1088	8	-2.273364E-002	-4.125693E-004	-8.022147E-002	-1.456023E-002
1088	9	-2.274033E-002	-4.125693E-004	-8.024673E-002	-1.456023E-002
1089	1	-6.798313E-003	-4.088752E-003	-2.398907E-001	-1.442736E+000
1089	2	-6.769761E-003	-4.090945E-003	-2.388777E-001	-1.443519E+000
1089	3	-6.769865E-003	-4.095570E-003	-2.388755E-001	-1.445158E+000
1089	4	-6.798889E-003	-4.092674E-003	-2.399018E-001	-1.444142E+000
1089	5	-6.785111E-003	-4.089763E-003	-2.394201E-001	-1.443098E+000
1089	6	-6.769666E-003	-4.093240E-003	-2.388741E-001	-1.444330E+000
1089	7	-6.785528E-003	-4.094033E-003	-2.394329E-001	-1.444606E+000
1089	8	-6.798655E-003	-4.090691E-003	-2.398963E-001	-1.443440E+000
1089	9	-6.785328E-003	-4.091881E-003	-2.394230E-001	-1.443852E+000
1090	1	-2.494742E-003	-5.521071E-003	-8.803338E-002	-1.948434E+000
1090	2	-4.375574E-003	-5.430983E-003	-1.543948E-001	-1.916375E+000
1090	3	-4.221825E-003	-4.987146E-003	-1.489678E-001	-1.759745E+000
1090	4	-2.334019E-003	-5.119204E-003	-8.235756E-002	-1.806353E+000
1090	5	-3.391131E-003	-5.478589E-003	-1.196586E-001	-1.933158E+000
1090	6	-4.298998E-003	-5.210435E-003	-1.516979E-001	-1.838545E+000
1090	7	-3.233088E-003	-5.856307E-003	-1.140798E-001	-1.784152E+000
1090	8	-2.414976E-003	-5.321681E-003	-8.521461E-002	-1.877795E+000
1090	9	-3.312462E-003	-5.268680E-003	-1.168859E-001	-1.859094E+000
1091	1	-7.001758E-002	-7.138033E-003	-2.470721E-001	-2.518789E-001
1091	2	-7.001758E-002	-7.138033E-003	-2.470721E-001	-2.518789E-001
1091	3	-7.001758E-002	-7.138033E-003	-2.470721E-001	-2.518789E-001
1092	1	-5.622647E-003	-4.359899E-003	-1.984016E-001	-1.538421E+000
1092	2	-6.656617E-003	-4.280898E-003	-2.348046E-001	-1.510544E+000
1092	3	-6.623371E-003	-4.086914E-003	-2.337003E-001	-1.442101E+000
1092	4	-5.581473E-003	-4.189916E-003	-1.969495E-001	-1.478441E+000
1092	5	-6.107293E-003	-4.322896E-003	-2.154974E-001	-1.525364E+000
1092	6	-6.640078E-003	-4.184536E-003	-2.343086E-001	-1.476542E+000
1092	7	-6.069533E-003	-4.141663E-003	-2.141642E-001	-1.461425E+000
1092	8	-5.602330E-003	-4.275480E-003	-1.976804E-001	-1.508604E+000

1092	9	-6.088467E-003	-4.232818E-003	-2.140349E-001	-1.493587E+000
1093	1	-6.766824E-003	-4.092471E-003	-2.387768E-001	-1.444866E+000
1093	2	-6.967138E-003	-4.071291E-003	-2.458444E-001	-1.436587E+000
1093	3	-6.966413E-003	-4.038143E-003	-2.458175E-001	-1.424888E+000
1093	4	-6.763503E-003	-4.064402E-003	-2.386607E-001	-1.434163E+000
1093	5	-6.859385E-003	-4.082700E-003	-2.420385E-001	-1.440620E+000
1093	6	-6.966393E-003	-4.054842E-003	-2.458378E-001	-1.430784E+000
1093	7	-6.857101E-003	-4.052303E-003	-2.419602E-001	-1.429880E+000
1093	8	-6.765213E-003	-4.078578E-003	-2.387182E-001	-1.439153E+000
1093	9	-6.858191E-003	-4.067636E-003	-2.419983E-001	-1.435298E+000
1094	1	-3.901867E-003	-4.761370E-003	-1.376821E-001	-1.680995E+000
1094	2	-5.323889E-003	-4.652673E-003	-1.878592E-001	-1.641737E+000
1094	3	-5.243785E-003	-4.346520E-003	-1.850300E-001	-1.533695E+000
1094	4	-3.812011E-003	-4.488604E-003	-1.345040E-001	-1.583840E+000
1094	5	-4.574314E-003	-4.709988E-003	-1.614082E-001	-1.661957E+000
1094	6	-5.284124E-003	-4.500676E-003	-1.864559E-001	-1.588106E+000
1094	7	-4.488469E-003	-4.421470E-003	-1.583802E-001	-1.560150E+000
1094	8	-3.857395E-003	-4.625858E-003	-1.361091E-001	-1.632278E+000
1094	9	-4.531675E-003	-4.566707E-003	-1.599834E-001	-1.611397E+000
1095	1	-2.731868E-002	-7.515889E-003	-9.639631E-002	-2.652155E-001
1095	2	-2.614056E-002	-7.515743E-003	-9.224241E-002	-2.652089E-001
1095	3	-2.614013E-002	-7.643782E-003	-9.224174E-002	-2.697266E-001
1095	4	-2.731919E-002	-7.643871E-003	-9.640216E-002	-2.697311E-001
1095	5	-2.673012E-002	-7.515888E-003	-9.432560E-002	-2.652082E-001
1095	6	-2.614030E-002	-7.579806E-003	-9.224208E-002	-2.674677E-001
1095	7	-2.673023E-002	-7.643975E-003	-9.432549E-002	-2.697331E-001
1095	8	-2.732037E-002	-7.579944E-003	-9.640305E-002	-2.674752E-001
1095	9	-2.673965E-002	-7.579835E-003	-9.432102E-002	-2.674718E-001
1096	1	-2.932076E-002	-8.245841E-003	-1.034910E-001	-2.909451E-001
1096	2	-2.772328E-002	-8.245871E-003	-9.782936E-002	-2.909441E-001
1096	3	-2.772468E-002	-8.419517E-003	-9.782936E-002	-2.970998E-001
1096	4	-2.932805E-002	-8.419458E-003	-1.034928E-001	-2.970979E-001
1096	5	-2.852530E-002	-8.245803E-003	-1.006585E-001	-2.909412E-001
1096	6	-2.772417E-002	-8.332201E-003	-9.783079E-002	-2.940205E-001
1096	7	-2.852530E-002	-8.419428E-003	-1.006585E-001	-2.971007E-001
1096	8	-2.932805E-002	-8.332201E-003	-1.034882E-001	-2.940205E-001
1096	9	-2.852530E-002	-8.332201E-003	-1.006585E-001	-2.940205E-001
1097	1	-3.213763E-002	-8.937334E-003	-1.134065E-001	-3.153724E-001
1097	2	-2.988724E-002	-8.937347E-003	-1.054671E-001	-3.153713E-001
1097	3	-2.988875E-002	-9.181846E-003	-1.054682E-001	-3.240034E-001
1097	4	-3.214253E-002	-9.181984E-003	-1.134197E-001	-3.240015E-001
1097	5	-3.101262E-002	-8.937296E-003	-1.094353E-001	-3.153689E-001
1097	6	-2.988986E-002	-9.059455E-003	-1.054692E-001	-3.196827E-001
1097	7	-3.101620E-002	-9.181875E-003	-1.094454E-001	-3.240044E-001
1097	8	-3.214062E-002	-9.059455E-003	-1.134120E-001	-3.196827E-001
1097	9	-3.101304E-002	-9.059455E-003	-1.094402E-001	-3.196827E-001
1098	1	-3.643241E-002	-9.554164E-003	-1.285620E-001	-3.371361E-001
1098	2	-3.298045E-002	-9.554073E-003	-1.163743E-001	-3.371350E-001
1098	3	-3.298674E-002	-9.928771E-003	-1.164083E-001	-3.503601E-001
1098	4	-3.643313E-002	-9.928828E-003	-1.285644E-001	-3.503581E-001
1098	5	-3.470589E-002	-9.553987E-003	-1.224709E-001	-3.371319E-001
1098	6	-3.298306E-002	-9.741560E-003	-1.163881E-001	-3.437527E-001
1098	7	-3.471008E-002	-9.928799E-003	-1.224810E-001	-3.503572E-001
1098	8	-3.643434E-002	-9.741560E-003	-1.285656E-001	-3.437527E-001
1098	9	-3.470847E-002	-9.741560E-003	-1.224735E-001	-3.437527E-001
1099	1	-4.326228E-002	-1.003077E-002	-1.526598E-001	-3.539572E-001
1099	2	-3.773725E-002	-1.003080E-002	-1.331651E-001	-3.539557E-001
1099	3	-3.773876E-002	-1.063155E-002	-1.331702E-001	-3.751529E-001
1099	4	-4.326059E-002	-1.063137E-002	-1.526571E-001	-3.751509E-001
1099	5	-4.049937E-002	-1.003074E-002	-1.429100E-001	-3.539529E-001

1099	6	-3.773889E-002	-1.033104E-002	-1.331700E-001	-3.645521E-001
1099	7	-4.049937E-002	-1.063146E-002	-1.429100E-001	-3.751500E-001
1099	8	-4.326176E-002	-1.033104E-002	-1.526580E-001	-3.645521E-001
1099	9	-4.049937E-002	-1.033104E-002	-1.429100E-001	-3.645521E-001
1100	1	-6.028835E-002	-1.088374E-002	-2.127393E-001	-3.550245E-001
1100	2	-4.612680E-002	-1.088376E-002	-1.627668E-001	-3.550225E-001
1100	3	-4.612485E-002	-1.162385E-002	-1.627619E-001	-4.101732E-001
1100	4	-6.028882E-002	-1.162390E-002	-2.127388E-001	-4.101712E-001
1100	5	-5.320729E-002	-1.088358E-002	-1.877518E-001	-3.550199E-001
1100	6	-4.612590E-002	-1.085373E-002	-1.627668E-001	-3.829949E-001
1100	7	-5.320732E-002	-1.162387E-002	-1.877521E-001	-4.101741E-001
1100	8	-6.028792E-002	-1.085373E-002	-2.127376E-001	-3.829949E-001
1100	9	-5.320659E-002	-1.085373E-002	-1.877518E-001	-3.829949E-001
1101	1	-6.616129E-002	-8.846175E-003	-2.334623E-001	-2.839303E-001
1101	2	-6.616158E-002	-9.935970E-003	-2.334655E-001	-3.506076E-001
1101	3	-8.887250E-002	-9.888325E-003	-2.853791E-001	-3.489222E-001
1101	4	-8.887448E-002	-7.428164E-003	-2.853819E-001	-2.621213E-001
1102	1	-2.237457E-002	-2.834614E-003	-7.895616E-002	-1.000279E-001
1102	2	-2.217226E-002	-2.834626E-003	-7.824080E-002	-1.000276E-001
1102	3	-2.217256E-002	-2.856622E-003	-7.824084E-002	-1.008036E-001
1102	4	-2.237584E-002	-2.856775E-003	-7.895469E-002	-1.008019E-001
1102	5	-2.227467E-002	-2.834661E-003	-7.859869E-002	-1.000259E-001
1102	6	-2.217275E-002	-2.845603E-003	-7.823963E-002	-1.004151E-001
1102	7	-2.227467E-002	-2.856656E-003	-7.859869E-002	-1.008046E-001
1102	8	-2.237542E-002	-2.845603E-003	-7.895681E-002	-1.004151E-001
1102	9	-2.227467E-002	-2.845603E-003	-7.859869E-002	-1.004151E-001
1103	1	-2.274578E-002	-3.634050E-003	-8.026765E-002	-1.282366E-001
1103	2	-2.244729E-002	-3.634066E-003	-7.921357E-002	-1.282364E-001
1103	3	-2.244768E-002	-3.666420E-003	-7.920954E-002	-1.293773E-001
1103	4	-2.274592E-002	-3.666367E-003	-8.026493E-002	-1.293756E-001
1103	5	-2.259739E-002	-3.633995E-003	-7.973884E-002	-1.282388E-001
1103	6	-2.244786E-002	-3.650159E-003	-7.921876E-002	-1.288046E-001
1103	7	-2.259662E-002	-3.666334E-003	-7.973887E-002	-1.293745E-001
1103	8	-2.274669E-002	-3.650159E-003	-8.026237E-002	-1.288046E-001
1103	9	-2.259725E-002	-3.650159E-003	-7.974057E-002	-1.288046E-001
1104	1	-2.322879E-002	-4.428884E-003	-8.196589E-002	-1.562808E-001
1104	2	-2.283174E-002	-4.428795E-003	-8.056676E-002	-1.562807E-001
1104	3	-2.283086E-002	-4.471974E-003	-8.056647E-002	-1.578024E-001
1104	4	-2.322879E-002	-4.471919E-003	-8.197064E-002	-1.578045E-001
1104	5	-2.303032E-002	-4.428618E-003	-8.126781E-002	-1.562751E-001
1104	6	-2.283110E-002	-4.450299E-003	-8.056370E-002	-1.570392E-001
1104	7	-2.303040E-002	-4.472007E-003	-8.126716E-002	-1.578034E-001
1104	8	-2.323031E-002	-4.450299E-003	-8.197295E-002	-1.570392E-001
1104	9	-2.303036E-002	-4.450299E-003	-8.126802E-002	-1.570392E-001
1105	1	-2.387380E-002	-5.216759E-003	-8.424179E-002	-1.840878E-001
1105	2	-2.336229E-002	-5.216808E-003	-8.243769E-002	-1.840878E-001
1105	3	-2.336250E-002	-5.272254E-003	-8.243875E-002	-1.860457E-001
1105	4	-2.387392E-002	-5.272318E-003	-8.424328E-002	-1.860440E-001
1105	5	-2.361799E-002	-5.216703E-003	-8.333799E-002	-1.840821E-001
1105	6	-2.336240E-002	-5.244510E-003	-8.243846E-002	-1.850644E-001
1105	7	-2.361787E-002	-5.272286E-003	-8.333874E-002	-1.860429E-001
1105	8	-2.387278E-002	-5.244510E-003	-8.424253E-002	-1.850644E-001
1105	9	-2.361734E-002	-5.244510E-003	-8.334149E-002	-1.850644E-001
1106	1	-2.472229E-002	-5.995032E-003	-8.723510E-002	-2.115462E-001
1106	2	-2.404569E-002	-5.995070E-003	-8.485021E-002	-2.115465E-001
1106	3	-2.404603E-002	-6.068401E-003	-8.485118E-002	-2.141334E-001
1106	4	-2.472145E-002	-6.068345E-003	-8.723453E-002	-2.141354E-001
1106	5	-2.438425E-002	-5.994889E-003	-8.604649E-002	-2.115445E-001
1106	6	-2.404652E-002	-6.031670E-003	-8.485254E-002	-2.128390E-001
1106	7	-2.438425E-002	-6.068313E-003	-8.604649E-002	-2.141344E-001

1106	8	-2.472210E-002	-6.031670E-003	-8.723813E-002	-2.128390E-001
1106	9	-2.438425E-002	-6.031670E-003	-8.604649E-002	-2.128390E-001
1107	1	-2.583791E-002	-6.762964E-003	-9.118088E-002	-2.386468E-001
1107	2	-2.495074E-002	-6.763822E-003	-8.804000E-002	-2.386472E-001
1107	3	-2.494897E-002	-6.859289E-003	-8.803780E-002	-2.420465E-001
1107	4	-2.583919E-002	-6.859319E-003	-9.117737E-002	-2.420447E-001
1107	5	-2.539446E-002	-6.762912E-003	-8.960888E-002	-2.386451E-001
1107	6	-2.495863E-002	-6.811157E-003	-8.804276E-002	-2.403431E-001
1107	7	-2.539427E-002	-6.859319E-003	-8.961049E-002	-2.420437E-001
1107	8	-2.583898E-002	-6.811157E-003	-9.118103E-002	-2.403431E-001
1107	9	-2.539484E-002	-6.811157E-003	-8.960940E-002	-2.403431E-001
1108	1	-2.185632E-002	-4.118583E-004	-7.712459E-002	-1.453592E-002
1108	2	-2.184441E-002	-4.118251E-004	-7.708190E-002	-1.453364E-002
1108	3	-2.184464E-002	-4.130602E-004	-7.708479E-002	-1.457855E-002
1108	4	-2.185522E-002	-4.131696E-004	-7.712331E-002	-1.457902E-002
1108	5	-2.185096E-002	-4.119067E-004	-7.710393E-002	-1.452977E-002
1108	6	-2.184427E-002	-4.125771E-004	-7.708501E-002	-1.455737E-002
1108	7	-2.185080E-002	-4.131272E-004	-7.710436E-002	-1.458069E-002
1108	8	-2.185591E-002	-4.125771E-004	-7.712987E-002	-1.455737E-002
1108	9	-2.185071E-002	-4.125771E-004	-7.710346E-002	-1.455737E-002
1109	1	-2.195648E-002	-1.222914E-003	-7.747748E-002	-4.315080E-002
1109	2	-2.187840E-002	-1.222702E-003	-7.717471E-002	-4.314857E-002
1109	3	-2.187187E-002	-1.231958E-003	-7.717637E-002	-4.347498E-002
1109	4	-2.195582E-002	-1.232051E-003	-7.747805E-002	-4.347536E-002
1109	5	-2.191292E-002	-1.222744E-003	-7.732531E-002	-4.314858E-002
1109	6	-2.187088E-002	-1.227450E-003	-7.717531E-002	-4.331263E-002
1109	7	-2.191397E-002	-1.232103E-003	-7.732684E-002	-4.347704E-002
1109	8	-2.195561E-002	-1.227450E-003	-7.747634E-002	-4.331263E-002
1109	9	-2.191386E-002	-1.227450E-003	-7.732746E-002	-4.331263E-002
1110	1	-2.212060E-002	-2.029891E-003	-7.805803E-002	-7.162935E-002
1110	2	-2.197389E-002	-2.029950E-003	-7.753970E-002	-7.163001E-002
1110	3	-2.197368E-002	-2.045885E-003	-7.754159E-002	-7.219344E-002
1110	4	-2.212263E-002	-2.045942E-003	-7.806446E-002	-7.219328E-002
1110	5	-2.204748E-002	-2.029828E-003	-7.780030E-002	-7.162496E-002
1110	6	-2.197377E-002	-2.037876E-003	-7.754251E-002	-7.191202E-002
1110	7	-2.204779E-002	-2.045822E-003	-7.779782E-002	-7.219335E-002
1110	8	-2.212074E-002	-2.037886E-003	-7.805775E-002	-7.191145E-002
1110	9	-2.204754E-002	-2.037887E-003	-7.779328E-002	-7.191189E-002
1111	1	-2.144597E-003	-5.026929E-003	-7.567824E-002	-1.773802E+000
1111	2	-3.536693E-003	-4.920618E-003	-1.247931E-001	-1.736279E+000
1111	3	-3.421059E-003	-4.585349E-003	-1.207164E-001	-1.617972E+000
1111	4	-2.027888E-003	-4.723059E-003	-7.155420E-002	-1.666566E+000
1111	5	-2.887949E-003	-4.976295E-003	-9.988076E-002	-1.755926E+000
1111	6	-3.479182E-003	-4.753753E-003	-1.227646E-001	-1.677402E+000
1111	7	-2.691362E-003	-4.657465E-003	-9.496537E-002	-1.643425E+000
1111	8	-2.886441E-003	-4.875646E-003	-7.362380E-002	-1.720408E+000
1111	9	-2.749864E-003	-4.817590E-003	-9.703317E-002	-1.699923E+000
1112	1	-4.798581E-003	-4.203652E-003	-1.693245E-001	-1.483302E+000
1112	2	-6.450864E-003	-4.029254E-003	-2.275972E-001	-1.421760E+000
1112	3	-6.402806E-003	-3.710069E-003	-2.259253E-001	-1.309130E+000
1112	4	-4.732454E-003	-3.926967E-003	-1.669938E-001	-1.385661E+000
1112	5	-5.570487E-003	-4.122188E-003	-1.965550E-001	-1.454548E+000
1112	6	-6.426660E-003	-3.871805E-003	-2.267698E-001	-1.365910E+000
1112	7	-5.512108E-003	-3.825711E-003	-1.944972E-001	-1.349928E+000
1112	8	-4.765797E-003	-4.066321E-003	-1.681664E-001	-1.434837E+000
1112	9	-5.541426E-003	-3.975108E-003	-1.955361E-001	-1.402651E+000
1113	1	-6.693057E-003	-4.030839E-003	-2.361729E-001	-1.422323E+000
1113	2	-8.551202E-003	-3.777026E-003	-3.017339E-001	-1.332759E+000
1113	3	-8.544377E-003	-3.458500E-003	-3.014939E-001	-1.220358E+000
1113	4	-6.654677E-003	-3.764297E-003	-2.348155E-001	-1.328261E+000

1113	5	-7.548486E-003	-3.913982E-003	-2.663550E-001	-1.381086E+000
1113	6	-8.547704E-003	-3.619403E-003	-3.016165E-001	-1.277129E+000
1113	7	-7.523236E-003	-3.623734E-003	-2.654620E-001	-1.278665E+000
1113	8	-6.673979E-003	-3.898721E-003	-2.354988E-001	-1.375705E+000
1113	9	-7.535929E-003	-3.770243E-003	-2.659160E-001	-1.330355E+000
1114	1	-3.898708E-003	-4.482245E-003	-1.053424E-001	-1.581598E+000
1114	2	-4.480411E-003	-4.344235E-003	-1.552751E-001	-1.532897E+000
1114	3	-4.325022E-003	-4.855893E-003	-1.526127E-001	-1.431156E+000
1114	4	-3.814222E-003	-4.226364E-003	-1.063624E-001	-1.491314E+000
1114	5	-3.713635E-003	-4.417073E-003	-1.310388E-001	-1.558598E+000
14	6	-4.362981E-003	-4.201083E-003	-1.539499E-001	-1.482389E+000
14	7	-3.632877E-003	-4.145916E-003	-1.281898E-001	-1.462923E+000
14	8	-3.856751E-003	-4.355140E-003	-1.078627E-001	-1.536746E+000
114	9	-3.673534E-003	-4.282407E-003	-1.296225E-001	-1.511083E+000
1115	1	-9.928864E-002	-1.835828E-002	-3.503580E-001	-6.478034E-001
1115	2	-9.928863E-002	-1.296432E-002	-3.503608E-001	-4.574748E-001
1115	3	-6.701319E-002	-1.215038E-002	-2.364702E-001	-4.287516E-001
1115	4	-6.701347E-002	-1.628609E-002	-2.364697E-001	-5.746896E-001
1116	1	-2.123624E-002	-2.850330E-003	-7.493603E-002	-7.234911E-002
1116	2	-2.109710E-002	-2.850291E-003	-7.444598E-002	-7.234957E-002
1116	3	-2.109666E-002	-2.865507E-003	-7.444558E-002	-7.288625E-002
1116	4	-2.123719E-002	-2.865402E-003	-7.493603E-002	-7.288188E-002
1116	5	-2.116725E-002	-2.859309E-003	-7.469296E-002	-7.234643E-002
1116	6	-2.109686E-002	-2.857914E-003	-7.444564E-002	-7.261692E-002
1116	7	-2.116738E-002	-2.865422E-003	-7.469241E-002	-7.287972E-002
1116	8	-2.123719E-002	-2.857921E-003	-7.493603E-002	-7.261781E-002
1116	9	-2.116781E-002	-2.857896E-003	-7.469337E-002	-7.261616E-002
1117	1	-2.149893E-002	-2.863250E-003	-7.586253E-002	-1.010349E-001
1117	2	-2.128784E-002	-2.863184E-003	-7.511756E-002	-1.010334E-001
1117	3	-2.128732E-002	-2.886275E-003	-7.511757E-002	-1.018468E-001
1117	4	-2.149926E-002	-2.886151E-003	-7.586873E-002	-1.018439E-001
1117	5	-2.139378E-002	-2.863279E-003	-7.549345E-002	-1.010324E-001
1117	6	-2.128895E-002	-2.874681E-003	-7.512257E-002	-1.014384E-001
1117	7	-2.139378E-002	-2.886300E-003	-7.549345E-002	-1.018478E-001
1117	8	-2.150074E-002	-2.874681E-003	-7.586701E-002	-1.014384E-001
1117	9	-2.139378E-002	-2.874681E-003	-7.549345E-002	-1.014384E-001
1118	1	-2.186321E-002	-3.675602E-003	-7.714948E-002	-1.297040E-001
1118	2	-2.157312E-002	-3.675756E-003	-7.612476E-002	-1.297025E-001
1118	3	-2.157258E-002	-3.707121E-003	-7.612375E-002	-1.308115E-001
1118	4	-2.186347E-002	-3.707197E-003	-7.714671E-002	-1.308122E-001
1118	5	-2.171807E-002	-3.675716E-003	-7.663449E-002	-1.297016E-001
1118	6	-2.157219E-002	-3.691393E-003	-7.612289E-002	-1.302570E-001
1118	7	-2.171807E-002	-3.707262E-003	-7.663449E-002	-1.308171E-001
1118	8	-2.186252E-002	-3.691393E-003	-7.714671E-002	-1.302570E-001
1118	9	-2.171807E-002	-3.691393E-003	-7.663449E-002	-1.302570E-001
1119	1	-2.235615E-002	-4.484514E-003	-7.888944E-002	-1.582458E-001
1119	2	-2.196303E-002	-4.484447E-003	-7.749808E-002	-1.582434E-001
1119	3	-2.196182E-002	-4.527322E-003	-7.749833E-002	-1.597544E-001
1119	4	-2.235651E-002	-4.527187E-003	-7.889191E-002	-1.597511E-001
1119	5	-2.215922E-002	-4.484520E-003	-7.819461E-002	-1.582428E-001
1119	6	-2.196246E-002	-4.505873E-003	-7.750018E-002	-1.589995E-001
1119	7	-2.215922E-002	-4.527342E-003	-7.819461E-002	-1.597560E-001
1119	8	-2.235702E-002	-4.505873E-003	-7.888635E-002	-1.589995E-001
1119	9	-2.215922E-002	-4.505873E-003	-7.819461E-002	-1.589995E-001
1120	1	-2.300698E-002	-5.288679E-003	-8.118543E-002	-1.866174E-001
1120	2	-2.248945E-002	-5.288492E-003	-7.935491E-002	-1.866191E-001
1120	3	-2.248903E-002	-5.344829E-003	-7.935739E-002	-1.886017E-001
1120	4	-2.300571E-002	-5.344773E-003	-8.118034E-002	-1.886028E-001
1120	5	-2.274734E-002	-5.288573E-003	-8.026964E-002	-1.866183E-001
1120	6	-2.248884E-002	-5.316641E-003	-7.935663E-002	-1.876091E-001

1120	7	-2.274718E-002	-5.344844E-003	-8.027029E-002	-1.886071E-001
1120	8	-2.300717E-002	-5.316641E-003	-8.118238E-002	-1.876091E-001
1120	9	-2.274758E-002	-5.316641E-003	-8.026926E-002	-1.876091E-001
1121	1	-2.385809E-002	-6.889759E-003	-8.419356E-002	-2.148989E-001
1121	2	-2.317950E-002	-6.889716E-003	-8.179361E-002	-2.148893E-001
1121	3	-2.318079E-002	-6.163436E-003	-8.179834E-002	-2.174912E-001
1121	4	-2.385724E-002	-6.163492E-003	-8.418532E-002	-2.174911E-001
1121	5	-2.351896E-002	-6.889782E-003	-8.299401E-002	-2.148918E-001
1121	6	-2.318065E-002	-6.126655E-003	-8.179973E-002	-2.161914E-001
1121	7	-2.351896E-002	-6.163568E-003	-8.299401E-002	-2.174926E-001
1121	8	-2.385789E-002	-6.126655E-003	-8.418894E-002	-2.161914E-001
1121	9	-2.351896E-002	-6.126655E-003	-8.299401E-002	-2.161914E-001
1122	1	-2.498264E-002	-6.887419E-003	-8.815385E-002	-2.430376E-001
1122	2	-2.488818E-002	-6.887361E-003	-8.499794E-002	-2.430360E-001
1122	3	-2.488693E-002	-6.904477E-003	-8.499856E-002	-2.464596E-001
1122	4	-2.498809E-002	-6.904436E-003	-8.815411E-002	-2.464593E-001
1122	5	-2.453388E-002	-6.897442E-003	-8.657495E-002	-2.430385E-001
1122	6	-2.488736E-002	-6.935903E-003	-8.499682E-002	-2.447491E-001
1122	7	-2.453420E-002	-6.904517E-003	-8.657485E-002	-2.464608E-001
1122	8	-2.498877E-002	-6.935903E-003	-8.815398E-002	-2.447491E-001
1122	9	-2.453428E-002	-6.935903E-003	-8.657610E-002	-2.447491E-001
1123	1	-2.646887E-002	-7.681319E-003	-9.340256E-002	-2.710519E-001
1123	2	-2.528441E-002	-7.681263E-003	-8.922160E-002	-2.710503E-001
1123	3	-2.528486E-002	-7.810887E-003	-8.922091E-002	-2.755944E-001
1123	4	-2.646794E-002	-7.810125E-003	-9.339789E-002	-2.755937E-001
1123	5	-2.587637E-002	-7.681237E-003	-9.131144E-002	-2.710489E-001
1123	6	-2.528423E-002	-7.745735E-003	-8.922125E-002	-2.733243E-001
1123	7	-2.587643E-002	-7.810210E-003	-9.131121E-002	-2.755993E-001
1123	8	-2.646888E-002	-7.745735E-003	-9.339888E-002	-2.733243E-001
1123	9	-2.587688E-002	-7.745735E-003	-9.131252E-002	-2.733243E-001
1124	1	-2.848279E-002	-8.470384E-003	-1.005046E-001	-2.988932E-001
1124	2	-2.687533E-002	-8.470247E-003	-9.483524E-002	-2.988915E-001
1124	3	-2.687506E-002	-8.645898E-003	-9.483521E-002	-3.050615E-001
1124	4	-2.848383E-002	-8.645124E-003	-1.005056E-001	-3.050604E-001
1124	5	-2.767884E-002	-8.470341E-003	-9.766904E-002	-2.988902E-001
1124	6	-2.687575E-002	-8.557694E-003	-9.483388E-002	-3.019765E-001
1124	7	-2.767884E-002	-8.645215E-003	-9.766904E-002	-3.050624E-001
1124	8	-2.848279E-002	-8.557694E-003	-1.005004E-001	-3.019765E-001
1124	9	-2.767884E-002	-8.557694E-003	-9.766904E-002	-3.019765E-001
1125	1	-3.131792E-002	-9.253401E-003	-1.105110E-001	-3.265285E-001
1125	2	-2.984685E-002	-9.253463E-003	-1.024983E-001	-3.265269E-001
1125	3	-2.984798E-002	-9.500192E-003	-1.024990E-001	-3.352364E-001
1125	4	-3.131719E-002	-9.500206E-003	-1.105090E-001	-3.352387E-001
1125	5	-3.018238E-002	-9.253438E-003	-1.065036E-001	-3.265294E-001
1125	6	-2.984694E-002	-9.376803E-003	-1.024987E-001	-3.308818E-001
1125	7	-3.018253E-002	-9.500303E-003	-1.065046E-001	-3.352409E-001
1125	8	-3.131719E-002	-9.376803E-003	-1.105090E-001	-3.308818E-001
1125	9	-3.018186E-002	-9.376803E-003	-1.065029E-001	-3.308818E-001
1126	1	-3.558685E-002	-1.003757E-002	-1.255779E-001	-3.541960E-001
1126	2	-3.214799E-002	-1.003751E-002	-1.134407E-001	-3.541942E-001
1126	3	-3.214775E-002	-1.041864E-002	-1.134384E-001	-3.673601E-001
1126	4	-3.558707E-002	-1.041876E-002	-1.255750E-001	-3.673618E-001
1126	5	-3.386702E-002	-1.003759E-002	-1.195106E-001	-3.541934E-001
1126	6	-3.214711E-002	-1.022411E-002	-1.134401E-001	-3.607789E-001
1126	7	-3.386770E-002	-1.041874E-002	-1.195053E-001	-3.673643E-001
1126	8	-3.558685E-002	-1.022411E-002	-1.255741E-001	-3.607789E-001
1126	9	-3.386725E-002	-1.022411E-002	-1.195049E-001	-3.607789E-001
1127	1	-4.262313E-002	-1.080914E-002	-1.504038E-001	-3.814187E-001
1127	2	-3.691849E-002	-1.080909E-002	-1.302736E-001	-3.814207E-001
1127	3	-3.691664E-002	-1.142959E-002	-1.302715E-001	-4.033152E-001

1127	4	-4.262394E-002	-1.142969E-002	-1.504079E-001	-4.033165E-001
1127	5	-3.977078E-002	-1.080904E-002	-1.403391E-001	-3.814200E-001
1127	6	-3.691845E-002	-1.111934E-002	-1.302742E-001	-3.923680E-001
1127	7	-3.977070E-002	-1.142981E-002	-1.403391E-001	-4.033192E-001
1127	8	-4.262533E-002	-1.111934E-002	-1.504097E-001	-3.923680E-001
1127	9	-3.977070E-002	-1.111934E-002	-1.403391E-001	-3.923680E-001
1128	1	-5.695131E-002	-1.203451E-002	-2.009669E-001	-4.246680E-001
1128	2	-4.516786E-002	-1.203435E-002	-1.593845E-001	-4.246577E-001
1128	3	-4.516925E-002	-1.331599E-002	-1.593900E-001	-4.698774E-001
1128	4	-5.695292E-002	-1.331586E-002	-2.009703E-001	-4.698780E-001
1128	5	-5.106138E-002	-1.203442E-002	-1.801801E-001	-4.246569E-001
1128	6	-4.516935E-002	-1.267514E-002	-1.593904E-001	-4.472686E-001
1128	7	-5.106053E-002	-1.331599E-002	-1.801768E-001	-4.698811E-001
1128	8	-5.695238E-002	-1.267514E-002	-2.009682E-001	-4.472686E-001
1128	9	-5.106061E-002	-1.267514E-002	-1.801763E-001	-4.472686E-001
1129	1	-2.897310E-002	-4.137812E-004	-7.399999E-002	-1.460473E-002
1129	2	-2.894116E-002	-4.139644E-004	-7.389368E-002	-1.460363E-002
1129	3	-2.894069E-002	-4.172253E-004	-7.389668E-002	-1.472207E-002
1129	4	-2.897104E-002	-4.172368E-004	-7.400593E-002	-1.472489E-002
1129	5	-2.895670E-002	-4.138323E-004	-7.394928E-002	-1.460377E-002
1129	6	-2.894084E-002	-4.155688E-004	-7.389691E-002	-1.466410E-002
1129	7	-2.895703E-002	-4.172387E-004	-7.394968E-002	-1.472499E-002
1129	8	-2.897172E-002	-4.155688E-004	-7.400105E-002	-1.466410E-002
1129	9	-2.895693E-002	-4.155688E-004	-7.394875E-002	-1.466410E-002
1130	1	-2.106652E-002	-1.234704E-003	-7.433734E-002	-4.356798E-002
1130	2	-2.098852E-002	-1.234544E-003	-7.406031E-002	-4.356678E-002
1130	3	-2.098857E-002	-1.243088E-003	-7.406069E-002	-4.386244E-002
1130	4	-2.106472E-002	-1.243012E-003	-7.433672E-002	-4.386451E-002
1130	5	-2.102721E-002	-1.234676E-003	-7.419922E-002	-4.356693E-002
1130	6	-2.098895E-002	-1.238862E-003	-7.406168E-002	-4.371521E-002
1130	7	-2.102721E-002	-1.243006E-003	-7.419922E-002	-4.386539E-002
1130	8	-2.106446E-002	-1.238862E-003	-7.433183E-002	-4.371521E-002
1130	9	-2.102721E-002	-1.238862E-003	-7.419922E-002	-4.371521E-002
1131	1	-3.685447E-003	-3.965441E-003	-1.380432E-001	-1.399254E+000
1131	2	-6.000378E-003	-3.648130E-003	-2.117300E-001	-1.287273E+000
1131	3	-5.920145E-003	-3.187513E-003	-2.089810E-001	-1.124733E+000
1131	4	-3.588998E-003	-3.567133E-003	-1.263626E-001	-1.258689E+000
1131	5	-4.766738E-003	-3.817200E-003	-1.682015E-001	-1.346928E+000
1131	6	-5.960606E-003	-3.419762E-003	-2.103272E-001	-1.206686E+000
1131	7	-4.672445E-003	-3.389972E-003	-1.648703E-001	-1.196178E+000
1131	8	-3.633581E-003	-3.767769E-003	-1.282157E-001	-1.329489E+000
1131	9	-4.720040E-003	-3.605298E-003	-1.665520E-001	-1.272150E+000
1132	1	-5.735847E-003	-3.768356E-003	-2.023584E-001	-1.329704E+000
1132	2	-1.077825E-002	-2.914360E-003	-3.803122E-001	-1.028346E+000
1132	3	-1.076229E-002	-2.028799E-003	-3.797570E-001	-7.158678E-001
1132	4	-5.646058E-003	-3.029715E-003	-1.992288E-001	-1.069058E+000
1132	5	-8.853260E-003	-3.375775E-003	-2.841675E-001	-1.191174E+000
1132	6	-1.077045E-002	-2.475465E-003	-3.800429E-001	-8.734761E-001
1132	7	-7.994710E-003	-2.570237E-003	-2.820984E-001	-9.069291E-001
1132	8	-5.698959E-003	-3.401747E-003	-2.008077E-001	-1.200358E+000
1132	9	-8.024249E-003	-2.976232E-003	-2.831391E-001	-1.050187E+000
1133	1	-2.001108E-003	-4.652142E-003	-7.061087E-002	-1.641553E+000
1133	2	-2.816454E-003	-4.566030E-003	-9.938222E-002	-1.611161E+000
1133	3	-2.746259E-003	-4.363811E-003	-9.690450E-002	-1.539798E+000
1133	4	-1.928339E-003	-4.470056E-003	-6.804317E-002	-1.577285E+000
1133	5	-2.388766E-003	-4.611188E-003	-8.428951E-002	-1.627101E+000
1133	6	-2.781625E-003	-4.465559E-003	-9.814934E-002	-1.575706E+000
1133	7	-2.316959E-003	-4.419548E-003	-8.175679E-002	-1.559476E+000
1133	8	-1.965055E-003	-4.561596E-003	-6.933331E-002	-1.609599E+000
1133	9	-2.353079E-003	-4.515972E-003	-8.303036E-002	-1.593490E+000

1134	1	-7.784852E-002	-2.330428E-002	-2.747023E-001	-8.223423E-001
1134	2	-8.660888E-002	-2.100953E-002	-3.056175E-001	-7.413653E-001
1134	3	-6.223046E-002	-1.925186E-002	-2.195968E-001	-6.793469E-001
1134	4	-5.949182E-002	-2.217873E-002	-2.099300E-001	-7.826223E-001
1135	1	-2.278068E-003	-4.255629E-003	-8.038401E-002	-1.501647E+000
1135	2	-3.258527E-003	-4.121135E-003	-1.149795E-001	-1.454177E+000
1135	3	-3.195938E-003	-3.898792E-003	-1.127706E-001	-1.375722E+000
1135	4	-2.212585E-003	-4.058417E-003	-7.807125E-002	-1.432044E+000
1135	5	-2.748049E-003	-4.192163E-003	-9.671551E-002	-1.479245E+000
1135	6	-3.227291E-003	-4.010573E-003	-1.138771E-001	-1.415154E+000
1135	7	-2.676613E-003	-3.983075E-003	-9.444264E-002	-1.405464E+000
1135	8	-2.245475E-003	-4.157519E-003	-7.923301E-002	-1.467008E+000
1135	9	-2.708919E-003	-4.088162E-003	-9.558467E-002	-1.442542E+000
1136	1	-2.883159E-003	-3.699768E-003	-7.868588E-002	-1.305489E+000
1136	2	-4.592183E-003	-3.260041E-003	-1.628438E-001	-1.150339E+000
1136	3	-4.513555E-003	-2.728438E-003	-1.592669E-001	-9.627411E-001
1136	4	-1.894197E-003	-3.243085E-003	-6.683443E-002	-1.144355E+000
1136	5	-3.210506E-003	-3.494700E-003	-1.132879E-001	-1.233142E+000
1136	6	-4.553357E-003	-2.996503E-003	-1.606655E-001	-1.057370E+000
1136	7	-3.114158E-003	-3.003356E-003	-1.098871E-001	-1.059766E+000
1136	8	-1.949092E-003	-3.473212E-003	-6.877624E-002	-1.225554E+000
1136	9	-3.162779E-003	-3.251086E-003	-1.115979E-001	-1.147169E+000
1137	1	-3.034967E-002	-9.571708E-003	-1.078955E-001	-3.377556E-001
1137	2	-2.810676E-002	-9.571719E-003	-9.918155E-002	-3.377577E-001
1137	3	-2.810694E-002	-9.815144E-003	-9.918220E-002	-3.463468E-001
1137	4	-3.034895E-002	-9.815038E-003	-1.078926E-001	-3.463461E-001
1137	5	-2.922821E-002	-9.571713E-003	-1.031354E-001	-3.377588E-001
1137	6	-2.810685E-002	-9.693358E-003	-9.918191E-002	-3.420482E-001
1137	7	-2.922840E-002	-9.815087E-003	-1.031365E-001	-3.463450E-001
1137	8	-3.034895E-002	-9.693358E-003	-1.078926E-001	-3.420482E-001
1137	9	-2.922772E-002	-9.693358E-003	-1.031367E-001	-3.420482E-001
1138	1	-3.441367E-002	-1.051638E-002	-1.214369E-001	-3.710954E-001
1138	2	-3.115866E-002	-1.051650E-002	-1.099210E-001	-3.710947E-001
1138	3	-3.114964E-002	-1.086990E-002	-1.099197E-001	-3.835661E-001
1138	4	-3.441389E-002	-1.086979E-002	-1.214378E-001	-3.835655E-001
1138	5	-3.278219E-002	-1.051638E-002	-1.156780E-001	-3.710946E-001
1138	6	-3.115853E-002	-1.069311E-002	-1.099204E-001	-3.773274E-001
1138	7	-3.278091E-002	-1.086975E-002	-1.156764E-001	-3.835643E-001
1138	8	-3.441367E-002	-1.069311E-002	-1.214331E-001	-3.773274E-001
1138	9	-3.278155E-002	-1.069311E-002	-1.156764E-001	-3.773274E-001
1139	1	-4.147967E-002	-1.161875E-002	-1.463674E-001	-4.097122E-001
1139	2	-3.572582E-002	-1.161889E-002	-1.260662E-001	-4.097120E-001
1139	3	-3.572400E-002	-1.223539E-002	-1.260607E-001	-4.317493E-001
1139	4	-4.148058E-002	-1.223537E-002	-1.463716E-001	-4.317526E-001
1139	5	-3.860388E-002	-1.161887E-002	-1.362150E-001	-4.097121E-001
1139	6	-3.572590E-002	-1.192306E-002	-1.260667E-001	-4.207300E-001
1139	7	-3.860388E-002	-1.223521E-002	-1.362150E-001	-4.317476E-001
1139	8	-4.147998E-002	-1.192306E-002	-1.463733E-001	-4.207300E-001
1139	9	-3.860388E-002	-1.192306E-002	-1.362150E-001	-4.207300E-001
1140	1	-5.103020E-002	-1.362242E-002	-1.800788E-001	-4.887000E-001
1140	2	-4.342353E-002	-1.362256E-002	-1.532257E-001	-4.886999E-001
1140	3	-4.342387E-002	-1.444809E-002	-1.532312E-001	-5.098323E-001
1140	4	-5.102992E-002	-1.444820E-002	-1.800667E-001	-5.098320E-001
1140	5	-4.722751E-002	-1.362246E-002	-1.666515E-001	-4.886997E-001
1140	6	-4.342334E-002	-1.403532E-002	-1.532291E-001	-4.952652E-001
1140	7	-4.722768E-002	-1.444804E-002	-1.666523E-001	-5.098307E-001
1140	8	-5.103033E-002	-1.403532E-002	-1.800683E-001	-4.952652E-001
1140	9	-4.722677E-002	-1.403532E-002	-1.666517E-001	-4.952652E-001
1141	1	-2.008534E-002	-4.187433E-004	-7.087494E-002	-1.477557E-002
1141	2	-2.002117E-002	-4.187587E-004	-7.064597E-002	-1.477352E-002

1141	3	-2.882171E-002	-4.257981E-004	-7.864852E-002	-1.502144E-002
1141	4	-2.888481E-002	-4.257452E-004	-7.887494E-002	-1.502356E-002
1141	5	-2.885322E-002	-4.187456E-004	-7.876232E-002	-1.477437E-002
1141	6	-2.882044E-002	-4.222227E-004	-7.864784E-002	-1.490067E-002
1141	7	-2.885294E-002	-4.257120E-004	-7.875696E-002	-1.502258E-002
1141	8	-2.888587E-002	-4.222227E-004	-7.887632E-002	-1.490067E-002
1141	9	-2.885311E-002	-4.222227E-004	-7.876018E-002	-1.490067E-002
1142	1	-2.017098E-002	-1.245523E-003	-7.117618E-002	-4.395025E-002
1142	2	-2.008944E-002	-1.245540E-003	-7.088849E-002	-4.395206E-002
1142	3	-2.008898E-002	-1.254393E-003	-7.088660E-002	-4.426641E-002
1142	4	-2.017118E-002	-1.254459E-003	-7.117739E-002	-4.426471E-002
1142	5	-2.013062E-002	-1.245551E-003	-7.103397E-002	-4.394942E-002
1142	6	-2.009813E-002	-1.250824E-003	-7.089314E-002	-4.418992E-002
1142	7	-2.012994E-002	-1.254426E-003	-7.103394E-002	-4.426365E-002
1142	8	-2.017034E-002	-1.250824E-003	-7.117764E-002	-4.418992E-002
1142	9	-2.013026E-002	-1.250824E-003	-7.103153E-002	-4.418992E-002
1143	1	-2.034391E-002	-2.069788E-003	-7.178675E-002	-7.303721E-002
1143	2	-2.028033E-002	-2.069807E-003	-7.129888E-002	-7.303911E-002
1143	3	-2.028271E-002	-2.085232E-003	-7.129803E-002	-7.358231E-002
1143	4	-2.034391E-002	-2.085179E-003	-7.178675E-002	-7.358059E-002
1143	5	-2.027389E-002	-2.069792E-003	-7.153911E-002	-7.303999E-002
1143	6	-2.028304E-002	-2.077571E-003	-7.129817E-002	-7.331004E-002
1143	7	-2.027401E-002	-2.085146E-003	-7.153852E-002	-7.357954E-002
1143	8	-2.034391E-002	-2.077571E-003	-7.178675E-002	-7.331004E-002
1143	9	-2.027364E-002	-2.077571E-003	-7.153951E-002	-7.331004E-002
1144	1	-2.060775E-002	-2.892779E-003	-7.271807E-002	-1.020008E-001
1144	2	-2.039539E-002	-2.892757E-003	-7.196797E-002	-1.020794E-001
1144	3	-2.039495E-002	-2.915761E-003	-7.196829E-002	-1.028912E-001
1144	4	-2.060644E-002	-2.915913E-003	-7.271807E-002	-1.028895E-001
1144	5	-2.050035E-002	-2.892860E-003	-7.234200E-002	-1.020797E-001
1144	6	-2.039555E-002	-2.904346E-003	-7.196915E-002	-1.024866E-001
1144	7	-2.050035E-002	-2.915794E-003	-7.234200E-002	-1.028923E-001
1144	8	-2.060696E-002	-2.904346E-003	-7.271598E-002	-1.024866E-001
1144	9	-2.050035E-002	-2.904346E-003	-7.234200E-002	-1.024866E-001
1145	1	-2.097255E-002	-3.716227E-003	-7.400563E-002	-1.311383E-001
1145	2	-2.067900E-002	-3.716234E-003	-7.297132E-002	-1.311366E-001
1145	3	-2.067919E-002	-3.748208E-003	-7.297035E-002	-1.322580E-001
1145	4	-2.097186E-002	-3.748034E-003	-7.400285E-002	-1.322601E-001
1145	5	-2.082558E-002	-3.716335E-003	-7.348551E-002	-1.311381E-001
1145	6	-2.067966E-002	-3.732186E-003	-7.297280E-002	-1.316978E-001
1145	7	-2.082558E-002	-3.748121E-003	-7.348551E-002	-1.322591E-001
1145	8	-2.097255E-002	-3.732186E-003	-7.400563E-002	-1.316978E-001
1145	9	-2.082558E-002	-3.732186E-003	-7.348551E-002	-1.316978E-001
1146	1	-2.146538E-002	-4.539704E-003	-7.573905E-002	-1.601910E-001
1146	2	-2.107103E-002	-4.539698E-003	-7.435515E-002	-1.601895E-001
1146	3	-2.107137E-002	-4.582470E-003	-7.435538E-002	-1.616993E-001
1146	4	-2.146479E-002	-4.582502E-003	-7.574155E-002	-1.617014E-001
1146	5	-2.126762E-002	-4.539669E-003	-7.504986E-002	-1.601901E-001
1146	6	-2.107186E-002	-4.561862E-003	-7.435628E-002	-1.609403E-001
1146	7	-2.126762E-002	-4.582383E-003	-7.504986E-002	-1.617004E-001
1146	8	-2.146531E-002	-4.561862E-003	-7.574360E-002	-1.609403E-001
1146	9	-2.126762E-002	-4.561862E-003	-7.504986E-002	-1.609403E-001
1147	1	-2.211439E-002	-5.361161E-003	-7.803381E-002	-1.891789E-001
1147	2	-2.159714E-002	-5.361153E-003	-7.628832E-002	-1.891781E-001
1147	3	-2.159750E-002	-5.417379E-003	-7.621843E-002	-1.911637E-001
1147	4	-2.211453E-002	-5.417442E-003	-7.803537E-002	-1.911657E-001
1147	5	-2.185562E-002	-5.361248E-003	-7.712164E-002	-1.891781E-001
1147	6	-2.159739E-002	-5.389287E-003	-7.620968E-002	-1.901729E-001
1147	7	-2.185543E-002	-5.417411E-003	-7.712210E-002	-1.911647E-001
1147	8	-2.211433E-002	-5.389287E-003	-7.803459E-002	-1.901729E-001

1147	9	-2.185481E-002	-5.389287E-003	-7.712312E-002	-1.901729E-001
1148	1	-2.296474E-002	-6.184980E-003	-8.103669E-002	-2.182461E-001
1148	2	-2.228739E-002	-6.184824E-003	-7.864666E-002	-2.182455E-001
1148	3	-2.228786E-002	-6.258605E-003	-7.864719E-002	-2.208482E-001
1148	4	-2.296483E-002	-6.258548E-003	-8.103223E-002	-2.208464E-001
1148	5	-2.262576E-002	-6.184901E-003	-7.984001E-002	-2.182454E-001
1148	6	-2.228758E-002	-6.221758E-003	-7.864812E-002	-2.195478E-001
1148	7	-2.262576E-002	-6.258636E-003	-7.984001E-002	-2.208454E-001
1148	8	-2.296549E-002	-6.221758E-003	-8.103968E-002	-2.195478E-001
1148	9	-2.262576E-002	-6.221758E-003	-7.984001E-002	-2.195478E-001
1149	1	-2.408228E-002	-7.012549E-003	-8.497354E-002	-2.474534E-001
1149	2	-2.319252E-002	-7.012698E-003	-8.184022E-002	-2.474527E-001
1149	3	-2.319294E-002	-7.109025E-003	-8.184085E-002	-2.508589E-001
1149	4	-2.408163E-002	-7.109175E-003	-8.497756E-002	-2.508571E-001
1149	5	-2.363799E-002	-7.012595E-003	-8.340871E-002	-2.474532E-001
1149	6	-2.319242E-002	-7.060844E-003	-8.183911E-002	-2.491578E-001
1149	7	-2.363738E-002	-7.109056E-003	-8.341063E-002	-2.508599E-001
1149	8	-2.408168E-002	-7.060844E-003	-8.497746E-002	-2.491578E-001
1149	9	-2.363745E-002	-7.060844E-003	-8.340991E-002	-2.491578E-001
1150	1	-2.555866E-002	-7.847355E-003	-9.018923E-002	-2.769123E-001
1150	2	-2.430297E-002	-7.847414E-003	-8.603740E-002	-2.769123E-001
1150	3	-2.430259E-002	-7.975389E-003	-8.603671E-002	-2.814231E-001
1150	4	-2.555677E-002	-7.975330E-003	-9.018070E-002	-2.814258E-001
1150	5	-2.496986E-002	-7.847379E-003	-8.811011E-002	-2.769119E-001
1150	6	-2.430280E-002	-7.911419E-003	-8.603706E-002	-2.791699E-001
1150	7	-2.496910E-002	-7.975300E-003	-8.810976E-002	-2.814240E-001
1150	8	-2.555748E-002	-7.911419E-003	-9.018449E-002	-2.791699E-001
1150	9	-2.496956E-002	-7.911419E-003	-8.811113E-002	-2.791699E-001
1151	1	-2.754943E-002	-8.695733E-003	-9.721205E-002	-3.068475E-001
1151	2	-2.595881E-002	-8.695813E-003	-9.160334E-002	-3.068458E-001
1151	3	-2.596010E-002	-8.868228E-003	-9.160330E-002	-3.129323E-001
1151	4	-2.754894E-002	-8.868525E-003	-9.721012E-002	-3.129440E-001
1151	5	-2.675343E-002	-8.695717E-003	-9.440359E-002	-3.068475E-001
1151	6	-2.595826E-002	-8.781928E-003	-9.159808E-002	-3.098896E-001
1151	7	-2.675343E-002	-8.868343E-003	-9.440359E-002	-3.129361E-001
1151	8	-2.754775E-002	-8.782137E-003	-9.721299E-002	-3.098968E-001
1151	9	-2.675343E-002	-8.782038E-003	-9.440359E-002	-3.098917E-001
1152	1	-1.781895E-003	-4.449158E-003	-6.284775E-002	-1.569915E+000
1152	2	-2.135533E-003	-4.480588E-003	-7.535183E-002	-1.552784E+000
1152	3	-2.104501E-003	-4.310803E-003	-7.426046E-002	-1.521111E+000
1152	4	-1.749987E-003	-4.367995E-003	-6.175891E-002	-1.541279E+000
1152	5	-1.949798E-003	-4.426827E-003	-6.880231E-002	-1.561757E+000
1152	6	-2.120171E-003	-4.355933E-003	-7.481114E-002	-1.537025E+000
1152	7	-1.918688E-003	-4.340772E-003	-6.770231E-002	-1.531674E+000
1152	8	-1.765543E-003	-4.408726E-003	-6.229933E-002	-1.555654E+000
1152	9	-1.934324E-003	-4.383586E-003	-6.825657E-002	-1.546703E+000
1153	1	-5.171249E-002	-2.328396E-002	-1.824762E-001	-8.216289E-001
1153	2	-5.720262E-002	-2.357167E-002	-2.018501E-001	-8.317764E-001
1153	3	-5.883345E-002	-2.314233E-002	-2.076054E-001	-8.166254E-001
1153	4	-5.219461E-002	-2.276626E-002	-1.841751E-001	-8.033542E-001
1154	1	-1.535852E-003	-4.134048E-003	-5.419431E-002	-1.458728E+000
1154	2	-1.732536E-003	-4.108682E-003	-6.113710E-002	-1.446929E+000
1154	3	-1.728753E-003	-4.054903E-003	-6.071756E-002	-1.438799E+000
1154	4	-1.523247E-003	-4.093538E-003	-5.374916E-002	-1.444441E+000
1154	5	-1.628714E-003	-4.118251E-003	-5.747076E-002	-1.453166E+000
1154	6	-1.726700E-003	-4.077894E-003	-6.093016E-002	-1.438915E+000
1154	7	-1.616381E-003	-4.075337E-003	-5.703646E-002	-1.438017E+000
1154	8	-1.529717E-003	-4.113918E-003	-5.397234E-002	-1.451630E+000
1154	9	-1.622539E-003	-4.096929E-003	-5.725532E-002	-1.445635E+000
1155	1	-2.653230E-002	-8.917902E-003	-9.362771E-002	-3.146880E-001

1155	2	-2.498103E-002	-8.917601E-003	-8.814932E-002	-3.146782E-001
1155	3	-2.498083E-002	-9.086369E-003	-8.814961E-002	-3.206339E-001
1155	4	-2.653253E-002	-9.086458E-003	-9.362483E-002	-3.206352E-001
1155	5	-2.575714E-002	-8.917795E-003	-9.088597E-002	-3.146814E-001
1155	6	-2.498048E-002	-9.002000E-003	-8.814786E-002	-3.176544E-001
1155	7	-2.575714E-002	-9.086458E-003	-9.088597E-002	-3.206356E-001
1155	8	-2.653230E-002	-9.002216E-003	-9.362398E-002	-3.176621E-001
1155	9	-2.575714E-002	-9.002111E-003	-9.088597E-002	-3.176588E-001
1156	1	-2.919390E-002	-9.884086E-003	-1.030150E-001	-3.487851E-001
1156	2	-2.786722E-002	-9.884181E-003	-9.551208E-002	-3.487844E-001
1156	3	-2.786669E-002	-1.011552E-002	-9.550995E-002	-3.569479E-001
1156	4	-2.919486E-002	-1.011547E-002	-1.030188E-001	-3.569474E-001
1156	5	-2.813184E-002	-9.884140E-003	-9.926954E-002	-3.487795E-001
1156	6	-2.786731E-002	-9.999819E-003	-9.551244E-002	-3.528656E-001
1156	7	-2.813111E-002	-1.011554E-002	-9.926589E-002	-3.569458E-001
1156	8	-2.919486E-002	-9.999819E-003	-1.030188E-001	-3.528656E-001
1156	9	-2.813136E-002	-9.999819E-003	-9.926900E-002	-3.528656E-001
1157	1	-3.315729E-002	-1.097159E-002	-1.170078E-001	-3.871563E-001
1157	2	-2.996928E-002	-1.097155E-002	-1.057507E-001	-3.871552E-001
1157	3	-2.996810E-002	-1.131764E-002	-1.057494E-001	-3.993644E-001
1157	4	-3.315773E-002	-1.131770E-002	-1.170079E-001	-3.993635E-001
1157	5	-3.156251E-002	-1.097154E-002	-1.113769E-001	-3.871541E-001
1157	6	-2.996826E-002	-1.114465E-002	-1.057580E-001	-3.932601E-001
1157	7	-3.156310E-002	-1.131756E-002	-1.113752E-001	-3.993658E-001
1157	8	-3.315773E-002	-1.114465E-002	-1.170082E-001	-3.932601E-001
1157	9	-3.156270E-002	-1.114465E-002	-1.113768E-001	-3.932601E-001
1158	1	-3.890048E-002	-1.239915E-002	-1.372640E-001	-4.375284E-001
1158	2	-3.429106E-002	-1.239903E-002	-1.210045E-001	-4.375280E-001
1158	3	-3.429271E-002	-1.290025E-002	-1.210060E-001	-4.552085E-001
1158	4	-3.889889E-002	-1.290030E-002	-1.372653E-001	-4.552111E-001
1158	5	-3.659571E-002	-1.239908E-002	-1.291338E-001	-4.375268E-001
1158	6	-3.429196E-002	-1.264966E-002	-1.210093E-001	-4.463693E-001
1158	7	-3.659571E-002	-1.290017E-002	-1.291338E-001	-4.552098E-001
1158	8	-3.890005E-002	-1.264966E-002	-1.372699E-001	-4.463693E-001
1158	9	-3.659571E-002	-1.264966E-002	-1.291338E-001	-4.463693E-001
1159	1	-4.845041E-002	-1.469038E-002	-1.709668E-001	-5.183981E-001
1159	2	-4.869889E-002	-1.469087E-002	-1.436130E-001	-5.183979E-001
1159	3	-4.869756E-002	-1.553396E-002	-1.436119E-001	-5.481486E-001
1159	4	-4.845035E-002	-1.553398E-002	-1.709784E-001	-5.481469E-001
1159	5	-4.457421E-002	-1.469073E-002	-1.572914E-001	-5.183966E-001
1159	6	-4.869784E-002	-1.511243E-002	-1.436089E-001	-5.332726E-001
1159	7	-4.457445E-002	-1.553385E-002	-1.572887E-001	-5.481458E-001
1159	8	-4.845096E-002	-1.511243E-002	-1.709698E-001	-5.332726E-001
1159	9	-4.457494E-002	-1.511243E-002	-1.572918E-001	-5.332726E-001
1160	1	-1.917402E-002	-4.271728E-004	-6.766219E-002	-1.507072E-002
1160	2	-1.915219E-002	-4.271266E-004	-6.758077E-002	-1.507346E-002
1160	3	-1.915162E-002	-4.296866E-004	-6.758112E-002	-1.516184E-002
1160	4	-1.917533E-002	-4.296917E-004	-6.766296E-002	-1.516306E-002
1160	5	-1.916468E-002	-4.270346E-004	-6.762245E-002	-1.507045E-002
1160	6	-1.915172E-002	-4.284454E-004	-6.758019E-002	-1.511638E-002
1160	7	-1.916395E-002	-4.296461E-004	-6.762207E-002	-1.516054E-002
1160	8	-1.917584E-002	-4.284454E-004	-6.766343E-002	-1.511638E-002
1160	9	-1.916358E-002	-4.284454E-004	-6.762461E-002	-1.511638E-002
1161	1	-1.926797E-002	-1.257812E-003	-6.798658E-002	-4.435299E-002
1161	2	-1.919024E-002	-1.256891E-003	-6.771599E-002	-4.435567E-002
1161	3	-1.919062E-002	-1.265308E-003	-6.771559E-002	-4.465094E-002
1161	4	-1.926807E-002	-1.265399E-003	-6.799355E-002	-4.465212E-002
1161	5	-1.922976E-002	-1.256874E-003	-6.785475E-002	-4.435273E-002
1161	6	-1.919121E-002	-1.261170E-003	-6.771722E-002	-4.450219E-002
1161	7	-1.922870E-002	-1.265354E-003	-6.785535E-002	-4.464962E-002

1161	8	-1.926823E-002	-1.261170E-003	-6.798763E-002	-4.450219E-002
1161	9	-1.922954E-002	-1.261170E-003	-6.785436E-002	-4.450219E-002
1162	1	-1.944041E-002	-2.089698E-003	-6.859908E-002	-7.373863E-002
1162	2	-1.929988E-002	-2.089655E-003	-6.810328E-002	-7.373749E-002
1162	3	-1.929925E-002	-2.104852E-003	-6.810249E-002	-7.427450E-002
1162	4	-1.944041E-002	-2.104854E-003	-6.859908E-002	-7.427563E-002
1162	5	-1.937012E-002	-2.089563E-003	-6.834971E-002	-7.373455E-002
1162	6	-1.929958E-002	-2.097292E-003	-6.810264E-002	-7.400785E-002
1162	7	-1.936975E-002	-2.104896E-003	-6.835098E-002	-7.427698E-002
1162	8	-1.944041E-002	-2.097292E-003	-6.860289E-002	-7.400785E-002
1162	9	-1.936987E-002	-2.097292E-003	-6.835098E-002	-7.400785E-002
1163	1	-1.970174E-002	-2.922538E-003	-6.952135E-002	-1.031257E-001
1163	2	-1.949126E-002	-2.922418E-003	-6.877851E-002	-1.031246E-001
1163	3	-1.949082E-002	-2.945327E-003	-6.877882E-002	-1.039317E-001
1163	4	-1.970139E-002	-2.945447E-003	-6.952100E-002	-1.039327E-001
1163	5	-1.959608E-002	-2.922400E-003	-6.915193E-002	-1.031216E-001
1163	6	-1.949141E-002	-2.933938E-003	-6.878016E-002	-1.035278E-001
1163	7	-1.959608E-002	-2.945284E-003	-6.915193E-002	-1.039341E-001
1163	8	-1.970026E-002	-2.933938E-003	-6.951927E-002	-1.035278E-001
1163	9	-1.959608E-002	-2.933938E-003	-6.915193E-002	-1.035278E-001
1164	1	-2.006692E-002	-3.757189E-003	-7.081110E-002	-1.325825E-001
1164	2	-1.977488E-002	-3.757208E-003	-6.977030E-002	-1.325855E-001
1164	3	-1.977508E-002	-3.788791E-003	-6.978116E-002	-1.336978E-001
1164	4	-2.006597E-002	-3.788907E-003	-7.080729E-002	-1.336949E-001
1164	5	-1.992887E-002	-3.757135E-003	-7.029552E-002	-1.325825E-001
1164	6	-1.977477E-002	-3.773056E-003	-6.978062E-002	-1.331408E-001
1164	7	-1.992887E-002	-3.788746E-003	-7.029552E-002	-1.336963E-001
1164	8	-2.006597E-002	-3.773056E-003	-7.080729E-002	-1.331408E-001
1164	9	-1.992887E-002	-3.773056E-003	-7.029552E-002	-1.331408E-001
1165	1	-2.055481E-002	-4.594826E-003	-7.253444E-002	-1.621363E-001
1165	2	-2.016473E-002	-4.594698E-003	-7.115422E-002	-1.621357E-001
1165	3	-2.016521E-002	-4.637179E-003	-7.115442E-002	-1.636279E-001
1165	4	-2.055449E-002	-4.637172E-003	-7.253037E-002	-1.636287E-001
1165	5	-2.035987E-002	-4.594687E-003	-7.184265E-002	-1.621322E-001
1165	6	-2.016591E-002	-4.615932E-003	-7.115950E-002	-1.628827E-001
1165	7	-2.035987E-002	-4.637013E-003	-7.184265E-002	-1.636302E-001
1165	8	-2.055335E-002	-4.615932E-003	-7.253241E-002	-1.628827E-001
1165	9	-2.035987E-002	-4.615932E-003	-7.184265E-002	-1.628827E-001
1166	1	-2.119926E-002	-5.433662E-003	-7.480466E-002	-1.917399E-001
1166	2	-2.068651E-002	-5.433662E-003	-7.299663E-002	-1.917388E-001
1166	3	-2.068591E-002	-5.489323E-003	-7.299493E-002	-1.937038E-001
1166	4	-2.119941E-002	-5.489311E-003	-7.481007E-002	-1.937044E-001
1166	5	-2.094222E-002	-5.433629E-003	-7.390086E-002	-1.917359E-001
1166	6	-2.068676E-002	-5.461520E-003	-7.299417E-002	-1.927220E-001
1166	7	-2.094248E-002	-5.489480E-003	-7.390131E-002	-1.937060E-001
1166	8	-2.120841E-002	-5.461520E-003	-7.480545E-002	-1.927220E-001
1166	9	-2.094203E-002	-5.461520E-003	-7.390039E-002	-1.927220E-001
1167	1	-2.204011E-002	-6.279902E-003	-7.777206E-002	-2.215971E-001
1167	2	-2.137078E-002	-6.279882E-003	-7.541003E-002	-2.215999E-001
1167	3	-2.137124E-002	-6.352501E-003	-7.541434E-002	-2.241580E-001
1167	4	-2.203994E-002	-6.352365E-003	-7.777419E-002	-2.241585E-001
1167	5	-2.170512E-002	-6.279789E-003	-7.659034E-002	-2.215969E-001
1167	6	-2.137087E-002	-6.316140E-003	-7.541528E-002	-2.228778E-001
1167	7	-2.170512E-002	-6.352330E-003	-7.659034E-002	-2.241563E-001
1167	8	-2.204015E-002	-6.316140E-003	-7.777122E-002	-2.228778E-001
1167	9	-2.170512E-002	-6.316140E-003	-7.659034E-002	-2.228778E-001
1168	1	-2.314225E-002	-7.136919E-003	-8.165666E-002	-2.518402E-001
1168	2	-2.226406E-002	-7.136888E-003	-7.856394E-002	-2.518429E-001
1168	3	-2.226449E-002	-7.231875E-003	-7.856459E-002	-2.551903E-001
1168	4	-2.314063E-002	-7.231852E-003	-8.165683E-002	-2.551906E-001

1168	5	-2.270367E-002	-7.136781E-003	-8.011351E-002	-2.518399E-001
1168	6	-2.226396E-002	-7.184384E-003	-7.856283E-002	-2.535154E-001
1168	7	-2.270262E-002	-7.231819E-003	-8.011363E-002	-2.551806E-001
1168	8	-2.313966E-002	-7.184384E-003	-8.165675E-002	-2.535154E-001
1168	9	-2.270302E-002	-7.184384E-003	-8.011238E-002	-2.535154E-001
1169	1	-2.458787E-002	-8.012118E-003	-8.676187E-002	-2.827226E-001
1169	2	-2.343624E-002	-8.012099E-003	-8.269855E-002	-2.827215E-001
1169	3	-2.343684E-002	-8.137033E-003	-8.269783E-002	-2.871303E-001
1169	4	-2.458612E-002	-8.137004E-003	-8.675631E-002	-2.871303E-001
1169	5	-2.401891E-002	-8.012006E-003	-8.473136E-002	-2.827185E-001
1169	6	-2.343701E-002	-8.074528E-003	-8.269819E-002	-2.849254E-001
1169	7	-2.401187E-002	-8.136855E-003	-8.473089E-002	-2.871284E-001
1169	8	-2.458707E-002	-8.074528E-003	-8.676812E-002	-2.849254E-001
1169	9	-2.401139E-002	-8.074528E-003	-8.473041E-002	-2.849254E-001
1170	1	-1.752185E-003	-4.359933E-003	-6.182916E-002	-1.530423E+000
1170	2	-1.612635E-003	-4.383472E-003	-5.690439E-002	-1.546738E+000
1170	3	-1.624778E-003	-4.428211E-003	-5.733554E-002	-1.559701E+000
1170	4	-1.765188E-003	-4.392595E-003	-6.229065E-002	-1.549965E+000
1170	5	-1.686296E-003	-4.371077E-003	-5.950032E-002	-1.542372E+000
1170	6	-1.618835E-003	-4.401662E-003	-5.711701E-002	-1.553166E+000
1170	7	-1.698846E-003	-4.405648E-003	-5.994339E-002	-1.554574E+000
1170	8	-1.758784E-003	-4.376126E-003	-6.205788E-002	-1.544162E+000
1170	9	-1.692480E-003	-4.388219E-003	-5.972189E-002	-1.548419E+000
1171	1	-4.989183E-002	-3.395524E-002	-1.760552E-001	-1.198174E+000
1171	2	-4.989183E-002	-3.395524E-002	-1.760552E-001	-1.198174E+000
1171	3	-4.989183E-002	-3.395524E-002	-1.760552E-001	-1.198174E+000
1172	1	-3.918458E-002	-2.295317E-002	-1.382692E-001	-8.099504E-001
1172	2	-3.782467E-002	-2.352010E-002	-1.334717E-001	-8.299572E-001
1172	3	-4.387788E-002	-2.359772E-002	-1.520081E-001	-8.326939E-001
1172	4	-4.389944E-002	-2.312325E-002	-1.520858E-001	-8.159534E-001
1173	1	-2.922749E-002	-1.157016E-002	-1.031347E-001	-4.082765E-001
1173	2	-2.757464E-002	-1.211115E-002	-9.730279E-002	-4.273670E-001
1173	3	-3.262872E-002	-1.211106E-002	-1.151355E-001	-4.273642E-001
1173	4	-3.435662E-002	-1.157005E-002	-1.212347E-001	-4.082759E-001
1174	1	-4.119150E-002	-1.327644E-002	-1.453501E-001	-4.684876E-001
1174	2	-3.358843E-002	-1.327649E-002	-1.182392E-001	-4.684881E-001
1174	3	-3.983154E-002	-1.408842E-002	-1.887920E-001	-4.971424E-001
1174	4	-3.840003E-002	-1.408856E-002	-1.355029E-001	-4.971391E-001
1175	1	-5.586794E-002	-1.630493E-002	-1.971350E-001	-5.753538E-001
1175	2	-3.944660E-002	-1.630496E-002	-1.391951E-001	-5.753540E-001
1175	3	-3.330554E-002	-1.803754E-002	-1.175248E-001	-6.364898E-001
1175	4	-4.946157E-002	-1.803747E-002	-1.745387E-001	-6.364897E-001
1176	1	-2.258711E-002	-7.589756E-003	-7.970263E-002	-2.649938E-001
1176	2	-2.300852E-002	-7.317461E-003	-8.119273E-002	-2.582095E-001
1176	3	-2.119924E-002	-7.317482E-003	-7.477450E-002	-2.582102E-001
1176	4	-2.879527E-002	-7.589574E-003	-7.338302E-002	-2.649927E-001
1177	1	-2.462776E-002	-8.242999E-003	-8.698421E-002	-2.908708E-001
1177	2	-2.240854E-002	-8.243006E-003	-7.907214E-002	-2.908712E-001
1177	3	-2.186793E-002	-8.478059E-003	-7.716637E-002	-2.991664E-001
1177	4	-2.405453E-002	-8.478086E-003	-8.487876E-002	-2.991673E-001
1178	1	-2.402412E-002	-9.221022E-003	-8.477371E-002	-3.253087E-001
1178	2	-2.327426E-002	-9.515578E-003	-8.212722E-002	-3.357785E-001
1178	3	-2.601484E-002	-9.515557E-003	-9.179538E-002	-3.357785E-001
1178	4	-2.680837E-002	-9.221175E-003	-9.459638E-002	-3.253869E-001
1179	1	-2.620759E-002	-1.029302E-002	-9.247744E-002	-3.632881E-001
1179	2	-2.512851E-002	-1.067782E-002	-8.866857E-002	-3.767885E-001
1179	3	-2.871145E-002	-1.067847E-002	-1.013150E-001	-3.768078E-001
1179	4	-2.984873E-002	-1.029327E-002	-1.053242E-001	-3.632158E-001
1180	1	-1.991172E-002	-4.787433E-003	-7.026266E-002	-1.689344E-001
1180	2	-2.006177E-002	-4.682410E-003	-7.079380E-002	-1.652322E-001

1180	3	-1.987213E-002	-4.682505E-003	-6.729982E-002	-1.652342E-001
1180	4	-1.893677E-002	-4.787534E-003	-6.682898E-002	-1.689357E-001
1181	1	-2.058652E-002	-5.675898E-003	-7.264416E-002	-2.002848E-001
1181	2	-2.080444E-002	-5.546094E-003	-7.341474E-002	-1.957842E-001
1181	3	-1.958247E-002	-5.545971E-003	-6.909784E-002	-1.957808E-001
1181	4	-1.938094E-002	-5.675958E-003	-6.839188E-002	-2.002861E-001
1182	1	-2.146284E-002	-6.580374E-003	-7.573846E-002	-2.322066E-001
1182	2	-2.177131E-002	-6.422220E-003	-7.682411E-002	-2.266232E-001
1182	3	-2.027708E-002	-6.422147E-003	-7.155189E-002	-2.266183E-001
1182	4	-1.999359E-002	-6.580058E-003	-7.055002E-002	-2.321949E-001
1183	1	-1.846419E-002	-1.276598E-003	-6.516007E-002	-4.504693E-002
1183	2	-1.821555E-002	-1.276501E-003	-6.427698E-002	-4.504625E-002
1183	3	-1.820765E-002	-1.303094E-003	-6.424979E-002	-4.598112E-002
1183	4	-1.845334E-002	-1.303117E-003	-6.511368E-002	-4.598101E-002
1184	1	-1.870134E-002	-2.123740E-003	-6.599187E-002	-7.494111E-002
1184	2	-1.828251E-002	-2.123725E-003	-6.451397E-002	-7.494233E-002
1184	3	-1.825794E-002	-2.168248E-003	-6.442485E-002	-7.650945E-002
1184	4	-1.866945E-002	-2.168244E-003	-6.587901E-002	-7.651033E-002
1185	1	-1.904147E-002	-2.972620E-003	-6.718762E-002	-1.048940E-001
1185	2	-1.844063E-002	-2.972545E-003	-6.507134E-002	-1.048952E-001
1185	3	-1.838931E-002	-3.036343E-003	-6.489836E-002	-1.071465E-001
1185	4	-1.898200E-002	-3.036395E-003	-6.697646E-002	-1.071454E-001
1186	1	-1.937884E-002	-3.908220E-003	-6.830284E-002	-1.379140E-001
1186	2	-1.947766E-002	-3.824611E-003	-6.873177E-002	-1.349689E-001
1186	3	-1.869079E-002	-3.824464E-003	-6.595232E-002	-1.349558E-001
1186	4	-1.860179E-002	-3.908119E-003	-6.564088E-002	-1.379088E-001
1187	1	-1.825113E-002	-4.322328E-004	-6.440292E-002	-1.525676E-002
1187	2	-1.825115E-002	-4.383840E-004	-6.440143E-002	-1.546919E-002
1187	3	-1.830564E-002	-4.382849E-004	-6.459665E-002	-1.546636E-002
1187	4	-1.830786E-002	-4.322783E-004	-6.459981E-002	-1.525463E-002
1188	1	-5.963573E-002	-3.556019E-002	-2.184391E-001	-1.254814E+000
1188	2	-5.963573E-002	-3.556019E-002	-2.184391E-001	-1.254814E+000
1188	3	-5.963573E-002	-3.556019E-002	-2.184391E-001	-1.254814E+000
1189	1	-3.692361E-002	-2.384717E-002	-1.302986E-001	-8.414955E-001
1189	2	-3.692201E-002	-2.391210E-002	-1.302873E-001	-8.437878E-001
1189	3	-3.739351E-002	-2.391220E-002	-1.319514E-001	-8.437911E-001
1189	4	-3.739633E-002	-2.384717E-002	-1.319563E-001	-8.414983E-001
1189	5	-3.692245E-002	-2.387959E-002	-1.302898E-001	-8.426431E-001
1189	6	-3.715805E-002	-2.391209E-002	-1.311191E-001	-8.437893E-001
1189	7	-3.739501E-002	-2.387970E-002	-1.319552E-001	-8.426429E-001
1189	8	-3.715844E-002	-2.384722E-002	-1.311225E-001	-8.414967E-001
1189	9	-3.715796E-002	-2.387970E-002	-1.311208E-001	-8.426410E-001
1190	1	-3.303253E-002	-3.497494E-002	-1.165612E-001	-1.234164E+000
1190	2	-3.309480E-002	-3.895260E-002	-1.167823E-001	-1.092224E+000
1190	3	-3.790181E-003	-3.894716E-002	-1.337346E-002	-1.092031E+000
1190	4	-3.727481E-003	-3.497431E-002	-1.315474E-002	-1.234148E+000
1190	5	-3.306454E-002	-3.296376E-002	-1.166756E-001	-1.163193E+000
1190	6	-1.845201E-002	-3.894982E-002	-6.510946E-002	-1.092130E+000
1190	7	-3.760142E-003	-3.296054E-002	-1.326569E-002	-1.163083E+000
1190	8	-1.838933E-002	-3.497461E-002	-6.489111E-002	-1.234150E+000
1190	9	-1.842031E-002	-3.296223E-002	-6.499949E-002	-1.163136E+000
1191	1	-3.178489E-002	-1.446271E-002	-1.118746E-001	-5.183459E-001
1191	2	-3.169543E-002	-1.503467E-002	-1.118427E-001	-5.385273E-001
1191	3	-3.585239E-002	-1.503463E-002	-1.265135E-001	-5.385270E-001
1191	4	-3.586112E-002	-1.446272E-002	-1.265455E-001	-5.183490E-001
1191	5	-3.169845E-002	-1.474877E-002	-1.118563E-001	-5.284383E-001
1191	6	-3.377372E-002	-1.503465E-002	-1.191779E-001	-5.385276E-001
1191	7	-3.585675E-002	-1.474877E-002	-1.265295E-001	-5.284383E-001
1191	8	-3.378258E-002	-1.446282E-002	-1.192092E-001	-5.183493E-001
1191	9	-3.377835E-002	-1.474877E-002	-1.191931E-001	-5.284383E-001

1192	1	-3.646137E-002	-1.866588E-002	-1.286614E-001	-6.586667E-001
1192	2	-3.646888E-002	-1.872264E-002	-1.286586E-001	-6.606658E-001
1192	3	-3.687305E-002	-1.872260E-002	-1.301136E-001	-6.606657E-001
1192	4	-3.687387E-002	-1.866578E-002	-1.301161E-001	-6.586635E-001
1192	5	-3.645929E-002	-1.869428E-002	-1.286561E-001	-6.596678E-001
1192	6	-3.666679E-002	-1.872262E-002	-1.293865E-001	-6.606658E-001
1192	7	-3.687346E-002	-1.869428E-002	-1.301149E-001	-6.596678E-001
1192	8	-3.666776E-002	-1.866600E-002	-1.293894E-001	-6.586666E-001
1192	9	-3.666727E-002	-1.869428E-002	-1.293875E-001	-6.596678E-001
1193	1	-2.528696E-002	-1.085767E-002	-8.894759E-002	-3.831388E-001
1193	2	-2.528528E-002	-1.114587E-002	-8.894269E-002	-3.932778E-001
1193	3	-2.729344E-002	-1.114514E-002	-9.631835E-002	-3.932796E-001
1193	4	-2.729780E-002	-1.085813E-002	-9.632537E-002	-3.831499E-001
1193	5	-2.528707E-002	-1.100161E-002	-8.894686E-002	-3.882121E-001
1193	6	-2.625850E-002	-1.114521E-002	-9.263005E-002	-3.932829E-001
1193	7	-2.729525E-002	-1.100178E-002	-9.631728E-002	-3.882201E-001
1193	8	-2.625246E-002	-1.085790E-002	-9.263756E-002	-3.831427E-001
1193	9	-2.625147E-002	-1.100161E-002	-9.263447E-002	-3.882176E-001
1194	1	-2.797772E-002	-1.236087E-002	-9.872575E-002	-4.361539E-001
1194	2	-2.797210E-002	-1.273782E-002	-9.870528E-002	-4.494817E-001
1194	3	-3.072495E-002	-1.273832E-002	-1.084176E-001	-4.495025E-001
1194	4	-3.073007E-002	-1.236020E-002	-1.084385E-001	-4.361551E-001
1194	5	-2.797551E-002	-1.254889E-002	-9.871570E-002	-4.428154E-001
1194	6	-2.934758E-002	-1.273817E-002	-1.035588E-001	-4.494917E-001
1194	7	-3.072773E-002	-1.254917E-002	-1.084314E-001	-4.428261E-001
1194	8	-2.935334E-002	-1.236000E-002	-1.035801E-001	-4.361522E-001
1194	9	-2.935064E-002	-1.254914E-002	-1.035692E-001	-4.428196E-001
1195	1	-2.313519E-002	-9.651599E-003	-8.163965E-002	-3.405815E-001
1195	2	-2.313285E-002	-9.863733E-003	-8.162959E-002	-3.480670E-001
1195	3	-2.467783E-002	-9.863719E-003	-8.707988E-002	-3.480611E-001
1195	4	-2.467791E-002	-9.651670E-003	-8.707788E-002	-3.405790E-001
1195	5	-2.313363E-002	-9.757611E-003	-8.163238E-002	-3.443196E-001
1195	6	-2.390494E-002	-9.863761E-003	-8.435464E-002	-3.480617E-001
1195	7	-2.467751E-002	-9.757624E-003	-8.708026E-002	-3.443191E-001
1195	8	-2.390640E-002	-9.651694E-003	-8.435916E-002	-3.405845E-001
1195	9	-2.390582E-002	-9.757617E-003	-8.435773E-002	-3.443193E-001
1196	1	-1.946480E-002	-6.650690E-003	-6.868432E-002	-2.346814E-001
1196	2	-1.946279E-002	-6.747298E-003	-6.867817E-002	-2.380927E-001
1196	3	-2.016617E-002	-6.747283E-003	-7.115993E-002	-2.380939E-001
1196	4	-2.016752E-002	-6.650757E-003	-7.116411E-002	-2.346858E-001
1196	5	-1.946243E-002	-6.698960E-003	-6.867857E-002	-2.363883E-001
1196	6	-1.981455E-002	-6.747192E-003	-6.991939E-002	-2.380912E-001
1196	7	-2.016755E-002	-6.699153E-003	-7.116438E-002	-2.363911E-001
1196	8	-1.981571E-002	-6.650786E-003	-6.992580E-002	-2.346856E-001
1196	9	-1.981513E-002	-6.699014E-003	-6.992292E-002	-2.363876E-001
1197	1	-2.038471E-002	-7.596441E-003	-7.193252E-002	-2.680564E-001
1197	2	-2.038338E-002	-7.719852E-003	-7.192729E-002	-2.724008E-001
1197	3	-2.127976E-002	-7.719837E-003	-7.509829E-002	-2.724079E-001
1197	4	-2.128110E-002	-7.596497E-003	-7.509486E-002	-2.680572E-001
1197	5	-2.038426E-002	-7.657994E-003	-7.193086E-002	-2.702272E-001
1197	6	-2.083189E-002	-7.719686E-003	-7.350958E-002	-2.724079E-001
1197	7	-2.127904E-002	-7.657994E-003	-7.508932E-002	-2.702272E-001
1197	8	-2.083301E-002	-7.596529E-003	-7.351337E-002	-2.680554E-001
1197	9	-2.083270E-002	-7.657994E-003	-7.351103E-002	-2.702272E-001
1198	1	-2.158184E-002	-8.585878E-003	-7.615484E-002	-3.029696E-001
1198	2	-2.158083E-002	-8.747179E-003	-7.615409E-002	-3.086635E-001
1198	3	-2.275389E-002	-8.747410E-003	-8.029255E-002	-3.086730E-001
1198	4	-2.275773E-002	-8.585877E-003	-8.030421E-002	-3.029716E-001
1198	5	-2.158094E-002	-8.666651E-003	-7.615572E-002	-3.058211E-001
1198	6	-2.216714E-002	-8.747383E-003	-7.822325E-002	-3.086689E-001

1198	7	-2.275619E-002	-8.666730E-003	-8.029987E-002	-3.058242E-001
1198	8	-2.216859E-002	-8.585799E-003	-7.822627E-002	-3.029683E-001
1198	9	-2.216805E-002	-8.666617E-003	-7.822479E-002	-3.058212E-001
1199	1	-1.876781E-002	-5.733183E-003	-6.622644E-002	-2.023041E-001
1199	2	-1.876691E-002	-5.805944E-003	-6.622426E-002	-2.048766E-001
1199	3	-1.929747E-002	-5.805898E-003	-6.809734E-002	-2.048733E-001
1199	4	-1.929980E-002	-5.733018E-003	-6.810063E-002	-2.023036E-001
1199	5	-1.876792E-002	-5.769437E-003	-6.622592E-002	-2.035898E-001
1199	6	-1.903266E-002	-5.805962E-003	-6.716093E-002	-2.048741E-001
1199	7	-1.929815E-002	-5.769573E-003	-6.809917E-002	-2.035894E-001
1199	8	-1.903285E-002	-5.733069E-003	-6.716251E-002	-2.023052E-001
1199	9	-1.903312E-002	-5.769565E-003	-6.716179E-002	-2.035886E-001
1200	1	-1.782558E-002	-3.944239E-003	-6.289960E-002	-1.391783E-001
1200	2	-1.782618E-002	-3.986370E-003	-6.290287E-002	-1.406676E-001
1200	3	-1.813193E-002	-3.986401E-003	-6.398256E-002	-1.406685E-001
1200	4	-1.813205E-002	-3.944322E-003	-6.398189E-002	-1.391707E-001
1200	5	-1.782511E-002	-3.965264E-003	-6.289899E-002	-1.399218E-001
1200	6	-1.797889E-002	-3.986435E-003	-6.344238E-002	-1.406679E-001
1200	7	-1.813245E-002	-3.965353E-003	-6.398415E-002	-1.399258E-001
1200	8	-1.797944E-002	-3.944083E-003	-6.344329E-002	-1.391779E-001
1200	9	-1.797909E-002	-3.965232E-003	-6.344259E-002	-1.399243E-001
1201	1	-1.822333E-002	-4.833038E-003	-6.430582E-002	-1.725432E-001
1201	2	-1.822270E-002	-4.889219E-003	-6.430058E-002	-1.725251E-001
1201	3	-1.862998E-002	-4.889174E-003	-6.574081E-002	-1.725291E-001
1201	4	-1.863189E-002	-4.833130E-003	-6.574335E-002	-1.705463E-001
1201	5	-1.822266E-002	-4.861139E-003	-6.430095E-002	-1.715369E-001
1201	6	-1.842642E-002	-4.889187E-003	-6.502114E-002	-1.725289E-001
1201	7	-1.863138E-002	-4.861169E-003	-6.574354E-002	-1.715388E-001
1201	8	-1.842695E-002	-4.833112E-003	-6.502331E-002	-1.705461E-001
1201	9	-1.842675E-002	-4.861127E-003	-6.502243E-002	-1.715373E-001
1202	1	-1.733786E-002	-2.187229E-003	-6.117984E-002	-7.717580E-002
1202	2	-1.733811E-002	-2.207892E-003	-6.117988E-002	-7.790928E-002
1202	3	-1.748843E-002	-2.207789E-003	-6.171095E-002	-7.791049E-002
1202	4	-1.748878E-002	-2.187214E-003	-6.171394E-002	-7.718205E-002
1202	5	-1.733901E-002	-2.197544E-003	-6.118258E-002	-7.754480E-002
1202	6	-1.741314E-002	-2.207781E-003	-6.144660E-002	-7.790989E-002
1202	7	-1.748903E-002	-2.197544E-003	-6.171235E-002	-7.754480E-002
1202	8	-1.741386E-002	-2.187148E-003	-6.144749E-002	-7.717511E-002
1202	9	-1.741382E-002	-2.197544E-003	-6.144648E-002	-7.754480E-002
1203	1	-1.752931E-002	-3.063677E-003	-6.185549E-002	-1.081049E-001
1203	2	-1.752832E-002	-3.093858E-003	-6.185243E-002	-1.091721E-001
1203	3	-1.774830E-002	-3.093894E-003	-6.262743E-002	-1.091705E-001
1203	4	-1.774943E-002	-3.063659E-003	-6.263124E-002	-1.081062E-001
1203	5	-1.752854E-002	-3.078736E-003	-6.185369E-002	-1.086391E-001
1203	6	-1.763862E-002	-3.093885E-003	-6.224269E-002	-1.091727E-001
1203	7	-1.774865E-002	-3.078736E-003	-6.263081E-002	-1.086391E-001
1203	8	-1.763923E-002	-3.063595E-003	-6.224344E-002	-1.081041E-001
1203	9	-1.763901E-002	-3.078736E-003	-6.224240E-002	-1.086391E-001
1204	1	-1.718443E-002	-4.400123E-004	-6.063819E-002	-1.555253E-002
1204	2	-1.718462E-002	-4.450301E-004	-6.063851E-002	-1.570100E-002
1204	3	-1.721437E-002	-4.450166E-004	-6.074308E-002	-1.570113E-002
1204	4	-1.721446E-002	-4.400449E-004	-6.074432E-002	-1.555397E-002
1204	5	-1.718481E-002	-4.428660E-004	-6.063922E-002	-1.562972E-002
1204	6	-1.719977E-002	-4.448684E-004	-6.069213E-002	-1.570094E-002
1204	7	-1.721507E-002	-4.430239E-004	-6.074683E-002	-1.562993E-002
1204	8	-1.720013E-002	-4.409137E-004	-6.069234E-002	-1.555790E-002
1204	9	-1.719945E-002	-4.429178E-004	-6.069168E-002	-1.563081E-002
1205	1	-1.721750E-002	-1.314268E-003	-6.075699E-002	-4.637693E-002
1205	2	-1.721702E-002	-1.326018E-003	-6.075465E-002	-4.678936E-002
1205	3	-1.738354E-002	-1.325920E-003	-6.105815E-002	-4.679185E-002

1205	4	-1.738434E-002	-1.314285E-003	-6.106200E-002	-4.637438E-002
1205	5	-1.721808E-002	-1.320137E-003	-6.075676E-002	-4.658428E-002
1205	6	-1.726015E-002	-1.325965E-003	-6.090741E-002	-4.679163E-002
1205	7	-1.730444E-002	-1.320896E-003	-6.106208E-002	-4.658222E-002
1205	8	-1.726850E-002	-1.314306E-003	-6.090805E-002	-4.638086E-002
1205	9	-1.726866E-002	-1.320141E-003	-6.090784E-002	-4.658158E-002
1206	1	-2.159113E-002	-2.998785E-002	-7.618817E-002	-1.058182E+000
1206	2	-2.162772E-002	-2.739224E-002	-7.631733E-002	-9.665906E-001
1206	3	-2.744908E-003	-2.739197E-002	-9.684518E-003	-9.665785E-001
1206	4	-2.738783E-003	-2.998436E-002	-9.664476E-003	-1.058061E+000
1206	5	-2.161049E-002	-2.869120E-002	-7.625436E-002	-1.012429E+000
1206	6	-1.218040E-002	-2.739210E-002	-4.297962E-002	-9.665866E-001
1206	7	-2.742322E-003	-2.868912E-002	-9.676404E-003	-1.012356E+000
1206	8	-1.215998E-002	-2.998601E-002	-4.290748E-002	-1.058124E+000
1206	9	-1.216999E-002	-2.869011E-002	-4.294513E-002	-1.012391E+000
1207	1	-3.037017E-002	-2.381781E-002	-1.071669E-001	-8.404632E-001
1207	2	-3.037038E-002	-2.310677E-002	-1.071686E-001	-8.153742E-001
1207	3	-2.519738E-002	-2.310675E-002	-8.891510E-002	-8.153678E-001
1207	4	-2.518892E-002	-2.381793E-002	-8.888204E-002	-8.404623E-001
1207	5	-3.036947E-002	-2.346202E-002	-1.071664E-001	-8.279060E-001
1207	6	-2.770484E-002	-2.310677E-002	-9.804298E-002	-8.153708E-001
1207	7	-2.519200E-002	-2.346212E-002	-8.889467E-002	-8.279064E-001
1207	8	-2.777887E-002	-2.381804E-002	-9.802382E-002	-8.404627E-001
1207	9	-2.778178E-002	-2.346213E-002	-9.803265E-002	-8.279091E-001
1208	1	-2.575471E-002	-1.283693E-002	-9.088229E-002	-4.529754E-001
1208	2	-2.574958E-002	-1.314285E-002	-9.086193E-002	-4.637708E-001
1208	3	-2.797591E-002	-1.314278E-002	-9.871987E-002	-4.637716E-001
1208	4	-2.797664E-002	-1.283739E-002	-9.872130E-002	-4.529872E-001
1208	5	-2.575259E-002	-1.298971E-002	-9.087128E-002	-4.583673E-001
1208	6	-2.686309E-002	-1.314281E-002	-9.479361E-002	-4.637708E-001
1208	7	-2.797641E-002	-1.298996E-002	-9.872058E-002	-4.583763E-001
1208	8	-2.686615E-002	-1.283715E-002	-9.480167E-002	-4.529813E-001
1208	9	-2.686452E-002	-1.298987E-002	-9.479749E-002	-4.583741E-001
1209	1	-2.861078E-002	-1.516067E-002	-1.009593E-001	-5.349774E-001
1209	2	-2.860999E-002	-1.545509E-002	-1.009575E-001	-5.453643E-001
1209	3	-3.074885E-002	-1.545506E-002	-1.085022E-001	-5.453630E-001
1209	4	-3.075152E-002	-1.516075E-002	-1.085141E-001	-5.349791E-001
1209	5	-2.861118E-002	-1.530785E-002	-1.009615E-001	-5.401732E-001
1209	6	-2.967903E-002	-1.545502E-002	-1.047291E-001	-5.453637E-001
1209	7	-3.074934E-002	-1.530803E-002	-1.085081E-001	-5.401722E-001
1209	8	-2.968132E-002	-1.516078E-002	-1.047375E-001	-5.349764E-001
1209	9	-2.968008E-002	-1.530800E-002	-1.047333E-001	-5.401717E-001
1210	1	-3.102078E-002	-1.873256E-002	-1.094639E-001	-6.610187E-001
1210	2	-3.102149E-002	-1.874476E-002	-1.094647E-001	-6.614489E-001
1210	3	-3.110899E-002	-1.874477E-002	-1.097747E-001	-6.614490E-001
1210	4	-3.111864E-002	-1.873273E-002	-1.097771E-001	-6.610202E-001
1210	5	-3.102132E-002	-1.873866E-002	-1.094663E-001	-6.612312E-001
1210	6	-3.106585E-002	-1.874467E-002	-1.096213E-001	-6.614454E-001
1210	7	-3.110943E-002	-1.873860E-002	-1.097778E-001	-6.612317E-001
1210	8	-3.106524E-002	-1.873256E-002	-1.096209E-001	-6.610228E-001
1210	9	-3.106527E-002	-1.873866E-002	-1.096209E-001	-6.612324E-001
1211	1	-2.159389E-002	-9.922381E-003	-7.619490E-002	-3.501321E-001
1211	2	-2.159391E-002	-1.011282E-002	-7.619578E-002	-3.568508E-001
1211	3	-2.297815E-002	-1.011288E-002	-8.108433E-002	-3.568534E-001
1211	4	-2.298073E-002	-9.922489E-003	-8.108165E-002	-3.501327E-001
1211	5	-2.159299E-002	-1.001776E-002	-7.619514E-002	-3.534960E-001
1211	6	-2.228602E-002	-1.011273E-002	-7.864043E-002	-3.568519E-001
1211	7	-2.297964E-002	-1.001776E-002	-8.108066E-002	-3.534960E-001
1211	8	-2.228749E-002	-9.922375E-003	-7.864474E-002	-3.501320E-001
1211	9	-2.228626E-002	-1.001776E-002	-7.864251E-002	-3.534960E-001

1212	1	-2.342075E-002	-1.122238E-002	-8.264672E-002	-3.960044E-001
1212	2	-2.341713E-002	-1.146609E-002	-8.263274E-002	-4.046029E-001
1212	3	-2.519331E-002	-1.146604E-002	-8.890031E-002	-4.046019E-001
1212	4	-2.519727E-002	-1.122236E-002	-8.891511E-002	-3.960048E-001
1212	5	-2.341828E-002	-1.134416E-002	-8.263657E-002	-4.003046E-001
1212	6	-2.430546E-002	-1.146611E-002	-8.576635E-002	-4.046036E-001
1212	7	-2.519469E-002	-1.134416E-002	-8.890434E-002	-4.003046E-001
1212	8	-2.430984E-002	-1.122237E-002	-8.577959E-002	-3.960050E-001
1212	9	-2.430701E-002	-1.134416E-002	-8.577249E-002	-4.003046E-001
1213	1	-2.015402E-002	-8.791930E-003	-7.111814E-002	-3.102412E-001
1213	2	-2.015891E-002	-8.940516E-003	-7.110729E-002	-3.154838E-001
1213	3	-2.123454E-002	-8.940743E-003	-7.492828E-002	-3.154839E-001
1213	4	-2.123388E-002	-8.792186E-003	-7.492962E-002	-3.102484E-001
1213	5	-2.015278E-002	-8.866244E-003	-7.111462E-002	-3.128690E-001
1213	6	-2.069261E-002	-8.940669E-003	-7.301842E-002	-3.154921E-001
1213	7	-2.123489E-002	-8.866370E-003	-7.492798E-002	-3.128697E-001
1213	8	-2.069372E-002	-8.791909E-003	-7.302328E-002	-3.102452E-001
1213	9	-2.069380E-002	-8.866284E-003	-7.302126E-002	-3.128641E-001
1214	1	-1.749488E-002	-5.826827E-003	-6.173420E-002	-2.056119E-001
1214	2	-1.749417E-002	-5.897494E-003	-6.173113E-002	-2.081044E-001
1214	3	-1.800817E-002	-5.897440E-003	-6.354626E-002	-2.081035E-001
1214	4	-1.800905E-002	-5.826624E-003	-6.354851E-002	-2.056054E-001
1214	5	-1.749422E-002	-5.862068E-003	-6.173314E-002	-2.068572E-001
1214	6	-1.775155E-002	-5.897394E-003	-6.263958E-002	-2.081016E-001
1214	7	-1.800932E-002	-5.862114E-003	-6.354788E-002	-2.068576E-001
1214	8	-1.775282E-002	-5.826800E-003	-6.264175E-002	-2.056110E-001
1214	9	-1.775151E-002	-5.862061E-003	-6.264076E-002	-2.068526E-001
1215	1	-1.817856E-002	-6.774251E-003	-6.414578E-002	-2.398400E-001
1215	2	-1.817831E-002	-6.862986E-003	-6.414638E-002	-2.421714E-001
1215	3	-1.882451E-002	-6.862985E-003	-6.642399E-002	-2.421748E-001
1215	4	-1.882354E-002	-6.774373E-003	-6.642398E-002	-2.398448E-001
1215	5	-1.817739E-002	-6.818603E-003	-6.414328E-002	-2.406094E-001
1215	6	-1.850084E-002	-6.862877E-003	-6.528354E-002	-2.421724E-001
1215	7	-1.882403E-002	-6.818594E-003	-6.642395E-002	-2.406101E-001
1215	8	-1.850084E-002	-6.774193E-003	-6.528354E-002	-2.398429E-001
1215	9	-1.850084E-002	-6.818599E-003	-6.528354E-002	-2.406088E-001
1216	1	-1.904085E-002	-7.754704E-003	-6.719038E-002	-2.736425E-001
1216	2	-1.904104E-002	-7.871157E-003	-6.719023E-002	-2.777449E-001
1216	3	-1.988714E-002	-7.870970E-003	-7.017686E-002	-2.777477E-001
1216	4	-1.988950E-002	-7.754704E-003	-7.018408E-002	-2.736387E-001
1216	5	-1.904168E-002	-7.812865E-003	-6.719162E-002	-2.756938E-001
1216	6	-1.946368E-002	-7.871049E-003	-6.868324E-002	-2.777460E-001
1216	7	-1.988784E-002	-7.812924E-003	-7.017803E-002	-2.756966E-001
1216	8	-1.946520E-002	-7.754764E-003	-6.868640E-002	-2.736360E-001
1216	9	-1.946462E-002	-7.812904E-003	-6.868457E-002	-2.756971E-001
1217	1	-1.698488E-002	-4.905097E-003	-5.993462E-002	-1.738024E-001
1217	2	-1.698366E-002	-4.958961E-003	-5.993142E-002	-1.749876E-001
1217	3	-1.737578E-002	-4.959070E-003	-6.131561E-002	-1.749912E-001
1217	4	-1.737889E-002	-4.905284E-003	-6.132158E-002	-1.738036E-001
1217	5	-1.698474E-002	-4.932096E-003	-5.993524E-002	-1.740337E-001
1217	6	-1.718059E-002	-4.959018E-003	-6.062588E-002	-1.749892E-001
1217	7	-1.737649E-002	-4.932158E-003	-6.131733E-002	-1.740388E-001
1217	8	-1.718104E-002	-4.904912E-003	-6.062687E-002	-1.738025E-001
1217	9	-1.718100E-002	-4.931966E-003	-6.062594E-002	-1.740379E-001
1218	1	-1.612515E-002	-2.213595E-003	-5.690288E-002	-7.811006E-002
1218	2	-1.612605E-002	-2.232465E-003	-5.690175E-002	-7.877596E-002
1218	3	-1.626265E-002	-2.232432E-003	-5.738603E-002	-7.877630E-002
1218	4	-1.626226E-002	-2.213660E-003	-5.738636E-002	-7.810335E-002
1218	5	-1.612679E-002	-2.223119E-003	-5.690458E-002	-7.844366E-002
1218	6	-1.619378E-002	-2.232563E-003	-5.714529E-002	-7.877572E-002

1218	7	-1.626269E-002	-2.222969E-003	-5.738619E-002	-7.844354E-002
1218	8	-1.619378E-002	-2.213580E-003	-5.714529E-002	-7.811110E-002
1218	9	-1.619378E-002	-2.222984E-003	-5.714529E-002	-7.844265E-002
1219	1	-1.631438E-002	-3.102572E-003	-5.756889E-002	-1.094762E-001
1219	2	-1.631416E-002	-3.132866E-003	-5.756946E-002	-1.105234E-001
1219	3	-1.652991E-002	-3.132153E-003	-5.832941E-002	-1.105251E-001
1219	4	-1.652961E-002	-3.102430E-003	-5.832799E-002	-1.094793E-001
1219	5	-1.631421E-002	-3.117358E-003	-5.756566E-002	-1.100006E-001
1219	6	-1.642158E-002	-3.132175E-003	-5.794874E-002	-1.105274E-001
1219	7	-1.652928E-002	-3.117346E-003	-5.832634E-002	-1.100044E-001
1219	8	-1.642213E-002	-3.102398E-003	-5.794926E-002	-1.094745E-001
1219	9	-1.642243E-002	-3.117360E-003	-5.794848E-002	-1.099997E-001
1220	1	-1.659032E-002	-3.998409E-003	-5.854061E-002	-1.410893E-001
1220	2	-1.659071E-002	-4.038883E-003	-5.854194E-002	-1.425164E-001
1220	3	-1.608441E-002	-4.038802E-003	-5.958099E-002	-1.425178E-001
1220	4	-1.608531E-002	-3.998385E-003	-5.958316E-002	-1.410886E-001
1220	5	-1.659036E-002	-4.018655E-003	-5.854293E-002	-1.418041E-001
1220	6	-1.673730E-002	-4.038793E-003	-5.905978E-002	-1.425166E-001
1220	7	-1.608547E-002	-4.018647E-003	-5.958163E-002	-1.418043E-001
1220	8	-1.673793E-002	-3.998353E-003	-5.906164E-002	-1.410875E-001
1220	9	-1.673744E-002	-4.018600E-003	-5.906094E-002	-1.418032E-001
1221	1	-1.601459E-002	-1.329105E-003	-5.651287E-002	-4.689930E-002
1221	2	-1.601489E-002	-1.340054E-003	-5.651185E-002	-4.728434E-002
1221	3	-1.609345E-002	-1.339892E-003	-5.679189E-002	-4.728104E-002
1221	4	-1.609431E-002	-1.329167E-003	-5.678987E-002	-4.689672E-002
1221	5	-1.601422E-002	-1.334531E-003	-5.650890E-002	-4.709340E-002
1221	6	-1.605438E-002	-1.339913E-003	-5.665189E-002	-4.728085E-002
1221	7	-1.609505E-002	-1.334561E-003	-5.679282E-002	-4.709083E-002
1221	8	-1.605438E-002	-1.329860E-003	-5.665189E-002	-4.689749E-002
1221	9	-1.605438E-002	-1.334546E-003	-5.665189E-002	-4.709021E-002
1222	1	-1.595674E-002	-4.465801E-004	-5.638674E-002	-1.575404E-002
1222	2	-1.595713E-002	-4.519687E-004	-5.638729E-002	-1.594839E-002
1222	3	-1.599761E-002	-4.518683E-004	-5.645117E-002	-1.594552E-002
1222	4	-1.599782E-002	-4.464348E-004	-5.645203E-002	-1.575195E-002
1222	5	-1.595684E-002	-4.491925E-004	-5.638797E-002	-1.584996E-002
1222	6	-1.597733E-002	-4.519334E-004	-5.638805E-002	-1.594761E-002
1222	7	-1.599713E-002	-4.491925E-004	-5.644926E-002	-1.584996E-002
1222	8	-1.597733E-002	-4.465271E-004	-5.638805E-002	-1.575380E-002
1222	9	-1.597733E-002	-4.491925E-004	-5.638805E-002	-1.584996E-002
1223	1	-1.527853E-002	-2.673988E-002	-5.391524E-002	-9.435679E-001
1223	2	-1.530922E-002	-2.485545E-002	-5.401874E-002	-8.770756E-001
1223	3	-1.607163E-002	-2.485549E-002	-5.671911E-002	-8.770766E-001
1223	4	-1.578689E-002	-2.673968E-002	-5.570076E-002	-9.435660E-001
1223	5	-1.529430E-002	-2.579774E-002	-5.397056E-002	-9.103252E-001
1223	6	-8.450140E-003	-2.485552E-002	-2.984583E-002	-8.770763E-001
1223	7	-1.592051E-003	-2.579756E-002	-5.620040E-003	-9.103245E-001
1223	8	-8.428560E-003	-2.673972E-002	-2.974243E-002	-9.435704E-001
1223	9	-8.443509E-003	-2.579774E-002	-2.979492E-002	-9.103258E-001
1224	1	-2.642795E-002	-1.872470E-002	-9.325797E-002	-6.607408E-001
1224	2	-2.642878E-002	-1.858095E-002	-9.325863E-002	-6.556659E-001
1224	3	-2.538495E-002	-1.858097E-002	-8.957745E-002	-6.556717E-001
1224	4	-2.538369E-002	-1.872448E-002	-8.957316E-002	-6.607305E-001
1224	5	-2.642808E-002	-1.865208E-002	-9.325745E-002	-6.582046E-001
1224	6	-2.590688E-002	-1.858107E-002	-9.141788E-002	-6.556698E-001
1224	7	-2.538404E-002	-1.865258E-002	-8.957362E-002	-6.581979E-001
1224	8	-2.590578E-002	-1.872465E-002	-9.141459E-002	-6.607356E-001
1224	9	-2.590653E-002	-1.865276E-002	-9.141517E-002	-6.582020E-001
1225	1	-2.428538E-002	-2.288221E-002	-8.569720E-002	-8.074587E-001
1225	2	-2.429832E-002	-2.284935E-002	-8.574187E-002	-7.788516E-001
1225	3	-1.822928E-002	-2.284813E-002	-6.432580E-002	-7.788143E-001

1225	4	-1.821729E-002	-2.288225E-002	-6.428081E-002	-8.074456E-001
1225	5	-2.429239E-002	-2.246581E-002	-8.571938E-002	-7.927511E-001
1225	6	-2.126589E-002	-2.284864E-002	-7.504075E-002	-7.788355E-001
1225	7	-1.822242E-002	-2.246513E-002	-6.430236E-002	-7.927278E-001
1225	8	-2.125282E-002	-2.288239E-002	-7.499476E-002	-8.074512E-001
1225	9	-2.125931E-002	-2.246555E-002	-7.501758E-002	-7.927386E-001
1226	1	-2.343789E-002	-1.321920E-002	-8.270613E-002	-4.664692E-001
1226	2	-2.343827E-002	-1.343769E-002	-8.270586E-002	-4.741800E-001
1226	3	-2.502755E-002	-1.343779E-002	-8.831414E-002	-4.741794E-001
1226	4	-2.502939E-002	-1.321935E-002	-8.832304E-002	-4.664705E-001
1226	5	-2.343822E-002	-1.332865E-002	-8.270752E-002	-4.703292E-001
1226	6	-2.423270E-002	-1.343772E-002	-8.550936E-002	-4.741797E-001
1226	7	-2.502843E-002	-1.332861E-002	-8.831681E-002	-4.703301E-001
1226	8	-2.423425E-002	-1.321927E-002	-8.551596E-002	-4.664679E-001
1226	9	-2.423330E-002	-1.332861E-002	-8.551237E-002	-4.703306E-001
1227	1	-2.537865E-002	-1.551858E-002	-8.955535E-002	-5.476096E-001
1227	2	-2.537744E-002	-1.566298E-002	-8.954998E-002	-5.527842E-001
1227	3	-2.642825E-002	-1.566309E-002	-9.325691E-002	-5.527801E-001
1227	4	-2.642866E-002	-1.551882E-002	-9.325820E-002	-5.476145E-001
1227	5	-2.537875E-002	-1.559078E-002	-8.955586E-002	-5.501538E-001
1227	6	-2.590255E-002	-1.566305E-002	-9.140251E-002	-5.527845E-001
1227	7	-2.642804E-002	-1.559077E-002	-9.325740E-002	-5.501528E-001
1227	8	-2.590371E-002	-1.551875E-002	-9.140626E-002	-5.476120E-001
1227	9	-2.590322E-002	-1.559077E-002	-9.140338E-002	-5.501539E-001
1228	1	-1.867971E-002	-8.981492E-003	-6.591523E-002	-3.169381E-001
1228	2	-1.868004E-002	-9.115587E-003	-6.591413E-002	-3.216684E-001
1228	3	-1.965329E-002	-9.115594E-003	-6.935259E-002	-3.216614E-001
1228	4	-1.965522E-002	-8.981489E-003	-6.935763E-002	-3.169368E-001
1228	5	-1.867905E-002	-9.048497E-003	-6.591202E-002	-3.192959E-001
1228	6	-1.916651E-002	-9.115471E-003	-6.763417E-002	-3.216619E-001
1228	7	-1.965537E-002	-9.048563E-003	-6.935717E-002	-3.193012E-001
1228	8	-1.916797E-002	-8.981521E-003	-6.763776E-002	-3.169324E-001
1228	9	-1.916727E-002	-9.048633E-003	-6.763606E-002	-3.192944E-001
1229	1	-1.995673E-002	-1.016497E-002	-7.042174E-002	-3.586954E-001
1229	2	-1.995392E-002	-1.033344E-002	-7.041132E-002	-3.646369E-001
1229	3	-2.117904E-002	-1.033343E-002	-7.473434E-002	-3.646362E-001
1229	4	-2.118176E-002	-1.016514E-002	-7.474469E-002	-3.586932E-001
1229	5	-1.995707E-002	-1.024914E-002	-7.042029E-002	-3.616662E-001
1229	6	-2.056676E-002	-1.033338E-002	-7.257569E-002	-3.646363E-001
1229	7	-2.118124E-002	-1.024910E-002	-7.474288E-002	-3.616630E-001
1229	8	-2.056970E-002	-1.016505E-002	-7.258339E-002	-3.586943E-001
1229	9	-2.056829E-002	-1.024918E-002	-7.258006E-002	-3.616627E-001
1230	1	-2.154981E-002	-1.153047E-002	-7.604145E-002	-4.068762E-001
1230	2	-2.154558E-002	-1.172923E-002	-7.603059E-002	-4.138939E-001
1230	3	-2.299525E-002	-1.172953E-002	-8.114563E-002	-4.139807E-001
1230	4	-2.299497E-002	-1.153049E-002	-8.114327E-002	-4.068776E-001
1230	5	-2.154673E-002	-1.162976E-002	-7.603779E-002	-4.103789E-001
1230	6	-2.227092E-002	-1.172938E-002	-7.858621E-002	-4.138973E-001
1230	7	-2.299596E-002	-1.163002E-002	-8.114636E-002	-4.103880E-001
1230	8	-2.227229E-002	-1.153051E-002	-7.859122E-002	-4.068798E-001
1230	9	-2.227110E-002	-1.162994E-002	-7.858840E-002	-4.103858E-001
1231	1	-1.764842E-002	-7.983532E-003	-6.227611E-002	-2.788894E-001
1231	2	-1.764654E-002	-8.018183E-003	-6.226955E-002	-2.826567E-001
1231	3	-1.842364E-002	-8.018172E-003	-6.501118E-002	-2.826532E-001
1231	4	-1.842585E-002	-7.983592E-003	-6.501621E-002	-2.788951E-001
1231	5	-1.764807E-002	-7.956807E-003	-6.227262E-002	-2.807730E-001
1231	6	-1.803503E-002	-8.018183E-003	-6.364317E-002	-2.826532E-001
1231	7	-1.842361E-002	-7.956807E-003	-6.501274E-002	-2.807730E-001
1231	8	-1.803592E-002	-7.983383E-003	-6.364642E-002	-2.788884E-001
1231	9	-1.803613E-002	-7.956807E-003	-6.364478E-002	-2.807730E-001

1232	1	-1.570998E-002	-4.973994E-003	-5.543762E-002	-1.755226E-001
1232	2	-1.571024E-002	-5.025322E-003	-5.543717E-002	-1.773262E-001
1232	3	-1.608322E-002	-5.025258E-003	-5.675271E-002	-1.773282E-001
1232	4	-1.608341E-002	-4.973960E-003	-5.675384E-002	-1.755269E-001
1232	5	-1.571015E-002	-4.999649E-003	-5.543495E-002	-1.764220E-001
1232	6	-1.589726E-002	-5.025372E-003	-5.609594E-002	-1.773285E-001
1232	7	-1.608239E-002	-4.999678E-003	-5.675191E-002	-1.764245E-001
1232	8	-1.589727E-002	-4.974014E-003	-5.609738E-002	-1.755210E-001
1232	9	-1.589726E-002	-4.999712E-003	-5.609684E-002	-1.764212E-001
1233	1	-1.620866E-002	-5.917238E-003	-5.719404E-002	-2.088053E-001
[illegible]33	2	-1.620752E-002	-5.983260E-003	-5.719120E-002	-2.111280E-001
[illegible]33	3	-1.668616E-002	-5.983222E-003	-5.888078E-002	-2.111294E-001
[illegible]33	4	-1.668702E-002	-5.917207E-003	-5.888257E-002	-2.088082E-001
1233	5	-1.620886E-002	-5.950316E-003	-5.719361E-002	-2.099682E-001
1233	6	-1.644706E-002	-5.983102E-003	-5.803557E-002	-2.111310E-001
1233	7	-1.668570E-002	-5.950316E-003	-5.888049E-002	-2.099682E-001
1233	8	-1.644731E-002	-5.917445E-003	-5.803787E-002	-2.088043E-001
1233	9	-1.644691E-002	-5.950316E-003	-5.803756E-002	-2.099682E-001
1234	1	-1.683315E-002	-6.888384E-003	-5.939845E-002	-2.430673E-001
1234	2	-1.683176E-002	-6.974488E-003	-5.939489E-002	-2.461004E-001
1234	3	-1.745851E-002	-6.974638E-003	-6.160880E-002	-2.461135E-001
1234	4	-1.746015E-002	-6.888353E-003	-6.161314E-002	-2.430728E-001
1234	5	-1.683193E-002	-6.931402E-003	-5.939286E-002	-2.445077E-001
1234	6	-1.714513E-002	-6.974408E-003	-6.049947E-002	-2.461109E-001
1234	7	-1.745898E-002	-6.931418E-003	-6.160677E-002	-2.445922E-001
1234	8	-1.714658E-002	-6.888234E-003	-6.050388E-002	-2.430696E-001
1234	9	-1.714520E-002	-6.931431E-003	-6.050192E-002	-2.445904E-001
1235	1	-1.507524E-002	-3.140480E-003	-5.319512E-002	-1.108171E-001
1235	2	-1.507568E-002	-3.168210E-003	-5.319677E-002	-1.117948E-001
1235	3	-1.527708E-002	-3.168155E-003	-5.390989E-002	-1.117948E-001
1235	4	-1.527747E-002	-3.140535E-003	-5.390814E-002	-1.108189E-001
1235	5	-1.507476E-002	-3.154217E-003	-5.319542E-002	-1.113064E-001
1235	6	-1.517600E-002	-3.168192E-003	-5.355067E-002	-1.117948E-001
1235	7	-1.527647E-002	-3.154217E-003	-5.390633E-002	-1.113064E-001
1235	8	-1.517609E-002	-3.140360E-003	-5.355156E-002	-1.108133E-001
1235	9	-1.517605E-002	-3.154217E-003	-5.355183E-002	-1.113064E-001
1236	1	-1.534818E-002	-4.850441E-003	-5.415878E-002	-1.429303E-001
1236	2	-1.534684E-002	-4.889030E-003	-5.415451E-002	-1.442928E-001
1236	3	-1.562857E-002	-4.889176E-003	-5.514974E-002	-1.442948E-001
1236	4	-1.562941E-002	-4.850378E-003	-5.515118E-002	-1.429273E-001
1236	5	-1.534750E-002	-4.869722E-003	-5.415761E-002	-1.436066E-001
1236	6	-1.548838E-002	-4.889893E-003	-5.465275E-002	-1.442956E-001
1236	7	-1.562888E-002	-4.869722E-003	-5.515106E-002	-1.436066E-001
1236	8	-1.548862E-002	-4.850489E-003	-5.465371E-002	-1.429293E-001
1236	9	-1.548837E-002	-4.869722E-003	-5.465325E-002	-1.436066E-001
1237	1	-1.478975E-002	-1.342877E-003	-5.219014E-002	-4.738948E-002
1237	2	-1.478970E-002	-1.353753E-003	-5.218670E-002	-4.777225E-002
1237	3	-1.486996E-002	-1.353911E-003	-5.247087E-002	-4.777462E-002
1237	4	-1.486989E-002	-1.342934E-003	-5.246954E-002	-4.738640E-002
1237	5	-1.478863E-002	-1.348373E-003	-5.218775E-002	-4.758218E-002
1237	6	-1.483003E-002	-1.353927E-003	-5.232999E-002	-4.777241E-002
1237	7	-1.486967E-002	-1.348336E-003	-5.247023E-002	-4.757928E-002
1237	8	-1.482981E-002	-1.343035E-003	-5.233020E-002	-4.738549E-002
1237	9	-1.483008E-002	-1.348406E-003	-5.232933E-002	-4.757877E-002
1238	1	-1.488895E-002	-2.238179E-003	-5.253920E-002	-7.897992E-002
1238	2	-1.488874E-002	-2.258618E-003	-5.253683E-002	-7.970117E-002
1238	3	-1.503768E-002	-2.258586E-003	-5.306222E-002	-7.969918E-002
1238	4	-1.503813E-002	-2.238241E-003	-5.306341E-002	-7.898046E-002
1238	5	-1.488856E-002	-2.248440E-003	-5.253807E-002	-7.934168E-002
1238	6	-1.496368E-002	-2.258628E-003	-5.280102E-002	-7.969690E-002

1245	4	-2.259362E-002	-1.568997E-002	-7.972763E-002	-5.536545E-001
1245	5	-2.229617E-002	-1.571039E-002	-7.867844E-002	-5.543706E-001
1245	6	-2.244460E-002	-1.573059E-002	-7.920028E-002	-5.550891E-001
1245	7	-2.259300E-002	-1.571043E-002	-7.972550E-002	-5.543711E-001
1245	8	-2.244469E-002	-1.568983E-002	-7.920200E-002	-5.536503E-001
1245	9	-2.244433E-002	-1.571035E-002	-7.920122E-002	-5.543727E-001
1246	1	-1.622029E-002	-8.039986E-003	-5.723849E-002	-2.837029E-001
1246	2	-1.622074E-002	-8.137195E-003	-5.723931E-002	-2.871335E-001
1246	3	-1.692949E-002	-8.137124E-003	-5.973741E-002	-2.871335E-001
1246	4	-1.692958E-002	-8.039987E-003	-5.974088E-002	-2.837030E-001
1246	5	-1.622050E-002	-8.088491E-003	-5.723974E-002	-2.854202E-001
1246	6	-1.657449E-002	-8.137219E-003	-5.848736E-002	-2.871391E-001
1246	7	-1.692951E-002	-8.088498E-003	-5.973969E-002	-2.854219E-001
1246	8	-1.657576E-002	-8.039926E-003	-5.848933E-002	-2.837048E-001
1246	9	-1.657508E-002	-8.088495E-003	-5.848815E-002	-2.854194E-001
1247	1	-1.714886E-002	-9.152527E-003	-6.048661E-002	-3.229631E-001
1247	2	-1.714020E-002	-9.271758E-003	-6.048207E-002	-3.271736E-001
1247	3	-1.800932E-002	-9.271781E-003	-6.355205E-002	-3.271738E-001
1247	4	-1.801120E-002	-9.152440E-003	-6.355435E-002	-3.229632E-001
1247	5	-1.714172E-002	-9.212036E-003	-6.048664E-002	-3.250622E-001
1247	6	-1.757527E-002	-9.271785E-003	-6.201773E-002	-3.271723E-001
1247	7	-1.800960E-002	-9.212875E-003	-6.355126E-002	-3.250631E-001
1247	8	-1.757617E-002	-9.152469E-003	-6.202023E-002	-3.229612E-001
1247	9	-1.757545E-002	-9.212063E-003	-6.201886E-002	-3.250636E-001
1248	1	-1.828407E-002	-1.037822E-002	-6.451903E-002	-3.662108E-001
1248	2	-1.828408E-002	-1.051720E-002	-6.451961E-002	-3.711219E-001
1248	3	-1.929817E-002	-1.051733E-002	-6.809700E-002	-3.711219E-001
1248	4	-1.929758E-002	-1.037814E-002	-6.809746E-002	-3.662111E-001
1248	5	-1.828564E-002	-1.044771E-002	-6.452320E-002	-3.686671E-001
1248	6	-1.879117E-002	-1.051732E-002	-6.630902E-002	-3.711236E-001
1248	7	-1.929775E-002	-1.044753E-002	-6.809723E-002	-3.686686E-001
1248	8	-1.879117E-002	-1.037804E-002	-6.630902E-002	-3.662129E-001
1248	9	-1.879117E-002	-1.044773E-002	-6.630902E-002	-3.686688E-001
1249	1	-1.546856E-002	-6.998002E-003	-5.458470E-002	-2.469348E-001
1249	2	-1.546874E-002	-7.075919E-003	-5.458232E-002	-2.496857E-001
1249	3	-1.603513E-002	-7.075969E-003	-5.658332E-002	-2.496904E-001
1249	4	-1.603659E-002	-6.998182E-003	-5.658676E-002	-2.469438E-001
1249	5	-1.546778E-002	-7.036892E-003	-5.458321E-002	-2.483098E-001
1249	6	-1.575177E-002	-7.075900E-003	-5.558384E-002	-2.496907E-001
1249	7	-1.603646E-002	-7.037014E-003	-5.658647E-002	-2.483150E-001
1249	8	-1.575271E-002	-6.998092E-003	-5.558563E-002	-2.469393E-001
1249	9	-1.575201E-002	-7.037028E-003	-5.558477E-002	-2.483119E-001
1250	1	-1.487479E-002	-4.100123E-003	-4.966417E-002	-1.446779E-001
1250	2	-1.487458E-002	-4.136147E-003	-4.966545E-002	-1.459537E-001
1250	3	-1.433885E-002	-4.136248E-003	-5.859621E-002	-1.459544E-001
1250	4	-1.433840E-002	-4.099887E-003	-5.859583E-002	-1.446762E-001
1250	5	-1.487501E-002	-4.118011E-003	-4.966634E-002	-1.453154E-001
1250	6	-1.460692E-002	-4.136302E-003	-5.013130E-002	-1.459557E-001
1250	7	-1.433923E-002	-4.118165E-003	-5.859930E-002	-1.453159E-001
1250	8	-1.460700E-002	-4.099961E-003	-5.013273E-002	-1.446776E-001
1250	9	-1.460660E-002	-4.118126E-003	-5.013176E-002	-1.453157E-001
1251	1	-1.442768E-002	-5.039783E-003	-5.891068E-002	-1.778441E-001
1251	2	-1.442677E-002	-5.087188E-003	-5.890719E-002	-1.795119E-001
1251	3	-1.477346E-002	-5.087242E-003	-5.213070E-002	-1.795126E-001
1251	4	-1.477314E-002	-5.039778E-003	-5.213028E-002	-1.778421E-001
1251	5	-1.442681E-002	-5.063586E-003	-5.890753E-002	-1.786764E-001
1251	6	-1.459965E-002	-5.087325E-003	-5.151903E-002	-1.795173E-001
1251	7	-1.477288E-002	-5.063511E-003	-5.212929E-002	-1.786791E-001
1251	8	-1.460057E-002	-5.039737E-003	-5.152097E-002	-1.778360E-001
1251	9	-1.460048E-002	-5.063571E-003	-5.152049E-002	-1.786787E-001

[illegible]38	7	-1.503779E-002	-2.248366E-003	-5.306334E-002	-7.933973E-002
[illegible]38	8	-1.496337E-002	-2.238194E-003	-5.280228E-002	-7.897968E-002
1238	9	-1.496353E-002	-2.248442E-003	-5.280165E-002	-7.934073E-002
1239	1	-1.475383E-002	-4.532467E-004	-5.206162E-002	-1.599692E-002
1239	2	-1.475344E-002	-4.561249E-004	-5.205968E-002	-1.609710E-002
1239	3	-1.477545E-002	-4.560900E-004	-5.213803E-002	-1.609420E-002
1239	4	-1.477449E-002	-4.532486E-004	-5.213395E-002	-1.598926E-002
1239	5	-1.475313E-002	-4.546432E-004	-5.206035E-002	-1.604477E-002
1239	6	-1.476413E-002	-4.561183E-004	-5.209903E-002	-1.609419E-002
1239	7	-1.477393E-002	-4.545952E-004	-5.213417E-002	-1.604255E-002
1239	8	-1.476431E-002	-4.531543E-004	-5.209903E-002	-1.599389E-002
1239	9	-1.476437E-002	-4.546707E-004	-5.209864E-002	-1.604000E-002
1240	1	-1.944830E-002	-2.181179E-002	-6.862888E-002	-7.696716E-001
1240	2	-1.945966E-002	-2.181693E-002	-6.866563E-002	-7.416250E-001
1240	3	-1.367767E-002	-2.181688E-002	-4.826564E-002	-7.416221E-001
1240	4	-1.367560E-002	-2.181049E-002	-4.825884E-002	-7.696310E-001
1240	5	-1.945283E-002	-2.141470E-002	-6.864395E-002	-7.556586E-001
1240	6	-1.656690E-002	-2.181691E-002	-5.846010E-002	-7.416247E-001
1240	7	-1.367681E-002	-2.141397E-002	-4.826042E-002	-7.556383E-001
1240	8	-1.656139E-002	-2.181116E-002	-5.843872E-002	-7.696548E-001
1240	9	-1.656354E-002	-2.141430E-002	-5.844837E-002	-7.556484E-001
1241	1	-1.134939E-002	-2.437628E-002	-4.884758E-002	-8.681652E-001
1241	2	-1.135808E-002	-2.296907E-002	-4.885244E-002	-8.185095E-001
1241	3	-1.131248E-003	-2.296891E-002	-3.994823E-003	-8.185062E-001
1241	4	-1.112282E-003	-2.437616E-002	-3.924638E-003	-8.681614E-001
1241	5	-1.134941E-002	-2.367198E-002	-4.885148E-002	-8.353162E-001
1241	6	-6.241382E-003	-2.296903E-002	-2.282252E-002	-8.185895E-001
1241	7	-1.121134E-003	-2.367198E-002	-3.956884E-003	-8.353162E-001
1241	8	-6.230420E-003	-2.437628E-002	-2.198596E-002	-8.681614E-001
1241	9	-6.235745E-003	-2.367198E-002	-2.280393E-002	-8.353162E-001
1242	1	-2.233809E-002	-1.852538E-002	-7.882569E-002	-6.537865E-001
1242	2	-2.234266E-002	-1.828688E-002	-7.883888E-002	-6.452593E-001
1242	3	-2.059763E-002	-1.828687E-002	-7.268498E-002	-6.452688E-001
1242	4	-2.059481E-002	-1.852545E-002	-7.267019E-002	-6.537011E-001
1242	5	-2.234084E-002	-1.840563E-002	-7.883498E-002	-6.494830E-001
1242	6	-2.146952E-002	-1.828688E-002	-7.576175E-002	-6.452688E-001
1242	7	-2.059591E-002	-1.840563E-002	-7.267486E-002	-6.494830E-001
1242	8	-2.146681E-002	-1.852548E-002	-7.574829E-002	-6.537019E-001
1242	9	-2.146836E-002	-1.840563E-002	-7.575582E-002	-6.494830E-001
1243	1	-1.961325E-002	-1.178105E-002	-6.920988E-002	-4.157175E-001
1243	2	-1.961320E-002	-1.193944E-002	-6.921037E-002	-4.213051E-001
1243	3	-2.076420E-002	-1.193954E-002	-7.327146E-002	-4.213092E-001
1243	4	-2.076533E-002	-1.178110E-002	-7.327794E-002	-4.157252E-001
1243	5	-1.961329E-002	-1.186031E-002	-6.921092E-002	-4.185156E-001
1243	6	-2.018855E-002	-1.193959E-002	-7.124113E-002	-4.213120E-001
1243	7	-2.076490E-002	-1.186039E-002	-7.327376E-002	-4.185202E-001
1243	8	-2.018835E-002	-1.178123E-002	-7.124448E-002	-4.157210E-001
1243	9	-2.018970E-002	-1.186033E-002	-7.124332E-002	-4.185165E-001
1244	1	-2.105991E-002	-1.349038E-002	-7.431222E-002	-4.760480E-001
1244	2	-2.105681E-002	-1.363418E-002	-7.430235E-002	-4.811043E-001
1244	3	-2.210289E-002	-1.363488E-002	-7.799806E-002	-4.811038E-001
1244	4	-2.210195E-002	-1.349033E-002	-7.799845E-002	-4.760413E-001
1244	5	-2.105812E-002	-1.356216E-002	-7.430837E-002	-4.785671E-001
1244	6	-2.157927E-002	-1.363400E-002	-7.614610E-002	-4.811031E-001
1244	7	-2.210137E-002	-1.356204E-002	-7.798769E-002	-4.785687E-001
1244	8	-2.158041E-002	-1.349026E-002	-7.615136E-002	-4.760353E-001
1244	9	-2.157978E-002	-1.356216E-002	-7.614878E-002	-4.785681E-001
1245	1	-2.229680E-002	-1.568994E-002	-7.868030E-002	-5.536546E-001
1245	2	-2.229636E-002	-1.573861E-002	-7.868014E-002	-5.550889E-001
1245	3	-2.259258E-002	-1.573076E-002	-7.972193E-002	-5.550891E-001

1252	1	-1.487603E-002	-6.001915E-003	-5.249324E-002	-2.117940E-001
1252	2	-1.487462E-002	-6.064930E-003	-5.248823E-002	-2.140143E-001
1252	3	-1.533463E-002	-6.065100E-003	-5.411194E-002	-2.140186E-001
1252	4	-1.533496E-002	-6.001990E-003	-5.411163E-002	-2.117945E-001
1252	5	-1.487545E-002	-6.033444E-003	-5.248949E-002	-2.129013E-001
1252	6	-1.510535E-002	-6.064871E-003	-5.330007E-002	-2.140131E-001
1252	7	-1.533515E-002	-6.033380E-003	-5.411321E-002	-2.129025E-001
1252	8	-1.510526E-002	-6.002072E-003	-5.330390E-002	-2.117923E-001
1252	9	-1.510507E-002	-6.033434E-003	-5.330151E-002	-2.129019E-001
1253	1	-1.365535E-002	-2.263856E-003	-4.810514E-002	-7.988219E-002
1253	2	-1.365540E-002	-2.280656E-003	-4.810570E-002	-8.047727E-002
1253	3	-1.377887E-002	-2.280622E-003	-4.862114E-002	-8.047969E-002
1253	4	-1.377843E-002	-2.263902E-003	-4.862216E-002	-7.988665E-002
1253	5	-1.365598E-002	-2.272270E-003	-4.810781E-002	-8.018019E-002
1253	6	-1.371713E-002	-2.280750E-003	-4.840371E-002	-8.047834E-002
1253	7	-1.377747E-002	-2.272296E-003	-4.861035E-002	-8.018275E-002
1253	8	-1.371713E-002	-2.263888E-003	-4.840371E-002	-7.988331E-002
1253	9	-1.371713E-002	-2.272228E-003	-4.840371E-002	-8.018117E-002
1254	1	-1.382572E-002	-3.176214E-003	-4.878693E-002	-1.128018E-001
1254	2	-1.382502E-002	-3.203104E-003	-4.878690E-002	-1.130297E-001
1254	3	-1.402206E-002	-3.203359E-003	-4.947824E-002	-1.130323E-001
1254	4	-1.402223E-002	-3.176251E-003	-4.948151E-002	-1.128704E-001
1254	5	-1.382558E-002	-3.189760E-003	-4.878639E-002	-1.125530E-001
1254	6	-1.392365E-002	-3.203391E-003	-4.913149E-002	-1.130345E-001
1254	7	-1.402132E-002	-3.189693E-003	-4.947899E-002	-1.125585E-001
1254	8	-1.392395E-002	-3.176173E-003	-4.913297E-002	-1.128787E-001
1254	9	-1.392339E-002	-3.189745E-003	-4.913203E-002	-1.125561E-001
1255	1	-1.352892E-002	-4.568388E-004	-4.774111E-002	-1.611966E-002
1255	2	-1.353017E-002	-4.598531E-004	-4.774441E-002	-1.619359E-002
1255	3	-1.354538E-002	-4.598130E-004	-4.779675E-002	-1.619681E-002
1255	4	-1.354445E-002	-4.569286E-004	-4.779582E-002	-1.612166E-002
1255	5	-1.352949E-002	-4.579680E-004	-4.774252E-002	-1.615764E-002
1255	6	-1.353763E-002	-4.589029E-004	-4.776927E-002	-1.619550E-002
1255	7	-1.354549E-002	-4.579680E-004	-4.779719E-002	-1.615764E-002
1255	8	-1.353726E-002	-4.569135E-004	-4.776927E-002	-1.612587E-002
1255	9	-1.353754E-002	-4.579680E-004	-4.776946E-002	-1.615764E-002
1256	1	-1.354458E-002	-1.357052E-003	-4.779715E-002	-4.788887E-002
1256	2	-1.354455E-002	-1.360133E-003	-4.779459E-002	-4.828038E-002
1256	3	-1.362638E-002	-1.360183E-003	-4.808166E-002	-4.828027E-002
1256	4	-1.362596E-002	-1.357140E-003	-4.808103E-002	-4.789803E-002
1256	5	-1.354501E-002	-1.362676E-003	-4.779528E-002	-4.808579E-002
1256	6	-1.358559E-002	-1.360203E-003	-4.793933E-002	-4.827883E-002
1256	7	-1.362513E-002	-1.362676E-003	-4.807907E-002	-4.808579E-002
1256	8	-1.358560E-002	-1.357126E-003	-4.793916E-002	-4.788846E-002
1256	9	-1.358520E-002	-1.362676E-003	-4.793930E-002	-4.808579E-002
1257	1	-1.566163E-002	-2.079568E-002	-5.526483E-002	-7.339603E-001
1257	2	-1.566268E-002	-2.080340E-002	-5.527263E-002	-7.093904E-001
1257	3	-1.059861E-002	-2.080343E-002	-3.739904E-002	-7.093901E-001
1257	4	-1.058930E-002	-2.079952E-002	-3.736737E-002	-7.339596E-001
1257	5	-1.566206E-002	-2.045115E-002	-5.526726E-002	-7.216622E-001
1257	6	-1.313079E-002	-2.080336E-002	-4.633451E-002	-7.093900E-001
1257	7	-1.059496E-002	-2.045112E-002	-3.738696E-002	-7.216634E-001
1257	8	-1.312473E-002	-2.079978E-002	-4.631661E-002	-7.339565E-001
1257	9	-1.312798E-002	-2.045119E-002	-4.632488E-002	-7.216628E-001
1258	1	-8.676307E-003	-2.260721E-002	-3.861675E-002	-7.977450E-001
1258	2	-8.693893E-003	-2.152572E-002	-3.867630E-002	-7.595774E-001
1258	3	-8.138642E-004	-2.152565E-002	-2.878649E-003	-7.595776E-001
1258	4	-7.959288E-004	-2.260723E-002	-2.889840E-003	-7.977431E-001
1258	5	-8.684799E-003	-2.206649E-002	-3.864589E-002	-7.786615E-001
1258	6	-4.753200E-003	-2.152569E-002	-1.677193E-002	-7.595773E-001

1258	7	-8.048173E-004	-2.206650E-002	-2.840482E-003	-7.786603E-001
1258	8	-4.736688E-003	-2.260739E-002	-1.671347E-002	-7.977437E-001
1258	9	-4.745183E-003	-2.206650E-002	-1.674175E-002	-7.786689E-001
1259	1	-1.936540E-002	-1.573195E-002	-6.833532E-002	-5.551351E-001
1259	2	-1.936604E-002	-1.570519E-002	-6.833619E-002	-5.541877E-001
1259	3	-1.916941E-002	-1.570518E-002	-6.764042E-002	-5.541886E-001
1259	4	-1.916893E-002	-1.573206E-002	-6.763990E-002	-5.551395E-001
1259	5	-1.936508E-002	-1.571864E-002	-6.833216E-002	-5.546620E-001
1259	6	-1.926751E-002	-1.570512E-002	-6.798801E-002	-5.541913E-001
1259	7	-1.916917E-002	-1.571861E-002	-6.764457E-002	-5.546610E-001
1259	8	-1.926675E-002	-1.573192E-002	-6.798676E-002	-5.551370E-001
1259	9	-1.926699E-002	-1.571862E-002	-6.798758E-002	-5.546597E-001
1260	1	-1.879864E-002	-1.820925E-002	-6.633338E-002	-6.425509E-001
1260	2	-1.880198E-002	-1.792153E-002	-6.634531E-002	-6.323952E-001
1260	3	-1.670539E-002	-1.792109E-002	-5.894682E-002	-6.323795E-001
1260	4	-1.670467E-002	-1.820916E-002	-5.894536E-002	-6.425495E-001
1260	5	-1.880013E-002	-1.806553E-002	-6.633980E-002	-6.374793E-001
1260	6	-1.775391E-002	-1.792127E-002	-6.264991E-002	-6.323874E-001
1260	7	-1.670551E-002	-1.806534E-002	-5.894704E-002	-6.374725E-001
1260	8	-1.775209E-002	-1.820914E-002	-6.264132E-002	-6.425464E-001
1260	9	-1.775331E-002	-1.806549E-002	-6.264476E-002	-6.374779E-001
1261	1	-1.654758E-002	-1.855481E-002	-5.839146E-002	-3.724466E-001
1261	2	-1.654579E-002	-1.867379E-002	-5.838537E-002	-3.766451E-001
1261	3	-1.741319E-002	-1.867373E-002	-6.144589E-002	-3.766439E-001
1261	4	-1.741495E-002	-1.855479E-002	-6.145097E-002	-3.724467E-001
1261	5	-1.654613E-002	-1.861426E-002	-5.838770E-002	-3.745466E-001
1261	6	-1.697834E-002	-1.867375E-002	-5.991264E-002	-3.766446E-001
1261	7	-1.741487E-002	-1.861426E-002	-6.144898E-002	-3.745466E-001
1261	8	-1.698102E-002	-1.855483E-002	-5.991906E-002	-3.724481E-001
1261	9	-1.697939E-002	-1.861426E-002	-5.991633E-002	-3.745466E-001
1262	1	-1.764311E-002	-1.197977E-002	-6.225921E-002	-4.227270E-001
1262	2	-1.764169E-002	-1.209794E-002	-6.225199E-002	-4.269016E-001
1262	3	-1.850317E-002	-1.209798E-002	-6.529237E-002	-4.269004E-001
1262	4	-1.850388E-002	-1.197962E-002	-6.529276E-002	-4.227267E-001
1262	5	-1.764137E-002	-1.203870E-002	-6.225256E-002	-4.248135E-001
1262	6	-1.807201E-002	-1.209998E-002	-6.377231E-002	-4.269018E-001
1262	7	-1.850456E-002	-1.203870E-002	-6.529395E-002	-4.248135E-001
1262	8	-1.807268E-002	-1.197960E-002	-6.377534E-002	-4.227254E-001
1262	9	-1.807267E-002	-1.203870E-002	-6.377444E-002	-4.248135E-001
1263	1	-1.871873E-002	-1.366708E-002	-6.605335E-002	-4.822785E-001
1263	2	-1.871821E-002	-1.375191E-002	-6.605328E-002	-4.852661E-001
1263	3	-1.933440E-002	-1.375193E-002	-6.822400E-002	-4.852683E-001
1263	4	-1.933585E-002	-1.366727E-002	-6.823028E-002	-4.822778E-001
1263	5	-1.871823E-002	-1.370964E-002	-6.605257E-002	-4.837731E-001
1263	6	-1.902696E-002	-1.375188E-002	-6.713912E-002	-4.852656E-001
1263	7	-1.933463E-002	-1.370964E-002	-6.822585E-002	-4.837731E-001
1263	8	-1.902742E-002	-1.366733E-002	-6.714161E-002	-4.822796E-001
1263	9	-1.902679E-002	-1.370964E-002	-6.713966E-002	-4.837731E-001
1264	1	-1.407798E-002	-7.897164E-003	-4.967664E-002	-2.584449E-001
1264	2	-1.407683E-002	-7.168673E-003	-4.967335E-002	-2.529621E-001
1264	3	-1.459497E-002	-7.168610E-003	-5.150034E-002	-2.529589E-001
1264	4	-1.459585E-002	-7.897473E-003	-5.150578E-002	-2.584515E-001
1264	5	-1.407755E-002	-7.133006E-003	-4.967410E-002	-2.517023E-001
1264	6	-1.433578E-002	-7.168646E-003	-5.058739E-002	-2.529598E-001
1264	7	-1.459517E-002	-7.133112E-003	-5.150018E-002	-2.517063E-001
1264	8	-1.433670E-002	-7.897349E-003	-5.058998E-002	-2.584459E-001
1264	9	-1.433632E-002	-7.132985E-003	-5.058067E-002	-2.517050E-001
1265	1	-1.474664E-002	-8.163901E-003	-5.203458E-002	-2.880764E-001
1265	2	-1.474540E-002	-8.251032E-003	-5.203293E-002	-2.911574E-001
1265	3	-1.537895E-002	-8.251066E-003	-5.426741E-002	-2.911525E-001

1265	4	-1.537926E-002	-8.163895E-003	-5.427099E-002	-2.880889E-001
1265	5	-1.474614E-002	-8.207478E-003	-5.203478E-002	-2.896156E-001
1265	6	-1.506206E-002	-8.251088E-003	-5.315043E-002	-2.911529E-001
1265	7	-1.537970E-002	-8.207478E-003	-5.427158E-002	-2.896156E-001
1265	8	-1.506312E-002	-8.163957E-003	-5.315199E-002	-2.880791E-001
1265	9	-1.506275E-002	-8.207478E-003	-5.315163E-002	-2.896156E-001
1266	1	-1.558126E-002	-9.304251E-003	-5.498052E-002	-3.283152E-001
1266	2	-1.557993E-002	-9.407219E-003	-5.497841E-002	-3.319549E-001
1266	3	-1.632856E-002	-9.407407E-003	-5.762151E-002	-3.319608E-001
1266	4	-1.633111E-002	-9.304214E-003	-5.762519E-002	-3.283203E-001
1266	5	-1.558060E-002	-9.355030E-003	-5.497794E-002	-3.301407E-001
1266	6	-1.595469E-002	-9.407387E-003	-5.629992E-002	-3.319577E-001
1266	7	-1.633083E-002	-9.355016E-003	-5.762553E-002	-3.301440E-001
1266	8	-1.595533E-002	-9.304233E-003	-5.630138E-002	-3.283178E-001
1266	9	-1.595522E-002	-9.355055E-003	-5.630077E-002	-3.301410E-001
1267	1	-1.279360E-002	-4.146573E-003	-4.514339E-002	-1.463178E-001
1267	2	-1.279300E-002	-4.180427E-003	-4.514245E-002	-1.475172E-001
1267	3	-1.304165E-002	-4.180398E-003	-4.601743E-002	-1.475164E-001
1267	4	-1.304124E-002	-4.146529E-003	-4.601749E-002	-1.463135E-001
1267	5	-1.279354E-002	-4.163487E-003	-4.514521E-002	-1.469189E-001
1267	6	-1.291747E-002	-4.180410E-003	-4.558112E-002	-1.475168E-001
1267	7	-1.304089E-002	-4.163487E-003	-4.601717E-002	-1.469189E-001
1267	8	-1.291766E-002	-4.146492E-003	-4.558212E-002	-1.463189E-001
1267	9	-1.291745E-002	-4.163487E-003	-4.558072E-002	-1.469189E-001
1268	1	-1.311004E-002	-5.100715E-003	-4.625946E-002	-1.799877E-001
1268	2	-1.310935E-002	-5.145291E-003	-4.625991E-002	-1.815639E-001
1268	3	-1.343344E-002	-5.145353E-003	-4.740487E-002	-1.815636E-001
1268	4	-1.343328E-002	-5.100667E-003	-4.740253E-002	-1.799871E-001
1268	5	-1.310955E-002	-5.122896E-003	-4.626176E-002	-1.807743E-001
1268	6	-1.327109E-002	-5.145207E-003	-4.683235E-002	-1.815635E-001
1268	7	-1.343337E-002	-5.122896E-003	-4.740278E-002	-1.807743E-001
1268	8	-1.327160E-002	-5.100758E-003	-4.683282E-002	-1.799860E-001
1268	9	-1.327184E-002	-5.122896E-003	-4.683224E-002	-1.807743E-001
1269	1	-1.353972E-002	-6.082124E-003	-4.777722E-002	-2.146234E-001
1269	2	-1.353947E-002	-6.137550E-003	-4.777803E-002	-2.165765E-001
1269	3	-1.394354E-002	-6.137515E-003	-4.920803E-002	-2.165761E-001
1269	4	-1.394359E-002	-6.082340E-003	-4.920198E-002	-2.146236E-001
1269	5	-1.354040E-002	-6.109799E-003	-4.777959E-002	-2.156014E-001
1269	6	-1.374152E-002	-6.137538E-003	-4.849004E-002	-2.165765E-001
1269	7	-1.394214E-002	-6.109799E-003	-4.919808E-002	-2.156014E-001
1269	8	-1.374152E-002	-6.082276E-003	-4.849004E-002	-2.146254E-001
1269	9	-1.374152E-002	-6.109799E-003	-4.849004E-002	-2.156014E-001
1270	1	-1.255819E-002	-3.218379E-003	-4.431769E-002	-1.132864E-001
1270	2	-1.255855E-002	-3.234278E-003	-4.431679E-002	-1.141252E-001
1270	3	-1.273114E-002	-3.234218E-003	-4.492800E-002	-1.141272E-001
1270	4	-1.273200E-002	-3.218262E-003	-4.492676E-002	-1.132855E-001
1270	5	-1.255749E-002	-3.222247E-003	-4.431486E-002	-1.137044E-001
1270	6	-1.264568E-002	-3.234243E-003	-4.462155E-002	-1.141243E-001
1270	7	-1.273251E-002	-3.222318E-003	-4.493069E-002	-1.137067E-001
1270	8	-1.264568E-002	-3.218440E-003	-4.462155E-002	-1.132859E-001
1270	9	-1.264568E-002	-3.222193E-003	-4.462155E-002	-1.137037E-001
1271	1	-1.226483E-002	-4.597768E-004	-4.327749E-002	-1.622835E-002
1271	2	-1.226462E-002	-4.635423E-004	-4.327675E-002	-1.636859E-002
1271	3	-1.229128E-002	-4.635399E-004	-4.337252E-002	-1.635996E-002
1271	4	-1.229160E-002	-4.597683E-004	-4.337324E-002	-1.622338E-002
1271	5	-1.226382E-002	-4.617473E-004	-4.327390E-002	-1.629199E-002
1271	6	-1.227794E-002	-4.636102E-004	-4.332421E-002	-1.635986E-002
1271	7	-1.229076E-002	-4.617882E-004	-4.336958E-002	-1.629205E-002
1271	8	-1.227794E-002	-4.597863E-004	-4.332421E-002	-1.622587E-002
1271	9	-1.227794E-002	-4.617597E-004	-4.332421E-002	-1.629202E-002

1272	1	-1.230686E-002	-1.371300E-003	-4.342286E-002	-4.838739E-002
1272	2	-1.230601E-002	-1.380821E-003	-4.342278E-002	-4.872688E-002
1272	3	-1.237648E-002	-1.380816E-003	-4.367336E-002	-4.872628E-002
1272	4	-1.237627E-002	-1.371358E-003	-4.367159E-002	-4.838900E-002
1272	5	-1.230631E-002	-1.376106E-003	-4.342576E-002	-4.855585E-002
1272	6	-1.234055E-002	-1.380777E-003	-4.354697E-002	-4.872651E-002
1272	7	-1.237625E-002	-1.375982E-003	-4.367013E-002	-4.855583E-002
1272	8	-1.234042E-002	-1.371102E-003	-4.354719E-002	-4.838489E-002
1272	9	-1.234035E-002	-1.376133E-003	-4.354748E-002	-4.855584E-002
1273	1	-1.239055E-002	-2.285674E-003	-4.372298E-002	-8.065487E-002
1273	2	-1.239034E-002	-2.302866E-003	-4.372226E-002	-8.126201E-002
1273	3	-1.251617E-002	-2.302862E-003	-4.416449E-002	-8.126146E-002
1273	4	-1.251503E-002	-2.285603E-003	-4.416072E-002	-8.065745E-002
1273	5	-1.239041E-002	-2.294317E-003	-4.372143E-002	-8.095690E-002
1273	6	-1.245338E-002	-2.302793E-003	-4.394097E-002	-8.126215E-002
1273	7	-1.251503E-002	-2.294307E-003	-4.416076E-002	-8.095673E-002
1273	8	-1.245323E-002	-2.285682E-003	-4.394243E-002	-8.065235E-002
1273	9	-1.245248E-002	-2.294222E-003	-4.394193E-002	-8.095682E-002
1274	1	-1.573699E-002	-1.783619E-002	-5.553060E-002	-6.293844E-001
1274	2	-1.573654E-002	-1.754424E-002	-5.552988E-002	-6.190858E-001
1274	3	-1.361475E-002	-1.754404E-002	-4.804418E-002	-6.190808E-001
1274	4	-1.361164E-002	-1.783590E-002	-4.803808E-002	-6.293764E-001
1274	5	-1.573595E-002	-1.769813E-002	-5.552759E-002	-6.242316E-001
1274	6	-1.467542E-002	-1.754410E-002	-5.178595E-002	-6.190778E-001
1274	7	-1.361247E-002	-1.768994E-002	-4.803495E-002	-6.242244E-001
1274	8	-1.467265E-002	-1.783608E-002	-5.177725E-002	-6.293818E-001
1274	9	-1.467391E-002	-1.768998E-002	-5.178035E-002	-6.242272E-001
1275	1	-1.263498E-002	-1.931478E-002	-4.458588E-002	-7.027389E-001
1275	2	-1.264501E-002	-1.931478E-002	-4.461833E-002	-6.815602E-001
1275	3	-8.277782E-003	-1.931471E-002	-2.920788E-002	-6.815596E-001
1275	4	-8.268096E-003	-1.931487E-002	-2.917532E-002	-7.027395E-001
1275	5	-1.263926E-002	-1.961478E-002	-4.459788E-002	-6.921477E-001
1275	6	-1.046060E-002	-1.931475E-002	-3.691418E-002	-6.815601E-001
1275	7	-8.273338E-003	-1.961478E-002	-2.919412E-002	-6.921477E-001
1275	8	-1.045186E-002	-1.931501E-002	-3.687983E-002	-7.027392E-001
1275	9	-1.045604E-002	-1.961478E-002	-3.689718E-002	-6.921477E-001
1276	1	-6.753591E-003	-2.125057E-002	-2.383285E-002	-7.498654E-001
1276	2	-6.764431E-003	-2.043846E-002	-2.387077E-002	-7.212136E-001
1276	3	-8.592084E-004	-2.043839E-002	-3.032550E-003	-7.212128E-001
1276	4	-8.578412E-004	-2.125065E-002	-3.027089E-003	-7.498686E-001
1276	5	-6.768188E-003	-2.084484E-002	-2.385561E-002	-7.355588E-001
1276	6	-3.812132E-003	-2.043843E-002	-1.345342E-002	-7.212132E-001
1276	7	-8.574110E-004	-2.084484E-002	-3.026955E-003	-7.355588E-001
1276	8	-3.806022E-003	-2.125043E-002	-1.343087E-002	-7.498646E-001
1276	9	-3.809194E-003	-2.084484E-002	-1.344150E-002	-7.355588E-001
1277	1	-1.567927E-002	-1.212749E-002	-5.532627E-002	-4.279580E-001
1277	2	-1.567928E-002	-1.221333E-002	-5.532609E-002	-4.309763E-001
1277	3	-1.630351E-002	-1.221342E-002	-5.752836E-002	-4.309766E-001
1277	4	-1.630327E-002	-1.212773E-002	-5.753029E-002	-4.279589E-001
1277	5	-1.567827E-002	-1.217062E-002	-5.532613E-002	-4.294634E-001
1277	6	-1.599131E-002	-1.221344E-002	-5.642759E-002	-4.309769E-001
1277	7	-1.630380E-002	-1.217062E-002	-5.753046E-002	-4.294634E-001
1277	8	-1.599207E-002	-1.212774E-002	-5.642945E-002	-4.279543E-001
1277	9	-1.599150E-002	-1.217062E-002	-5.642914E-002	-4.294634E-001
1278	1	-1.641520E-002	-1.377044E-002	-5.792467E-002	-4.859254E-001
1278	2	-1.641458E-002	-1.381391E-002	-5.792267E-002	-4.874533E-001
1278	3	-1.673087E-002	-1.381400E-002	-5.903892E-002	-4.874533E-001
1278	4	-1.673112E-002	-1.377057E-002	-5.904065E-002	-4.859229E-001
1278	5	-1.641423E-002	-1.379218E-002	-5.792224E-002	-4.866888E-001
1278	6	-1.657236E-002	-1.381398E-002	-5.847896E-002	-4.874530E-001

1278	7	-1.673062E-002	-1.379218E-002	-5.903734E-002	-4.866888E-001
1278	8	-1.657329E-002	-1.377066E-002	-5.848137E-002	-4.859256E-001
1278	9	-1.657283E-002	-1.379218E-002	-5.848064E-002	-4.866888E-001
1279	1	-1.666922E-002	-1.569034E-002	-5.881857E-002	-5.536704E-001
1279	2	-1.666953E-002	-1.561560E-002	-5.882076E-002	-5.510306E-001
1279	3	-1.612500E-002	-1.561578E-002	-5.689969E-002	-5.510388E-001
1279	4	-1.612436E-002	-1.569046E-002	-5.689895E-002	-5.536637E-001
1279	5	-1.666916E-002	-1.565384E-002	-5.881985E-002	-5.523478E-001
1279	6	-1.639667E-002	-1.561568E-002	-5.786074E-002	-5.510384E-001
1279	7	-1.612458E-002	-1.565384E-002	-5.690010E-002	-5.523478E-001
1279	8	-1.639637E-002	-1.569046E-002	-5.785798E-002	-5.536743E-001
1279	9	-1.639701E-002	-1.565384E-002	-5.785922E-002	-5.523478E-001
1280	1	-1.396957E-002	-9.435128E-003	-4.929301E-002	-3.329360E-001
1280	2	-1.396712E-002	-9.525333E-003	-4.928686E-002	-3.361172E-001
1280	3	-1.462457E-002	-9.525418E-003	-5.160476E-002	-3.361206E-001
1280	4	-1.462596E-002	-9.435126E-003	-5.161087E-002	-3.329381E-001
1280	5	-1.396715E-002	-9.480189E-003	-4.928726E-002	-3.345271E-001
1280	6	-1.429623E-002	-9.525211E-003	-5.044688E-002	-3.361187E-001
1280	7	-1.462444E-002	-9.480191E-003	-5.160495E-002	-3.345286E-001
1280	8	-1.429792E-002	-9.435061E-003	-5.045103E-002	-3.329373E-001
1280	9	-1.429660E-002	-9.480161E-003	-5.044028E-002	-3.345265E-001
1281	1	-1.480206E-002	-1.079488E-002	-5.223041E-002	-3.777362E-001
1281	2	-1.479949E-002	-1.079938E-002	-5.222245E-002	-3.810748E-001
1281	3	-1.548898E-002	-1.079936E-002	-5.465561E-002	-3.810787E-001
1281	4	-1.548786E-002	-1.079478E-002	-5.465360E-002	-3.777387E-001
1281	5	-1.480026E-002	-1.075191E-002	-5.222560E-002	-3.794057E-001
1281	6	-1.514381E-002	-1.079928E-002	-5.343038E-002	-3.810749E-001
1281	7	-1.548776E-002	-1.075210E-002	-5.465167E-002	-3.794094E-001
1281	8	-1.514493E-002	-1.078489E-002	-5.344015E-002	-3.777423E-001
1281	9	-1.514459E-002	-1.075197E-002	-5.343949E-002	-3.794091E-001
1282	1	-1.149474E-002	-4.189871E-003	-4.056159E-002	-1.478413E-001
1282	2	-1.149512E-002	-4.219491E-003	-4.056218E-002	-1.488925E-001
1282	3	-1.171168E-002	-4.219477E-003	-4.132722E-002	-1.488918E-001
1282	4	-1.171193E-002	-4.189763E-003	-4.132822E-002	-1.478426E-001
1282	5	-1.149533E-002	-4.204644E-003	-4.056385E-002	-1.483697E-001
1282	6	-1.160338E-002	-4.219485E-003	-4.094419E-002	-1.488933E-001
1282	7	-1.171098E-002	-4.204662E-003	-4.132440E-002	-1.483689E-001
1282	8	-1.160338E-002	-4.189877E-003	-4.094419E-002	-1.478453E-001
1282	9	-1.160338E-002	-4.204645E-003	-4.094419E-002	-1.483693E-001
1283	1	-1.178683E-002	-5.157671E-003	-4.158887E-002	-1.820019E-001
1283	2	-1.178622E-002	-5.198215E-003	-4.158832E-002	-1.834267E-001
1283	3	-1.208105E-002	-5.198125E-003	-4.262939E-002	-1.834296E-001
1283	4	-1.208060E-002	-5.157679E-003	-4.262985E-002	-1.819955E-001
1283	5	-1.178707E-002	-5.177920E-003	-4.159179E-002	-1.827146E-001
1283	6	-1.193347E-002	-5.198219E-003	-4.210928E-002	-1.834315E-001
1283	7	-1.208029E-002	-5.178047E-003	-4.262847E-002	-1.827155E-001
1283	8	-1.193373E-002	-5.157675E-003	-4.211018E-002	-1.820020E-001
1283	9	-1.193351E-002	-5.177932E-003	-4.211033E-002	-1.827160E-001
1284	1	-1.216357E-002	-6.153014E-003	-4.291980E-002	-2.171213E-001
1284	2	-1.216309E-002	-6.204478E-003	-4.291821E-002	-2.189391E-001
1284	3	-1.253735E-002	-6.204581E-003	-4.424863E-002	-2.189382E-001
1284	4	-1.253855E-002	-6.153018E-003	-4.424483E-002	-2.171214E-001
1284	5	-1.216273E-002	-6.178846E-003	-4.292065E-002	-2.180291E-001
1284	6	-1.235057E-002	-6.204594E-003	-4.358071E-002	-2.189401E-001
1284	7	-1.253736E-002	-6.178843E-003	-4.424044E-002	-2.180295E-001
1284	8	-1.235056E-002	-6.152926E-003	-4.358182E-002	-2.171223E-001
1284	9	-1.235058E-002	-6.178852E-003	-4.358133E-002	-2.180302E-001
1285	1	-1.265873E-002	-7.188087E-003	-4.466776E-002	-2.536456E-001
1285	2	-1.265875E-002	-7.249994E-003	-4.466894E-002	-2.558277E-001
1285	3	-1.310955E-002	-7.249994E-003	-4.626148E-002	-2.558308E-001

1285	4	-1.311003E-002	-7.187997E-003	-4.626149E-002	-2.536427E-001
1285	5	-1.265733E-002	-7.219024E-003	-4.466501E-002	-2.547372E-001
1285	6	-1.288442E-002	-7.249994E-003	-4.546419E-002	-2.558326E-001
1285	7	-1.311003E-002	-7.219067E-003	-4.626244E-002	-2.547372E-001
1285	8	-1.288442E-002	-7.187879E-003	-4.546419E-002	-2.536465E-001
1285	9	-1.288442E-002	-7.219068E-003	-4.546419E-002	-2.547363E-001
1286	1	-1.325625E-002	-8.274758E-003	-4.677714E-002	-2.919931E-001
1286	2	-1.325609E-002	-8.350780E-003	-4.677757E-002	-2.946744E-001
1286	3	-1.381045E-002	-8.350857E-003	-4.873116E-002	-2.946762E-001
1286	4	-1.381041E-002	-8.274662E-003	-4.873215E-002	-2.919939E-001
1286	5	-1.325609E-002	-8.312893E-003	-4.677639E-002	-2.933361E-001
1286	6	-1.353271E-002	-8.350891E-003	-4.775286E-002	-2.946794E-001
1286	7	-1.381047E-002	-8.312818E-003	-4.873223E-002	-2.933375E-001
1286	8	-1.353306E-002	-8.274755E-003	-4.775525E-002	-2.919968E-001
1286	9	-1.353333E-002	-8.312885E-003	-4.775437E-002	-2.933368E-001
1287	1	-1.126877E-002	-3.240761E-003	-3.976526E-002	-1.143551E-001
1287	2	-1.126844E-002	-3.264128E-003	-3.976174E-002	-1.151797E-001
1287	3	-1.143865E-002	-3.264226E-003	-4.036431E-002	-1.151837E-001
1287	4	-1.143879E-002	-3.240911E-003	-4.036408E-002	-1.143592E-001
1287	5	-1.126868E-002	-3.252511E-003	-3.976426E-002	-1.147688E-001
1287	6	-1.135357E-002	-3.264103E-003	-4.006469E-002	-1.151793E-001
1287	7	-1.143839E-002	-3.252435E-003	-4.036094E-002	-1.147717E-001
1287	8	-1.135372E-002	-3.240836E-003	-4.006422E-002	-1.143552E-001
1287	9	-1.135388E-002	-3.252378E-003	-4.006464E-002	-1.147679E-001
1288	1	-1.101554E-002	-4.644046E-004	-3.887118E-002	-1.639179E-002
1288	2	-1.101563E-002	-4.669928E-004	-3.887106E-002	-1.647948E-002
1288	3	-1.103323E-002	-4.669839E-004	-3.893349E-002	-1.647785E-002
1288	4	-1.103439E-002	-4.644366E-004	-3.893678E-002	-1.639282E-002
1288	5	-1.101605E-002	-4.657112E-004	-3.887371E-002	-1.643469E-002
1288	6	-1.102445E-002	-4.669774E-004	-3.890279E-002	-1.647738E-002
1288	7	-1.103288E-002	-4.657112E-004	-3.893330E-002	-1.643469E-002
1288	8	-1.102416E-002	-4.645238E-004	-3.890289E-002	-1.639179E-002
1288	9	-1.102455E-002	-4.657112E-004	-3.890261E-002	-1.643469E-002
1289	1	-1.104465E-002	-1.383425E-003	-3.897414E-002	-4.882034E-002
1289	2	-1.104502E-002	-1.391547E-003	-3.897471E-002	-4.909981E-002
1289	3	-1.110351E-002	-1.391355E-003	-3.917978E-002	-4.909807E-002
1289	4	-1.110380E-002	-1.383425E-003	-3.918093E-002	-4.881755E-002
1289	5	-1.104381E-002	-1.387406E-003	-3.897879E-002	-4.895867E-002
1289	6	-1.107409E-002	-1.391464E-003	-3.907596E-002	-4.909751E-002
1289	7	-1.110307E-002	-1.387406E-003	-3.917801E-002	-4.895867E-002
1289	8	-1.107409E-002	-1.383544E-003	-3.907596E-002	-4.881755E-002
1289	9	-1.107409E-002	-1.387486E-003	-3.907596E-002	-4.895867E-002
1290	1	-1.112810E-002	-2.307600E-003	-3.926546E-002	-8.142939E-002
1290	2	-1.112845E-002	-2.323217E-003	-3.926768E-002	-8.198329E-002
1290	3	-1.124217E-002	-2.323422E-003	-3.967053E-002	-8.198457E-002
1290	4	-1.124201E-002	-2.307632E-003	-3.966814E-002	-8.143041E-002
1290	5	-1.112741E-002	-2.315414E-003	-3.926581E-002	-8.170771E-002
1290	6	-1.118503E-002	-2.323307E-003	-3.946925E-002	-8.197971E-002
1290	7	-1.124281E-002	-2.315414E-003	-3.967131E-002	-8.170771E-002
1290	8	-1.118501E-002	-2.307632E-003	-3.946827E-002	-8.142659E-002
1290	9	-1.118514E-002	-2.315414E-003	-3.946886E-002	-8.170771E-002
1291	1	-1.418709E-002	-1.559865E-002	-5.006387E-002	-5.501483E-001
1291	2	-1.418728E-002	-1.549373E-002	-5.006145E-002	-5.467269E-001
1291	3	-1.348262E-002	-1.549372E-002	-4.757468E-002	-5.467258E-001
1291	4	-1.348015E-002	-1.559870E-002	-4.756860E-002	-5.501506E-001
1291	5	-1.418777E-002	-1.554216E-002	-5.006394E-002	-5.484363E-001
1291	6	-1.383478E-002	-1.549366E-002	-4.881956E-002	-5.467268E-001
1291	7	-1.348146E-002	-1.554213E-002	-4.757081E-002	-5.484355E-001
1291	8	-1.383387E-002	-1.559863E-002	-4.881649E-002	-5.501476E-001
1291	9	-1.383466E-002	-1.554215E-002	-4.881751E-002	-5.484369E-001

1292	1	-1.385832E-002	-1.746177E-002	-4.607880E-002	-6.161753E-001
1292	2	-1.386303E-002	-1.718684E-002	-4.609329E-002	-6.064715E-001
1292	3	-1.105869E-002	-1.718684E-002	-3.902229E-002	-6.064702E-001
1292	4	-1.105448E-002	-1.746170E-002	-3.900675E-002	-6.161735E-001
1292	5	-1.386002E-002	-1.732434E-002	-4.608592E-002	-6.113249E-001
1292	6	-1.206036E-002	-1.718667E-002	-4.255565E-002	-6.064710E-001
1292	7	-1.105697E-002	-1.732422E-002	-3.901702E-002	-6.113210E-001
1292	8	-1.205610E-002	-1.746163E-002	-4.254241E-002	-6.161744E-001
1292	9	-1.205795E-002	-1.732424E-002	-4.255049E-002	-6.113210E-001
1293	1	-1.020961E-002	-1.915504E-002	-3.602482E-002	-6.759270E-001
1293	2	-1.021628E-002	-1.865707E-002	-3.605882E-002	-6.583529E-001
1293	3	-6.588278E-003	-1.865707E-002	-2.325802E-002	-6.583557E-001
1293	4	-6.586940E-003	-1.915517E-002	-2.324696E-002	-6.759281E-001
1293	5	-1.021148E-002	-1.890626E-002	-3.603589E-002	-6.671475E-001
1293	6	-8.402496E-003	-1.865712E-002	-2.964901E-002	-6.583521E-001
1293	7	-6.589125E-003	-1.890628E-002	-2.324917E-002	-6.671481E-001
1293	8	-8.398401E-003	-1.915511E-002	-2.963750E-002	-6.759253E-001
1293	9	-8.400694E-003	-1.890628E-002	-2.964279E-002	-6.671480E-001
1294	1	-5.342709E-003	-2.022136E-002	-1.885166E-002	-7.135551E-001
1294	2	-5.342363E-003	-1.954359E-002	-1.885313E-002	-6.896365E-001
1294	3	-4.138388E-004	-1.954358E-002	-1.460552E-003	-6.896359E-001
1294	4	-4.840450E-004	-2.022150E-002	-1.420351E-003	-7.135487E-001
1294	5	-5.342914E-003	-1.988219E-002	-1.885391E-002	-7.015016E-001
1294	6	-2.878517E-003	-1.954364E-002	-1.015874E-002	-6.896364E-001
1294	7	-4.887873E-004	-1.988218E-002	-1.441605E-003	-7.015866E-001
1294	8	-2.873338E-003	-2.022142E-002	-1.013897E-002	-7.135538E-001
1294	9	-2.876208E-003	-1.988218E-002	-1.014839E-002	-7.015860E-001
1295	1	-1.304288E-002	-1.882358E-002	-4.602619E-002	-3.819368E-001
1295	2	-1.304343E-002	-1.889840E-002	-4.602565E-002	-3.845723E-001
1295	3	-1.358634E-002	-1.889842E-002	-4.794426E-002	-3.845728E-001
1295	4	-1.358749E-002	-1.882367E-002	-4.794526E-002	-3.819359E-001
1295	5	-1.304285E-002	-1.886188E-002	-4.602331E-002	-3.832538E-001
1295	6	-1.331444E-002	-1.889839E-002	-4.698478E-002	-3.845748E-001
1295	7	-1.358778E-002	-1.886185E-002	-4.794573E-002	-3.832563E-001
1295	8	-1.331538E-002	-1.882364E-002	-4.698665E-002	-3.819312E-001
1295	9	-1.331523E-002	-1.886181E-002	-4.698503E-002	-3.832565E-001
1296	1	-1.378965E-002	-1.223478E-002	-4.837603E-002	-4.317288E-001
1296	2	-1.378872E-002	-1.229627E-002	-4.837393E-002	-4.339016E-001
1296	3	-1.415564E-002	-1.229627E-002	-4.995162E-002	-4.339013E-001
1296	4	-1.415687E-002	-1.223475E-002	-4.995498E-002	-4.317272E-001
1296	5	-1.378960E-002	-1.226562E-002	-4.837831E-002	-4.328151E-001
1296	6	-1.393263E-002	-1.229639E-002	-4.916451E-002	-4.338998E-001
1296	7	-1.415808E-002	-1.226548E-002	-4.995669E-002	-4.328142E-001
1296	8	-1.393323E-002	-1.223488E-002	-4.916713E-002	-4.317276E-001
1296	9	-1.393322E-002	-1.226552E-002	-4.916555E-002	-4.328147E-001
1297	1	-1.420786E-002	-1.382170E-002	-5.013229E-002	-4.877230E-001
1297	2	-1.420791E-002	-1.383131E-002	-5.013423E-002	-4.880785E-001
1297	3	-1.427967E-002	-1.383153E-002	-5.039041E-002	-4.880740E-001
1297	4	-1.427848E-002	-1.382169E-002	-5.038688E-002	-4.877211E-001
1297	5	-1.420866E-002	-1.382659E-002	-5.013666E-002	-4.878998E-001
1297	6	-1.424366E-002	-1.383143E-002	-5.026168E-002	-4.880707E-001
1297	7	-1.428027E-002	-1.382659E-002	-5.038986E-002	-4.878995E-001
1297	8	-1.424367E-002	-1.382176E-002	-5.026270E-002	-4.877255E-001
1297	9	-1.424381E-002	-1.382653E-002	-5.026163E-002	-4.878974E-001
1298	1	-1.078288E-002	-6.218574E-003	-3.805045E-002	-2.194332E-001
1298	2	-1.078184E-002	-6.263806E-003	-3.804648E-002	-2.210315E-001
1298	3	-1.111040E-002	-6.263924E-003	-3.920765E-002	-2.210360E-001
1298	4	-1.111276E-002	-6.218574E-003	-3.921231E-002	-2.194332E-001
1298	5	-1.078283E-002	-6.241222E-003	-3.805842E-002	-2.202367E-001
1298	6	-1.094722E-002	-6.263850E-003	-3.862849E-002	-2.210333E-001

1298	7	-1.111056E-002	-6.241222E-003	-3.920800E-002	-2.202367E-001
1298	8	-1.094745E-002	-6.218574E-003	-3.862973E-002	-2.194332E-001
1298	9	-1.094702E-002	-6.241222E-003	-3.862930E-002	-2.202367E-001
1299	1	-1.120394E-002	-7.267417E-003	-3.953391E-002	-2.564405E-001
1299	2	-1.120322E-002	-7.324337E-003	-3.953077E-002	-2.584508E-001
1299	3	-1.161811E-002	-7.324229E-003	-4.099708E-002	-2.584519E-001
1299	4	-1.161931E-002	-7.267417E-003	-4.100072E-002	-2.564405E-001
1299	5	-1.120417E-002	-7.295791E-003	-3.953556E-002	-2.574443E-001
1299	6	-1.141090E-002	-7.324184E-003	-4.026547E-002	-2.584501E-001
1299	7	-1.161919E-002	-7.295791E-003	-4.100224E-002	-2.574443E-001
1299	8	-1.141137E-002	-7.267417E-003	-4.026713E-002	-2.564405E-001
1299	9	-1.141113E-002	-7.295791E-003	-4.026582E-002	-2.574443E-001
1300	1	-1.173332E-002	-8.371573E-003	-4.140324E-002	-2.954107E-001
1300	2	-1.173206E-002	-8.438813E-003	-4.139982E-002	-2.977778E-001
1300	3	-1.222074E-002	-8.438787E-003	-4.312254E-002	-2.977798E-001
1300	4	-1.222245E-002	-8.371483E-003	-4.312876E-002	-2.954078E-001
1300	5	-1.173127E-002	-8.405129E-003	-4.139902E-002	-2.965929E-001
1300	6	-1.197653E-002	-8.438662E-003	-4.226185E-002	-2.977733E-001
1300	7	-1.222123E-002	-8.405129E-003	-4.312421E-002	-2.965929E-001
1300	8	-1.197772E-002	-8.371573E-003	-4.226603E-002	-2.954107E-001
1300	9	-1.197712E-002	-8.405129E-003	-4.226347E-002	-2.965929E-001
1301	1	-1.235178E-002	-9.549143E-003	-4.358581E-002	-3.369593E-001
1301	2	-1.235088E-002	-9.622538E-003	-4.358427E-002	-3.395487E-001
1301	3	-1.280546E-002	-9.622416E-003	-4.546950E-002	-3.395495E-001
1301	4	-1.280590E-002	-9.549143E-003	-4.547181E-002	-3.369593E-001
1301	5	-1.235266E-002	-9.585846E-003	-4.358687E-002	-3.382529E-001
1301	6	-1.261829E-002	-9.622488E-003	-4.452820E-002	-3.395477E-001
1301	7	-1.280579E-002	-9.585846E-003	-4.546870E-002	-3.382529E-001
1301	8	-1.261886E-002	-9.549143E-003	-4.453000E-002	-3.369593E-001
1301	9	-1.261919E-002	-9.585846E-003	-4.452940E-002	-3.382529E-001
1302	1	-9.978876E-003	-3.270333E-003	-3.521236E-002	-1.153996E-001
1302	2	-9.979725E-003	-3.291017E-003	-3.521641E-002	-1.161309E-001
1302	3	-1.013096E-002	-3.291074E-003	-3.574925E-002	-1.161311E-001
1302	4	-1.013017E-002	-3.270256E-003	-3.574764E-002	-1.154016E-001
1302	5	-9.978991E-003	-3.280688E-003	-3.521238E-002	-1.157612E-001
1302	6	-1.005530E-002	-3.290951E-003	-3.548051E-002	-1.161289E-001
1302	7	-1.013132E-002	-3.280649E-003	-3.575055E-002	-1.157651E-001
1302	8	-1.005546E-002	-3.270241E-003	-3.548197E-002	-1.153975E-001
1302	9	-1.005498E-002	-3.280655E-003	-3.548156E-002	-1.157640E-001
1303	1	-1.016822E-002	-4.228110E-003	-3.588863E-002	-1.491952E-001
1303	2	-1.016698E-002	-4.257320E-003	-3.587858E-002	-1.502271E-001
1303	3	-1.038058E-002	-4.257316E-003	-3.663020E-002	-1.502280E-001
1303	4	-1.038133E-002	-4.228110E-003	-3.663168E-002	-1.491952E-001
1303	5	-1.016885E-002	-4.242718E-003	-3.588324E-002	-1.497128E-001
1303	6	-1.027436E-002	-4.257154E-003	-3.625585E-002	-1.502263E-001
1303	7	-1.038103E-002	-4.242718E-003	-3.663189E-002	-1.497128E-001
1303	8	-1.027586E-002	-4.228110E-003	-3.625778E-002	-1.491952E-001
1303	9	-1.027488E-002	-4.242718E-003	-3.625704E-002	-1.497128E-001
1304	1	-1.043511E-002	-5.289355E-003	-3.682194E-002	-1.838254E-001
1304	2	-1.043512E-002	-5.245241E-003	-3.681996E-002	-1.850928E-001
1304	3	-1.069613E-002	-5.245397E-003	-3.774452E-002	-1.850949E-001
1304	4	-1.069716E-002	-5.289373E-003	-3.774629E-002	-1.838233E-001
1304	5	-1.043475E-002	-5.227268E-003	-3.682017E-002	-1.844571E-001
1304	6	-1.056523E-002	-5.245298E-003	-3.728238E-002	-1.850891E-001
1304	7	-1.069653E-002	-5.227359E-003	-3.774636E-002	-1.844568E-001
1304	8	-1.056586E-002	-5.289393E-003	-3.728390E-002	-1.838234E-001
1304	9	-1.056593E-002	-5.227304E-003	-3.728230E-002	-1.844574E-001
1305	1	-9.757799E-003	-4.677141E-004	-3.443000E-002	-1.649867E-002
1305	2	-9.757175E-003	-4.693254E-004	-3.443059E-002	-1.655973E-002
1305	3	-9.769912E-003	-4.693709E-004	-3.447444E-002	-1.656236E-002

1305	4	-9.769934E-003	-4.675629E-004	-3.447587E-002	-1.650146E-002
1305	5	-9.756517E-003	-4.684298E-004	-3.442833E-002	-1.653072E-002
1305	6	-9.763314E-003	-4.692945E-004	-3.445207E-002	-1.656277E-002
1305	7	-9.769089E-003	-4.684298E-004	-3.447244E-002	-1.653072E-002
1305	8	-9.763469E-003	-4.676821E-004	-3.445137E-002	-1.650527E-002
1305	9	-9.763259E-003	-4.684298E-004	-3.445195E-002	-1.653072E-002
1306	1	-9.765951E-003	-1.393765E-003	-3.446239E-002	-4.918506E-002
1306	2	-9.765854E-003	-1.402325E-003	-3.446318E-002	-4.948253E-002
1306	3	-9.827826E-003	-1.402445E-003	-3.467949E-002	-4.948386E-002
1306	4	-9.828044E-003	-1.393821E-003	-3.467984E-002	-4.918302E-002
1306	5	-9.765944E-003	-1.398062E-003	-3.445992E-002	-4.933343E-002
1306	6	-9.796781E-003	-1.402272E-003	-3.457064E-002	-4.948463E-002
1306	7	-9.827474E-003	-1.398062E-003	-3.467922E-002	-4.933343E-002
1306	8	-9.797165E-003	-1.393852E-003	-3.457111E-002	-4.918404E-002
1306	9	-9.796799E-003	-1.398062E-003	-3.457088E-002	-4.933343E-002
1307	1	-9.851328E-003	-2.327490E-003	-3.475995E-002	-8.212708E-002
1307	2	-9.851134E-003	-2.340374E-003	-3.476118E-002	-8.258202E-002
1307	3	-9.944339E-003	-2.340196E-003	-3.508955E-002	-8.258165E-002
1307	4	-9.944057E-003	-2.327546E-003	-3.509033E-002	-8.212879E-002
1307	5	-9.850397E-003	-2.333828E-003	-3.475800E-002	-8.235444E-002
1307	6	-9.897507E-003	-2.340350E-003	-3.492450E-002	-8.258241E-002
1307	7	-9.943132E-003	-2.333828E-003	-3.508663E-002	-8.235444E-002
1307	8	-9.897507E-003	-2.327577E-003	-3.492450E-002	-8.212981E-002
1307	9	-9.897507E-003	-2.333828E-003	-3.492450E-002	-8.235444E-002
1308	1	-4.189050E-003	-1.936687E-002	-1.478162E-002	-6.834001E-001
1308	2	-4.196938E-003	-1.882916E-002	-1.480029E-002	-6.644257E-001
1308	3	-2.785660E-004	-1.882918E-002	-9.812117E-004	-6.644242E-001
1308	4	-2.696775E-004	-1.936687E-002	-9.587098E-004	-6.833995E-001
1308	5	-4.191623E-003	-1.909802E-002	-1.479305E-002	-6.739150E-001
1308	6	-2.237664E-003	-1.882923E-002	-7.894553E-003	-6.644250E-001
1308	7	-2.741218E-004	-1.909802E-002	-9.669148E-004	-6.739150E-001
1308	8	-2.229734E-003	-1.936687E-002	-7.866614E-003	-6.834033E-001
1308	9	-2.233461E-003	-1.909802E-002	-7.881537E-003	-6.739150E-001
1309	1	-1.209281E-002	-1.383096E-002	-4.267331E-002	-4.880531E-001
1309	2	-1.209336E-002	-1.382899E-002	-4.267326E-002	-4.877027E-001
1309	3	-1.282124E-002	-1.382117E-002	-4.241953E-002	-4.877071E-001
1309	4	-1.282084E-002	-1.383094E-002	-4.241784E-002	-4.880559E-001
1309	5	-1.209371E-002	-1.382611E-002	-4.267368E-002	-4.878707E-001
1309	6	-1.245707E-002	-1.382112E-002	-4.254642E-002	-4.877049E-001
1309	7	-1.282868E-002	-1.382605E-002	-4.241861E-002	-4.878798E-001
1309	8	-1.245737E-002	-1.383099E-002	-4.254517E-002	-4.880562E-001
1309	9	-1.245699E-002	-1.382605E-002	-4.254671E-002	-4.878815E-001
1310	1	-1.187689E-002	-1.546462E-002	-4.191072E-002	-5.457051E-001
1310	2	-1.187838E-002	-1.536248E-002	-4.191484E-002	-5.428979E-001
1310	3	-1.113460E-002	-1.536250E-002	-3.928808E-002	-5.428965E-001
1310	4	-1.113297E-002	-1.546472E-002	-3.928478E-002	-5.457081E-001
1310	5	-1.187810E-002	-1.541359E-002	-4.191278E-002	-5.439822E-001
1310	6	-1.150593E-002	-1.536255E-002	-4.060254E-002	-5.428972E-001
1310	7	-1.113302E-002	-1.541359E-002	-3.928532E-002	-5.439822E-001
1310	8	-1.150545E-002	-1.546474E-002	-4.059730E-002	-5.457051E-001
1310	9	-1.150550E-002	-1.541359E-002	-4.059916E-002	-5.439822E-001
1311	1	-1.073559E-002	-1.711060E-002	-3.788497E-002	-6.037849E-001
1311	2	-1.074015E-002	-1.686152E-002	-3.789849E-002	-5.949982E-001
1311	3	-8.928701E-003	-1.686165E-002	-3.150586E-002	-5.949966E-001
1311	4	-8.927518E-003	-1.711049E-002	-3.150226E-002	-6.037804E-001
1311	5	-1.073850E-002	-1.698623E-002	-3.789385E-002	-5.993919E-001
1311	6	-9.833487E-003	-1.686169E-002	-3.470059E-002	-5.949972E-001
1311	7	-8.927905E-003	-1.698623E-002	-3.150343E-002	-5.993919E-001
1311	8	-9.831480E-003	-1.711060E-002	-3.469300E-002	-6.037849E-001
1311	9	-9.832733E-003	-1.698623E-002	-3.469552E-002	-5.993919E-001

1312	1	-8.227066E-003	-1.852418E-002	-2.982935E-002	-6.536583E-001
1312	2	-8.226255E-003	-1.811824E-002	-2.982998E-002	-6.390563E-001
1312	3	-5.216253E-003	-1.810971E-002	-1.840976E-002	-6.390338E-001
1312	4	-5.211866E-003	-1.852403E-002	-1.838902E-002	-6.536577E-001
1312	5	-8.227920E-003	-1.831707E-002	-2.983153E-002	-6.463548E-001
1312	6	-6.722631E-003	-1.811004E-002	-2.372320E-002	-6.390488E-001
1312	7	-5.215166E-003	-1.831666E-002	-1.840293E-002	-6.463436E-001
1312	8	-6.719799E-003	-1.852420E-002	-2.371880E-002	-6.536592E-001
1312	9	-6.721377E-003	-1.831679E-002	-2.371686E-002	-6.463494E-001
1313	1	-9.745894E-003	-7.339457E-003	-3.439232E-002	-2.589871E-001
1313	2	-9.746151E-003	-7.387586E-003	-3.439144E-002	-2.606855E-001
1313	3	-1.009602E-002	-7.387455E-003	-3.562592E-002	-2.606848E-001
1313	4	-1.009525E-002	-7.339398E-003	-3.562342E-002	-2.589852E-001
1313	5	-9.746989E-003	-7.363565E-003	-3.439504E-002	-2.598367E-001
1313	6	-9.920445E-003	-7.387596E-003	-3.500785E-002	-2.606852E-001
1313	7	-1.009647E-002	-7.363565E-003	-3.562514E-002	-2.598367E-001
1313	8	-9.920981E-003	-7.339427E-003	-3.500922E-002	-2.589908E-001
1313	9	-9.921121E-003	-7.363565E-003	-3.500898E-002	-2.598367E-001
1314	1	-1.020468E-002	-8.456435E-003	-3.600769E-002	-2.984000E-001
1314	2	-1.020417E-002	-8.510644E-003	-3.600749E-002	-3.003110E-001
1314	3	-1.059915E-002	-8.510591E-003	-3.740014E-002	-3.003142E-001
1314	4	-1.059828E-002	-8.456377E-003	-3.739946E-002	-2.983981E-001
1314	5	-1.020374E-002	-8.483410E-003	-3.600705E-002	-2.993578E-001
1314	6	-1.040184E-002	-8.510492E-003	-3.670446E-002	-3.003145E-001
1314	7	-1.059943E-002	-8.483410E-003	-3.740315E-002	-2.993578E-001
1314	8	-1.040184E-002	-8.456406E-003	-3.670446E-002	-2.983990E-001
1314	9	-1.040184E-002	-8.483410E-003	-3.670446E-002	-2.993578E-001
1315	1	-1.072173E-002	-9.641937E-003	-3.783093E-002	-3.402361E-001
1315	2	-1.072062E-002	-9.702304E-003	-3.782928E-002	-3.423715E-001
1315	3	-1.116062E-002	-9.702455E-003	-3.938218E-002	-3.423738E-001
1315	4	-1.116114E-002	-9.642092E-003	-3.938708E-002	-3.402410E-001
1315	5	-1.072085E-002	-9.672207E-003	-3.783128E-002	-3.413027E-001
1315	6	-1.094126E-002	-9.702404E-003	-3.860638E-002	-3.423712E-001
1315	7	-1.115989E-002	-9.672207E-003	-3.938206E-002	-3.413027E-001
1315	8	-1.094160E-002	-9.642000E-003	-3.860908E-002	-3.402301E-001
1315	9	-1.094119E-002	-9.672207E-003	-3.860769E-002	-3.413027E-001
1316	1	-1.126948E-002	-1.091789E-002	-3.976779E-002	-3.852643E-001
1316	2	-1.126863E-002	-1.097753E-002	-3.976333E-002	-3.873659E-001
1316	3	-1.170211E-002	-1.097748E-002	-4.129342E-002	-3.873616E-001
1316	4	-1.170226E-002	-1.091804E-002	-4.129369E-002	-3.852655E-001
1316	5	-1.126023E-002	-1.094771E-002	-3.976198E-002	-3.863113E-001
1316	6	-1.148441E-002	-1.097750E-002	-4.052757E-002	-3.873619E-001
1316	7	-1.170232E-002	-1.094771E-002	-4.129312E-002	-3.863113E-001
1316	8	-1.148615E-002	-1.091786E-002	-4.053058E-002	-3.852634E-001
1316	9	-1.148523E-002	-1.094771E-002	-4.052860E-002	-3.863113E-001
1317	1	-1.178528E-002	-1.231072E-002	-4.158723E-002	-4.344131E-001
1317	2	-1.178545E-002	-1.234894E-002	-4.158569E-002	-4.357606E-001
1317	3	-1.206334E-002	-1.234910E-002	-4.256835E-002	-4.357599E-001
1317	4	-1.206357E-002	-1.231076E-002	-4.256842E-002	-4.344106E-001
1317	5	-1.178566E-002	-1.232991E-002	-4.158803E-002	-4.350857E-001
1317	6	-1.192377E-002	-1.234913E-002	-4.207474E-002	-4.357605E-001
1317	7	-1.206338E-002	-1.232991E-002	-4.256827E-002	-4.350857E-001
1317	8	-1.192389E-002	-1.231070E-002	-4.207604E-002	-4.344085E-001
1317	9	-1.192415E-002	-1.232991E-002	-4.207595E-002	-4.350857E-001
1318	1	-9.975117E-003	-5.254892E-003	-3.282195E-002	-1.854333E-001
1318	2	-9.975344E-003	-5.287045E-003	-3.282235E-002	-1.865631E-001
1318	3	-9.307633E-003	-5.287016E-003	-3.284172E-002	-1.865621E-001
1318	4	-9.307164E-003	-5.254815E-003	-3.284194E-002	-1.854313E-001
1318	5	-9.973749E-003	-5.270960E-003	-3.281963E-002	-1.859336E-001
1318	6	-9.191359E-003	-5.286891E-003	-3.243203E-002	-1.865627E-001

1318	7	-9.307717E-003	-5.270940E-003	-3.284264E-002	-1.859962E-001
1318	8	-9.191305E-003	-5.254901E-003	-3.243309E-002	-1.854343E-001
1318	9	-9.191131E-003	-5.270937E-003	-3.243272E-002	-1.859976E-001
1319	1	-9.369059E-003	-6.276434E-003	-3.305870E-002	-2.214703E-001
1319	2	-9.368236E-003	-6.317462E-003	-3.305605E-002	-2.229242E-001
1319	3	-9.667500E-003	-6.317498E-003	-3.411372E-002	-2.229291E-001
1319	4	-9.667947E-003	-6.276565E-003	-3.411538E-002	-2.214764E-001
1319	5	-9.368856E-003	-6.297014E-003	-3.305968E-002	-2.222006E-001
1319	6	-9.517764E-003	-6.317544E-003	-3.358663E-002	-2.229279E-001
1319	7	-9.668557E-003	-6.296967E-003	-3.411788E-002	-2.222048E-001
1319	8	-9.518509E-003	-6.276544E-003	-3.358903E-002	-2.214807E-001
1319	9	-9.518434E-003	-6.296923E-003	-3.358783E-002	-2.222019E-001
1320	1	-8.464322E-003	-4.698657E-004	-2.986046E-002	-1.657941E-002
1320	2	-8.465029E-003	-4.723062E-004	-2.986844E-002	-1.666331E-002
1320	3	-8.482249E-003	-4.723168E-004	-2.993177E-002	-1.666527E-002
1320	4	-8.482347E-003	-4.697702E-004	-2.993025E-002	-1.658297E-002
1320	5	-8.464899E-003	-4.710781E-004	-2.986969E-002	-1.662236E-002
1320	6	-8.473728E-003	-4.723210E-004	-2.990162E-002	-1.666483E-002
1320	7	-8.482059E-003	-4.711858E-004	-2.993101E-002	-1.662259E-002
1320	8	-8.473728E-003	-4.700405E-004	-2.990162E-002	-1.658500E-002
1320	9	-8.473728E-003	-4.710697E-004	-2.990162E-002	-1.662247E-002
1321	1	-8.492501E-003	-1.404525E-003	-2.996742E-002	-4.956489E-002
1321	2	-8.492017E-003	-1.411808E-003	-2.996794E-002	-4.982203E-002
1321	3	-8.545278E-003	-1.411816E-003	-3.015260E-002	-4.982055E-002
1321	4	-8.545214E-003	-1.404605E-003	-3.015437E-002	-4.956745E-002
1321	5	-8.492498E-003	-1.408287E-003	-2.996626E-002	-4.969210E-002
1321	6	-8.518624E-003	-1.411989E-003	-3.005983E-002	-4.981867E-002
1321	7	-8.545489E-003	-1.408257E-003	-3.015592E-002	-4.969241E-002
1321	8	-8.519889E-003	-1.404581E-003	-3.006001E-002	-4.956286E-002
1321	9	-8.519834E-003	-1.408284E-003	-3.006018E-002	-4.969225E-002
1322	1	-8.551905E-003	-2.343818E-003	-3.017791E-002	-8.270932E-002
1322	2	-8.551631E-003	-2.356734E-003	-3.017430E-002	-8.316201E-002
1322	3	-8.645007E-003	-2.356821E-003	-3.050619E-002	-8.316321E-002
1322	4	-8.645374E-003	-2.344018E-003	-3.050669E-002	-8.271190E-002
1322	5	-8.552060E-003	-2.350454E-003	-3.017692E-002	-8.294013E-002
1322	6	-8.598325E-003	-2.356795E-003	-3.034184E-002	-8.316329E-002
1322	7	-8.644728E-003	-2.350309E-003	-3.050268E-002	-8.294060E-002
1322	8	-8.598342E-003	-2.343962E-003	-3.034147E-002	-8.271392E-002
1322	9	-8.598690E-003	-2.350314E-003	-3.034027E-002	-8.294036E-002
1323	1	-8.676124E-003	-3.296658E-003	-3.061691E-002	-1.163221E-001
1323	2	-8.677104E-003	-3.313642E-003	-3.061787E-002	-1.169306E-001
1323	3	-8.801390E-003	-3.313642E-003	-3.105759E-002	-1.169289E-001
1323	4	-8.801461E-003	-3.296445E-003	-3.105788E-002	-1.163257E-001
1323	5	-8.677747E-003	-3.305067E-003	-3.062032E-002	-1.166283E-001
1323	6	-8.739140E-003	-3.313652E-003	-3.083022E-002	-1.169317E-001
1323	7	-8.801664E-003	-3.305107E-003	-3.105670E-002	-1.166270E-001
1323	8	-8.739140E-003	-3.296596E-003	-3.083022E-002	-1.163239E-001
1323	9	-8.739140E-003	-3.305065E-003	-3.083022E-002	-1.166267E-001
1324	1	-8.844441E-003	-4.265006E-003	-3.120943E-002	-1.504982E-001
1324	2	-8.843785E-003	-4.288372E-003	-3.120988E-002	-1.513257E-001
1324	3	-9.016118E-003	-4.288437E-003	-3.181386E-002	-1.513235E-001
1324	4	-9.015862E-003	-4.265002E-003	-3.181398E-002	-1.504971E-001
1324	5	-8.844789E-003	-4.276615E-003	-3.120870E-002	-1.509118E-001
1324	6	-8.930086E-003	-4.288356E-003	-3.151238E-002	-1.513224E-001
1324	7	-9.017292E-003	-4.276722E-003	-3.181589E-002	-1.509108E-001
1324	8	-8.930086E-003	-4.264913E-003	-3.151238E-002	-1.504991E-001
1324	9	-8.930086E-003	-4.276735E-003	-3.151238E-002	-1.509123E-001
1325	1	-6.526169E-003	-1.800106E-002	-2.302991E-002	-6.352038E-001
1325	2	-6.531398E-003	-1.766741E-002	-2.304928E-002	-6.234293E-001
1325	3	-4.104406E-003	-1.766730E-002	-1.448154E-002	-6.234280E-001

1325	4	-4.098537E-003	-1.800067E-002	-1.446162E-002	-6.351889E-001
1325	5	-6.531108E-003	-1.783433E-002	-2.304329E-002	-6.293214E-001
1325	6	-5.318059E-003	-1.766746E-002	-1.876506E-002	-6.234317E-001
1325	7	-4.102034E-003	-1.783406E-002	-1.447478E-002	-6.293101E-001
1325	8	-5.312571E-003	-1.800089E-002	-1.874428E-002	-6.352029E-001
1325	9	-5.314643E-003	-1.783415E-002	-1.875467E-002	-6.293156E-001
1326	1	-3.282164E-003	-1.868047E-002	-1.157976E-002	-6.594673E-001
1326	2	-3.288067E-003	-1.825998E-002	-1.160288E-002	-6.443437E-001
1326	3	-1.705047E-004	-1.826013E-002	-6.027256E-004	-6.443441E-001
1326	4	-1.644889E-004	-1.868851E-002	-5.785972E-004	-6.594619E-001
1326	5	-3.284353E-003	-1.847433E-002	-1.158934E-002	-6.519006E-001
1326	6	-1.729211E-003	-1.825998E-002	-6.101899E-003	-6.443413E-001
1326	7	-1.657438E-004	-1.847416E-002	-5.871654E-004	-6.519014E-001
1326	8	-1.722642E-003	-1.868855E-002	-6.078761E-003	-6.594622E-001
1326	9	-1.726205E-003	-1.847421E-002	-6.090488E-003	-6.519058E-001
1327	1	-9.519611E-003	-1.099221E-002	-3.359463E-002	-3.878800E-001
1327	2	-9.520661E-003	-1.103403E-002	-3.359391E-002	-3.893550E-001
1327	3	-9.824306E-003	-1.103389E-002	-3.466788E-002	-3.893537E-001
1327	4	-9.823658E-003	-1.099229E-002	-3.466633E-002	-3.878863E-001
1327	5	-9.521463E-003	-1.101306E-002	-3.359653E-002	-3.886166E-001
1327	6	-9.672403E-003	-1.103385E-002	-3.413120E-002	-3.893545E-001
1327	7	-9.823743E-003	-1.101302E-002	-3.466373E-002	-3.886207E-001
1327	8	-9.672403E-003	-1.099225E-002	-3.413120E-002	-3.878851E-001
1327	9	-9.672403E-003	-1.101310E-002	-3.413120E-002	-3.886168E-001
1328	1	-9.894849E-003	-1.235812E-002	-3.491457E-002	-4.360826E-001
1328	2	-9.893911E-003	-1.238194E-002	-3.491126E-002	-4.369229E-001
1328	3	-1.006690E-002	-1.238192E-002	-3.552444E-002	-4.369214E-001
1328	4	-1.006692E-002	-1.235811E-002	-3.552363E-002	-4.360852E-001
1328	5	-9.894349E-003	-1.237004E-002	-3.491612E-002	-4.364998E-001
1328	6	-9.900118E-003	-1.238189E-002	-3.521835E-002	-4.369222E-001
1328	7	-1.006725E-002	-1.236997E-002	-3.552526E-002	-4.365009E-001
1328	8	-9.900573E-003	-1.235807E-002	-3.521859E-002	-4.360839E-001
1328	9	-9.900648E-003	-1.237003E-002	-3.521819E-002	-4.365004E-001
1329	1	-1.004998E-002	-1.381677E-002	-3.546517E-002	-4.875606E-001
1329	2	-1.004982E-002	-1.379763E-002	-3.546217E-002	-4.868796E-001
1329	3	-9.910705E-003	-1.379759E-002	-3.497339E-002	-4.868770E-001
1329	4	-9.911067E-003	-1.381667E-002	-3.497092E-002	-4.875566E-001
1329	5	-1.005098E-002	-1.380730E-002	-3.546574E-002	-4.872181E-001
1329	6	-9.980028E-003	-1.379778E-002	-3.521737E-002	-4.868819E-001
1329	7	-9.989556E-003	-1.380731E-002	-3.496874E-002	-4.872182E-001
1329	8	-9.979839E-003	-1.381684E-002	-3.521666E-002	-4.875514E-001
1329	9	-9.980418E-003	-1.380731E-002	-3.521654E-002	-4.872191E-001
1330	1	-9.759999E-003	-1.533298E-002	-3.443812E-002	-5.410580E-001
1330	2	-9.761683E-003	-1.523206E-002	-3.444462E-002	-5.374917E-001
1330	3	-9.026510E-003	-1.523215E-002	-3.185824E-002	-5.374975E-001
1330	4	-9.025892E-003	-1.533298E-002	-3.184575E-002	-5.410503E-001
1330	5	-9.760011E-003	-1.528251E-002	-3.443977E-002	-5.392758E-001
1330	6	-9.393808E-003	-1.523209E-002	-3.314685E-002	-5.374979E-001
1330	7	-9.025278E-003	-1.528250E-002	-3.184685E-002	-5.392754E-001
1330	8	-9.393159E-003	-1.533282E-002	-3.314430E-002	-5.410488E-001
1330	9	-9.393105E-003	-1.528254E-002	-3.314587E-002	-5.392758E-001
1331	1	-8.692634E-003	-1.679399E-002	-3.067164E-002	-5.926132E-001
1331	2	-8.691391E-003	-1.657938E-002	-3.067152E-002	-5.850381E-001
1331	3	-7.130968E-003	-1.657925E-002	-2.516064E-002	-5.850326E-001
1331	4	-7.127662E-003	-1.679412E-002	-2.514941E-002	-5.926164E-001
1331	5	-8.692834E-003	-1.668666E-002	-3.067297E-002	-5.888211E-001
1331	6	-7.910771E-003	-1.657921E-002	-2.791692E-002	-5.850335E-001
1331	7	-7.129001E-003	-1.668649E-002	-2.515699E-002	-5.888213E-001
1331	8	-7.909809E-003	-1.679416E-002	-2.791077E-002	-5.926110E-001
1331	9	-7.910075E-003	-1.668663E-002	-2.791304E-002	-5.888212E-001

1332	1	-7.957743E-003	-6.327981E-003	-2.888037E-002	-2.232927E-001
1332	2	-7.957989E-003	-6.360634E-003	-2.888040E-002	-2.244432E-001
1332	3	-8.194913E-003	-6.360507E-003	-2.891796E-002	-2.244452E-001
1332	4	-8.194674E-003	-6.328082E-003	-2.891780E-002	-2.232920E-001
1332	5	-7.957746E-003	-6.344166E-003	-2.888122E-002	-2.238699E-001
1332	6	-8.076688E-003	-6.360487E-003	-2.850029E-002	-2.244410E-001
1332	7	-8.193959E-003	-6.344226E-003	-2.891414E-002	-2.238699E-001
1332	8	-8.076688E-003	-6.327992E-003	-2.850029E-002	-2.232947E-001
1332	9	-8.076688E-003	-6.344226E-003	-2.850029E-002	-2.238703E-001
1333	1	-8.271669E-003	-7.480353E-003	-2.918931E-002	-2.611366E-001
1333	2	-8.272810E-003	-7.440850E-003	-2.918870E-002	-2.625640E-001
1333	3	-8.566328E-003	-7.440789E-003	-3.022586E-002	-2.625660E-001
1333	4	-8.565951E-003	-7.480444E-003	-3.022732E-002	-2.611385E-001
1333	5	-8.272662E-003	-7.460681E-003	-2.919230E-002	-2.618541E-001
1333	6	-8.418804E-003	-7.440885E-003	-2.970790E-002	-2.625670E-001
1333	7	-8.565327E-003	-7.480646E-003	-3.022381E-002	-2.618544E-001
1333	8	-8.419428E-003	-7.480413E-003	-2.970833E-002	-2.611414E-001
1333	9	-8.418891E-003	-7.480686E-003	-2.970816E-002	-2.618533E-001
1334	1	-8.641931E-003	-8.525413E-003	-3.849661E-002	-3.808330E-001
1334	2	-8.642040E-003	-8.572877E-003	-3.849441E-002	-3.825099E-001
1334	3	-8.986256E-003	-8.572944E-003	-3.171100E-002	-3.825150E-001
1334	4	-8.987432E-003	-8.525389E-003	-3.171302E-002	-3.808352E-001
1334	5	-8.641464E-003	-8.549117E-003	-3.849521E-002	-3.816725E-001
1334	6	-8.813841E-003	-8.572710E-003	-3.110127E-002	-3.825131E-001
1334	7	-8.987569E-003	-8.549098E-003	-3.171540E-002	-3.816753E-001
1334	8	-8.814461E-003	-8.525447E-003	-3.110305E-002	-3.808341E-001
1334	9	-8.814208E-003	-8.549085E-003	-3.110231E-002	-3.816759E-001
1335	1	-9.071163E-003	-9.718220E-003	-3.280774E-002	-3.429295E-001
1335	2	-9.071067E-003	-9.766891E-003	-3.280674E-002	-3.446502E-001
1335	3	-9.424319E-003	-9.767021E-003	-3.325558E-002	-3.446518E-001
1335	4	-9.425755E-003	-9.718348E-003	-3.325918E-002	-3.429345E-001
1335	5	-9.069744E-003	-9.742623E-003	-3.200336E-002	-3.437803E-001
1335	6	-9.247445E-003	-9.766857E-003	-3.263089E-002	-3.446478E-001
1335	7	-9.425976E-003	-9.742599E-003	-3.325923E-002	-3.437897E-001
1335	8	-9.247542E-003	-9.718338E-003	-3.263273E-002	-3.429297E-001
1335	9	-9.247730E-003	-9.742571E-003	-3.263158E-002	-3.437906E-001
1336	1	-7.184438E-003	-4.727094E-004	-2.535218E-002	-1.668438E-002
1336	2	-7.185338E-003	-4.744338E-004	-2.535325E-002	-1.674384E-002
1336	3	-7.196632E-003	-4.745311E-004	-2.539436E-002	-1.674314E-002
1336	4	-7.196360E-003	-4.728929E-004	-2.539448E-002	-1.668924E-002
1336	5	-7.184147E-003	-4.737600E-004	-2.535245E-002	-1.671604E-002
1336	6	-7.190228E-003	-4.744228E-004	-2.537362E-002	-1.674349E-002
1336	7	-7.196162E-003	-4.737600E-004	-2.539300E-002	-1.671604E-002
1336	8	-7.190598E-003	-4.728766E-004	-2.537338E-002	-1.668490E-002
1336	9	-7.190236E-003	-4.737600E-004	-2.537349E-002	-1.671604E-002
1337	1	-7.202622E-003	-1.413617E-003	-2.541781E-002	-4.980182E-002
1337	2	-7.203197E-003	-1.418552E-003	-2.541816E-002	-5.005696E-002
1337	3	-7.239868E-003	-1.418739E-003	-2.554816E-002	-5.005912E-002
1337	4	-7.240793E-003	-1.413476E-003	-2.554905E-002	-4.980291E-002
1337	5	-7.203416E-003	-1.416144E-003	-2.541894E-002	-4.997018E-002
1337	6	-7.222108E-003	-1.418542E-003	-2.548203E-002	-5.005661E-002
1337	7	-7.239392E-003	-1.416144E-003	-2.554625E-002	-4.997018E-002
1337	8	-7.222108E-003	-1.413665E-003	-2.548203E-002	-4.980236E-002
1337	9	-7.222108E-003	-1.416144E-003	-2.548203E-002	-4.997018E-002
1338	1	-7.256907E-003	-2.360268E-003	-2.560800E-002	-8.328483E-002
1338	2	-7.256152E-003	-2.371221E-003	-2.560495E-002	-8.367379E-002
1338	3	-7.337535E-003	-2.371198E-003	-2.589031E-002	-8.367309E-002
1338	4	-7.336880E-003	-2.360161E-003	-2.588942E-002	-8.328701E-002
1338	5	-7.255848E-003	-2.365771E-003	-2.560397E-002	-8.347891E-002
1338	6	-7.296883E-003	-2.371219E-003	-2.574816E-002	-8.367344E-002

1338	7	-7.337705E-003	-2.365771E-003	-2.589800E-002	-8.347891E-002
1338	8	-7.296953E-003	-2.360230E-003	-2.574870E-002	-8.328261E-002
1338	9	-7.297041E-003	-2.365771E-003	-2.574825E-002	-8.347891E-002
1339	1	-7.351166E-003	-3.318595E-003	-2.594233E-002	-1.171020E-001
1339	2	-7.351633E-003	-3.335202E-003	-2.594126E-002	-1.176903E-001
1339	3	-7.472651E-003	-3.335269E-003	-2.636848E-002	-1.176924E-001
1339	4	-7.472850E-003	-3.318609E-003	-2.636980E-002	-1.171005E-001
1339	5	-7.350355E-003	-3.326900E-003	-2.593807E-002	-1.173944E-001
1339	6	-7.411104E-003	-3.335191E-003	-2.615361E-002	-1.176899E-001
1339	7	-7.473579E-003	-3.326900E-003	-2.636914E-002	-1.173944E-001
1339	8	-7.411994E-003	-3.318646E-003	-2.615428E-002	-1.171027E-001
1339	9	-7.412202E-003	-3.326900E-003	-2.615395E-002	-1.173944E-001
1340	1	-7.499464E-003	-4.295086E-003	-2.646074E-002	-1.515584E-001
1340	2	-7.498328E-003	-4.317153E-003	-2.646071E-002	-1.523404E-001
1340	3	-7.660232E-003	-4.317220E-003	-2.702910E-002	-1.523420E-001
1340	4	-7.660828E-003	-4.294954E-003	-2.702957E-002	-1.515598E-001
1340	5	-7.498419E-003	-4.306106E-003	-2.645977E-002	-1.519506E-001
1340	6	-7.579891E-003	-4.317142E-003	-2.674327E-002	-1.523400E-001
1340	7	-7.659780E-003	-4.306106E-003	-2.702934E-002	-1.519506E-001
1340	8	-7.579209E-003	-4.295020E-003	-2.674469E-002	-1.515591E-001
1340	9	-7.578912E-003	-4.306106E-003	-2.674351E-002	-1.519506E-001
1341	1	-7.696759E-003	-5.295611E-003	-2.715897E-002	-1.868674E-001
1341	2	-7.697168E-003	-5.322744E-003	-2.715801E-002	-1.878247E-001
1341	3	-7.855033E-003	-5.322722E-003	-2.785742E-002	-1.878240E-001
1341	4	-7.854653E-003	-5.295604E-003	-2.785820E-002	-1.868661E-001
1341	5	-7.696866E-003	-5.309150E-003	-2.716094E-002	-1.873477E-001
1341	6	-7.795148E-003	-5.322733E-003	-2.750815E-002	-1.878244E-001
1341	7	-7.895441E-003	-5.309150E-003	-2.786116E-002	-1.873477E-001
1341	8	-7.795637E-003	-5.295548E-003	-2.750886E-002	-1.868653E-001
1341	9	-7.795590E-003	-5.309150E-003	-2.750905E-002	-1.873477E-001
1342	1	-7.792168E-003	-1.520440E-002	-2.749564E-002	-5.365161E-001
1342	2	-7.792032E-003	-1.511407E-002	-2.749660E-002	-5.333551E-001
1342	3	-7.141902E-003	-1.511472E-002	-2.519948E-002	-5.333555E-001
1342	4	-7.139198E-003	-1.520435E-002	-2.519218E-002	-5.365130E-001
1342	5	-7.792112E-003	-1.515955E-002	-2.749567E-002	-5.349377E-001
1342	6	-7.466931E-003	-1.511469E-002	-2.634745E-002	-5.333579E-001
1342	7	-7.139692E-003	-1.515955E-002	-2.519316E-002	-5.349377E-001
1342	8	-7.466279E-003	-1.520438E-002	-2.634548E-002	-5.365183E-001
1342	9	-7.466272E-003	-1.515955E-002	-2.634647E-002	-5.349377E-001
1343	1	-6.839351E-003	-1.652270E-002	-2.413498E-002	-5.830384E-001
1343	2	-6.842517E-003	-1.634809E-002	-2.414304E-002	-5.768713E-001
1343	3	-5.569525E-003	-1.634796E-002	-1.965316E-002	-5.768689E-001
1343	4	-5.567557E-003	-1.652286E-002	-1.964436E-002	-5.830429E-001
1343	5	-6.840766E-003	-1.643530E-002	-2.413870E-002	-5.799556E-001
1343	6	-6.285731E-003	-1.634791E-002	-2.189809E-002	-5.768698E-001
1343	7	-5.567201E-003	-1.643530E-002	-1.964781E-002	-5.799556E-001
1343	8	-6.282836E-003	-1.652268E-002	-2.188795E-002	-5.830372E-001
1343	9	-6.284283E-003	-1.643530E-002	-2.189207E-002	-5.799556E-001
1344	1	-5.077676E-003	-1.757967E-002	-1.791800E-002	-6.283309E-001
1344	2	-5.881646E-003	-1.730980E-002	-1.793337E-002	-6.187859E-001
1344	3	-3.111055E-003	-1.730913E-002	-1.097928E-002	-6.187863E-001
1344	4	-3.106410E-003	-1.757942E-002	-1.096440E-002	-6.283279E-001
1344	5	-5.079710E-003	-1.744429E-002	-1.792713E-002	-6.155567E-001
1344	6	-4.896864E-003	-1.730897E-002	-1.445697E-002	-6.187871E-001
1344	7	-3.110078E-003	-1.744429E-002	-1.097436E-002	-6.155567E-001
1344	8	-4.893809E-003	-1.757943E-002	-1.443993E-002	-6.283261E-001
1344	9	-4.894494E-003	-1.744429E-002	-1.444845E-002	-6.155567E-001
1345	1	-2.494848E-003	-1.815426E-002	-8.801444E-003	-6.486892E-001
1345	2	-2.499293E-003	-1.785474E-002	-8.817348E-003	-6.380426E-001
1345	3	-3.174674E-004	-1.785481E-002	-1.119921E-003	-6.380436E-001

1352	1	-5.946895E-003	-2.374155E-003	-2.098473E-002	-8.377570E-002
1352	2	-5.946374E-003	-2.383184E-003	-2.098221E-002	-8.409321E-002
1352	3	-6.812647E-003	-2.383116E-003	-2.121484E-002	-8.409319E-002
1352	4	-6.812148E-003	-2.374192E-003	-2.121515E-002	-8.377871E-002
1352	5	-5.945903E-003	-2.376692E-003	-2.098343E-002	-8.393775E-002
1352	6	-5.979453E-003	-2.383153E-003	-2.109987E-002	-8.409296E-002
1352	7	-6.012855E-003	-2.376654E-003	-2.121269E-002	-8.393714E-002
1352	8	-5.979121E-003	-2.374174E-003	-2.110036E-002	-8.377530E-002
1352	9	-5.979480E-003	-2.376651E-003	-2.109959E-002	-8.393744E-002
1353	1	-6.034394E-003	-3.339395E-003	-2.129264E-002	-1.178354E-001
1353	2	-6.034298E-003	-3.351418E-003	-2.129324E-002	-1.182685E-001
1353	3	-6.122560E-003	-3.351421E-003	-2.160433E-002	-1.182685E-001
1353	4	-6.122332E-003	-3.339485E-003	-2.160342E-002	-1.178348E-001
1353	5	-6.035107E-003	-3.345410E-003	-2.129491E-002	-1.180499E-001
1353	6	-6.078224E-003	-3.351382E-003	-2.144840E-002	-1.182603E-001
1353	7	-6.121855E-003	-3.345426E-003	-2.160151E-002	-1.180510E-001
1353	8	-6.078224E-003	-3.339385E-003	-2.144840E-002	-1.178351E-001
1353	9	-6.078224E-003	-3.345411E-003	-2.144848E-002	-1.180495E-001
1354	1	-6.152888E-003	-4.322879E-003	-2.171158E-002	-1.525438E-001
1354	2	-6.153255E-003	-4.339492E-003	-2.171237E-002	-1.531302E-001
1354	3	-6.273413E-003	-4.339498E-003	-2.213973E-002	-1.531299E-001
1354	4	-6.274320E-003	-4.322894E-003	-2.214053E-002	-1.525433E-001
1354	5	-6.152119E-003	-4.331228E-003	-2.170830E-002	-1.528345E-001
1354	6	-6.213423E-003	-4.339451E-003	-2.192542E-002	-1.531300E-001
1354	7	-6.274812E-003	-4.331117E-003	-2.214258E-002	-1.528353E-001
1354	8	-6.213423E-003	-4.322872E-003	-2.192542E-002	-1.525435E-001
1354	9	-6.213423E-003	-4.331105E-003	-2.192542E-002	-1.528358E-001
1355	1	-6.315799E-003	-5.330099E-003	-2.228425E-002	-1.880803E-001
1355	2	-6.315592E-003	-5.352406E-003	-2.228641E-002	-1.888733E-001
1355	3	-6.479956E-003	-5.352412E-003	-2.286429E-002	-1.888731E-001
1355	4	-6.479438E-003	-5.330121E-003	-2.286371E-002	-1.880808E-001
1355	5	-6.315826E-003	-5.341312E-003	-2.228859E-002	-1.884794E-001
1355	6	-6.396924E-003	-5.352490E-003	-2.257453E-002	-1.888732E-001
1355	7	-6.478946E-003	-5.341266E-003	-2.286199E-002	-1.884761E-001
1355	8	-6.397419E-003	-5.329975E-003	-2.257495E-002	-1.880840E-001
1355	9	-6.397570E-003	-5.341319E-003	-2.257443E-002	-1.884768E-001
1356	1	-6.518153E-003	-6.369386E-003	-2.299978E-002	-2.247599E-001
1356	2	-6.517608E-003	-6.398421E-003	-2.299740E-002	-2.257795E-001
1356	3	-6.728637E-003	-6.398432E-003	-2.374173E-002	-2.257795E-001
1356	4	-6.728395E-003	-6.369445E-003	-2.374417E-002	-2.247599E-001
1356	5	-6.517210E-003	-6.383929E-003	-2.299931E-002	-2.252716E-001
1356	6	-6.623045E-003	-6.398465E-003	-2.336991E-002	-2.257795E-001
1356	7	-6.728873E-003	-6.383931E-003	-2.374391E-002	-2.252716E-001
1356	8	-6.623033E-003	-6.369415E-003	-2.337137E-002	-2.247599E-001
1356	9	-6.623039E-003	-6.383930E-003	-2.337064E-002	-2.252706E-001
1357	1	-6.777414E-003	-7.451552E-003	-2.391596E-002	-2.629464E-001
1357	2	-6.776463E-003	-7.484525E-003	-2.391327E-002	-2.641051E-001
1357	3	-7.017704E-003	-7.484530E-003	-2.476192E-002	-2.641048E-001
1357	4	-7.016920E-003	-7.451589E-003	-2.476107E-002	-2.629429E-001
1357	5	-6.778594E-003	-7.467957E-003	-2.391678E-002	-2.635233E-001
1357	6	-6.896992E-003	-7.484483E-003	-2.433853E-002	-2.641048E-001
1357	7	-7.017069E-003	-7.467930E-003	-2.476148E-002	-2.635229E-001
1357	8	-6.897771E-003	-7.451466E-003	-2.433822E-002	-2.629427E-001
1357	9	-6.897365E-003	-7.467936E-003	-2.433832E-002	-2.635241E-001
1358	1	-7.889652E-003	-8.584930E-003	-2.581788E-002	-3.029382E-001
1358	2	-7.889622E-003	-8.620375E-003	-2.581788E-002	-3.041874E-001
1358	3	-7.348212E-003	-8.620378E-003	-2.592927E-002	-3.041874E-001
1358	4	-7.348076E-003	-8.584886E-003	-2.592774E-002	-3.029358E-001
1358	5	-7.089147E-003	-8.602711E-003	-2.581539E-002	-3.035601E-001
1358	6	-7.218929E-003	-8.620328E-003	-2.547315E-002	-3.041872E-001

1345	4	-3.170576E-004	-1.815414E-002	-1.119196E-003	-6.486880E-001
1345	5	-2.495516E-003	-1.800463E-002	-8.808029E-003	-6.353307E-001
1345	6	-1.408126E-003	-1.785477E-002	-4.967634E-003	-6.380448E-001
1345	7	-3.169448E-004	-1.800463E-002	-1.120329E-003	-6.353307E-001
1345	8	-1.405344E-003	-1.815426E-002	-4.959036E-003	-6.486885E-001
1345	9	-1.407329E-003	-1.800463E-002	-4.963644E-003	-6.353307E-001
1346	1	-7.425478E-003	-9.779396E-003	-2.620335E-002	-3.450799E-001
1346	2	-7.424427E-003	-9.817172E-003	-2.620151E-002	-3.464175E-001
1346	3	-7.700892E-003	-9.817128E-003	-2.717157E-002	-3.464284E-001
1346	4	-7.701002E-003	-9.779277E-003	-2.717582E-002	-3.450842E-001
1346	5	-7.425809E-003	-9.798229E-003	-2.620387E-002	-3.457481E-001
1346	6	-7.562993E-003	-9.817169E-003	-2.668784E-002	-3.464187E-001
1346	7	-7.700578E-003	-9.798265E-003	-2.717362E-002	-3.457538E-001
1346	8	-7.563429E-003	-9.779283E-003	-2.668899E-002	-3.450841E-001
1346	9	-7.563272E-003	-9.798161E-003	-2.668837E-002	-3.457532E-001
1347	1	-7.756423E-003	-1.804479E-002	-2.737078E-002	-3.897398E-001
1347	2	-7.755738E-003	-1.807843E-002	-2.736787E-002	-3.909237E-001
1347	3	-8.000300E-003	-1.807839E-002	-2.823165E-002	-3.909226E-001
1347	4	-8.000427E-003	-1.804489E-002	-2.823282E-002	-3.897421E-001
1347	5	-7.756809E-003	-1.806166E-002	-2.737286E-002	-3.903333E-001
1347	6	-7.878568E-003	-1.807836E-002	-2.780099E-002	-3.909229E-001
1347	7	-8.000125E-003	-1.806170E-002	-2.823223E-002	-3.903348E-001
1347	8	-7.878877E-003	-1.804484E-002	-2.780303E-002	-3.897375E-001
1347	9	-7.878295E-003	-1.806155E-002	-2.780175E-002	-3.903331E-001
1348	1	-8.029254E-003	-1.238728E-002	-2.833247E-002	-4.371002E-001
1348	2	-8.030077E-003	-1.240072E-002	-2.833410E-002	-4.375832E-001
1348	3	-8.127678E-003	-1.240088E-002	-2.867859E-002	-4.375862E-001
1348	4	-8.126591E-003	-1.238734E-002	-2.867535E-002	-4.371147E-001
1348	5	-8.030185E-003	-1.239415E-002	-2.833719E-002	-4.373499E-001
1348	6	-8.078310E-003	-1.240065E-002	-2.850619E-002	-4.375869E-001
1348	7	-8.126628E-003	-1.239399E-002	-2.867739E-002	-4.373487E-001
1348	8	-8.078503E-003	-1.238726E-002	-2.850647E-002	-4.371168E-001
1348	9	-8.078235E-003	-1.239404E-002	-2.850591E-002	-4.373493E-001
1349	1	-8.112875E-003	-1.379105E-002	-2.862452E-002	-4.866453E-001
1349	2	-8.112876E-003	-1.376398E-002	-2.862405E-002	-4.856876E-001
1349	3	-7.915757E-003	-1.376393E-002	-2.793252E-002	-4.856847E-001
1349	4	-7.915786E-003	-1.379098E-002	-2.793154E-002	-4.866452E-001
1349	5	-8.111951E-003	-1.377744E-002	-2.862524E-002	-4.861654E-001
1349	6	-8.014064E-003	-1.376381E-002	-2.827931E-002	-4.856865E-001
1349	7	-7.915433E-003	-1.377751E-002	-2.793203E-002	-4.861647E-001
1349	8	-8.014064E-003	-1.379101E-002	-2.827931E-002	-4.866429E-001
1349	9	-8.014064E-003	-1.377742E-002	-2.827931E-002	-4.861659E-001
1350	1	-5.894972E-003	-4.748862E-004	-2.080258E-002	-1.675729E-002
1350	2	-5.894778E-003	-4.763134E-004	-2.079993E-002	-1.680280E-002
1350	3	-5.903218E-003	-4.763225E-004	-2.083197E-002	-1.680315E-002
1350	4	-5.902815E-003	-4.748881E-004	-2.083044E-002	-1.675634E-002
1350	5	-5.894548E-003	-4.756236E-004	-2.080144E-002	-1.678264E-002
1350	6	-5.898993E-003	-4.761411E-004	-2.081606E-002	-1.680298E-002
1350	7	-5.903263E-003	-4.755489E-004	-2.082989E-002	-1.678227E-002
1350	8	-5.899225E-003	-4.749905E-004	-2.081649E-002	-1.675682E-002
1350	9	-5.899050E-003	-4.755863E-004	-2.081607E-002	-1.678246E-002
1351	1	-5.897918E-003	-1.420342E-003	-2.081199E-002	-5.011688E-002
1351	2	-5.897820E-003	-1.426030E-003	-2.081243E-002	-5.035055E-002
1351	3	-5.945532E-003	-1.426048E-003	-2.097933E-002	-5.035046E-002
1351	4	-5.944535E-003	-1.420258E-003	-2.097981E-002	-5.011980E-002
1351	5	-5.896736E-003	-1.423562E-003	-2.080953E-002	-5.023291E-002
1351	6	-5.921357E-003	-1.426867E-003	-2.089385E-002	-5.035027E-002
1351	7	-5.944795E-003	-1.423528E-003	-2.097626E-002	-5.023246E-002
1351	8	-5.920837E-003	-1.420360E-003	-2.089448E-002	-5.011643E-002
1351	9	-5.921897E-003	-1.423567E-003	-2.089424E-002	-5.023269E-002

1358	7	-7.348021E-003	-8.602683E-003	-2.592850E-002	-3.035649E-001
1358	8	-7.218929E-003	-8.585087E-003	-2.547315E-002	-3.029347E-001
1358	9	-7.218929E-003	-8.602578E-003	-2.547315E-002	-3.035644E-001
1359	1	-6.218780E-003	-1.375611E-002	-2.194412E-002	-4.854183E-001
1359	2	-6.218404E-003	-1.373361E-002	-2.194527E-002	-4.846176E-001
1359	3	-6.054252E-003	-1.373371E-002	-2.136285E-002	-4.846208E-001
1359	4	-6.053473E-003	-1.375616E-002	-2.136122E-002	-4.854189E-001
1359	5	-6.219523E-003	-1.374500E-002	-2.194754E-002	-4.850171E-001
1359	6	-6.137016E-003	-1.373357E-002	-2.165440E-002	-4.846173E-001
1359	7	-6.054716E-003	-1.374498E-002	-2.136450E-002	-4.850157E-001
1359	8	-6.136497E-003	-1.375618E-002	-2.165291E-002	-4.854149E-001
1359	9	-6.136856E-003	-1.374486E-002	-2.165386E-002	-4.850194E-001
1360	1	-5.932741E-003	-1.509121E-002	-2.093508E-002	-5.325269E-001
1360	2	-5.933791E-003	-1.501807E-002	-2.093921E-002	-5.299731E-001
1360	3	-5.405836E-003	-1.501809E-002	-1.907501E-002	-5.299725E-001
1360	4	-5.404558E-003	-1.509138E-002	-1.907112E-002	-5.325293E-001
1360	5	-5.931776E-003	-1.505499E-002	-2.093261E-002	-5.312486E-001
1360	6	-5.669866E-003	-1.501807E-002	-2.000842E-002	-5.299674E-001
1360	7	-5.405291E-003	-1.505513E-002	-1.907402E-002	-5.312493E-001
1360	8	-5.668980E-003	-1.509126E-002	-2.000475E-002	-5.325285E-001
1360	9	-5.669709E-003	-1.505502E-002	-2.000630E-002	-5.312498E-001
1361	1	-5.163928E-003	-1.630249E-002	-1.822177E-002	-5.752633E-001
1361	2	-5.166975E-003	-1.616410E-002	-1.822993E-002	-5.703811E-001
1361	3	-4.158504E-003	-1.616398E-002	-1.467317E-002	-5.703771E-001
1361	4	-4.159450E-003	-1.630251E-002	-1.467551E-002	-5.752624E-001
1361	5	-5.165121E-003	-1.623327E-002	-1.822729E-002	-5.728262E-001
1361	6	-4.662146E-003	-1.616401E-002	-1.645156E-002	-5.703794E-001
1361	7	-4.158293E-003	-1.623327E-002	-1.467220E-002	-5.728258E-001
1361	8	-4.661301E-003	-1.630233E-002	-1.644823E-002	-5.752613E-001
1361	9	-4.661534E-003	-1.623329E-002	-1.644860E-002	-5.728260E-001
1362	1	-3.797852E-003	-1.724020E-002	-1.340375E-002	-6.083612E-001
1362	2	-3.797354E-003	-1.703830E-002	-1.340307E-002	-6.012306E-001
1362	3	-3.328298E-003	-1.703830E-002	-0.216333E-003	-6.012303E-001
1362	4	-2.328335E-003	-1.724032E-002	-0.215282E-003	-6.083574E-001
1362	5	-3.799440E-003	-1.713936E-002	-1.340579E-002	-6.047978E-001
1362	6	-3.063322E-003	-1.703832E-002	-1.080997E-002	-6.012323E-001
1362	7	-2.329101E-003	-1.713934E-002	-0.216761E-003	-6.047982E-001
1362	8	-3.063322E-003	-1.724023E-002	-1.080997E-002	-6.083598E-001
1362	9	-3.063322E-003	-1.713926E-002	-1.080997E-002	-6.047971E-001
1363	1	-1.846221E-003	-1.777411E-002	-6.515585E-003	-6.271946E-001
1363	2	-1.845661E-003	-1.751980E-002	-6.513733E-003	-6.182249E-001
1363	3	+1.773238E-006	-1.751962E-002	+7.249415E-006	-6.182137E-001
1363	4	+5.833005E-006	-1.777400E-002	+2.097330E-005	-6.271944E-001
1363	5	-1.847123E-003	-1.764682E-002	-6.516886E-003	-6.227064E-001
1363	6	-9.229137E-004	-1.751980E-002	-3.254332E-003	-6.182211E-001
1363	7	+4.593283E-006	-1.764673E-002	+1.663715E-005	-6.226993E-001
1363	8	-9.210818E-004	-1.777410E-002	-3.247389E-003	-6.271923E-001
1363	9	-9.214040E-004	-1.764681E-002	-3.251623E-003	-6.227049E-001
1364	1	-4.635319E-003	-2.385500E-003	-1.635625E-002	-8.417565E-002
1364	2	-4.635220E-003	-2.392667E-003	-1.635840E-002	-8.442981E-002
1364	3	-4.688397E-003	-2.392676E-003	-1.654350E-002	-8.443046E-002
1364	4	-4.688076E-003	-2.385495E-003	-1.654276E-002	-8.418112E-002
1364	5	-4.634842E-003	-2.389178E-003	-1.635401E-002	-8.430392E-002
1364	6	-4.662174E-003	-2.392722E-003	-1.645015E-002	-8.443538E-002
1364	7	-4.687886E-003	-2.389178E-003	-1.654189E-002	-8.430392E-002
1364	8	-4.662293E-003	-2.385482E-003	-1.644992E-002	-8.417789E-002
1364	9	-4.661646E-003	-2.389178E-003	-1.644914E-002	-8.430392E-002
1365	1	-4.692585E-003	-3.355020E-003	-1.655999E-002	-1.183859E-001
1365	2	-4.692807E-003	-3.366496E-003	-1.655847E-002	-1.187951E-001
1365	3	-4.777627E-003	-3.366625E-003	-1.685663E-002	-1.187993E-001

1365	4	-4.777415E-003	-3.354934E-003	-1.685738E-002	-1.183812E-001
1365	5	-4.692635E-003	-3.360716E-003	-1.655857E-002	-1.185897E-001
1365	6	-4.735569E-003	-3.366451E-003	-1.670890E-002	-1.187937E-001
1365	7	-4.778236E-003	-3.360716E-003	-1.686033E-002	-1.185897E-001
1365	8	-4.735586E-003	-3.354918E-003	-1.671056E-002	-1.183854E-001
1365	9	-4.735101E-003	-3.360716E-003	-1.670973E-002	-1.185897E-001
1366	1	-4.790302E-003	-4.343996E-003	-1.690296E-002	-1.532892E-001
1366	2	-4.790385E-003	-4.357907E-003	-1.690386E-002	-1.537772E-001
1366	3	-4.891327E-003	-4.357916E-003	-1.726095E-002	-1.537817E-001
1366	4	-4.891215E-003	-4.343947E-003	-1.726066E-002	-1.532847E-001
1366	5	-4.790753E-003	-4.350928E-003	-1.690425E-002	-1.535331E-001
1366	6	-4.840286E-003	-4.357872E-003	-1.708062E-002	-1.537761E-001
1366	7	-4.890289E-003	-4.350928E-003	-1.725751E-002	-1.535331E-001
1366	8	-4.840463E-003	-4.344047E-003	-1.708106E-002	-1.532851E-001
1366	9	-4.840342E-003	-4.350928E-003	-1.708094E-002	-1.535331E-001
1367	1	-4.923637E-003	-5.358111E-003	-1.737376E-002	-1.890730E-001
1367	2	-4.924089E-003	-5.374038E-003	-1.737463E-002	-1.896597E-001
1367	3	-5.045751E-003	-5.374848E-003	-1.780405E-002	-1.896684E-001
1367	4	-5.045517E-003	-5.358138E-003	-1.780502E-002	-1.890755E-001
1367	5	-4.924548E-003	-5.366537E-003	-1.737658E-002	-1.893704E-001
1367	6	-4.984540E-003	-5.374882E-003	-1.758821E-002	-1.896653E-001
1367	7	-5.045040E-003	-5.366537E-003	-1.780120E-002	-1.893704E-001
1367	8	-4.984540E-003	-5.358136E-003	-1.758821E-002	-1.890728E-001
1367	9	-4.984540E-003	-5.366537E-003	-1.758821E-002	-1.893704E-001
1368	1	-5.085158E-003	-6.405661E-003	-1.794243E-002	-2.260375E-001
1368	2	-5.084971E-003	-6.426459E-003	-1.794338E-002	-2.267683E-001
1368	3	-5.236407E-003	-6.426369E-003	-1.847674E-002	-2.267658E-001
1368	4	-5.235692E-003	-6.405721E-003	-1.847579E-002	-2.260366E-001
1368	5	-5.085657E-003	-6.416032E-003	-1.794636E-002	-2.264014E-001
1368	6	-5.160406E-003	-6.426284E-003	-1.821072E-002	-2.267668E-001
1368	7	-5.236407E-003	-6.416032E-003	-1.847865E-002	-2.264014E-001
1368	8	-5.160406E-003	-6.405682E-003	-1.821072E-002	-2.260337E-001
1368	9	-5.160406E-003	-6.416032E-003	-1.821072E-002	-2.264014E-001
1369	1	-5.284934E-003	-7.492917E-003	-1.864812E-002	-2.644869E-001
1369	2	-5.284941E-003	-7.518461E-003	-1.864929E-002	-2.652993E-001
1369	3	-5.470382E-003	-7.518462E-003	-1.930240E-002	-2.653035E-001
1369	4	-5.469561E-003	-7.493079E-003	-1.930163E-002	-2.644864E-001
1369	5	-5.285389E-003	-7.505693E-003	-1.865182E-002	-2.648545E-001
1369	6	-5.377107E-003	-7.518417E-003	-1.897462E-002	-2.653021E-001
1369	7	-5.469406E-003	-7.505693E-003	-1.930117E-002	-2.648545E-001
1369	8	-5.377456E-003	-7.492953E-003	-1.897600E-002	-2.644071E-001
1369	9	-5.377422E-003	-7.505693E-003	-1.897554E-002	-2.648545E-001
1370	1	-5.518713E-003	-8.629713E-003	-1.944457E-002	-3.045198E-001
1370	2	-5.518295E-003	-8.659188E-003	-1.944337E-002	-3.055546E-001
1370	3	-5.724652E-003	-8.659201E-003	-2.019883E-002	-3.055554E-001
1370	4	-5.724797E-003	-8.629898E-003	-2.020188E-002	-3.045199E-001
1370	5	-5.518981E-003	-8.644569E-003	-1.944636E-002	-3.050381E-001
1370	6	-5.617065E-003	-8.659233E-003	-1.982163E-002	-3.055602E-001
1370	7	-5.725448E-003	-8.644569E-003	-2.020371E-002	-3.050381E-001
1370	8	-5.618248E-003	-8.629847E-003	-1.982277E-002	-3.045270E-001
1370	9	-5.617599E-003	-8.644569E-003	-1.982267E-002	-3.050381E-001
1371	1	-5.767968E-003	-9.826958E-003	-2.035575E-002	-3.467680E-001
1371	2	-5.768538E-003	-9.856411E-003	-2.035393E-002	-3.478066E-001
1371	3	-5.983606E-003	-9.856544E-003	-2.111225E-002	-3.478070E-001
1371	4	-5.984791E-003	-9.826915E-003	-2.111686E-002	-3.467687E-001
1371	5	-5.767818E-003	-9.841671E-003	-2.035192E-002	-3.472859E-001
1371	6	-5.875710E-003	-9.856487E-003	-2.073491E-002	-3.478052E-001
1371	7	-5.983594E-003	-9.841671E-003	-2.111580E-002	-3.472859E-001
1371	8	-5.876799E-003	-9.826982E-003	-2.073634E-002	-3.467675E-001
1371	9	-5.876254E-003	-9.841671E-003	-2.073563E-002	-3.472859E-001

1372	1	-6.019139E-003	-1.108653E-002	-2.123967E-002	-3.912113E-001
1372	2	-6.019512E-003	-1.110869E-002	-2.123990E-002	-3.919903E-001
1372	3	-6.179752E-003	-1.110859E-002	-2.180663E-002	-3.919987E-001
1372	4	-6.180266E-003	-1.108653E-002	-2.181046E-002	-3.912059E-001
1372	5	-6.019279E-003	-1.109758E-002	-2.124010E-002	-3.916013E-001
1372	6	-6.099432E-003	-1.110862E-002	-2.152422E-002	-3.919922E-001
1372	7	-6.180593E-003	-1.109758E-002	-2.180750E-002	-3.916013E-001
1372	8	-6.099742E-003	-1.108647E-002	-2.152578E-002	-3.912086E-001
1372	9	-6.099919E-003	-1.109758E-002	-2.152564E-002	-3.916013E-001
1373	1	-6.210358E-003	-1.240365E-002	-2.191591E-002	-4.376857E-001
1373	2	-6.209960E-003	-1.240994E-002	-2.191475E-002	-4.379143E-001
1373	3	-6.257475E-003	-1.240986E-002	-2.208022E-002	-4.379118E-001
1373	4	-6.257698E-003	-1.240364E-002	-2.207987E-002	-4.376870E-001
1373	5	-6.211580E-003	-1.240681E-002	-2.191852E-002	-4.378000E-001
1373	6	-6.234300E-003	-1.240990E-002	-2.199748E-002	-4.379089E-001
1373	7	-6.256046E-003	-1.240681E-002	-2.207887E-002	-4.378000E-001
1373	8	-6.234320E-003	-1.240369E-002	-2.199743E-002	-4.376901E-001
1373	9	-6.233903E-003	-1.240681E-002	-2.199815E-002	-4.378000E-001
1374	1	-4.586393E-003	-4.765853E-004	-1.610497E-002	-1.681441E-002
1374	2	-4.586156E-003	-4.778352E-004	-1.610549E-002	-1.686096E-002
1374	3	-4.595316E-003	-4.777482E-004	-1.621609E-002	-1.686028E-002
1374	4	-4.596075E-003	-4.766130E-004	-1.621722E-002	-1.681583E-002
1374	5	-4.585753E-003	-4.771934E-004	-1.610255E-002	-1.683709E-002
1374	6	-4.590753E-003	-4.777843E-004	-1.619995E-002	-1.686038E-002
1374	7	-4.594391E-003	-4.771934E-004	-1.621430E-002	-1.683709E-002
1374	8	-4.590753E-003	-4.764037E-004	-1.619995E-002	-1.681652E-002
1374	9	-4.590753E-003	-4.771934E-004	-1.619995E-002	-1.683709E-002
1375	1	-4.601055E-003	-1.428174E-003	-1.623513E-002	-5.040078E-002
1375	2	-4.600861E-003	-1.431770E-003	-1.623422E-002	-5.052044E-002
1375	3	-4.624951E-003	-1.431624E-003	-1.631843E-002	-5.051576E-002
1375	4	-4.624897E-003	-1.428293E-003	-1.631922E-002	-5.040073E-002
1375	5	-4.600666E-003	-1.429987E-003	-1.623116E-002	-5.046040E-002
1375	6	-4.612115E-003	-1.431558E-003	-1.627531E-002	-5.051535E-002
1375	7	-4.623269E-003	-1.429994E-003	-1.631551E-002	-5.045936E-002
1375	8	-4.612115E-003	-1.428293E-003	-1.627531E-002	-5.039880E-002
1375	9	-4.612115E-003	-1.429950E-003	-1.627531E-002	-5.045927E-002
1376	1	-1.240427E-003	-1.745650E-002	-4.378000E-003	-6.159804E-001
1376	2	-1.243710E-003	-1.727502E-002	-4.388305E-003	-6.095843E-001
1376	3	+7.633679E-005	-1.727514E-002	+2.664924E-004	-6.095899E-001
1376	4	+7.866696E-005	-1.745614E-002	+2.771392E-004	-6.159750E-001
1376	5	-1.242823E-003	-1.736587E-002	-4.386490E-003	-6.127989E-001
1376	6	-5.837344E-004	-1.727512E-002	-2.060782E-003	-6.095887E-001
1376	7	+7.678569E-005	-1.736576E-002	+2.679974E-004	-6.127833E-001
1376	8	-5.805921E-004	-1.745616E-002	-2.050392E-003	-6.159806E-001
1376	9	-5.824816E-004	-1.736574E-002	-2.054792E-003	-6.127860E-001
1377	1	-3.316562E-003	-2.394433E-003	-1.170190E-002	-8.449866E-002
1377	2	-3.315798E-003	-2.399118E-003	-1.170260E-002	-8.465863E-002
1377	3	-3.350845E-003	-2.399067E-003	-1.182240E-002	-8.465805E-002
1377	4	-3.349938E-003	-2.394405E-003	-1.182167E-002	-8.449177E-002
1377	5	-3.315852E-003	-2.396702E-003	-1.169307E-002	-8.457364E-002
1377	6	-3.332909E-003	-2.399167E-003	-1.176083E-002	-8.465709E-002
1377	7	-3.349915E-003	-2.396702E-003	-1.182067E-002	-8.457364E-002
1377	8	-3.332909E-003	-2.394419E-003	-1.176083E-002	-8.449122E-002
1377	9	-3.332909E-003	-2.396702E-003	-1.176083E-002	-8.457364E-002
1378	1	-3.362474E-003	-3.369299E-003	-1.186412E-002	-1.188898E-001
1378	2	-3.362028E-003	-3.375967E-003	-1.186530E-002	-1.191297E-001
1378	3	-3.418962E-003	-3.375931E-003	-1.203655E-002	-1.191296E-001
1378	4	-3.418219E-003	-3.369177E-003	-1.203548E-002	-1.188989E-001
1378	5	-3.361474E-003	-3.372614E-003	-1.186262E-002	-1.190098E-001
1378	6	-3.386243E-003	-3.376016E-003	-1.194903E-002	-1.191286E-001

1378	7	-3.409761E-003	-3.372614E-003	-1.203365E-002	-1.190098E-001
1378	8	-3.386243E-003	-3.369194E-003	-1.194903E-002	-1.188904E-001
1378	9	-3.386243E-003	-3.372614E-003	-1.194903E-002	-1.190098E-001
1379	1	-3.429232E-003	-4.361404E-003	-1.210128E-002	-1.538995E-001
1379	2	-3.428377E-003	-4.371535E-003	-1.209804E-002	-1.542594E-001
1379	3	-3.503563E-003	-4.371683E-003	-1.236200E-002	-1.542622E-001
1379	4	-3.503044E-003	-4.361602E-003	-1.236048E-002	-1.539078E-001
1379	5	-3.429246E-003	-4.366545E-003	-1.210047E-002	-1.540839E-001
1379	6	-3.465253E-003	-4.371563E-003	-1.222952E-002	-1.542646E-001
1379	7	-3.502541E-003	-4.366545E-003	-1.235963E-002	-1.540839E-001
1379	8	-3.465804E-003	-4.361502E-003	-1.222943E-002	-1.538998E-001
1379	9	-3.465617E-003	-4.366545E-003	-1.223009E-002	-1.540839E-001
1380	1	-3.512827E-003	-5.379350E-003	-1.239674E-002	-1.898232E-001
1380	2	-3.513176E-003	-5.393808E-003	-1.239599E-002	-1.903293E-001
1380	3	-3.617886E-003	-5.393761E-003	-1.276689E-002	-1.903297E-001
1380	4	-3.618678E-003	-5.379331E-003	-1.276841E-002	-1.898207E-001
1380	5	-3.513404E-003	-5.386536E-003	-1.239698E-002	-1.900746E-001
1380	6	-3.565670E-003	-5.393621E-003	-1.258185E-002	-1.903279E-001
1380	7	-3.617685E-003	-5.386536E-003	-1.276717E-002	-1.900746E-001
1380	8	-3.565865E-003	-5.379356E-003	-1.258240E-002	-1.898205E-001
1380	9	-3.565113E-003	-5.386536E-003	-1.258212E-002	-1.900746E-001
1381	1	-3.633509E-003	-6.431618E-003	-1.282240E-002	-2.269562E-001
1381	2	-3.634155E-003	-6.447421E-003	-1.282217E-002	-2.275094E-001
1381	3	-3.747459E-003	-6.447258E-003	-1.322257E-002	-2.275086E-001
1381	4	-3.747635E-003	-6.431706E-003	-1.322375E-002	-2.269495E-001
1381	5	-3.634529E-003	-6.439475E-003	-1.282376E-002	-2.272316E-001
1381	6	-3.690382E-003	-6.447224E-003	-1.302162E-002	-2.275033E-001
1381	7	-3.746474E-003	-6.439475E-003	-1.321982E-002	-2.272316E-001
1381	8	-3.690280E-003	-6.431707E-003	-1.302191E-002	-2.269562E-001
1381	9	-3.690031E-003	-6.439475E-003	-1.302271E-002	-2.272316E-001
1382	1	-3.782200E-003	-7.524581E-003	-1.334458E-002	-2.655198E-001
1382	2	-3.781469E-003	-7.541954E-003	-1.334559E-002	-2.661303E-001
1382	3	-3.907313E-003	-7.541912E-003	-1.378086E-002	-2.661342E-001
1382	4	-3.907525E-003	-7.524745E-003	-1.378798E-002	-2.655231E-001
1382	5	-3.783071E-003	-7.533294E-003	-1.334842E-002	-2.658257E-001
1382	6	-3.845364E-003	-7.541769E-003	-1.356841E-002	-2.661289E-001
1382	7	-3.907536E-003	-7.533294E-003	-1.378802E-002	-2.658257E-001
1382	8	-3.845364E-003	-7.524663E-003	-1.356841E-002	-2.655233E-001
1382	9	-3.845364E-003	-7.533294E-003	-1.356841E-002	-2.658257E-001
1383	1	-3.947029E-003	-8.666341E-003	-1.392449E-002	-3.058073E-001
1383	2	-3.946326E-003	-8.685485E-003	-1.392456E-002	-3.064821E-001
1383	3	-4.086017E-003	-8.685360E-003	-1.441665E-002	-3.064823E-001
1383	4	-4.085415E-003	-8.666253E-003	-1.441623E-002	-3.058072E-001
1383	5	-3.946290E-003	-8.675762E-003	-1.392440E-002	-3.061464E-001
1383	6	-4.016287E-003	-8.685222E-003	-1.417368E-002	-3.064770E-001
1383	7	-4.085477E-003	-8.675762E-003	-1.441740E-002	-3.061464E-001
1383	8	-4.016287E-003	-8.666297E-003	-1.417368E-002	-3.058077E-001
1383	9	-4.016287E-003	-8.675762E-003	-1.417368E-002	-3.061464E-001
1384	1	-4.125579E-003	-9.863507E-003	-1.455822E-002	-3.480534E-001
1384	2	-4.125706E-003	-9.881721E-003	-1.455774E-002	-3.486973E-001
1384	3	-4.258043E-003	-9.881678E-003	-1.502592E-002	-3.486967E-001
1384	4	-4.257732E-003	-9.863402E-003	-1.502556E-002	-3.480527E-001
1384	5	-4.125149E-003	-9.872532E-003	-1.455703E-002	-3.483758E-001
1384	6	-4.192169E-003	-9.881770E-003	-1.479290E-002	-3.486960E-001
1384	7	-4.259096E-003	-9.872532E-003	-1.502911E-002	-3.483758E-001
1384	8	-4.192169E-003	-9.863336E-003	-1.479290E-002	-3.480535E-001
1384	9	-4.192169E-003	-9.872532E-003	-1.479290E-002	-3.483758E-001
1385	1	-4.294522E-003	-1.111391E-002	-1.515236E-002	-3.921804E-001
1385	2	-4.293546E-003	-1.112919E-002	-1.515002E-002	-3.927157E-001
1385	3	-4.403663E-003	-1.112903E-002	-1.553809E-002	-3.927156E-001

1385	4	-4.403703E-003	-1.111399E-002	-1.554123E-002	-3.921858E-001
1385	5	-4.293875E-003	-1.112163E-002	-1.515323E-002	-3.924469E-001
1385	6	-4.348926E-003	-1.112913E-002	-1.534502E-002	-3.927186E-001
1385	7	-4.403195E-003	-1.112163E-002	-1.553597E-002	-3.924469E-001
1385	8	-4.349118E-003	-1.111406E-002	-1.534541E-002	-3.921831E-001
1385	9	-4.348346E-003	-1.112163E-002	-1.534485E-002	-3.924469E-001
1386	1	-4.404072E-003	-1.241145E-002	-1.554413E-002	-4.379697E-001
1386	2	-4.404773E-003	-1.241630E-002	-1.554398E-002	-4.381345E-001
1386	3	-4.438199E-003	-1.241633E-002	-1.566080E-002	-4.381371E-001
1386	4	-4.437448E-003	-1.241167E-002	-1.566066E-002	-4.379705E-001
1386	5	-4.403941E-003	-1.241389E-002	-1.554048E-002	-4.380532E-001
1386	6	-4.421446E-003	-1.241632E-002	-1.560198E-002	-4.381357E-001
1386	7	-4.439047E-003	-1.241389E-002	-1.566467E-002	-4.380532E-001
1386	8	-4.422252E-003	-1.241174E-002	-1.560246E-002	-4.379682E-001
1386	9	-4.421341E-003	-1.241389E-002	-1.560266E-002	-4.380532E-001
1387	1	-4.402847E-003	-1.372739E-002	-1.553364E-002	-4.843988E-001
1387	2	-4.403349E-003	-1.370788E-002	-1.553592E-002	-4.837095E-001
1387	3	-4.259136E-003	-1.370784E-002	-1.503037E-002	-4.837094E-001
1387	4	-4.260360E-003	-1.372746E-002	-1.503301E-002	-4.844026E-001
1387	5	-4.402297E-003	-1.371767E-002	-1.553403E-002	-4.840557E-001
1387	6	-4.331364E-003	-1.370793E-002	-1.528493E-002	-4.837088E-001
1387	7	-4.260840E-003	-1.371767E-002	-1.503455E-002	-4.840557E-001
1387	8	-4.331451E-003	-1.372743E-002	-1.528407E-002	-4.844007E-001
1387	9	-4.331438E-003	-1.371767E-002	-1.528395E-002	-4.840557E-001
1388	1	-4.180146E-003	-1.500021E-002	-1.475084E-002	-5.293120E-001
1388	2	-4.180184E-003	-1.494430E-002	-1.475156E-002	-5.273380E-001
1388	3	-3.771664E-003	-1.494414E-002	-1.330981E-002	-5.273377E-001
1388	4	-3.771475E-003	-1.500026E-002	-1.330985E-002	-5.293111E-001
1388	5	-4.179343E-003	-1.497221E-002	-1.474691E-002	-5.283226E-001
1388	6	-3.975823E-003	-1.494434E-002	-1.402979E-002	-5.273395E-001
1388	7	-3.772428E-003	-1.497221E-002	-1.331286E-002	-5.283226E-001
1388	8	-3.975823E-003	-1.500023E-002	-1.402979E-002	-5.293096E-001
1388	9	-3.975823E-003	-1.497221E-002	-1.402979E-002	-5.283226E-001
1389	1	-3.607963E-003	-1.612952E-002	-1.273293E-002	-5.691654E-001
1389	2	-3.609264E-003	-1.603137E-002	-1.273661E-002	-5.656992E-001
1389	3	-2.895719E-003	-1.603152E-002	-1.021612E-002	-5.657019E-001
1389	4	-2.893597E-003	-1.612956E-002	-1.021118E-002	-5.691643E-001
1389	5	-3.609279E-003	-1.608042E-002	-1.273693E-002	-5.674326E-001
1389	6	-3.251935E-003	-1.603151E-002	-1.147526E-002	-5.657046E-001
1389	7	-2.893400E-003	-1.608042E-002	-1.021279E-002	-5.674326E-001
1389	8	-3.251297E-003	-1.612953E-002	-1.147334E-002	-5.691664E-001
1389	9	-3.251761E-003	-1.608042E-002	-1.147447E-002	-5.674326E-001
1390	1	-2.627053E-003	-1.698822E-002	-9.260338E-003	-5.994696E-001
1390	2	-2.628689E-003	-1.684612E-002	-9.275512E-003	-5.944539E-001
1390	3	-1.593604E-003	-1.684628E-002	-5.623723E-003	-5.944535E-001
1390	4	-1.590957E-003	-1.698833E-002	-5.616127E-003	-5.994636E-001
1390	5	-2.627011E-003	-1.691722E-002	-9.271924E-003	-5.969624E-001
1390	6	-2.110564E-003	-1.684635E-002	-7.449809E-003	-5.944547E-001
1390	7	-1.593085E-003	-1.691722E-002	-5.622109E-003	-5.969624E-001
1390	8	-2.109409E-003	-1.698843E-002	-7.442513E-003	-5.994701E-001
1390	9	-2.109344E-003	-1.691722E-002	-7.445208E-003	-5.969624E-001
1391	1	-3.289823E-003	-1.432110E-003	-1.160795E-002	-5.053867E-002
1391	2	-3.290104E-003	-1.434857E-003	-1.160918E-002	-5.063164E-002
1391	3	-3.300769E-003	-1.434779E-003	-1.167462E-002	-5.063240E-002
1391	4	-3.300015E-003	-1.432170E-003	-1.167542E-002	-5.053760E-002
1391	5	-3.289278E-003	-1.433571E-003	-1.160589E-002	-5.058476E-002
1391	6	-3.298491E-003	-1.434935E-003	-1.164116E-002	-5.063172E-002
1391	7	-3.300041E-003	-1.433489E-003	-1.167171E-002	-5.058543E-002
1391	8	-3.298491E-003	-1.432243E-003	-1.164116E-002	-5.054004E-002
1391	9	-3.298491E-003	-1.433471E-003	-1.164116E-002	-5.058605E-002

1392	1	-3.283324E-003	-4.781132E-004	-1.158849E-002	-1.686848E-002
1392	2	-3.283617E-003	-4.784066E-004	-1.158663E-002	-1.688085E-002
1392	3	-3.285083E-003	-4.782646E-004	-1.159551E-002	-1.687972E-002
1392	4	-3.286056E-003	-4.779412E-004	-1.159413E-002	-1.686881E-002
1392	5	-3.282394E-003	-4.781893E-004	-1.158404E-002	-1.687164E-002
1392	6	-3.284809E-003	-4.784434E-004	-1.159106E-002	-1.688070E-002
1392	7	-3.285507E-003	-4.781789E-004	-1.159437E-002	-1.687260E-002
1392	8	-3.284757E-003	-4.780710E-004	-1.159088E-002	-1.686814E-002
1392	9	-3.284663E-003	-4.781841E-004	-1.158995E-002	-1.687237E-002
1393	1	-2.468967E-003	-9.886244E-003	-8.712380E-003	-3.488567E-001
1393	2	-2.468192E-003	-9.899428E-003	-8.711682E-003	-3.493221E-001
1393	3	-2.565085E-003	-9.899419E-003	-9.050915E-003	-3.493211E-001
1393	4	-2.565574E-003	-9.886201E-003	-9.052467E-003	-3.488533E-001
1393	5	-2.470840E-003	-9.892912E-003	-8.714718E-003	-3.490926E-001
1393	6	-2.517233E-003	-9.899429E-003	-8.882252E-003	-3.493235E-001
1393	7	-2.564853E-003	-9.892917E-003	-9.050227E-003	-3.490886E-001
1393	8	-2.516836E-003	-9.886282E-003	-8.883121E-003	-3.488589E-001
1393	9	-2.517035E-003	-9.892892E-003	-8.882210E-003	-3.490887E-001
1394	1	-2.569858E-003	-1.113266E-002	-9.066838E-003	-3.928343E-001
1394	2	-2.569887E-003	-1.114144E-002	-9.067181E-003	-3.931460E-001
1394	3	-2.633612E-003	-1.114144E-002	-9.293440E-003	-3.931486E-001
1394	4	-2.633902E-003	-1.113260E-002	-9.292457E-003	-3.928341E-001
1394	5	-2.569363E-003	-1.113703E-002	-9.064507E-003	-3.929908E-001
1394	6	-2.600830E-003	-1.114145E-002	-9.178750E-003	-3.931476E-001
1394	7	-2.633018E-003	-1.113705E-002	-9.290947E-003	-3.929914E-001
1394	8	-2.601083E-003	-1.113257E-002	-9.179171E-003	-3.928361E-001
1394	9	-2.601338E-003	-1.113702E-002	-9.178627E-003	-3.929911E-001
1395	1	-2.641915E-003	-1.241701E-002	-9.323309E-003	-4.381602E-001
1395	2	-2.642460E-003	-1.241668E-002	-9.322701E-003	-4.381503E-001
1395	3	-2.639870E-003	-1.241667E-002	-9.316339E-003	-4.381489E-001
1395	4	-2.640365E-003	-1.241705E-002	-9.317012E-003	-4.381593E-001
1395	5	-2.643248E-003	-1.241693E-002	-9.325509E-003	-4.381547E-001
1395	6	-2.641609E-003	-1.241671E-002	-9.320513E-003	-4.381481E-001
1395	7	-2.639744E-003	-1.241674E-002	-9.314529E-003	-4.381503E-001
1395	8	-2.641609E-003	-1.241691E-002	-9.320513E-003	-4.381579E-001
1395	9	-2.641609E-003	-1.241680E-002	-9.320513E-003	-4.381515E-001
1396	1	-2.627636E-003	-1.370315E-002	-9.270635E-003	-4.835420E-001
1396	2	-2.626487E-003	-1.369893E-002	-9.268953E-003	-4.831132E-001
1396	3	-2.539022E-003	-1.369894E-002	-8.958663E-003	-4.831159E-001
1396	4	-2.538518E-003	-1.370314E-002	-8.958596E-003	-4.835442E-001
1396	5	-2.626875E-003	-1.369703E-002	-9.268553E-003	-4.833277E-001
1396	6	-2.582708E-003	-1.369892E-002	-9.113513E-003	-4.831140E-001
1396	7	-2.538573E-003	-1.369711E-002	-8.959190E-003	-4.833281E-001
1396	8	-2.582514E-003	-1.370325E-002	-9.114045E-003	-4.835431E-001
1396	9	-2.582959E-003	-1.369711E-002	-9.113662E-003	-4.833308E-001
1397	1	-2.472041E-003	-1.493146E-002	-8.722499E-003	-5.268850E-001
1397	2	-2.471573E-003	-1.489975E-002	-8.723239E-003	-5.257677E-001
1397	3	-2.243311E-003	-1.489972E-002	-7.915140E-003	-5.257698E-001
1397	4	-2.241810E-003	-1.493145E-002	-7.911838E-003	-5.268865E-001
1397	5	-2.472296E-003	-1.491568E-002	-8.722439E-003	-5.263295E-001
1397	6	-2.357882E-003	-1.489975E-002	-8.320263E-003	-5.257692E-001
1397	7	-2.241320E-003	-1.491554E-002	-7.910853E-003	-5.263300E-001
1397	8	-2.357025E-003	-1.493145E-002	-8.318023E-003	-5.268896E-001
1397	9	-2.357692E-003	-1.491571E-002	-8.319142E-003	-5.263273E-001
1398	1	-2.129786E-003	-1.600862E-002	-7.515667E-003	-5.648991E-001
1398	2	-2.131174E-003	-1.595024E-002	-7.518835E-003	-5.628362E-001
1398	3	-1.705377E-003	-1.595021E-002	-6.015173E-003	-5.628381E-001
1398	4	-1.703807E-003	-1.600859E-002	-6.011837E-003	-5.649035E-001
1398	5	-2.129299E-003	-1.597942E-002	-7.514748E-003	-5.638686E-001
1398	6	-1.917525E-003	-1.595024E-002	-6.766947E-003	-5.628374E-001

1398	7	-1.704115E-003	-1.597943E-002	-6.012551E-003	-5.638672E-001
1398	8	-1.916606E-003	-1.600860E-002	-6.763122E-003	-5.648994E-001
1398	9	-1.917542E-003	-1.597941E-002	-6.764081E-003	-5.638650E-001
1399	1	-1.541197E-003	-1.681359E-002	-5.439211E-003	-5.932989E-001
1399	2	-1.542784E-003	-1.673066E-002	-5.444675E-003	-5.903758E-001
1399	3	-9.403217E-004	-1.673067E-002	-3.315274E-003	-5.903743E-001
1399	4	-9.388327E-004	-1.681354E-002	-3.312241E-003	-5.933023E-001
1399	5	-1.541454E-003	-1.677216E-002	-5.440870E-003	-5.918390E-001
1399	6	-1.240993E-003	-1.673069E-002	-4.378908E-003	-5.903772E-001
1399	7	-9.382311E-004	-1.677214E-002	-3.313757E-003	-5.918385E-001
1399	8	-1.239823E-003	-1.681357E-002	-4.373893E-003	-5.933025E-001
1399	9	-1.240170E-003	-1.677215E-002	-4.376401E-003	-5.918397E-001
1400	1	-7.179140E-004	-1.723161E-002	-2.535013E-003	-6.080502E-001
1400	2	-7.200157E-004	-1.711343E-002	-2.540520E-003	-6.038858E-001
1400	3	+1.402739E-004	-1.711354E-002	+4.964098E-004	-6.038838E-001
1400	4	+1.424942E-004	-1.723141E-002	+5.027001E-004	-6.080489E-001
1400	5	-7.185973E-004	-1.717256E-002	-2.538085E-003	-6.059679E-001
1400	6	-2.898443E-004	-1.711356E-002	-1.022309E-003	-6.038865E-001
1400	7	+1.401119E-004	-1.717239E-002	+4.960969E-004	-6.059686E-001
1400	8	-2.876278E-004	-1.723145E-002	-1.015954E-003	-6.080496E-001
1400	9	-2.892129E-004	-1.717244E-002	-1.019131E-003	-6.059654E-001
1401	1	-1.960350E-003	-1.435446E-003	-6.946689E-003	-5.865220E-002
1401	2	-1.968945E-003	-1.438897E-003	-6.946747E-003	-5.877316E-002
1401	3	-1.993933E-003	-1.438779E-003	-7.035252E-003	-5.877263E-002
1401	4	-1.993829E-003	-1.435436E-003	-7.034260E-003	-5.865270E-002
1401	5	-1.969377E-003	-1.437140E-003	-6.946655E-003	-5.871303E-002
1401	6	-1.980637E-003	-1.438766E-003	-6.989402E-003	-5.877131E-002
1401	7	-1.993768E-003	-1.437181E-003	-7.033351E-003	-5.871872E-002
1401	8	-1.980538E-003	-1.435284E-003	-6.988778E-003	-5.865176E-002
1401	9	-1.980952E-003	-1.437142E-003	-6.989818E-003	-5.871247E-002
1402	1	-1.986881E-003	-2.480458E-003	-7.008655E-003	-8.478046E-002
1402	2	-1.985695E-003	-2.484931E-003	-7.007914E-003	-8.486497E-002
1402	3	-2.019875E-003	-2.485016E-003	-7.126958E-003	-8.486363E-002
1402	4	-2.019730E-003	-2.480447E-003	-7.126814E-003	-8.478618E-002
1402	5	-1.986707E-003	-2.482665E-003	-7.007751E-003	-8.478247E-002
1402	6	-2.003314E-003	-2.484914E-003	-7.068621E-003	-8.486311E-002
1402	7	-2.019326E-003	-2.482646E-003	-7.125478E-003	-8.478702E-002
1402	8	-2.003021E-003	-2.480493E-003	-7.067887E-003	-8.478282E-002
1402	9	-2.002992E-003	-2.482663E-003	-7.068504E-003	-8.478284E-002
1403	1	-2.014413E-003	-3.377574E-003	-7.108424E-003	-1.191876E-001
1403	2	-2.015164E-003	-3.382497E-003	-7.109082E-003	-1.193589E-001
1403	3	-2.050338E-003	-3.382480E-003	-7.235084E-003	-1.193565E-001
1403	4	-2.049558E-003	-3.377686E-003	-7.231945E-003	-1.191855E-001
1403	5	-2.014765E-003	-3.380814E-003	-7.110300E-003	-1.192713E-001
1403	6	-2.032267E-003	-3.382496E-003	-7.171229E-003	-1.193598E-001
1403	7	-2.049715E-003	-3.380002E-003	-7.232598E-003	-1.192723E-001
1403	8	-2.032248E-003	-3.377734E-003	-7.171416E-003	-1.191861E-001
1403	9	-2.031994E-003	-3.380816E-003	-7.170498E-003	-1.192718E-001
1404	1	-2.061394E-003	-4.373922E-003	-7.274216E-003	-1.543431E-001
1404	2	-2.060768E-003	-4.379444E-003	-7.274112E-003	-1.545363E-001
1404	3	-2.100167E-003	-4.379415E-003	-7.411380E-003	-1.545379E-001
1404	4	-2.100451E-003	-4.373988E-003	-7.411537E-003	-1.543408E-001
1404	5	-2.061379E-003	-4.376643E-003	-7.274164E-003	-1.544374E-001
1404	6	-2.080614E-003	-4.379429E-003	-7.342407E-003	-1.545369E-001
1404	7	-2.100425E-003	-4.376639E-003	-7.410505E-003	-1.544406E-001
1404	8	-2.080614E-003	-4.374079E-003	-7.342407E-003	-1.543491E-001
1404	9	-2.080614E-003	-4.376634E-003	-7.342407E-003	-1.544388E-001
1405	1	-2.113933E-003	-5.396882E-003	-7.458886E-003	-1.904375E-001
1405	2	-2.113716E-003	-5.403979E-003	-7.458960E-003	-1.906891E-001
1405	3	-2.165383E-003	-5.403935E-003	-7.641885E-003	-1.906908E-001

1405	4	-2.165141E-003	-5.396859E-003	-7.640918E-003	-1.904426E-001
1405	5	-2.113467E-003	-5.400489E-003	-7.457850E-003	-1.905653E-001
1405	6	-2.139373E-003	-5.403977E-003	-7.550118E-003	-1.906901E-001
1405	7	-2.164429E-003	-5.400415E-003	-7.638070E-003	-1.905650E-001
1405	8	-2.139373E-003	-5.396915E-003	-7.550118E-003	-1.904358E-001
1405	9	-2.139373E-003	-5.400420E-003	-7.550118E-003	-1.905642E-001
1406	1	-2.183113E-003	-6.451050E-003	-7.702475E-003	-2.276405E-001
1406	2	-2.183578E-003	-6.460916E-003	-7.704000E-003	-2.279884E-001
1406	3	-2.254144E-003	-6.460984E-003	-7.956918E-003	-2.279860E-001
1406	4	-2.255190E-003	-6.450959E-003	-7.958880E-003	-2.276394E-001
1406	5	-2.183023E-003	-6.455997E-003	-7.705385E-003	-2.278114E-001
1406	6	-2.219092E-003	-6.460905E-003	-7.830433E-003	-2.279891E-001
1406	7	-2.255508E-003	-6.455895E-003	-7.960782E-003	-2.278115E-001
1406	8	-2.219350E-003	-6.450998E-003	-7.831236E-003	-2.276356E-001
1406	9	-2.218986E-003	-6.455998E-003	-7.830845E-003	-2.278143E-001
1407	1	-2.261837E-003	-7.546265E-003	-7.980485E-003	-2.662898E-001
1407	2	-2.261803E-003	-7.558574E-003	-7.981117E-003	-2.667199E-001
1407	3	-2.351499E-003	-7.558549E-003	-8.297004E-003	-2.667185E-001
1407	4	-2.351729E-003	-7.546132E-003	-8.298114E-003	-2.662798E-001
1407	5	-2.261954E-003	-7.552383E-003	-7.980264E-003	-2.665012E-001
1407	6	-2.306094E-003	-7.558517E-003	-8.139784E-003	-2.667207E-001
1407	7	-2.351376E-003	-7.552354E-003	-8.297559E-003	-2.665018E-001
1407	8	-2.307427E-003	-7.546079E-003	-8.139562E-003	-2.662840E-001
1407	9	-2.306819E-003	-7.552346E-003	-8.139430E-003	-2.665024E-001
1408	1	-2.361670E-003	-8.690094E-003	-8.333798E-003	-3.066486E-001
1408	2	-2.361369E-003	-8.703570E-003	-8.332680E-003	-3.071247E-001
1408	3	-2.459567E-003	-8.703629E-003	-8.677362E-003	-3.071249E-001
1408	4	-2.459428E-003	-8.690168E-003	-8.677749E-003	-3.066498E-001
1408	5	-2.361101E-003	-8.696768E-003	-8.332518E-003	-3.068889E-001
1408	6	-2.409882E-003	-8.703457E-003	-8.504193E-003	-3.071235E-001
1408	7	-2.460282E-003	-8.696741E-003	-8.680873E-003	-3.068889E-001
1408	8	-2.409997E-003	-8.689966E-003	-8.506375E-003	-3.066435E-001
1408	9	-2.410598E-003	-8.696803E-003	-8.505533E-003	-3.068847E-001
1409	1	-1.972437E-003	-4.784373E-004	-6.960483E-003	-1.680709E-002
1409	2	-1.972403E-003	-4.792905E-004	-6.960643E-003	-1.691413E-002
1409	3	-1.978917E-003	-4.792778E-004	-6.981409E-003	-1.691372E-002
1409	4	-1.978285E-003	-4.786962E-004	-6.982883E-003	-1.688595E-002
1409	5	-1.972796E-003	-4.790009E-004	-6.960846E-003	-1.690099E-002
1409	6	-1.975997E-003	-4.794426E-004	-6.971383E-003	-1.691899E-002
1409	7	-1.978028E-003	-4.790009E-004	-6.982266E-003	-1.690099E-002
1409	8	-1.976288E-003	-4.785072E-004	-6.971755E-003	-1.689834E-002
1409	9	-1.975548E-003	-4.790009E-004	-6.971602E-003	-1.690099E-002
1410	1	-7.915539E-004	-8.705733E-003	-2.790946E-003	-3.072011E-001
1410	2	-7.909662E-004	-8.709495E-003	-2.792047E-003	-3.073314E-001
1410	3	-8.175857E-004	-8.709474E-003	-2.886000E-003	-3.073314E-001
1410	4	-8.177469E-004	-8.705746E-003	-2.885735E-003	-3.072019E-001
1410	5	-7.982170E-004	-8.707632E-003	-2.789413E-003	-3.072651E-001
1410	6	-8.047124E-004	-8.709478E-003	-2.838888E-003	-3.073327E-001
1410	7	-8.175415E-004	-8.707671E-003	-2.884914E-003	-3.072678E-001
1410	8	-8.047124E-004	-8.705720E-003	-2.838888E-003	-3.071979E-001
1410	9	-8.047124E-004	-8.707663E-003	-2.838888E-003	-3.072661E-001
1411	1	-8.256437E-004	-9.901750E-003	-2.913171E-003	-3.494088E-001
1411	2	-8.255365E-004	-9.905860E-003	-2.913986E-003	-3.495218E-001
1411	3	-8.487166E-004	-9.905829E-003	-2.998167E-003	-3.495213E-001
1411	4	-8.498761E-004	-9.901816E-003	-2.998853E-003	-3.494051E-001
1411	5	-8.250835E-004	-9.903569E-003	-2.910121E-003	-3.494632E-001
1411	6	-8.376440E-004	-9.905173E-003	-2.955107E-003	-3.495232E-001
1411	7	-8.497732E-004	-9.903398E-003	-2.997557E-003	-3.494633E-001
1411	8	-8.376440E-004	-9.901917E-003	-2.955107E-003	-3.494074E-001
1411	9	-8.376440E-004	-9.903404E-003	-2.955107E-003	-3.494633E-001

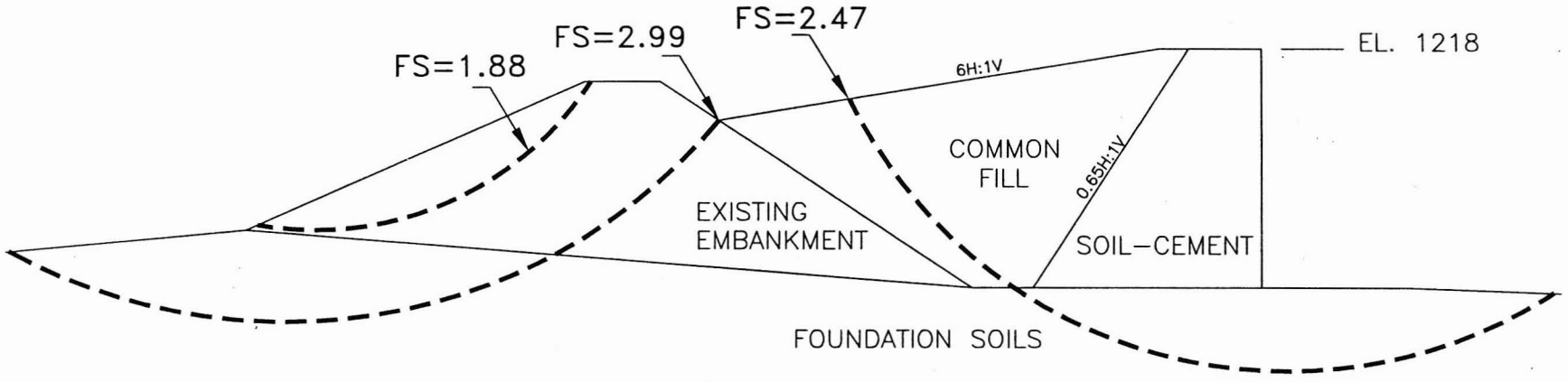
1412	1	-8.568890E-004	-1.114315E-002	-3.022683E-003	-3.932108E-001
1412	2	-8.564185E-004	-1.114677E-002	-3.022999E-003	-3.933363E-001
1412	3	-8.835499E-004	-1.114675E-002	-3.115676E-003	-3.933361E-001
1412	4	-8.826136E-004	-1.114323E-002	-3.113860E-003	-3.932105E-001
1412	5	-8.562277E-004	-1.114501E-002	-3.022675E-003	-3.932752E-001
1412	6	-8.697627E-004	-1.114665E-002	-3.067648E-003	-3.933378E-001
1412	7	-8.827731E-004	-1.114505E-002	-3.115870E-003	-3.932746E-001
1412	8	-8.694919E-004	-1.114319E-002	-3.068488E-003	-3.932092E-001
1412	9	-8.695385E-004	-1.114502E-002	-3.068480E-003	-3.932749E-001
1413	1	-8.687392E-004	-1.241695E-002	-3.865401E-003	-4.381585E-001
1413	2	-8.685747E-004	-1.241955E-002	-3.864625E-003	-4.382482E-001
1413	3	-8.864596E-004	-1.241954E-002	-3.130170E-003	-4.382485E-001
1413	4	-8.866319E-004	-1.241690E-002	-3.128825E-003	-4.381578E-001
1413	5	-8.695043E-004	-1.241830E-002	-3.067517E-003	-4.382023E-001
1413	6	-8.785070E-004	-1.241935E-002	-3.098238E-003	-4.382429E-001
1413	7	-8.865457E-004	-1.241814E-002	-3.129497E-003	-4.382028E-001
1413	8	-8.783224E-004	-1.241711E-002	-3.098453E-003	-4.381635E-001
1413	9	-8.779896E-004	-1.241818E-002	-3.098552E-003	-4.382016E-001
1414	1	-8.674614E-004	-1.368884E-002	-3.060537E-003	-4.830408E-001
1414	2	-8.681036E-004	-1.368625E-002	-3.062193E-003	-4.829453E-001
1414	3	-8.481378E-004	-1.368624E-002	-2.992834E-003	-4.829450E-001
1414	4	-8.483572E-004	-1.368889E-002	-2.992400E-003	-4.830397E-001
1414	5	-8.670200E-004	-1.368748E-002	-3.061057E-003	-4.829929E-001
1414	6	-8.574000E-004	-1.368604E-002	-3.026600E-003	-4.829434E-001
1414	7	-8.488636E-004	-1.368753E-002	-2.996035E-003	-4.829925E-001
1414	8	-8.579119E-004	-1.368877E-002	-3.026541E-003	-4.830387E-001
1414	9	-8.577055E-004	-1.368753E-002	-3.025815E-003	-4.829918E-001
1415	1	-8.155977E-004	-1.489369E-002	-2.877316E-003	-5.255551E-001
1415	2	-8.157276E-004	-1.488406E-002	-2.877305E-003	-5.252129E-001
1415	3	-7.457579E-004	-1.488417E-002	-2.631300E-003	-5.252126E-001
1415	4	-7.448763E-004	-1.489373E-002	-2.629673E-003	-5.255535E-001
1415	5	-8.149114E-004	-1.488883E-002	-2.877000E-003	-5.253838E-001
1415	6	-7.805078E-004	-1.488385E-002	-2.754800E-003	-5.252113E-001
1415	7	-7.440756E-004	-1.488885E-002	-2.626956E-003	-5.253844E-001
1415	8	-7.808551E-004	-1.489383E-002	-2.754273E-003	-5.255597E-001
1415	9	-7.807207E-004	-1.488886E-002	-2.754725E-003	-5.253841E-001
1416	1	-7.807032E-004	-1.593919E-002	-2.470155E-003	-5.624428E-001
1416	2	-7.805259E-004	-1.592131E-002	-2.472149E-003	-5.618205E-001
1416	3	-5.711566E-004	-1.592139E-002	-2.014166E-003	-5.618203E-001
1416	4	-5.789394E-004	-1.593920E-002	-2.012707E-003	-5.624475E-001
1416	5	-6.992437E-004	-1.593822E-002	-2.468336E-003	-5.621346E-001
1416	6	-6.358392E-004	-1.592139E-002	-2.243671E-003	-5.618178E-001
1416	7	-5.704815E-004	-1.593839E-002	-2.013437E-003	-5.621341E-001
1416	8	-6.352284E-004	-1.593908E-002	-2.242078E-003	-5.624433E-001
1416	9	-6.358171E-004	-1.593836E-002	-2.244003E-003	-5.621343E-001
1417	1	-5.881072E-004	-1.671421E-002	-1.793718E-003	-5.897959E-001
1417	2	-5.890666E-004	-1.668399E-002	-1.797648E-003	-5.887281E-001
1417	3	-2.885586E-004	-1.668398E-002	-1.019299E-003	-5.887279E-001
1417	4	-2.889631E-004	-1.671421E-002	-1.021425E-003	-5.898002E-001
1417	5	-5.895322E-004	-1.669914E-002	-1.796683E-003	-5.892636E-001
1417	6	-3.989939E-004	-1.668398E-002	-1.406646E-003	-5.887294E-001
1417	7	-2.883604E-004	-1.669917E-002	-1.019130E-003	-5.892640E-001
1417	8	-3.986869E-004	-1.671420E-002	-1.406634E-003	-5.897923E-001
1417	9	-3.988429E-004	-1.669915E-002	-1.408051E-003	-5.892647E-001
1418	1	-2.284157E-004	-1.709233E-002	-8.051461E-004	-6.031381E-001
1418	2	-2.279738E-004	-1.706507E-002	-8.042548E-004	-6.021738E-001
1418	3	-2.810732E-005	-1.706504E-002	-1.022443E-004	-6.021733E-001
1418	4	-2.906844E-005	-1.709221E-002	-1.016334E-004	-6.031349E-001
1418	5	-2.292478E-004	-1.707876E-002	-8.075219E-004	-6.026580E-001
1418	6	-1.281556E-004	-1.706484E-002	-4.537515E-004	-6.021721E-001

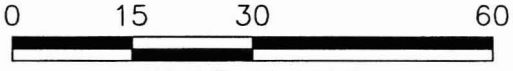
1418	7	-2.906471E-005	-1.787858E-002	-1.028925E-004	-6.026535E-001
1418	8	-1.281556E-004	-1.789233E-002	-4.537515E-004	-6.031387E-001
1418	9	-1.281556E-004	-1.787864E-002	-4.537515E-004	-6.026567E-001
1419	1	-6.579288E-004	-4.794973E-004	-2.322341E-003	-1.691819E-002
1419	2	-6.582382E-004	-4.795107E-004	-2.322472E-003	-1.692184E-002
1419	3	-6.575482E-004	-4.795197E-004	-2.322422E-003	-1.692163E-002
1419	4	-6.586997E-004	-4.795738E-004	-2.322314E-003	-1.692165E-002
1419	5	-6.581414E-004	-4.795341E-004	-2.322701E-003	-1.692244E-002
1419	6	-6.585462E-004	-4.794387E-004	-2.322767E-003	-1.692014E-002
1419	7	-6.584749E-004	-4.795589E-004	-2.321414E-003	-1.692194E-002
1419	8	-6.585462E-004	-4.796233E-004	-2.322767E-003	-1.691942E-002
1419	9	-6.585462E-004	-4.795386E-004	-2.322767E-003	-1.692219E-002
1420	1	-6.581924E-004	-1.439273E-003	-2.323952E-003	-5.078851E-002
1420	2	-6.581327E-004	-1.439956E-003	-2.323964E-003	-5.080659E-002
1420	3	-6.625289E-004	-1.439836E-003	-2.337454E-003	-5.080686E-002
1420	4	-6.618940E-004	-1.439348E-003	-2.337757E-003	-5.079193E-002
1420	5	-6.583272E-004	-1.439666E-003	-2.322709E-003	-5.080095E-002
1420	6	-6.606941E-004	-1.439818E-003	-2.331858E-003	-5.081156E-002
1420	7	-6.623204E-004	-1.439688E-003	-2.336652E-003	-5.080036E-002
1420	8	-6.606941E-004	-1.439430E-003	-2.331858E-003	-5.078972E-002
1420	9	-6.606941E-004	-1.439669E-003	-2.331858E-003	-5.080066E-002
1421	1	-6.636489E-004	-2.405696E-003	-2.342765E-003	-8.489174E-002
1421	2	-6.635685E-004	-2.406546E-003	-2.342919E-003	-8.491626E-002
1421	3	-6.685974E-004	-2.406439E-003	-2.358421E-003	-8.491695E-002
1421	4	-6.685974E-004	-2.405770E-003	-2.358421E-003	-8.489127E-002
1421	5	-6.641255E-004	-2.406116E-003	-2.342184E-003	-8.490380E-002
1421	6	-6.664423E-004	-2.406345E-003	-2.351427E-003	-8.491493E-002
1421	7	-6.685974E-004	-2.406134E-003	-2.358421E-003	-8.490305E-002
1421	8	-6.664423E-004	-2.405733E-003	-2.351427E-003	-8.488628E-002
1421	9	-6.664423E-004	-2.406118E-003	-2.351427E-003	-8.490343E-002
1422	1	-6.725236E-004	-3.383502E-003	-2.371695E-003	-1.193935E-001
1422	2	-6.725585E-004	-3.385704E-003	-2.372393E-003	-1.194726E-001
1422	3	-6.869302E-004	-3.385674E-003	-2.425825E-003	-1.194719E-001
1422	4	-6.882987E-004	-3.383573E-003	-2.429049E-003	-1.193929E-001
1422	5	-6.717428E-004	-3.384663E-003	-2.368856E-003	-1.194347E-001
1422	6	-6.804143E-004	-3.385680E-003	-2.399458E-003	-1.194707E-001
1422	7	-6.874364E-004	-3.384452E-003	-2.425313E-003	-1.194318E-001
1422	8	-6.798800E-004	-3.383538E-003	-2.399575E-003	-1.193918E-001
1422	9	-6.802875E-004	-3.384617E-003	-2.399142E-003	-1.194342E-001
1423	1	-6.787681E-004	-4.380784E-003	-2.392653E-003	-1.545832E-001
1423	2	-6.777658E-004	-4.384665E-003	-2.393689E-003	-1.547234E-001
1423	3	-7.872323E-004	-4.384675E-003	-2.496649E-003	-1.547206E-001
1423	4	-7.873347E-004	-4.380732E-003	-2.497189E-003	-1.545825E-001
1423	5	-6.791755E-004	-4.382739E-003	-2.395971E-003	-1.546539E-001
1423	6	-6.932276E-004	-4.384679E-003	-2.444681E-003	-1.547222E-001
1423	7	-7.871674E-004	-4.382743E-003	-2.496879E-003	-1.546546E-001
1423	8	-6.926719E-004	-4.380610E-003	-2.445319E-003	-1.545814E-001
1423	9	-6.927113E-004	-4.382733E-003	-2.445477E-003	-1.546533E-001
1424	1	-6.999852E-004	-5.405539E-003	-2.470060E-003	-1.907464E-001
1424	2	-6.997564E-004	-5.409563E-003	-2.469861E-003	-1.908855E-001
1424	3	-7.287053E-004	-5.409570E-003	-2.571733E-003	-1.908833E-001
1424	4	-7.287454E-004	-5.405602E-003	-2.572000E-003	-1.907455E-001
1424	5	-6.999153E-004	-5.407522E-003	-2.470880E-003	-1.908141E-001
1424	6	-7.141735E-004	-5.409572E-003	-2.519369E-003	-1.908886E-001
1424	7	-7.286046E-004	-5.407576E-003	-2.570913E-003	-1.908144E-001
1424	8	-7.142135E-004	-5.405570E-003	-2.519637E-003	-1.907445E-001
1424	9	-7.141935E-004	-5.407571E-003	-2.519503E-003	-1.908191E-001
1425	1	-7.217118E-004	-6.463063E-003	-2.546830E-003	-2.280650E-001
1425	2	-7.216338E-004	-6.467958E-003	-2.546898E-003	-2.282387E-001
1425	3	-7.582728E-004	-6.467971E-003	-2.675888E-003	-2.282362E-001

1425	4	-7.584793E-004	-6.463002E-003	-2.674275E-003	-2.280640E-001
1425	5	-7.215838E-004	-6.465544E-003	-2.545626E-003	-2.281508E-001
1425	6	-7.397680E-004	-6.467978E-003	-2.609598E-003	-2.282376E-001
1425	7	-7.577795E-004	-6.465586E-003	-2.672696E-003	-2.281587E-001
1425	8	-7.394899E-004	-6.463092E-003	-2.609864E-003	-2.280630E-001
1425	9	-7.396298E-004	-6.465588E-003	-2.610208E-003	-2.281517E-001
1426	1	-7.506275E-004	-7.560946E-003	-2.649248E-003	-2.667996E-001
1426	2	-7.510154E-004	-7.565434E-003	-2.649657E-003	-2.669611E-001
1426	3	-7.827756E-004	-7.565445E-003	-2.761886E-003	-2.669584E-001
1426	4	-7.820456E-004	-7.560999E-003	-2.758149E-003	-2.668060E-001
1426	5	-7.583785E-004	-7.563121E-003	-2.647696E-003	-2.668824E-001
1426	6	-7.666934E-004	-7.565430E-003	-2.703660E-003	-2.669593E-001
1426	7	-7.820445E-004	-7.563089E-003	-2.759995E-003	-2.668819E-001
1426	8	-7.664816E-004	-7.560943E-003	-2.704383E-003	-2.668043E-001
1426	9	-7.666231E-004	-7.563112E-003	-2.703942E-003	-2.668812E-001

Appendix G.2
Slope Stability Analysis

URS





NOTES:

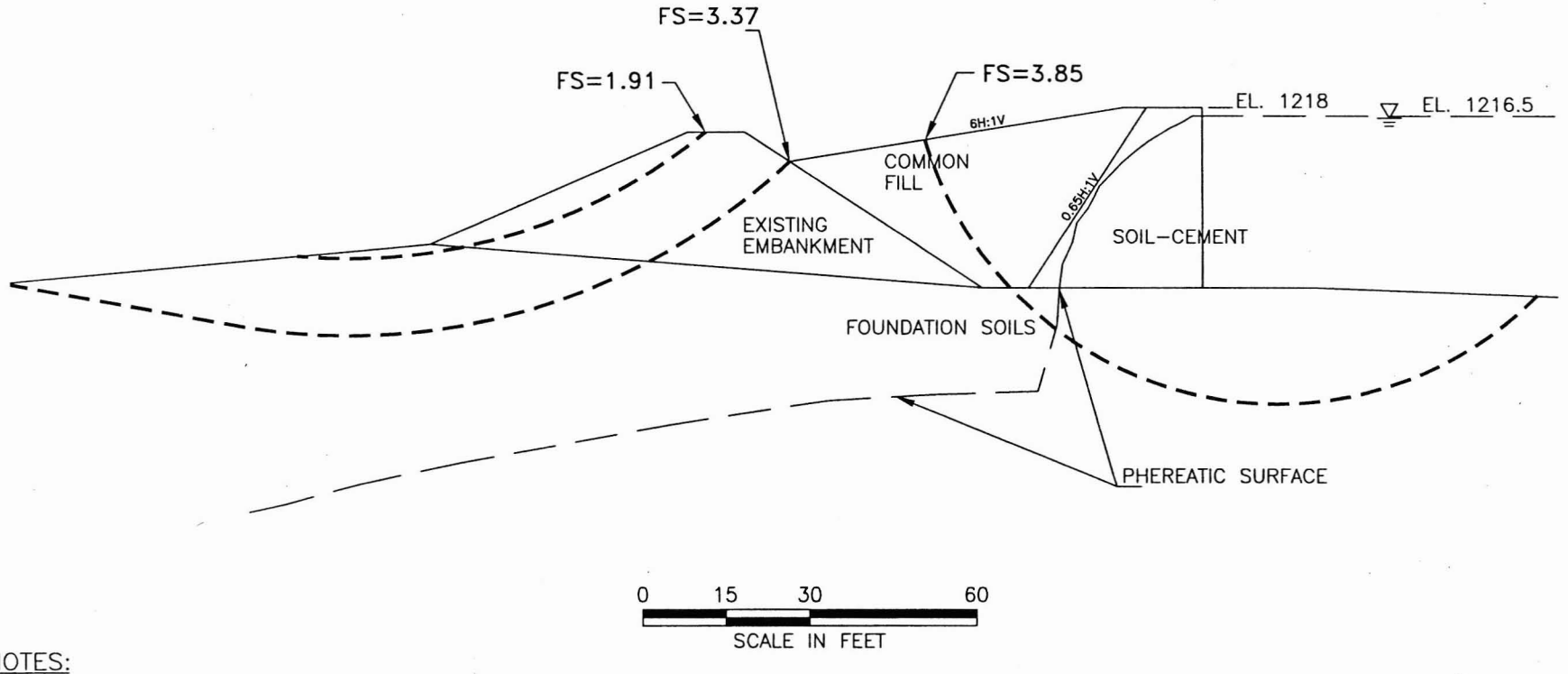
1. FS = THEORETICAL FACTOR OF SAFETY AGAINST SLOPE INSTABILITY.
2. FOR MATERIAL PROPERTY CHARACTERIZATION SEE TABLE 12–3.
3. SOIL CEMENT BENTONITE CUTOFF WALLS NOT SHOWN

Job No. : 23443748	**WHITE TANKS FRS NO.3** **SLOPE STABILITY RESULTS** **MAX. HEIGHT MODIFIED SOIL-CEMENT SECTION** **END OF CONSTRUCTION CASE**
Prepared by : HGO	
Date : 11/03/04	

FIG. G.2–1

N:\Projects\23443748_White_Tanks_FRS_3\Sub_00\09.0_CAD\NEW SECTION FIGURES\New section–STABILITY–1A.Dwg

URS



NOTES:

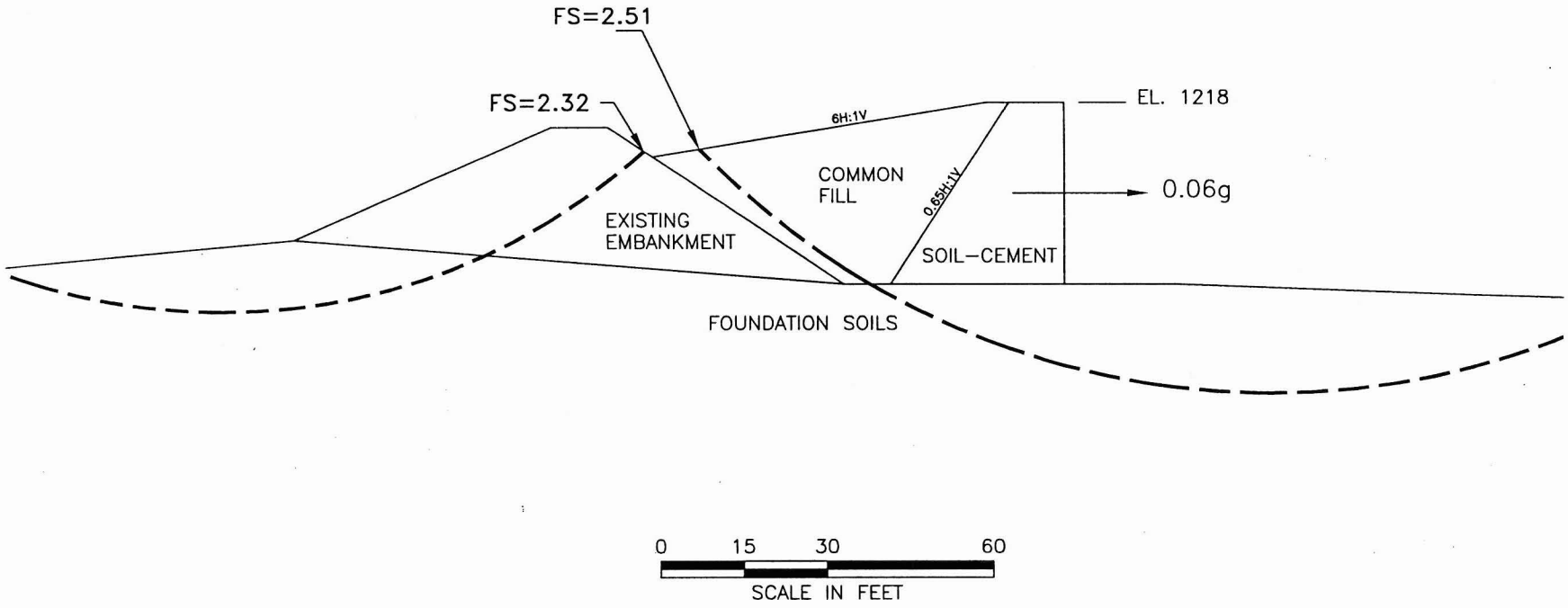
1. FS = THEORETICAL FACTOR OF SAFETY AGAINST SLOPE INSTABILITY.
2. FOR MATERIAL PROPERTY CHARACTERIZATION SEE TABLE 12–3.
3. SOIL CEMENT BENTONITE CUTOFF WALLS NOT SHOWN

Job No. : 23443748	**WHITE TANKS FRS NO.3** **SLOPE STABILITY RESULTS** **MAX. HEIGHT MODIFIED SOIL-CEMENT SECTION** **STEADY-STATE SEEPAGE CASE**
Prepared by : HGO	
Date : 11/03/04	

FIG. G.2–2

N:\Projects\23443748_White_Tanks_FRS_3\Sub_00\09.0_CAD\NEW SECTION FIGURES\New Section–STABILITY–1C.dwg

URS



NOTES:

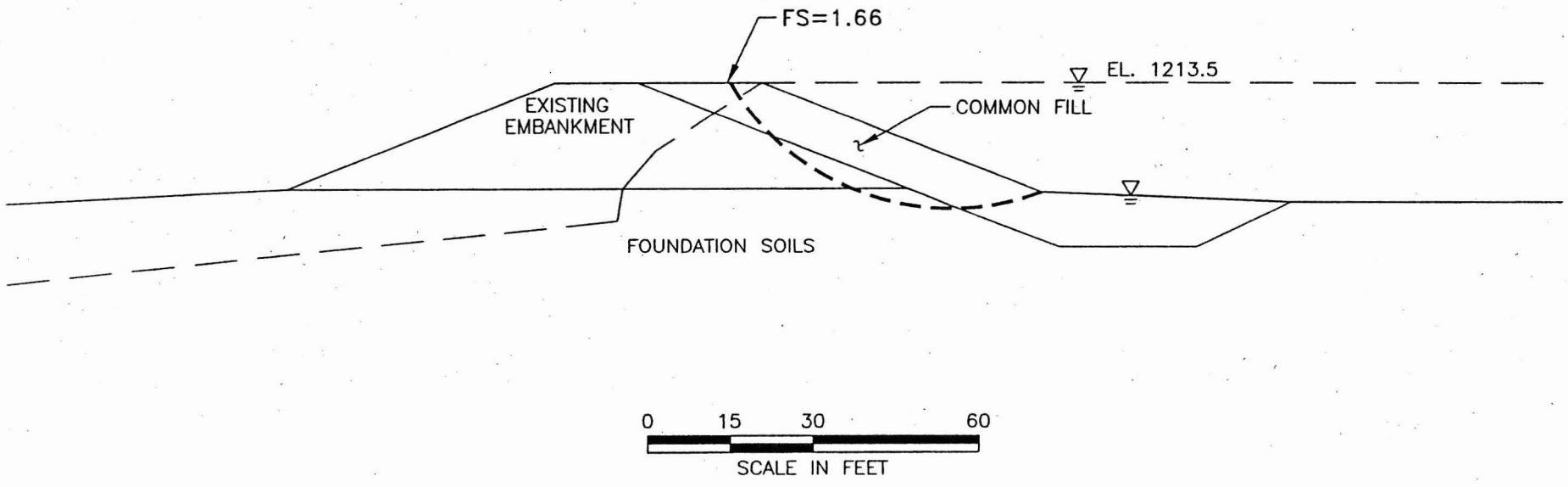
1. FS = THEORETICAL FACTOR OF SAFETY AGAINST SLOPE INSTABILITY.
2. FOR MATERIAL PROPERTY CHARACTERIZATION SEE TABLE 12–3.
3. SOIL CEMENT BENTONITE CUTOFF WALLS NOT SHOWN

Job No. : 23443748	**WHITE TANKS FRS NO.3** **SLOPE STABILITY RESULTS** **MAX. HEIGHT MODIFIED SOIL-CEMENT SECTION** **PSEUDO-STATIC CASE**
Prepared by : HGO	
Date : 11/03/04	

FIG. G.2–3

N:\Projects\23443748_White_Tanks_FRS_3\Sub_00\09.0_CAD\NEW SECTION FIGURES\New Section–STABILITY–1B.dwg

URS



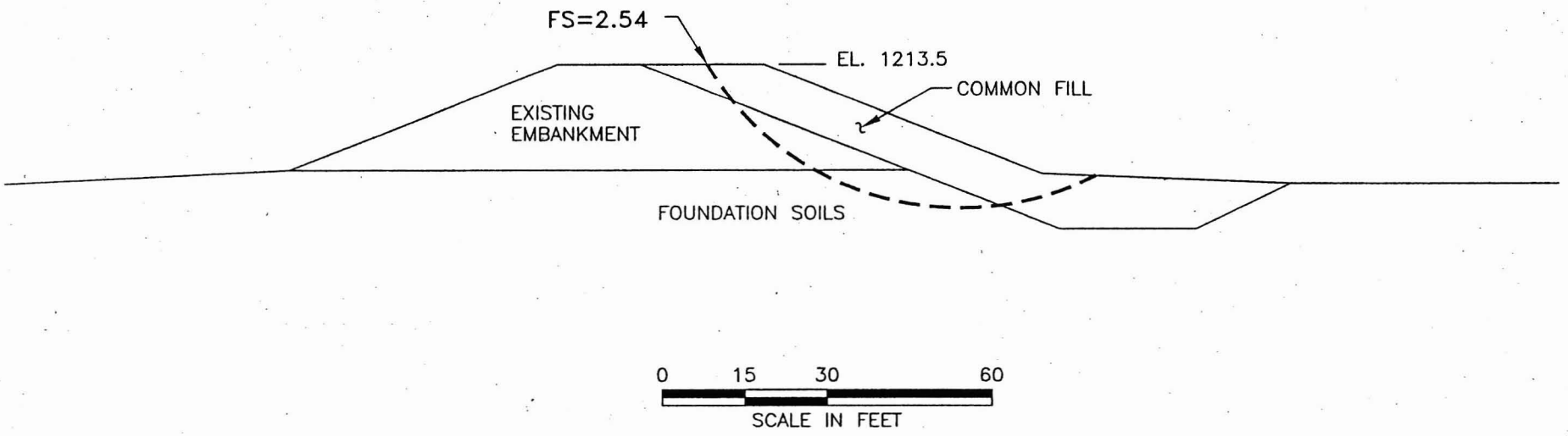
NOTES:

1. FS = THEORETICAL FACTOR OF SAFETY AGAINST SLOPE INSTABILITY.
2. FOR MATERIAL PROPERTY CHARACTERIZATION SEE TABLE ____.

Job No. : 23443748	SLOPE STABILITY RESULTS TRANSITION SECTION INSTANTANEOUS DRAWDOWN CASE
Prepared by : ISG	
Date : 8/24/04	

FIG. G.2-4

N:\Projects\23443748_White_Tanks_FRS_3\Sub_00\09.0_CAD\STABILITY-1D.dwg



NOTES:

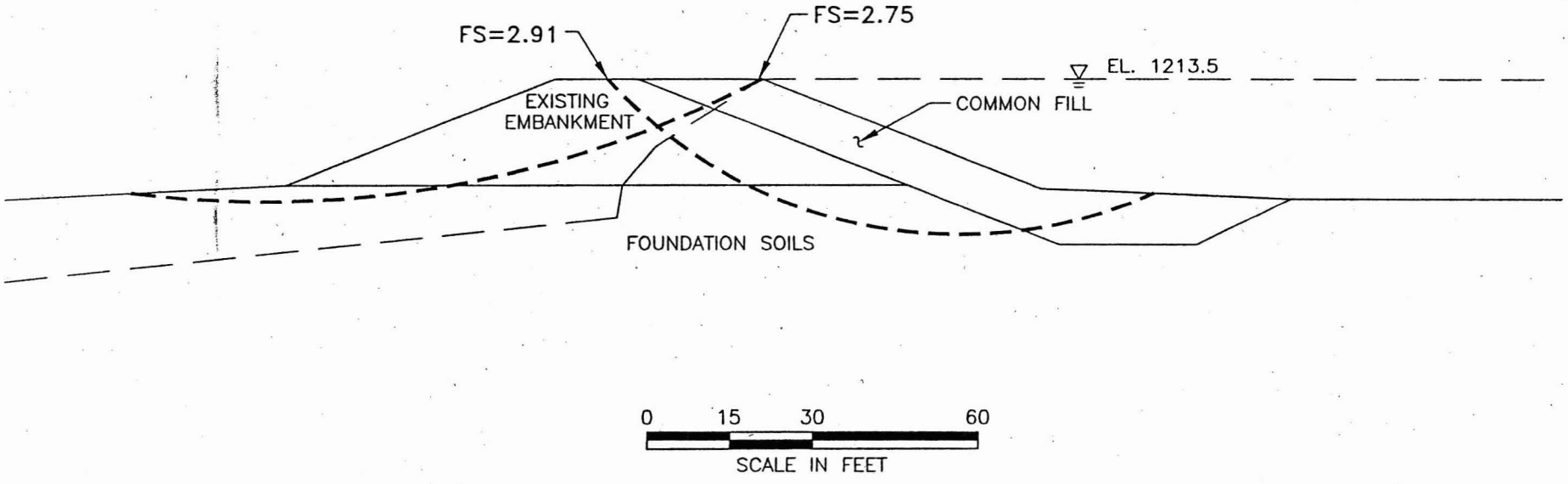
1. FS = THEORETICAL FACTOR OF SAFETY AGAINST SLOPE INSTABILITY.
2. FOR MATERIAL PROPERTY CHARACTERIZATION SEE TABLE ____.

Job No. : 23443748	SLOPE STABILITY RESULTS TRANSITION SECTION END OF CONSTRUCTION CASE
Prepared by : ISG	
Date : 8/24/04	

FIG. G.2-5

N:\Projects\23443748_White_Tanks_FRS_3\Sub_00\09.0_CAD\STABILITY-2A.dwg

URS



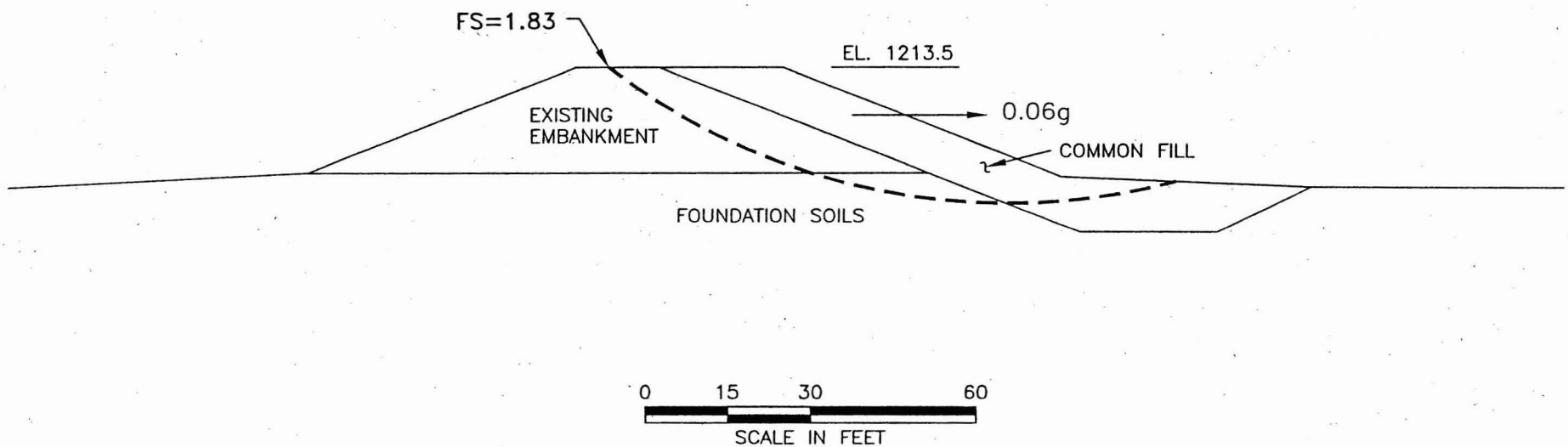
NOTES:

1. FS = THEORETICAL FACTOR OF SAFETY AGAINST SLOPE INSTABILITY.
2. FOR MATERIAL PROPERTY CHARACTERIZATION SEE TABLE ____.

Job No. : 23443748	SLOPE STABILITY RESULTS TRANSITION SECTION STEADY-STATE SEEPAGE CASE
Prepared by : ISG	
Date : 8/24/04	

FIG. G.2-6

N:\Projects\23443748_White_Tanks_FRS_3\Sub_00\09.0_CAD\STABILITY-2C.dwg



NOTES:

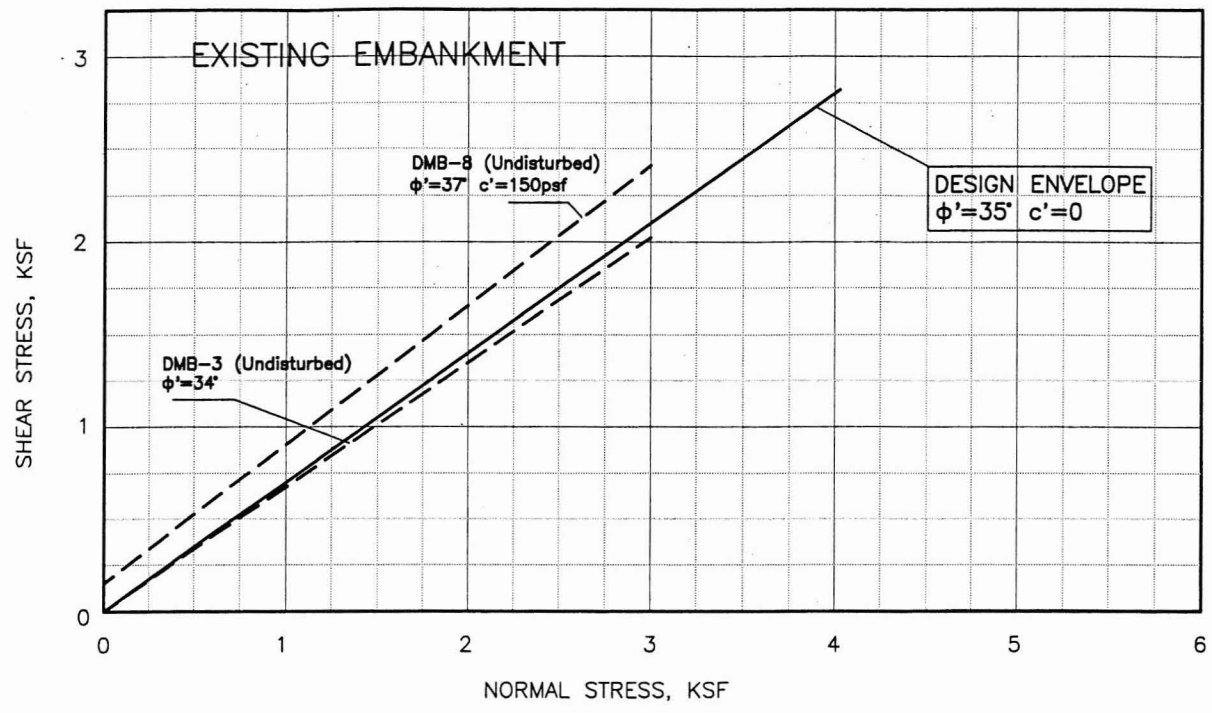
1. FS = THEORETICAL FACTOR OF SAFETY AGAINST SLOPE INSTABILITY.
2. FOR MATERIAL PROPERTY CHARACTERIZATION SEE TABLE ____.

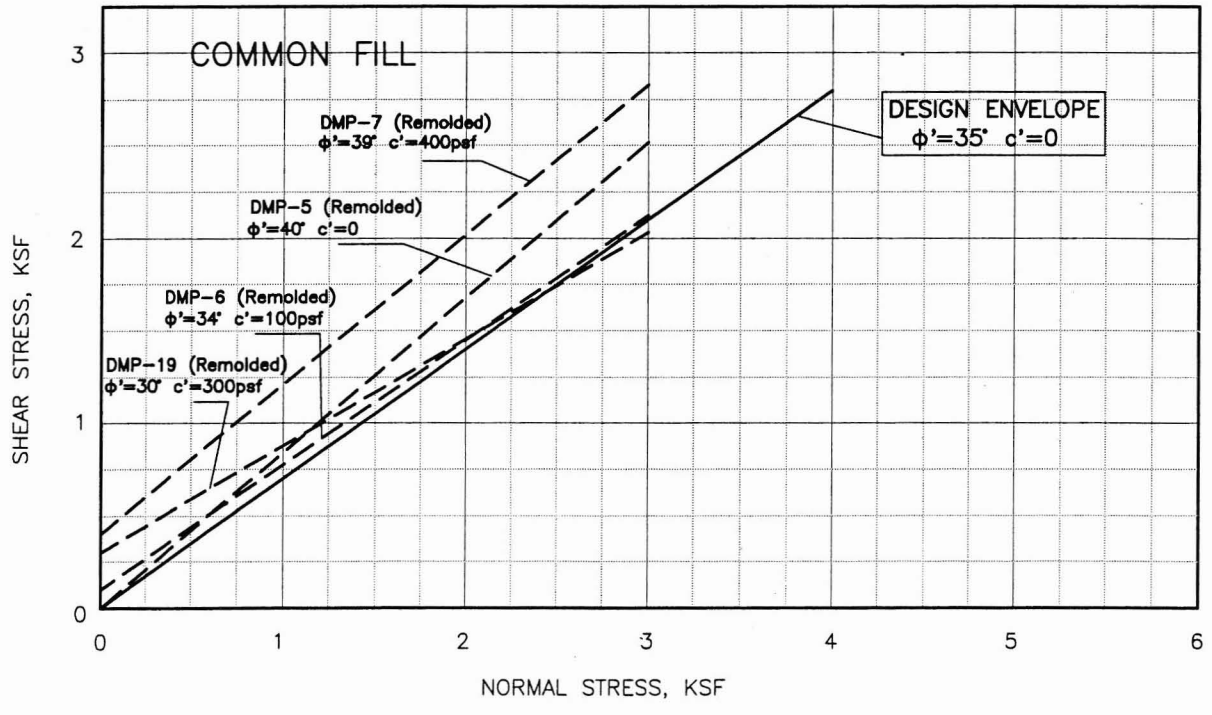
Job No. : 23443748	SLOPE STABILITY RESULTS TRANSITION SECTION PSEUDO-STATIC CASE
Prepared by : ISG	
Date : 8/24/04	

FIG. G.2-7

N:\Projects\23443748_White_Tanks_FRS_3\Sub_00\09.0_CAD\STABILITY-2B.dwg

URS





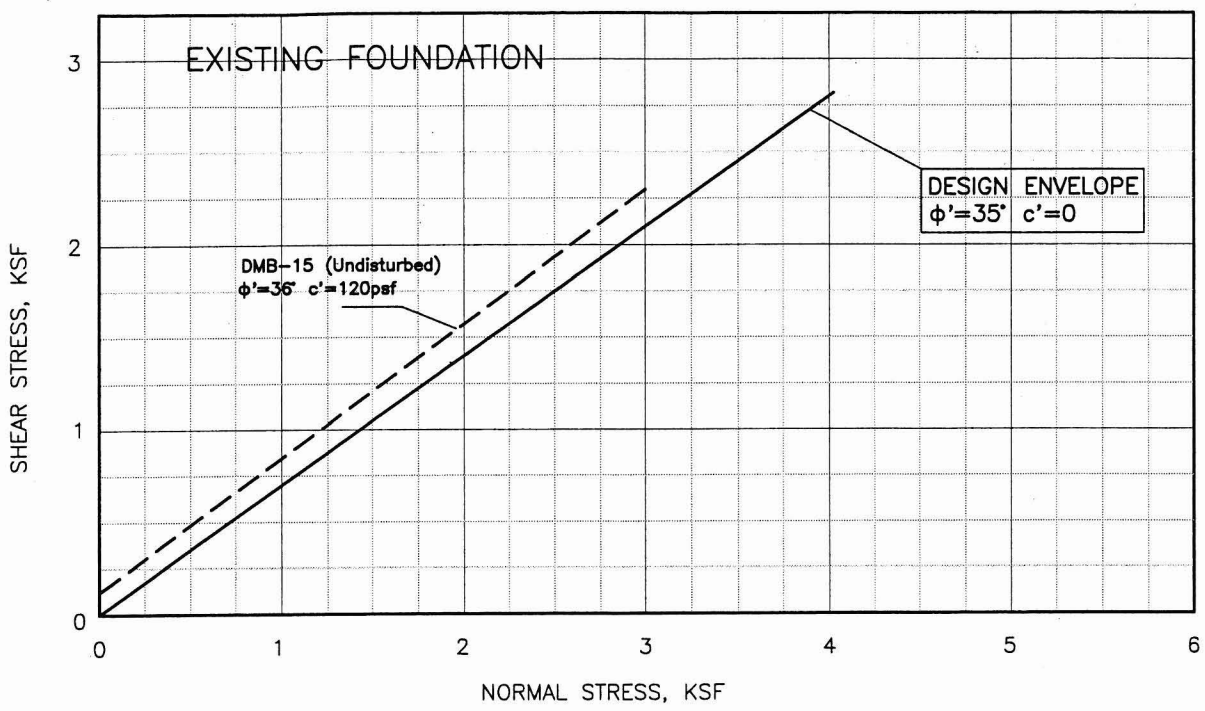
NOTES:

1. Samples DMB-3,-8, and -15 are undisturbed samples taken from 10ft depth.
2. Samples DMP-5, -6, -7, and -19 are remolded samples.

Job No. : 23443748	WHITE TANKS FRS No. 3
Prepared By : HGO	CONSOLIDATED DRAINED DESIGN STRENGTH ENVELOPES FOUNDATION AND EXISTING EMBANKMENT
Date : 11/03/04	

FIG. G.2-8

N:\Projects\22235635_Elkhead_Reservoir\Sub_00\9.0_CAD\SHEARTEST (Modified Section)-01.dwg



NOTES:

1. Samples DMB-3,-8, and -15 are undisturbed samples taken from 10ft depth.
2. Samples DMP-5, -6, -7, and -19 are remolded samples.

Job No. : 23443748	WHITE TANKS FRS No. 3
Prepared By : HGO	CONSOLIDATED DRAINED DESIGN STRENGTH ENVELOPES FOUNDATION AND EXISTING EMBANKMENT
Date : 11/03/04	

FIG. G.2-8 (Cont'd)

N:\Projects\22235635_Elkhead_Reservoir\Sub_00\9.0_CAD\SHEARTEST(Modified Section)-01.dwg

URS **EXHIBIT 4.7-2**

CALCULATION COVER SHEET

Client: FLOOD CONTROL DISTRICT OF MARICOPA COUNTY, ARIZONA Project Name: 23443748

Project/Calculation Number:

Title: SLOPE STABILITY ANALYSIS FOR FRS. No.3 (MODIFIED SOIL-CEMENT SECTION)

Total Number of Pages (including cover sheet):

Total Number of Computer Runs:

Prepared by: GURKAN OZGUREL Date: 11/04/04

Checked by: IMRAN GILLANI Date: 11/04/04

Description and Purpose: Performing slope stability Analyses for Max. Height Modified Soil-Cement Section for Long-term, end of construction, and pseudo static cases.

Design Basis/References/Assumptions

See writeup in the design report

Remarks/Conclusions/Results:

The factor of Safety values that were computed for all cases were above the minimum acceptable F.S values.

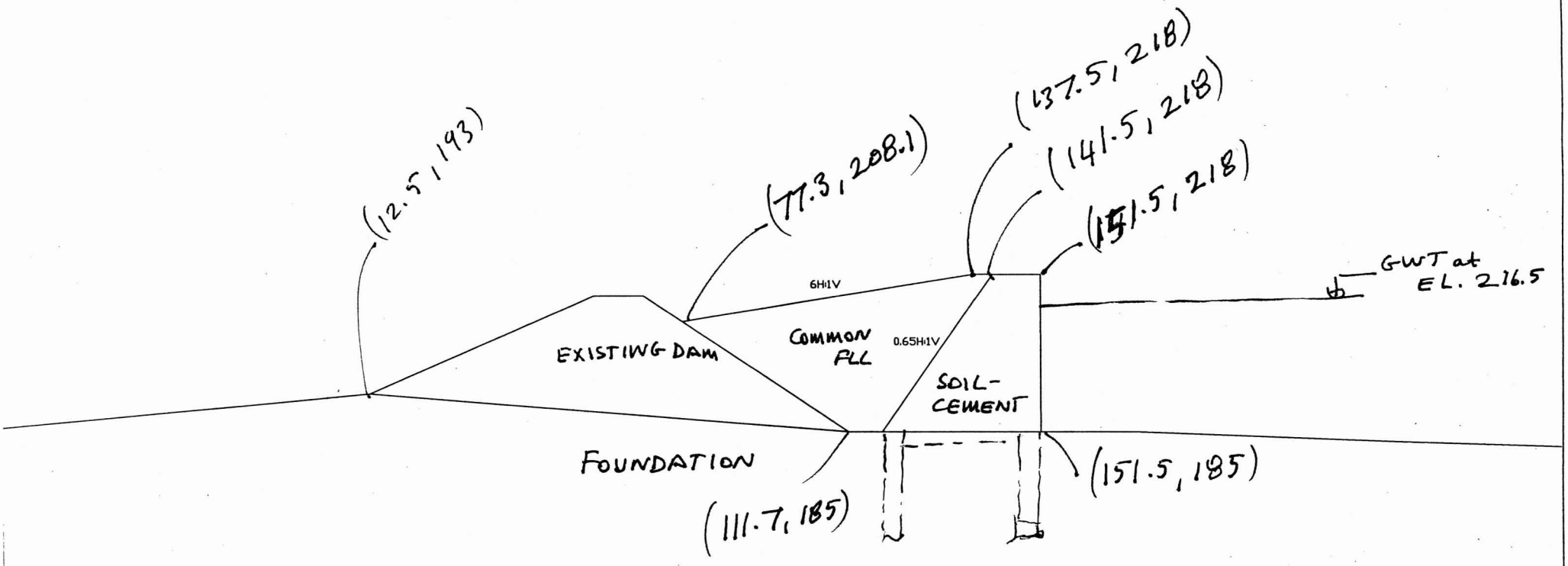
Calculation Approved by:

Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

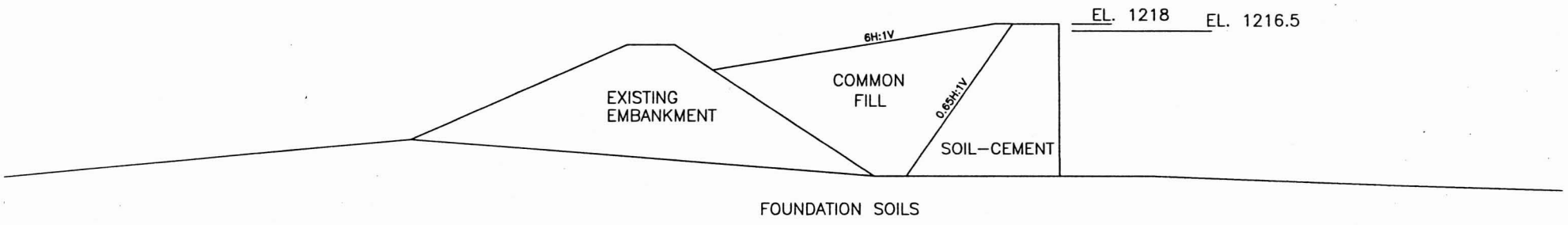
Project Manager/Date

WHITE TANK
MAX. HEIGHT MODIFIED SOIL-CEMENT GEOMETRY
SLOPE STABILITY RESULTS



PREPARED BY: HGD
DATE: 11-04-04

WHITE TANKS
MAX. HEIGHT MODIFIED SOIL-CEMENT GEOMETRY



PREPARED BY: HGD
DATE:11-04-04

UTEXAS4 Input and Output Files
Maximum Height Modified Soil-Cement Section

```
GRAPHIC OUTPUT
HEADING
 White Tanks.  Pseudo-Static-Post Seismic Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

Profile Lines
1   1    Existing Dam
12.5    193
59      213.5
69.2    213.5
111.7   185

2   2    Common Fill - Downstream
77.3    208.1
137.5   218
141.5   218

3   3    Soil Cement
118.62  185
141.5   218
151.5   218
151.5   216.5
151.5   185

4   4    Foundation
-74     185
-31.7   189
12.5    193
111.7   185
118.6   185
151.5   185
171.3   185
260     182


Material Properties
1    Existing Dam
  125
  Conventional Shear
  0    28
  No Piezometric Line
2    Common Fill
  120
  Conventional Shear
  0     28
  No Piezometric Line
3    Soil Cement
  135
  Conventional Shear
  57600   0
  No Piezometric Line
4    Foundation
  118
  Conventional Shear
  0    35
  No Piezometric Line

Analysis and Computations
Circular Search 1
```



```
189  307  10  150
Tangent
165
SEI
0.06

Compute
```

TABLE NO. 1
COMPUTER PROGRAM DESIGNATION: UTEXAS4
Originally Coded By Stephen G. Wright
Version No. 4.0.1.5 - Last Revision Date: 2/15/2003
(C) Copyright 1985-2002 S. G. Wright - All rights reserved

```
**********************************************************************
* RESULTS OF COMPUTATIONS PERFORMED USING THIS SOFTWARE              *
* SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY HAVE            *
  EN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL DATA            *
   FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE ALGORITHMS      *
  D ANALYTICAL PROCEDURES USED IN THIS SOFTWARE AND MUST HAVE       *
* READ ALL DOCUMENTATION FOR THIS SOFTWARE BEFORE ATTEMPTING         *
* TO USE IT.  NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT         *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR          *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS          *
* OR ADAPTABILITY OF THIS SOFTWARE.                                  *
**********************************************************************
```


3	12.50	193.00
4	111.70	185.00
5	118.60	185.00
6	151.50	185.00
7	171.30	185.00
8	260.00	182.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Post Seismic Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 3
NEW PROFILE LINE DATA

----- Profile Line No. 1 - Material Type (Number): 1 -----
Description: Existing Dam

Point	X	Y
1	12.50	193.00
2	59.00	213.50
3	69.20	213.50
4	111.70	185.00

----- Profile Line No. 2 - Material Type (Number): 2 -----
Description: Common Fill - Downstream

Point	X	Y
1	77.30	208.10
2	137.50	218.00
3	141.50	218.00

----- Profile Line No. 3 - Material Type (Number): 3 -----
Description: Soil Cement

Point	X	Y
1	118.62	185.00
2	141.50	218.00
3	151.50	218.00
4	151.50	216.50
5	151.50	185.00

----- Profile Line No. 4 - Material Type (Number): 4 -----
Description: Foundation

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 4
NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS

---------- DATA FOR MATERIAL NUMBER 1 ----------
Description: Existing Dam

Unit weight of soil (material): 125.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 28.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 2 ----------
Description: Common Fill

Unit weight of soil (material): 120.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 28.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 3 ----------
Description: Soil Cement

Unit weight of soil (material): 135.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 57600.0
Friction angle - - - - - 0.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 4 ----------

Description: Foundation

Unit weight of soil (material): 118.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 16
****
* NEW ANALYSIS/COMPUTATION DATA *
****

Starting Center Coordinate for Search at -
X: 189.00
Y: 307.00

Required accuracy for critical center
(= minimum spacing between grid points): 10.000

Critical shear surface not allowed to pass below Y: 150.00
For the initial mode of search circles are tangent to horizontal line at -
Y: 165.00
Radius: 142.00

Seismic coefficient: 0.060
Seismic force acts at center of gravity.

The following represent default values or values that were prevously defined:
Subtended angle for slice subdivision: 3.00(degrees)
There is no crack.
There is no water in a crack.
Conventional (single-stage) computations will be performed.
Unit weight of water (or other fluid) in crack: 62.4
Automatic search output will be in long form.
Search will be continued after the initial mode to find a most critical circle.
Maximum number of trial grids for a given search mode: 50
No restrictions exist on the lateral extent of the search.
No shear surfaces other than the most critical will be saved for display later.
Neither slope face was explicitly designated for analysis.
Standard sign convention used for direction of shear stress on shear surface.
Procedure of Analysis: Spencer

Iteration limit: 100
Force imbalance: 1.000000e-005 (fraction of total weight)
Moment imbalance: 1.000000e-005 (fraction of moment due to total weight)
Minimum weight required for computations to be performed: 100
Initial trial factor of safety: 3.000
Initial trial side force inclination: 17.189 (degrees)
Minimum (most negative) side force inclination allowed in Spencer's procedure: -10.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 26
****
* NEW, COMPUTED SLOPE GEOMETRY DATA *
****

These slope geometry were generated from the Profile Lines.

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00
3	12.50	193.00
4	59.00	213.50
5	69.20	213.50
6	77.30	208.07
7	77.30	208.10
8	111.70	213.76
9	118.60	214.89
10	118.62	214.90
11	137.50	218.00
12	141.50	218.00
13	151.50	218.00
14	151.50	185.00
15	171.30	185.00
16	260.00	182.00

Search will be conducted for RIGHT face of slope

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 30
****
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
****

------ Output for Circles Tangent to a Given Horizontal Line ------
------ Tangent line elevation, Y: 165.00

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	Messages
-111.00	7.00	-158.00	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
189.00	7.00	-158.00	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
489.00	7.00	-158.00	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-111.00	307.00	142.00	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
189.00	307.00	142.00	2.508	-12.676	4	
489.00	307.00	142.00	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does n intersect the slope.
-111.00	607.00	442.00	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
189.00	607.00	442.00	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.

```
    489.00    607.00    442.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    139.00    257.00     92.00   3.244    -16.872         3
    189.00    257.00     92.00   8.389     -5.890        14
    239.00    257.00     92.00 Center rejected as follows:      UTEXAS NOTICE NU
: 8060
                                                                Circle does not
intersect the slope.

    139.00    307.00    142.00   3.487    -14.810         3
    239.00    307.00    142.00 Center rejected as follows:      UTEXAS WARNING N
UMBER 8230
                                                                Circle intersect
s slope an odd number of times (3 intersections)
                                                                The following in
tersections of the circle with the slope were found:
                                                                X: 129.43, Y: 21
6.67
                                                                X: 151.50, Y: 19
5.16
                                                                X: 166.34, Y: 18
5.00
                                                                There should be
an even number of intersections.
                                                                There may not be
 sufficient slope data.
                                                                UTEXAS ERROR NUM
BER 9270
                                                                Solution did not
 converge in iteration limit of 100  iterations
                                                                Failed to conver
ge during stage 1 computations

    139.00    357.00    192.00   3.926    -13.455         4
    189.00    357.00    192.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

    239.00    357.00    192.00  28.451    -52.389        56     UTEXAS WARNING N
UMBER 8230
                                                                Circle intersect
s slope an odd number of times (3 intersections)
                                                                The following in
tersections of the circle with the slope were found:
                                                                X: 111.24, Y: 21
3.68
                                                                X: 151.50, Y: 18
6.18
                                                                X: 153.68, Y: 18
5.00
                                                                There should be
an even number of intersections.
                                                                There may not be
 sufficient slope data.
```



```
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    159.00    277.00    112.00   2.745    -14.763         3
    189.00    277.00    112.00   5.072    -12.821         7
    219.00    277.00    112.00 Center rejected as follows:      UTEXAS WARNING N
UMBER 8230
                                                                Circle intersect
s slope an odd number of times (3 intersections)
                                                                The following in
tersections of the circle with the slope were found:
                                                                X: 125.10, Y: 21
5.96
                                                                X: 151.50, Y: 18
7.63
                                                                X: 155.13, Y: 18
5.00
                                                                There should be
an even number of intersections.
                                                                There may not be
 sufficient slope data.
                                                                UTEXAS ERROR NUM
BER 9270
                                                                Solution did not
 converge in iteration limit of 100  iterations
                                                                Failed to conver
ge during stage 1 computations

    159.00    307.00    142.00   2.865    -14.528         3
    219.00    307.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

    159.00    337.00    172.00   3.049    -13.795         3
    189.00    337.00    172.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

    219.00    337.00    172.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    179.00    297.00    132.00   2.553    -13.051         4
    189.00    297.00    132.00   2.651    -12.925         4
    199.00    297.00    132.00 Center rejected as follows:      UTEXAS NOTICE NU
ER 8060
                                                                Circle does not
ersect the slope.

    179.00    307.00    142.00   2.628    -12.849         4
    199.00    307.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

    179.00    317.00    152.00   2.676    -12.860         4
    189.00    317.00    152.00   2.574    -12.447         4
    199.00    317.00    152.00 Center rejected as follows:      UTEXAS NOTICE NU
```



```
MBER 8060
                                                                Circle does not
intersect the slope.

----- Critical Circle After the Current Mode of Search -----
X: 189.00     Y: 307.00     Radius: 142.000
Factor of safety: 2.508     Side force inclination: -12.676

**************************************************************
CAUTION - THE FACTOR OF SAFETY COULD NOT BE COMPUTED
FOR SOME OF THE GRID POINTS AROUND THE MINIMUM
**************************************************************
```



```
UTEXAS4 S/N:00143  - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

 White Tanks.  Pseudo-Static-Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

TABLE NO. 31
**************************************************
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
**************************************************

------ Output for Circles with a Given, Constant Radius ------
------ Radius: 142.00

                                  1-Stage
Center Coordinates                Factor  Side Force
                                    of    Inclination
     X         Y       Radius     Safety   (degrees)   Iterations          Message
s
   -111.00      7.00    142.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                Center of circle
 is below the toe (lowest point) of the slope

    189.00      7.00    142.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                Center of circle
 is below the toe (lowest point) of the slope

    489.00      7.00    142.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                Center of circle
 is below the toe (lowest point) of the slope

   -111.00    307.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

    489.00    307.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

   -111.00    607.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

    189.00    607.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                Circle does not
intersect the slope.

    489.00    607.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
```

```
MBER 8060
                                                    Circle does not
intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    139.00    257.00    142.00 Center rejected as follows:      UTEXAS WARNING N
UMBER 8080
                                                    Circle passes be
low the limiting depth of: 150.000

    189.00    257.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    239.00    257.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    139.00    307.00    142.00   3.487    -14.810         3
    239.00    307.00    142.00 Center rejected as follows:      UTEXAS WARNING N
UMBER 8230
                                                    Circle intersect
s slope an odd number of times (3 intersections)
                                                    The following in
tersections of the circle with the slope were found:
                                                    X: 129.43, Y: 21
6.67
                                                    X: 151.50, Y: 19
5.16
                                                    X: 166.34, Y: 18
5.00
                                                    There should be
an even number of intersections.
                                                    There may not be
 sufficient slope data.
                                                    UTEXAS ERROR NUM
BER 9270
                                                    Solution did not
 converge in iteration limit of 100  iterations
                                                    Failed to conver
ge during stage 1 computations

    139.00    357.00    142.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 9270
                                                    Solution did not
 converge in iteration limit of 100  iterations
                                                    Failed to conver
ge during stage 1 computations

    189.00    357.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    239.00    357.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.
```



```
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    159.00    277.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    189.00    277.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    219.00    277.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    159.00    307.00    142.00   2.865    -14.528         3
    219.00    307.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    159.00    337.00    142.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 9270
                                                    Solution did not
 converge in iteration limit of 100  iterations
                                                    Failed to conver
ge during stage 1 computations

    189.00    337.00    142.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 9270
                                                    Solution did not
 converge in iteration limit of 100  iterations
                                                    Failed to conver
ge during stage 1 computations

    219.00    337.00    142.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 9270
                                                    Solution did not
 converge in iteration limit of 100  iterations
                                                    Failed to conver
ge during stage 1 computations

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    179.00    297.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    189.00    297.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    199.00    297.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.
```



```
    179.00    307.00    142.00   2.628    -12.849         4
    199.00    307.00    142.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                    Circle does not
intersect the slope.

    179.00    317.00    142.00   6.381    -29.853        18
    189.00    317.00    142.00  12.374    -36.245        22
    199.00    317.00    142.00  20.360    -36.333        37
----- Critical Circle After the Current Mode of Search -----
X: 189.00     Y: 307.00     Radius: 142.000
Factor of safety: 2.508     Side force inclination: -12.676

**************************************************************
CAUTION - THE FACTOR OF SAFETY COULD NOT BE COMPUTED
FOR SOME OF THE GRID POINTS AROUND THE MINIMUM
**************************************************************
```



```
UTEXAS4 S/N:00143  - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

 White Tanks.  Pseudo-Static-Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

TABLE NO. 33
**********************************************
* 1-STAGE FINAL CRITICAL CIRCLE INFORMATION *
**********************************************

CAUTION - THE FACTOR OF SAFETY COULD NOT BE COMPUTED
FOR SOME OF THE GRID POINTS AROUND THE MINIMUM
X Coordinate of Center . . . . . .  189.00
Y Coordinate of Center . . . . . .  307.00
Radius . . . . . .  142.00
Factor of Safety . . . . . . 2.508
Side Force Inclination (degrees) . . . . . -12.68
Number of Circles Tried  . . . . . .  65
Number of Circles F Calculated for . . . . . .  21
Time Required for Search (seconds) . . . . . .  0.2
```

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
HGO, Date NOV 02, 2004

LE NO. 43

Coordinate, Weight, Strength and Pore Water Pressure Information for Individual Slices for Conventional Computations or First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

Slice No.	X	Y	Slice Weight	Matl. No.	Cohesion	Friction Angle	Pore Pressure
	85.77	209.49					
1	88.39	206.86	1929	2	0.0	28.00	0.0
	91.01	204.22					
2	93.77	201.73	6006	2	0.0	28.00	0.0
	96.53	199.24					
3	99.41	196.89	10273	2	0.0	28.00	0.0
	102.29	194.54					
4	105.30	192.35	14663	2	0.0	28.00	0.0
	108.30	190.16					
5	110.00	189.02	9981	2	0.0	28.00	0.0
	111.70	187.88					
6	114.02	186.44	15409	2	0.0	28.00	0.0
	116.34	185.00					
7	117.47	184.34	8245	4	0.0	35.00	0.0
	118.60	183.68					
8	118.61	183.67	75	4	0.0	35.00	0.0
	118.62	183.67					
9	121.90	181.91	26777	4	0.0	35.00	0.0
	125.17	180.15					
10	128.53	178.57	31991	4	0.0	35.00	0.0
	131.90	176.99					
11	134.70	175.83	29890	4	0.0	35.00	0.0
	137.50	174.67					
12	139.50	173.92	22875	4	0.0	35.00	0.0
	141.50	173.18					
13	145.03	172.03	42310	4	0.0	35.00	0.0
	148.57	170.88					
14	150.03	170.46	18089	4	0.0	35.00	0.0
	151.50	170.04					
15	155.11	169.15	13499	4	0.0	35.00	0.0
	158.72	168.27					
16	162.37	167.57	15020	4	0.0	35.00	0.0
	166.02	166.87					
17	168.66	166.49	11529	4	0.0	35.00	0.0
	171.30	166.11					
18	175.00	165.74	16703	4	0.0	35.00	0.0
	178.70	165.37					
19	182.41	165.20	17020	4	0.0	35.00	0.0
	186.12	165.03					

20	187.56	165.01	6595	4	0.0	35.00	0.0
	189.00	165.00					
21	192.72	165.10	16818	4	0.0	35.00	0.0
	196.43	165.19					
22	200.14	165.49	16213	4	0.0	35.00	0.0
	203.84	165.78					
23	207.53	166.26	15230	4	0.0	35.00	0.0
	211.21	166.75					
24	214.87	167.43	13888	4	0.0	35.00	0.0
	218.52	168.10					
25	222.14	168.97	12206	4	0.0	35.00	0.0
	225.75	169.84					
26	229.32	170.89	10214	4	0.0	35.00	0.0
	232.88	171.95					
27	236.38	173.19	7945	4	0.0	35.00	0.0
	239.89	174.43					
28	243.32	175.85	5438	4	0.0	35.00	0.0
	246.76	177.28					
29	250.11	178.88	2738	4	0.0	35.00	0.0
	253.47	180.48					
30	255.03	181.30	321	4	0.0	35.00	0.0
	256.59	182.12					

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 44

Seismic Forces and Forces Due to Distributed Loads for Individual Slices for Conventional Computations or the First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

				FORCES DUE TO DISTRIBUTED LOADS			
Slices No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	88.39	116	208.39	0	0	88.39	206.86
2	93.77	360	206.27	0	0	93.77	201.73
3	99.41	616	204.31	0	0	99.41	196.89
4	105.30	880	202.53	0	0	105.30	192.35
5	110.00	599	201.25	0	0	110.00	189.02
6	114.02	925	200.29	0	0	114.02	186.44
7	117.47	495	199.53	0	0	117.47	184.34
8	118.61	4	199.29	0	0	118.61	183.67
9	121.90	1607	198.50	0	0	121.90	181.91
10	128.53	1919	197.35	0	0	128.53	178.57
11	134.70	1793	196.73	0	0	134.70	175.83
12	139.50	1372	196.35	0	0	139.50	173.92
13	145.03	2539	195.62	0	0	145.03	172.03
14	150.03	1085	194.89	0	0	150.03	170.46
15	155.11	810	177.08	0	0	155.11	169.15
16	162.37	901	176.28	0	0	162.37	167.57
17	168.66	692	175.74	0	0	168.66	166.49
18	175.00	1002	175.31	0	0	175.00	165.74
19	182.41	1021	174.91	0	0	182.41	165.20
20	187.56	396	174.73	0	0	187.56	165.01
21	192.72	1009	174.69	0	0	192.72	165.10
22	200.14	973	174.76	0	0	200.14	165.49
23	207.53	914	175.02	0	0	207.53	166.26
24	214.87	833	175.48	0	0	214.87	167.43
25	222.14	732	176.13	0	0	222.14	168.97
26	229.32	613	176.97	0	0	229.32	170.89
27	236.38	477	177.99	0	0	236.38	173.19
28	243.32	326	179.21	0	0	243.32	175.85
29	250.11	164	180.61	0	0	250.11	178.88
30	255.03	19	181.73	0	0	255.03	181.30

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47

Information for the Iterative Solution for the Factor of Safety and Side Force Inclination by Spencer's Procedure

Allowable force imbalance for convergence: 4
Allowable moment imbalance for convergence: 660

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	-17.1887	-1.652e+004	3.049e+006		
First-order corrections to F and Theta					-0.6145	6.8678
Reduced values - Deltas were too large					-0.2901	2.8648
2	2.70987	-14.3239	-7.756e+003	1.443e+006		
First-order corrections to F and Theta					-0.2218	1.9120
Second-order corrections to F and Theta					-0.2031	1.6730
3	2.50681	-12.6510	4.594e+001	-6.765e+003		
First-order corrections to F and Theta					0.0014	-0.0246
Second-order corrections to F and Theta					0.0014	-0.0246
4	2.50820	-12.6755	-1.605e-005	6.052e-004		
First-order corrections to F and Theta					-0.0000	0.0000

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 55

Check of Computations by Spencer's Procedure (Results are for the critical shear surface in the case of an automatic search.)

Summation of Horizontal Forces: 4.04805e-011

Summation of Vertical Forces: 3.68630e-011

Summation of Moments: -4.07135e-009

Mohr Coulomb Shear Force/Shear Strength Check Summation: 1.43849e-011

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 58

Final Results for Stresses Along the Shear Surface
(Results are for the critical shear surface in the case of a search.)

SPENCER'S PROCEDURE USED TO COMPUTE THE FACTOR OF SAFETY
Factor of Safety: 2.508 Side Force Inclination: -12.68

Slice No.	X-Center	Y-Center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	88.39	206.86	260.9	260.9	55.3
2	93.77	201.73	797.5	797.5	169.1
3	99.41	196.89	1343.8	1343.8	284.9
4	105.30	192.35	1895.1	1895.1	401.7
5	110.00	189.02	2325.5	2325.5	493.0
6	114.02	186.44	2678.6	2678.6	567.8
7	117.47	184.34	2918.7	2918.7	814.8
8	118.61	183.67	3015.0	3015.0	841.7
9	121.90	181.91	3339.0	3339.0	932.1
10	128.53	178.57	3994.8	3994.8	1115.2
11	134.70	175.83	4592.9	4592.9	1282.2
12	139.50	173.92	5016.0	5016.0	1400.3
13	145.03	172.03	5361.1	5361.1	1496.7
14	150.03	170.46	5631.0	5631.0	1572.0
15	155.11	169.15	1738.4	1738.4	485.3
16	162.37	167.57	1963.4	1963.4	548.1
17	168.66	166.49	2133.1	2133.1	595.5
18	175.00	165.74	2256.3	2256.3	629.9
19	182.41	165.20	2353.6	2353.6	657.0
20	187.56	165.01	2400.9	2400.9	670.3
21	192.72	165.10	2416.1	2416.1	674.5
22	200.14	165.49	2404.4	2404.4	671.2
23	207.53	166.26	2340.8	2340.8	653.5
24	214.87	167.43	2221.2	2221.2	620.1
25	222.14	168.97	2040.9	2040.9	569.8
26	229.32	170.89	1794.1	1794.1	500.9
27	236.38	173.19	1474.1	1474.1	411.5
28	243.32	175.85	1072.3	1072.3	299.4
29	250.11	178.88	577.7	577.7	161.3
30	255.03	181.30	150.9	150.9	42.1

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 59

Final Results for Side Forces and Stresses Between Slices
(Results are for the critical shear surface in the case of a search.)

VALUES AT RIGHT SIDE OF SLICE

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	91.01	1230	206.42	0.358	28.5	363.0
2	96.53	4721	202.53	0.273	-137.6	903.7
3	102.29	10132	199.03	0.254	-267.0	1386.1
4	108.30	17076	195.78	0.244	-388.9	1835.3
5	111.70	21400	194.07	0.239	-455.5	2069.4
6	116.34	27566	191.92	0.234	-541.3	2363.4
7	118.60	30132	191.04	0.236	-551.2	2434.9
8	118.62	30154	191.03	0.236	-551.3	2435.5
9	125.17	37570	188.63	0.237	-593.6	2640.2
10	131.90	44815	186.44	0.236	-638.6	2819.8
11	137.50	50209	184.87	0.235	-663.8	2924.7
12	141.50	53524	183.91	0.239	-656.5	2986.7
13	148.57	57935	182.54	0.247	-618.3	3017.3
14	151.50	59152	182.09	0.251	548.5	3120.5
15	158.72	59554	180.50	0.731	8286.2	-1341.8
16	166.02	59182	179.07	0.673	6488.7	-118.6
17	171.30	58340	178.17	0.638	5514.1	511.4
18	178.70	56287	177.10	0.605	4624.4	1044.0
19	186.12	53164	176.27	0.577	3902.7	1425.5
20	189.00	51666	176.02	0.568	3657.4	1538.8
21	196.43	47081	175.54	0.546	3089.2	1757.2
22	203.84	41541	175.33	0.527	2597.2	1875.8
23	211.21	35213	175.38	0.511	2163.6	1901.6
24	218.52	28336	175.71	0.497	1776.7	1837.2
25	225.75	21235	176.32	0.487	1429.8	1681.0
26	232.88	14321	177.21	0.480	1121.2	1426.7
27	239.89	8104	178.41	0.482	856.9	1060.2
28	246.76	3204	179.94	0.516	661.3	547.7
29	253.47	368	181.62	0.658	401.0	11.3
30	256.59	-0	182.12	0.000	0.0	0.0

Read end-of-file on input while looking for another command word.
End of input data assumed - normal termination.

```
GRAPHIC OUTPUT
HEADING
 White Tanks. Steady-State Drained,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

Profile Lines
1   1    Existing Dam
    5    193
         213.5
    2    213.5
 ..1.7   185

2   2    Common Fill - Downstream
77.3     208.1
137.5    218
141.5    218

3   3    Soil Cement
118.62   185
141.5    218
151.5    218
151.5    216.5
151.5    185

4   4     Foundation
-74      185
-31.7    189
12.5     193
111.7    185
118.6    185
151.5    185
171.3    185
260      182


Material Properties
1    Existing Dam
  125
  Conventional Shear
  0    35
  Piezometric Line
  1
2    Common Fill
  120
  Conventional Shear
  0    35
  Piezometric Line
  1
3    Soil Cement
  135
  Conventional Shear
  72000    0
  Piezometric Line
  1
4    Foundation
  118
  Nonlinear
 -5000     0
  )        0
```



```
  10000   7002

  Piezometric Line
  1

Piezometric Line
1        62.4
-74      125
-31.7    142
-13.5    146
0        149.7
17.9     153.45
55.7     160.26
84.06    164.63
102.9    165.7
121.7    166.3
125.2    178.26
125.6    184.87
126.2    189.34
128      193.3
128.8    196.9
130.8    199.52
131.9    201.57
132.9    203.6
134.9    205.7
137.0    207.93
139.6    210.15
141.8    211.86
143      212.59
144.3    213.39
145.4    214.09
148.2    215.49
149.8    216.5
151.5    216.5
260      216.5


Distributed loads
151.5    216.5    0          0
151.5    185      1965.6     0
171.3    185      1965.6     0
260      182      2152.8     0

Analysis and Computations
Circular Search 1
160  215  5  150
Point
 19   185
 )
 mpute
```

TABLE NO. 1
COMPUTER PROGRAM DESIGNATION: UTEXAS4
Originally Coded By Stephen G. Wright
Version No. 4.0.1.5 - Last Revision Date: 2/15/2003
(C) Copyright 1985-2002 S. G. Wright - All rights reserved

```
**************************************************************
* RESULTS OF COMPUTATIONS PERFORMED USING THIS SOFTWARE      *
* SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY HAVE    *
* BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL DATA   *
* OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE ALGORITHMS *
* AND ANALYTICAL PROCEDURES USED IN THIS SOFTWARE AND MUST HAVE  *
* READ ALL DOCUMENTATION FOR THIS SOFTWARE BEFORE ATTEMPTING *
* TO USE IT.  NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR  *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS  *
* OR ADAPTABILITY OF THIS SOFTWARE.                          *
**************************************************************
```


UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 3
****
* NEW PROFILE LINE DATA *
****

----- Profile Line No. 1 - Material Type (Number): 1 -----

Description: Existing Dam

Point	X	Y
1	12.50	193.00
2	59.00	213.50
3	69.20	213.50
4	111.70	185.00

----- Profile Line No. 2 - Material Type (Number): 2 -----

Description: Common Fill - Downstream

Point	X	Y
1	77.30	208.10
2	137.50	218.00
3	141.50	218.00

----- Profile Line No. 3 - Material Type (Number): 3 -----

Description: Soil Cement

Point	X	Y
1	118.62	185.00
2	141.50	218.00
3	151.50	218.00
4	151.50	216.50
5	151.50	185.00

----- Profile Line No. 4 - Material Type (Number): 4 -----

Description: Foundation

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00

3	12.50	193.00
4	111.70	185.00
5	118.60	185.00
6	151.50	185.00
7	171.30	185.00
8	260.00	182.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 4
****
* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
****

---------- DATA FOR MATERIAL NUMBER 1 ----------

Description: Existing Dam

Unit weight of soil (material): 125.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 2 ----------

Description: Common Fill

Unit weight of soil (material): 120.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 3 ----------

Description: Soil Cement

Unit weight of soil (material): 135.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 72000.0
Friction angle - - - - - 0.00 (degrees)

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

DATA FOR MATERIAL NUMBER 4

Description: Foundation

Unit weight of soil (material): 118.0

---- NONLINEAR SHEAR STRENGTH ENVELOPE ----

Point	Normal Stress	Shear Stress
1	-5000.0	0.0
2	0.0	0.0
3	10000.0	7002.0

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 6

**** NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS ****

Piezometric Line Number 1

Unit weight of fluid (water): 62.4

Point	X	Y
1	-74.00	125.00
2	-31.70	142.00
3	-13.50	146.00
4	0.00	149.70
5	17.90	153.45
6	55.70	160.26
7	84.06	164.63
8	102.90	165.70
9	121.70	166.30
10	125.20	178.26
11	125.60	184.87
12	126.20	189.34
13	128.00	193.30
14	128.80	196.90
15	130.80	199.52
16	131.90	201.57
17	132.90	203.60
18	134.90	205.70
19	137.00	207.93
20	139.60	210.15
21	141.80	211.86
22	143.00	212.59
23	144.30	213.39
24	145.40	214.09
25	148.20	215.49
26	149.80	216.50
27	151.50	216.50
28	260.00	216.50

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 11

**** NEW DISTRIBUTED LOAD DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS ****

Point	X	Y	Normal Pressure	Shear Stress
1	151.50	216.50	0.0	0.0
2	151.50	185.00	1965.6	0.0
3	171.30	185.00	1965.6	0.0
4	260.00	182.00	2152.8	0.0

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 16

**** NEW ANALYSIS/COMPUTATION DATA ****

Starting Center Coordinate for Search at -
X: 160.00
Y: 215.00

Required accuracy for critical center
(= minimum spacing between grid points): 5.000

Critical shear surface not allowed to pass below Y: 150.00

For the initial mode of search circles pass through the fixed
point at - X: 119.00, Y: 185.00

The following represent default values or values that were prevously defined:
Subtended angle for slice subdivision: 3.00(degrees)
There is no crack.
There is no water in a crack.
Conventional (single-stage) computations will be performed.
Seismic coefficient: 0.000
Unit weight of water (or other fluid) in crack: 62.4
Automatic search output will be in long form.
Search will be continued after the initial mode to find a most critical circle.
Maximum number of trial grids for a given search mode: 50
No restrictions exist on the lateral extent of the search.
No shear surfaces other than the most critical will be saved for display later.
Neither slope face was explicitly designated for analysis.
Standard sign convention used for direction of shear stress on shear surface.
Procedure of Analysis: Spencer

Iteration limit: 100
Force imbalance: 1.000000e-005 (fraction of total weight)
Moment imbalance: 1.000000e-005 (fraction of moment due to total weight)
Minimum weight required for computations to be performed: 100
Initial trial factor of safety: 3.000
Initial trial side force inclination: 17.189 (degrees)
Minimum (most negative) side force inclination allowed in Spencer's procedure: -10.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 26
NEW, COMPUTED SLOPE GEOMETRY DATA

These slope geometry were generated from the Profile Lines.

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00
3	12.50	193.00
4	59.00	213.50
5	69.20	213.50
6	77.30	208.07
7	77.30	208.10
8	111.70	213.76
9	118.60	214.89
10	118.62	214.90
11	137.50	218.00
12	141.50	218.00
13	151.50	218.00
14	151.50	185.00
15	171.30	185.00
16	260.00	182.00

UTEXAS WARNING NUMBER 4240
Possible artesian pressures detected at x = 151.50
from piezometric line number 1 (Stage 1).

UTEXAS NOTICE NUMBER 8030
Center of initial grid for search is below the crest of the slope

Search will be conducted for RIGHT face of slope

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 29
OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES

------ Output for Circles Through a Fixed Point ------
------ Fixed point at - X: 119.00 Y: 185.00

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	Messages
10.00	65.00	162.11	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
160.00	65.00	126.81	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
310.00	65.00	225.57	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
10.00	215.00	113.05	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
160.00	215.00	50.80	4.242	0.570	9	
310.00	215.00	193.34	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
10.00	365.00	210.43	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
160.00	365.00	184.61	8.928	0.067	14	
310.00	365.00	262.45	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -						
135.00	190.00	16.76	Center rejected as follows:			UTEXAS NOTICE NUMBER 8130 Circle intersects slope 2 times, but there is no segment entirely within the slope
160.00	190.00	41.30	Center rejected as follows:			UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
						UTEXAS WARNING NUMBER 8080 Circle passes below the limiting depth of: 150.000
185.00	190.00	66.19	Center rejected as follows:			UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
						UTEXAS WARNING NUMBER 8080 Circle passes below the limiting depth of: 150.000
135.00	215.00	34.00	21.653	-1.506	41	
185.00	215.00	72.50	Center rejected as follows:			UTEXAS WARNING NUMBER 8080 Circle passes below the limiting depth of: 150.000
135.00	240.00	57.28	21.661	0.008	40	
160.00	240.00	68.60	4.486	0.319	8	
185.00	240.00	85.91	4.706	-1.016	8	
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -						
145.00	200.00	30.02	Center rejected as follows:			UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
						UTEXAS ERROR NUMBER 3820 Normal stress of -38512.7 is out of the range of values for the nonlinear Mohr-Coulomb shear strength envelope. This error occurred for slice 51 - material number 4. Center of base of slice is at X = 151.42, Y = 170.68
160.00	200.00	43.66	4.785	3.975	13	UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.

175.00	200.00	57.97	Center rejected as follows:			UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
						UTEXAS WARNING NUMBER 8080 Circle passes below the limiting depth of: 150.000
145.00	215.00	39.70	5.548	-0.351	10	
175.00	215.00	63.53	4.806	-0.177	10	
145.00	230.00	51.97	6.227	-0.241	10	
160.00	230.00	60.88	4.271	0.187	8	
175.00	230.00	71.84	4.397	-0.548	8	
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -						
155.00	210.00	43.83	4.377	1.325	9	UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
160.00	210.00	48.02	4.354	1.220	10	UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
165.00	210.00	52.35	4.490	0.937	10	UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
155.00	215.00	46.86	4.324	0.588	9	
165.00	215.00	54.92	4.326	0.369	9	
155.00	220.00	50.21	4.341	0.302	9	
160.00	220.00	53.91	4.199	0.293	9	
165.00	220.00	57.80	4.229	0.112	9	
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -						
155.00	225.00	53.81	4.416	0.216	8	
160.00	225.00	57.28	4.213	0.194	8	
165.00	225.00	60.96	4.189	0.010	8	
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -						
170.00	220.00	61.85	4.377	-0.143	9	
170.00	225.00	64.82	4.289	-0.247	8	
165.00	230.00	64.35	4.194	-0.006	8	
170.00	230.00	68.01	4.248	-0.270	8	

----- Critical Circle After the Current Mode of Search -----
X: 165.00 Y: 225.00 Radius: 60.959
Factor of safety: 4.189 Side force inclination: 0.010

```
UTEXAS4 S/N:00143  - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSusc.dat

 White Tanks. Steady-State Drained,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

TABLE NO. 30
**************************************************
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
**************************************************

------ Output for Circles Tangent to a Given Horizontal Line ------
------ Tangent line elevation, Y: 164.04

                                1-Stage
Center Coordinates              Factor  Side Force
                                  of    Inclination
     X         Y       Radius   Safety   (degrees)   Iterations          Message
s

    15.00     75.00    -89.04 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                               Center of circle

 is below the toe (lowest point) of the slope

   165.00     75.00    -89.04 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                               Center of circle

 is below the toe (lowest point) of the slope

   315.00     75.00    -89.04 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                               Center of circle

 is below the toe (lowest point) of the slope

    15.00    225.00     60.96 Center rejected as follows:      UTEXAS ERROR NUM
BER 8070
                                                               Circle is for op

posite facing slope

   315.00    225.00     60.96 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                               Circle does not

 tersect the slope.

    15.00    375.00    210.96 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                               Circle does not

intersect the slope.

   165.00    375.00    210.96   9.396     -0.014        15
   315.00    375.00    210.96 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                               Circle does not

intersect the slope.
```



```
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
   140.00    200.00     35.96 Center rejected as follows:      UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ

le became inverted.

 was added to prevent inversion.                               A vertical crack

                                                               UTEXAS ERROR NUM
BER 3820
                                                               Normal stress of

 13828.8 is out of the range of values for

hr-Coulomb shear strength envelope.                            the nonlinear Mo

red for slice 52 - material number 4.                          This error occur

f slice is at X = 150.65, Y = 165.67                           Center of base o

   165.00    200.00     35.96 Center rejected as follows:      UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ

le became inverted.

 was added to prevent inversion.                               A vertical crack

                                                               UTEXAS ERROR NUM
BER 9270
                                                               Solution did not

 converge in iteration limit of 100  iterations

ge during stage 1 computations                                 Failed to conver

   190.00    200.00     35.96 Center rejected as follows:      UTEXAS ERROR NUM
BER 9270
                                                               Solution did not

 converge in iteration limit of 100  iterations

ge during stage 1 computations                                 Failed to conver

   140.00    225.00     60.96   8.591     -0.225        14
   190.00    225.00     60.96 Center rejected as follows:      UTEXAS ERROR NUM
BER 9270
                                                               Solution did not

 converge in iteration limit of 100  iterations

ge during stage 1 computations                                 Failed to conver

   140.00    250.00     85.96   8.941     -1.559        14
   165.00    250.00     85.96   4.797     -0.112         8
   190.00    250.00     85.96  24.345      2.250        45
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
   150.00    210.00     45.96   4.790      0.232        10     UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ

le became inverted.

 was added to prevent inversion.                               A vertical crack

   165.00    210.00     45.96  15.835      3.729        34     UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
```



```
le became inverted.

 was added to prevent inversion.                               A vertical crack

   180.00    210.00     45.96 Center rejected as follows:      UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ

le became inverted.

 was added to prevent inversion.                               A vertical crack

                                                               UTEXAS ERROR NUM
BER 9270
                                                               Solution did not

 converge in iteration limit of 100  iterations

ge during stage 1 computations                                 Failed to conver

   150.00    225.00     60.96   5.611     -0.190         9
   180.00    225.00     60.96  26.154      4.872        51
   150.00    240.00     75.96   6.584      0.088        10
   165.00    240.00     75.96   4.309     -0.325         8
   180.00    240.00     75.96  15.337      2.550        27
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
   160.00    220.00     55.96   3.882     -0.323         8
   165.00    220.00     55.96   7.408      2.274        13
   170.00    220.00     55.96  14.289      4.036        27
   160.00    225.00     60.96   4.116     -0.341         8
   170.00    225.00     60.96  10.803      2.935        19
   160.00    230.00     65.96   4.362     -0.298         8
   165.00    230.00     65.96   3.850     -0.516         8
   170.00    230.00     65.96   7.817      1.824        13
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
   160.00    235.00     70.96   4.617     -0.209         8
   165.00    235.00     70.96   4.075     -0.427         8
   170.00    235.00     70.96   5.085      0.410         9
----- Critical Circle After the Current Mode of Search -----
X: 165.00     Y: 230.00     Radius: 65.959
Factor of safety: 3.850     Side force inclination: -0.516
```

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 31
****
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
****

------ Output for Circles with a Given, Constant Radius ------
------ Radius: 65.96

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	Messages
15.00	80.00	65.96	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
165.00	80.00	65.96	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
315.00	80.00	65.96	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
15.00	230.00	65.96	Center rejected as follows:			UTEXAS ERROR NUMBER 8070 Circle is for opposite facing slope
315.00	230.00	65.96	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
15.00	380.00	65.96	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
165.00	380.00	65.96	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
315.00	380.00	65.96	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

140.00	205.00	65.96	Center rejected as follows:			UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
165.00	205.00	65.96	Center rejected as follows:			UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
190.00	205.00	65.96	Center rejected as follows:			UTEXAS WARNING NUMBER 8140 Left end of circle became inverted. A vertical crack was added to prevent inversion.
140.00	230.00	65.96	8.988	-0.097	15	
190.00	230.00	65.96	43.470	4.616	85	
140.00	255.00	65.96	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations
165.00	255.00	65.96	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations
190.00	255.00	65.96	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

150.00	215.00	65.96	Center rejected as follows:			UTEXAS WARNING NUMBER 8080 Circle passes below the limiting depth of: 150.000
165.00	215.00	65.96	Center rejected as follows:			UTEXAS WARNING NUMBER 8080 Circle passes below the limiting depth of: 150.000
180.00	215.00	65.96	Center rejected as follows:			UTEXAS WARNING NUMBER 8080 Circle passes below the limiting depth of: 150.000
150.00	230.00	65.96	5.921	-0.107	10	
180.00	230.00	65.96	21.767	3.880	41	
150.00	245.00	65.96	14.328	0.161	25	
165.00	245.00	65.96	39.304	-0.240	75	
180.00	245.00	65.96	Center rejected as follows:			UTEXAS NOTICE NUMBER 8210 Circle intersects the slope 4 times and there is more than one valid segment. Only the uppermost valid segment was analyzed. UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

160.00	225.00	65.96	4.853	-0.320	9
165.00	225.00	65.96	4.328	-0.514	8
170.00	225.00	65.96	3.925	-0.815	8
160.00	230.00	65.96	4.362	-0.290	8
170.00	230.00	65.96	7.817	1.824	13
160.00	235.00	65.96	3.910	-0.164	8
165.00	235.00	65.96	8.463	1.601	14
170.00	235.00	65.96	15.269	2.476	27

----- Critical Circle After the Current Mode of Search -----
X: 165.00 Y: 230.00 Radius: 65.959
Factor of safety: 3.850 Side force inclination: -0.516

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 33
****
* 1-STAGE FINAL CRITICAL CIRCLE INFORMATION *
****

X Coordinate of Center	165.00
Y Coordinate of Center	230.00
Radius	65.96
Factor of Safety	3.850
Side Force Inclination (degrees)	-0.52
Number of Circles Tried	107
Number of Circles F Calculated for	64
Time Required for Search (seconds)	2.2

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
HGO, Date NOV 02, 2004

LE NO. 43

* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the critical shear surface in the *
* case of an automatic search.) *

Slice No.	X	Y	Slice Weight	Matl. No.	Cohesion	Friction Angle	Pore Pressure
	101.52	212.08					
1	102.03	210.43	213	2	0.0	35.00	0.0
	102.55	208.79					
2	102.72	208.28	170	2	0.0	35.00	0.0
	102.90	207.77					
3	103.52	206.16	937	2	0.0	35.00	0.0
	104.15	204.55					
4	104.86	202.98	1640	2	0.0	35.00	0.0
	105.56	201.40					
5	106.35	199.86	2465	2	0.0	35.00	0.0
	107.14	198.33					
6	108.01	196.84	3400	2	0.0	35.00	0.0
	108.88	195.34					
7	109.82	193.90	4435	2	0.0	35.00	0.0
	110.77	192.45					
8	111.23	191.80	2443	2	0.0	35.00	0.0
	111.70	191.15					
9	112.75	189.78	6106	2	0.0	35.00	0.0
	113.81	188.41					
10	114.93	187.10	7331	2	0.0	35.00	0.0
	116.05	185.79					
11	116.41	185.39	2525	2	0.0	35.00	0.0
	116.78	185.00					
12	117.69	184.06	6713	4	NONLINEAR ENVELOPE		0.0
	118.60	183.12					
13	118.61	183.11	76	4	NONLINEAR ENVELOPE		0.0
	118.62	183.10					
14	119.88	181.92	10080	4	NONLINEAR ENVELOPE		0.0
	121.14	180.74					
15	121.42	180.49	2380	4	NONLINEAR ENVELOPE		0.0
	121.70	180.24					
16	123.03	179.14	11881	4	NONLINEAR ENVELOPE		0.0
	124.36	178.05					
17	124.68	177.80	2959	4	NONLINEAR ENVELOPE		0.0
	124.99	177.56					
18	125.10	177.48	974	4	NONLINEAR ENVELOPE		26.8
	125.20	177.40					
19	125.40	177.25	1913	4	NONLINEAR ENVELOPE		269.1
	125.60	177.10					

20	125.90	176.88	2908	4	NONLINEAR ENVELOPE		638.0
	126.20	176.66					
21	127.10	176.03	8994	4	NONLINEAR ENVELOPE		954.2
	128.00	175.40					
22	128.40	175.13	4125	4	NONLINEAR ENVELOPE		1246.2
	128.80	174.86					
23	129.80	174.23	10641	4	NONLINEAR ENVELOPE		1496.3
	130.80	173.60					
24	131.35	173.27	6048	4	NONLINEAR ENVELOPE		1701.7
	131.90	172.95					
25	132.40	172.66	5613	4	NONLINEAR ENVELOPE		1867.1
	132.90	172.38					
26	133.90	171.84	11544	4	NONLINEAR ENVELOPE		2047.1
	134.90	171.31					
27	135.95	170.79	12559	4	NONLINEAR ENVELOPE		2247.7
	137.00	170.28					
28	137.25	170.16	3054	4	NONLINEAR ENVELOPE		2370.8
	137.50	170.05					
29	138.55	169.59	13041	4	NONLINEAR ENVELOPE		2475.2
	139.60	169.13					
30	140.55	168.75	12069	4	NONLINEAR ENVELOPE		2629.5
	141.50	168.37					
31	141.65	168.31	1927	4	NONLINEAR ENVELOPE		2710.1
	141.80	168.26					
32	142.40	168.04	7748	4	NONLINEAR ENVELOPE		2757.3
	143.00	167.82					
33	143.65	167.60	8461	4	NONLINEAR ENVELOPE		2832.6
	144.30	167.37					
34	144.85	167.20	7211	4	NONLINEAR ENVELOPE		2904.3
	145.40	167.02					
35	146.80	166.62	18547	4	NONLINEAR ENVELOPE		3005.9
	148.20	166.22					
36	149.00	166.02	10712	4	NONLINEAR ENVELOPE		3118.7
	149.80	165.82					
37	150.65	165.63	11460	4	NONLINEAR ENVELOPE		3174.5
	151.50	165.44					
38	153.20	165.13	7967	4	NONLINEAR ENVELOPE		3205.6
	154.90	164.82					
39	156.61	164.60	8245	4	NONLINEAR ENVELOPE		3238.6
	158.32	164.38					
40	160.04	164.25	8431	4	NONLINEAR ENVELOPE		3260.4
	161.77	164.12					
41	163.38	164.08	7983	4	NONLINEAR ENVELOPE		3271.0
	165.00	164.04					
42	166.73	164.09	8519	4	NONLINEAR ENVELOPE		3270.6
	168.45	164.13					
43	169.88	164.24	6978	4	NONLINEAR ENVELOPE		3261.2
	171.30	164.34					
44	173.01	164.55	8247	4	NONLINEAR ENVELOPE		3241.5
	174.73	164.76					
45	176.43	165.06	7932	4	NONLINEAR ENVELOPE		3209.8
	178.13	165.36					
46	179.81	165.75	7538	4	NONLINEAR ENVELOPE		3166.9
	181.49	166.14					
47	183.15	166.61	7046	4	NONLINEAR ENVELOPE		3113.8
	184.81	167.09					
48	186.45	167.65	6488	4	NONLINEAR ENVELOPE		3048.3
	188.08	168.21					
49	189.68	168.86	5865	4	NONLINEAR ENVELOPE		2972.9
	191.28	169.50					

50	192.85	170.23	5186	4	NONLINEAR ENVELOPE		2887.1
	194.41	170.96					
51	195.96	171.77	4460	4	NONLINEAR ENVELOPE		2791.1
	197.46	172.58					
52	198.94	173.47	3701	4	NONLINEAR ENVELOPE		2685.1
	200.42	174.36					
53	201.85	175.32	2920	4	NONLINEAR ENVELOPE		2569.4
	203.28	176.29					
54	204.66	177.33	2130	4	NONLINEAR ENVELOPE		2444.4
	206.04	178.37					
55	207.37	179.48	1344	4	NONLINEAR ENVELOPE		2310.3
	208.69	180.59					
56	209.95	181.76	575	4	NONLINEAR ENVELOPE		2167.6
	211.22	182.94					
57	211.56	183.28	29	4	NONLINEAR ENVELOPE		2072.7
	211.91	183.63					

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 44

* Seismic Forces and Forces Due to Distributed Loads for *
* Individual Slices for Conventional Computations or the *
* First Stage of Multi-Stage Computations. *
* (Information is for the critical shear surface in the *
* case of an automatic search.) *

					FORCES DUE TO DISTRIBUTED LOADS			
Slices No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	102.03	0	211.30	0	0	102.03	210.43
2	102.72	0	210.28	0	0	102.72	208.28
3	103.52	0	209.29	0	0	103.52	206.16
4	104.86	0	207.80	0	0	104.86	202.98
5	106.35	0	206.37	0	0	106.35	199.86
6	108.01	0	204.99	0	0	108.01	196.84
7	109.82	0	203.67	0	0	109.82	193.90
8	111.23	0	202.74	0	0	111.23	191.80
9	112.75	0	201.85	0	0	112.75	189.78
10	114.93	0	200.69	0	0	114.93	187.10
11	116.41	0	199.96	0	0	116.41	185.39
12	117.69	0	199.41	0	0	117.69	184.06
13	118.61	0	199.02	0	0	118.61	183.11
14	119.88	0	198.45	0	0	119.88	181.92
15	121.42	0	197.80	0	0	121.42	180.49
16	123.03	0	197.23	0	0	123.03	179.14
17	124.68	0	196.69	0	0	124.68	177.80
18	125.10	0	196.56	0	0	125.10	177.48
19	125.40	0	196.47	0	0	125.40	177.25
20	125.90	0	196.34	0	0	125.90	176.88
21	127.10	0	196.03	0	0	127.10	176.03
22	128.40	0	195.72	0	0	128.40	175.13
23	129.80	0	195.44	0	0	129.80	174.23
24	131.35	0	195.15	0	0	131.35	173.27
25	132.40	0	194.98	0	0	132.40	172.66
26	133.90	0	194.78	0	0	133.90	171.84
27	135.95	0	194.55	0	0	135.95	170.79
28	137.25	0	194.43	0	0	137.25	170.16
29	138.55	0	194.26	0	0	138.55	169.59
30	140.55	0	194.01	0	0	140.55	168.75
31	141.65	0	193.88	0	0	141.65	168.31
32	142.40	0	193.76	0	0	142.40	168.04
33	143.65	0	193.55	0	0	143.65	167.60
34	144.85	0	193.36	0	0	144.85	167.20
35	146.80	0	193.09	0	0	146.80	166.62
36	149.00	0	192.80	0	0	149.00	166.02

37	150.65	0	192.62	0	0	150.65	165.63
38	153.20	0	175.86	6678	0	153.20	185.00
39	156.61	0	174.80	6732	0	156.61	185.00
40	160.04	0	174.63	6768	0	160.04	185.00
41	163.38	0	174.54	6357	0	163.38	185.00
42	166.73	0	174.54	6785	0	166.73	185.00
43	169.88	0	174.62	5598	0	169.88	185.00
44	173.01	0	174.75	6754	0	173.01	184.94
45	176.43	0	174.94	6726	0	176.43	184.83
46	179.81	0	175.23	6678	0	179.81	184.71
47	183.15	0	175.61	6612	0	183.15	184.60
48	186.45	0	176.07	6527	0	186.45	184.49
49	189.68	0	176.62	6422	0	189.68	184.38
50	192.85	0	177.25	6299	0	192.85	184.27
51	195.94	0	177.97	6156	0	195.94	184.17
52	198.94	0	178.77	5995	0	198.94	184.07
53	201.85	0	179.65	5816	0	201.85	183.97
54	204.66	0	180.60	5620	0	204.66	183.87
55	207.37	0	181.63	5406	0	207.37	183.78
56	209.95	0	182.73	5175	0	209.95	183.69
57	211.56	0	183.46	1415	0	211.56	183.64

Normal stress where max. change occurred: 705.66
Old strength at this slice: 0.00
New strength at this slice: 494.11

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\WSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47

Information for the Iterative Solution for the Factor of Safety and Side Force Inclination by Spencer's Procedure

Trial No. 1 with Nonlinear Strength Envelope
Allowable force imbalance for convergence: 3
Allowable moment imbalance for convergence: 494

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	-17.1887	4.349e+004	-1.114e+007		
First-order corrections to F and Theta					1.0117	9.7176
Reduced values - Deltas were too large					0.2983	2.8648
2	3.29826	-14.3239	3.167e+004	-8.129e+006		
First-order corrections to F and Theta					0.7861	8.8381
Reduced values - Deltas were too large					0.2548	2.8648
3	3.55308	-11.4592	2.197e+004	-5.664e+006		
First-order corrections to F and Theta					0.4806	7.7043
Reduced values - Deltas were too large					0.1787	2.8648
4	3.73179	-8.5944	1.408e+004	-3.660e+006		
First-order corrections to F and Theta					0.1748	6.2674
Reduced values - Deltas were too large					0.0799	2.8648
5	3.81170	-5.7296	7.754e+003	-2.049e+006		
First-order corrections to F and Theta					-0.0390	4.4624
Reduced values - Deltas were too large					-0.0250	2.8648
6	3.78668	-2.8648	2.826e+003	-7.771e+005		
First-order corrections to F and Theta					-0.0972	2.2215
Second-order corrections to F and Theta					-0.1141	2.3772
7	3.67263	-0.4876	-5.268e+000	1.209e+003		
First-order corrections to F and Theta					-0.0001	-0.0025
Second-order corrections to F and Theta					-0.0001	-0.0025
8	3.67257	-0.4901	1.594e-008	-2.266e-006		
First-order corrections to F and Theta					0.0000	-0.0000

After trial 1 the following changes were computed for the nonlinear strength envelopes:
Maximum change in shear strength: 100.000 (percent)
Maximum change occurred for slice 51

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\WSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47

Information for the Iterative Solution for the Factor of Safety and Side Force Inclination by Spencer's Procedure

Trial No. 2 with Nonlinear Strength Envelope
Allowable force imbalance for convergence: 3
Allowable moment imbalance for convergence: 494

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	-17.1887	5.916e+004	-1.474e+007		
First-order corrections to F and Theta					1.0232	7.7423
Reduced values - Deltas were too large					0.3786	2.8648
2	3.37859	-14.3239	4.046e+004	-1.010e+007		
First-order corrections to F and Theta					0.8647	7.7016
Reduced values - Deltas were too large					0.3217	2.8648
3	3.70025	-11.4592	2.690e+004	-6.743e+006		
First-order corrections to F and Theta					0.5589	7.0739
Reduced values - Deltas were too large					0.2263	2.8648
4	3.92658	-8.5944	1.669e+004	-4.217e+006		
First-order corrections to F and Theta					0.2092	5.9478
Reduced values - Deltas were too large					0.1007	2.8648
5	4.02732	-5.7296	8.930e+003	-2.295e+006		
First-order corrections to F and Theta					-0.0513	4.3270
Reduced values - Deltas were too large					-0.0339	2.8648
6	3.99337	-2.8648	3.147e+003	-8.424e+005		
First-order corrections to F and Theta					-0.1224	2.1778
Second-order corrections to F and Theta					-0.1437	2.3537
7	3.84971	-0.5110	-6.032e+000	1.580e+003		
First-order corrections to F and Theta					0.0003	-0.0046
Second-order corrections to F and Theta					0.0003	-0.0046
8	3.84998	-0.5156	3.876e-008	-9.768e-006		
First-order corrections to F and Theta					-0.0000	0.0000

After trial 2 the following changes were computed for the nonlinear strength envelopes:
Maximum change in shear strength: 0.000 (percent)
Strengths from nonlinear envelope have converged.

Final computations will be performed next.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47

Information for the Iterative Solution for the Factor of Safety and Side Force Inclination by Spencer's Procedure

Final Trial with Nonlinear Strength Envelope
Allowable force imbalance for convergence: 3
Allowable moment imbalance for convergence: 494

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	-17.1887	5.916e+004	-1.474e+007		
First-order corrections to F and Theta					1.0232	7.7423
Reduced values - Deltas were too large					0.3786	2.8648
2	3.37859	-14.3239	4.046e+004	-1.010e+007		
First-order corrections to F and Theta					0.8647	7.7016
Reduced values - Deltas were too large					0.3217	2.8648
3	3.70025	-11.4592	2.690e+004	-6.743e+006		
First-order corrections to F and Theta					0.5589	7.0739
Reduced values - Deltas were too large					0.2263	2.8648
4	3.92658	-8.5944	1.669e+004	-4.217e+006		
First-order corrections to F and Theta					0.2892	5.9478
Reduced values - Deltas were too large					0.1007	2.8648
5	4.02732	-5.7296	8.930e+003	-2.295e+006		
First-order corrections to F and Theta					-0.0513	4.3270
Reduced values - Deltas were too large					-0.0339	2.8648
6	3.99337	-2.8648	3.147e+003	-8.424e+005		
First-order corrections to F and Theta					-0.1224	2.1778
Second-order corrections to F and Theta					-0.1437	2.3537
7	3.84971	-0.5110	-6.032e+000	1.580e+003		
First-order corrections to F and Theta					0.0003	-0.0046
Second-order corrections to F and Theta					0.0003	-0.0046
8	3.84998	-0.5156	3.876e-008	-9.768e-006		
First-order corrections to F and Theta					-0.0000	0.0000

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 55

Check of Computations by Spencer's Procedure (Results are for the critical shear surface in the case of an automatic search.)

Summation of Horizontal Forces: 1.28365e-010

Summation of Vertical Forces: 3.58256e-011

Summation of Moments: 4.43652e-009

Mohr Coulomb Shear Force/Shear Strength Check Summation: 1.99041e-011

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 58

Final Results for Stresses Along the Shear Surface (Results are for the critical shear surface in the case of a search.)

SPENCER'S PROCEDURE USED TO COMPUTE THE FACTOR OF SAFETY
Factor of Safety: 3.850 Side Force Inclination: -0.52

Slice No.	X-Center	Y-Center	Total Normal Stress	Effective Normal Stress	Shear Stress
	VALUES AT CENTER OF BASE OF SLICE				
1	102.03	210.43	129.0	129.0	23.5
2	102.72	208.28	310.8	310.8	56.5
3	103.52	206.16	503.4	503.4	91.6
4	104.86	202.98	814.2	814.2	148.1
5	106.35	199.86	1140.8	1140.8	207.3
6	108.01	196.84	1476.0	1476.0	268.4
7	109.82	193.90	1818.4	1818.4	330.7
8	111.23	191.80	2072.4	2072.4	376.9
9	112.75	189.78	2325.6	2325.6	423.0
10	114.93	187.10	2672.0	2672.0	486.0
11	116.41	185.39	2898.8	2898.8	527.2
12	117.69	184.06	3079.6	3079.6	560.1
13	118.61	183.11	3209.3	3209.3	583.7
14	119.88	181.92	3399.6	3399.6	618.3
15	121.42	180.49	3631.1	3631.1	660.4
16	123.03	179.14	3859.3	3859.3	701.9
17	124.68	177.80	4091.0	4091.0	744.0
18	125.10	177.48	4151.2	4124.4	750.1
19	125.40	177.25	4220.6	3951.5	718.7
20	125.90	176.88	4329.8	3691.8	671.4
21	127.10	176.03	4518.9	3564.7	648.3
22	128.40	175.13	4713.5	3467.3	630.6
23	129.80	174.23	4906.8	3410.6	620.3
24	131.35	173.27	5108.5	3406.8	619.6
25	132.40	172.66	5242.8	3375.7	613.9
26	133.90	171.84	5423.0	3375.9	614.0
27	135.95	170.79	5657.0	3409.3	620.1
28	137.25	170.16	5800.9	3430.9	624.0
29	138.55	169.59	5918.0	3442.9	626.2
30	140.55	168.75	6085.1	3455.5	628.5
31	141.65	168.31	6170.5	3460.5	629.4
32	142.40	168.04	6212.7	3455.4	628.4
33	143.65	167.60	6280.5	3447.9	627.1
34	144.85	167.20	6342.5	3438.2	625.3
35	146.80	166.62	6434.0	3428.1	623.5
36	149.00	166.02	6530.8	3412.1	620.6

37	150.65	165.63	6752.2	3577.7	650.7
38	153.20	165.13	4270.0	1064.4	193.6
39	156.61	164.60	4343.9	1105.3	201.0
40	160.04	164.25	4397.4	1137.0	206.8
41	163.38	164.08	4429.8	1158.9	210.8
42	166.73	164.09	4442.0	1171.3	213.0
43	169.88	164.24	4436.4	1175.2	213.7
44	173.01	164.55	4408.5	1167.0	212.2
45	176.43	165.06	4354.7	1145.0	208.2
46	179.81	165.75	4279.2	1112.3	202.3
47	183.15	166.61	4181.9	1068.9	194.4
48	186.45	167.65	4062.9	1014.6	184.5
49	189.68	168.86	3922.0	949.1	172.6
50	192.85	170.23	3759.4	872.3	158.6
51	195.94	171.77	3575.0	783.9	142.6
52	198.94	173.47	3368.7	683.7	124.3
53	201.85	175.32	3140.5	571.1	103.9
54	204.66	177.33	2890.2	445.8	81.1
55	207.37	179.48	2617.3	307.0	55.8
56	209.95	181.76	2321.4	153.7	28.0
57	211.56	183.28	2121.0	48.2	8.8

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 59

Final Results for Side Forces and Stresses Between Slices
(Results are for the critical shear surface in the case of a search.)

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
		VALUES AT RIGHT SIDE OF SLICE				
1	102.55	401	210.43	0.474	98.0	133.6
2	102.90	697	209.51	0.384	46.9	260.1
3	104.15	2203	207.21	0.334	1.7	551.5
4	105.56	4559	205.01	0.318	-35.8	839.2
5	107.14	7733	202.89	0.311	-71.6	1125.2
6	108.88	11672	200.83	0.306	-107.3	1407.8
7	110.77	16301	198.85	0.302	-143.2	1684.6
8	111.70	18665	197.95	0.301	-160.6	1811.4
9	113.81	24137	196.08	0.299	-196.1	2074.9
10	116.05	30052	194.29	0.297	-231.2	2326.4
11	116.78	31952	193.76	0.296	-242.1	2401.5
12	118.60	36716	192.48	0.295	-267.8	2579.0
13	118.62	36768	192.47	0.295	-268.1	2580.9
14	121.14	43245	190.87	0.293	-302.2	2804.0
15	121.70	44670	190.53	0.293	-309.9	2850.9
16	124.36	51284	189.04	0.291	-344.9	3058.6
17	124.99	52809	188.71	0.291	-352.9	3104.2
18	125.20	53303	188.61	0.290	-355.5	3118.9
19	125.60	54283	188.40	0.290	-361.7	3149.5
20	126.20	55792	188.08	0.289	-373.6	3199.7
21	128.00	60337	187.16	0.287	-412.5	3352.6
22	128.80	62348	186.76	0.285	-430.6	3420.3
23	130.80	67302	185.82	0.282	-476.0	3584.7
24	131.90	69954	185.34	0.281	-500.1	3670.2
25	132.90	72321	184.91	0.279	-521.7	3745.6
26	134.90	76893	184.12	0.277	-562.9	3887.0
27	137.00	81420	183.36	0.275	-602.5	4020.6
28	137.50	82453	183.19	0.274	-611.3	4050.1
29	139.60	86580	182.52	0.274	-629.7	4172.6
30	141.50	90001	181.98	0.274	-642.3	4269.0
31	141.80	90513	181.90	0.274	-644.0	4283.0
32	143.00	92478	181.60	0.275	-649.5	4335.1
33	144.30	94456	181.29	0.275	-653.7	4385.0
34	145.40	96007	181.06	0.275	-655.7	4422.0
35	148.20	99434	180.53	0.276	-655.2	4495.4
36	149.80	101054	180.29	0.277	-651.3	4524.1
37	151.50	71548	173.39	0.151	-1344.1	5311.9
38	154.90	73529	173.13	0.412	1719.5	5567.3

39	158.32	74749	172.96	0.416	1804.1	5445.7
40	161.77	75179	172.88	0.420	1865.2	5335.6
41	165.00	74848	172.89	0.422	1906.9	5235.1
42	168.45	73711	173.00	0.425	1939.2	5124.8
43	171.30	72166	173.16	0.427	1958.8	5027.8
44	174.73	69360	173.41	0.430	1993.0	4900.7
45	178.13	65818	173.76	0.433	2021.3	4760.9
46	181.49	61592	174.21	0.436	2044.9	4606.7
47	184.81	56747	174.75	0.439	2064.8	4436.7
48	188.08	51360	175.40	0.443	2081.9	4249.9
49	191.28	45521	176.13	0.447	2097.8	4045.4
50	194.41	39328	176.95	0.452	2110.7	3822.3
51	197.46	32893	177.86	0.457	2123.8	3579.8
52	200.42	26334	178.84	0.464	2137.5	3316.7
53	203.28	19778	179.89	0.472	2153.6	3031.1
54	206.04	13361	180.99	0.482	2176.6	2718.4
55	208.69	7223	182.14	0.495	2219.9	2365.2
56	211.22	1512	183.30	0.504	2174.7	2079.7
57	211.91	0	183.63	1.000	0.0	0.0

Read end-of-file on input while looking for another command word.
End of input data assumed - normal termination.

```
GRAPHIC OUTPUT
HEADING
 White Tanks. End of Construction Case
 Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

Profile Lines
   1    Existing Dam
        193
        213.5
   2    213.5
111.7   185

2   2    Common Fill - Downstream
77.3    208.1
137.5   218
141.5   218

3   3    Soil Cement
118.62  185
141.5   218
151.5   218
151.5   216.5
151.5   185

4   4     Foundation
-74     185
-31.7   189
12.5    193
111.7   185
118.6   185
151.5   185
171.3   185
260     182


Material Properties
1    Existing Dam
  125
  Conventional Shear
  0    35
  No Piezometric Line
2    Common Fill
  120
  Conventional Shear
  500    19
  No Piezometric Line
3    Soil Cement
  135
  Conventional Shear
  28800    0
  No Piezometric Line
4    Foundation
  118
  Conventional Shear
  0    35
  No Piezometric Line

Analysis and Computations
```



```
Circular Search 1
155  275  5  160
Point
119  185

Compute
```

```
TABLE NO. 1
COMPUTER PROGRAM DESIGNATION: UTEXAS4
Originally Coded By Stephen G. Wright
Version No. 4.0.1.5 - Last Revision Date: 2/15/2003
(C) Copyright 1985-2002 S. G. Wright - All rights reserved
```


```
**************************************************************************
* RESULTS OF COMPUTATIONS PERFORMED USING THIS SOFTWARE                  *
* SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY HAVE                *
* BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL DATA               *
* OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE ALGORITHMS         *
* AND ANALYTICAL PROCEDURES USED IN THIS SOFTWARE AND MUST HAVE          *
* READ ALL DOCUMENTATION FOR THIS SOFTWARE BEFORE ATTEMPTING             *
* TO USE IT.  NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT             *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR              *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS              *
* OR ADAPTABILITY OF THIS SOFTWARE.                                      *
**************************************************************************
```



```
UTEXAS4 S/N:00143  - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSusc(post construction).dat

 White Tanks. End of Construction Case
 Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

TABLE NO. 3
**************************
* NEW PROFILE LINE DATA *
**************************

------------------------------------------------------------
----- Profile Line No. 1 - Material Type (Number): 1 -----
------------------------------------------------------------
Description: Existing Dam

Point        X           Y

   1       12.50       193.00
   2       59.00       213.50
   3       69.20       213.50
   4      111.70       185.00

------------------------------------------------------------
----- Profile Line No. 2 - Material Type (Number): 2 -----
------------------------------------------------------------
Description: Common Fill - Downstream

Point        X           Y

   1       77.30       208.10
   2      137.50       218.00
   3      141.50       218.00

------------------------------------------------------------
----- Profile Line No. 3 - Material Type (Number): 3 -----
------------------------------------------------------------
Description: Soil Cement

Point        X           Y

   1      118.62       185.00
   2      141.50       218.00
   3      151.50       218.00
   4      151.50       216.50
   5      151.50       185.00

------------------------------------------------------------
----- Profile Line No. 4 - Material Type (Number): 4 -----
------------------------------------------------------------
Description: Foundation

Point        X           Y

   1      -74.00       185.00
```



```
   2      -31.70       189.00
   3       12.50       193.00
   4      111.70       185.00
   5      118.60       185.00
   6      151.50       185.00
   7      171.30       185.00
   8      260.00       182.00
```



```
UTEXAS4 S/N:00143  - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSusc(post construction).dat

 White Tanks. End of Construction Case
 Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

TABLE NO. 4
**********************************************************************
* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
**********************************************************************

------------------------------------------------------------
------------------- DATA FOR MATERIAL NUMBER 1 -------------------
------------------------------------------------------------
Description: Existing Dam

Unit weight of soil (material): 125.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

------------------------------------------------------------
------------------- DATA FOR MATERIAL NUMBER 2 -------------------
------------------------------------------------------------
Description: Common Fill

Unit weight of soil (material): 120.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 500.0
Friction angle - - - - - 19.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

------------------------------------------------------------
------------------- DATA FOR MATERIAL NUMBER 3 -------------------
------------------------------------------------------------
Description: Soil Cement

Unit weight of soil (material): 135.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 28800.0
Friction angle - - - - - 0.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

------------------------------------------------------------
------------------- DATA FOR MATERIAL NUMBER 4 -------------------
```

Description: Foundation

Unit weight of soil (material): 118.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

(zero) pore water pressures.
ative pore water pressures are NOT allowed - set to zero.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 16
****
* NEW ANALYSIS/COMPUTATION DATA *
****

Starting Center Coordinate for Search at -
X: 155.00
Y: 275.00

Required accuracy for critical center
(= minimum spacing between grid points): 5.000

Critical shear surface not allowed to pass below Y: 160.00

For the initial mode of search circles pass through the fixed
point at - X: 119.00, Y: 185.00

The following represent default values or values that were prevously defined:
Subtended angle for slice subdivision: 3.00(degrees)
There is no crack.
There is no water in a crack.
Conventional (single-stage) computations will be performed.
Seismic coefficient: 0.000
Unit weight of water (or other fluid) in crack: 62.4
Automatic search output will be in long form.
Search will be continued after the initial mode to find a most critical circle.
Maximum number of trial grids for a given search mode: 50
No restrictions exist on the lateral extent of the search.
No shear surfaces other than the most critical will be saved for display later.
Neither slope face was explicitly designated for analysis.
Standard sign convention used for direction of shear stress on shear surface.
Procedure of Analysis: Spencer

Iteration limit: 100
orce imbalance: 1.000000e-005 (fraction of total weight)
ment imbalance: 1.000000e-005 (fraction of moment due to total weight)
inimum weight required for computations to be performed: 100
nitial trial factor of safety: 3.000
Initial trial side force inclination: 17.189 (degrees)
Minimum (most negative) side force inclination allowed in Spencer's procedure: -10.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 26
****
* NEW, COMPUTED SLOPE GEOMETRY DATA *
****

These slope geometry were generated from the Profile Lines.

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00
3	12.50	193.00
4	59.00	213.50
5	69.20	213.50
6	77.30	208.07
7	77.30	208.10
8	111.70	213.76
9	118.60	214.89
10	118.62	214.90
11	137.50	218.00
12	141.50	218.00
13	151.50	218.00
14	151.50	185.00
15	171.30	185.00
16	260.00	182.00

Search will be conducted for RIGHT face of slope

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 29
****
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
****

------ Output for Circles Through a Fixed Point ------
------ Fixed point at - X: 119.00 Y: 185.00

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	Messages
5.00	125.00	128.83	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
155.00	125.00	69.97	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
305.00	125.00	195.44	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
5.00	275.00	145.24	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
155.00	275.00	96.93	2.818	-14.241	3	
305.00	275.00	206.63	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
5.00	425.00	265.70	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
155.00	425.00	242.68	4.180	-11.268	5	
305.00	425.00	303.64	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not

intersect the slope.

```
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    130.00    250.00     65.92  19.462     -8.034        35
    155.00    250.00     74.30   2.582    -14.683         4
    180.00    250.00     89.14   3.079     -9.010         5
    130.00    275.00     98.67  15.677     -8.973        28
    180.00    275.00    108.72   2.910    -10.001         4
    130.00    300.00    115.52  14.012     -8.871        24
    155.00    300.00    120.50   3.031    -14.070         3
    180.00    300.00    130.18   2.911     -9.893         4
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    130.00    225.00     41.48  29.555     -8.283        55
    155.00    225.00     53.81   2.531    -13.287         4
    180.00    225.00     72.95 Center rejected as follows:      UTEXAS WARNING N
UMBER 8080
                                                               Circle passes be
low the limiting depth of: 160.000

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    130.00    200.00     18.60 Center rejected as follows:      UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
le became inverted.
                                                               A vertical crack
 was added to prevent inversion.
                                                               UTEXAS WARNING N
UMBER 8250
                                                               Right end of cir
cle became inverted.
                                                               A vertical crack
 was added to prevent inversion.
                                                               UTEXAS ERROR NUM
BER 8070
                                                               Circle is for op
posite facing slope

    155.00    200.00     39.00   3.136    -15.608         5     UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
le became inverted.
                                                               A vertical crack
 was added to prevent inversion.

    180.00    200.00     62.82 Center rejected as follows:      UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
le became inverted.
                                                               A vertical crack
 was added to prevent inversion.
                                                               UTEXAS WARNING N
UMBER 8080
                                                               Circle passes be
low the limiting depth of: 160.000

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    140.00    210.00     32.65   3.783    -16.722         4     UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
le became inverted.
```



```
                                                               A vertical crack
 was added to prevent inversion.

    155.00    210.00     43.83   2.800     -9.982         5     UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
le became inverted.
                                                               A vertical crack
 was added to prevent inversion.

    170.00    210.00     56.80 Center rejected as follows:      UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
le became inverted.
                                                               A vertical crack
 was added to prevent inversion.
                                                               UTEXAS WARNING N
UMBER 8080
                                                               Circle passes be
low the limiting depth of: 160.000

    140.00    225.00     45.18   3.516    -16.981         3
    170.00    225.00     64.82   3.016     -9.603         5
    140.00    240.00     58.87   3.594    -15.579         4
    155.00    240.00     65.73   2.523    -14.497         4
    170.00    240.00     75.01   2.756    -10.608         4
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    140.00    255.00     73.08   3.773    -14.215         4
    155.00    255.00     78.71   2.622    -14.674         4
    170.00    255.00     86.61   2.670    -11.010         4
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    150.00    235.00     58.83   2.619    -16.259         3
    155.00    235.00     61.61   2.509    -14.259         4
    160.00    235.00     64.66   2.526    -12.479         4
    150.00    240.00     63.13   2.655    -16.275         3
    160.00    240.00     68.60   2.516    -12.770         4
    150.00    245.00     67.54   2.699    -16.187         3
    155.00    245.00     69.97   2.548    -14.634         4
    160.00    245.00     72.67   2.519    -12.971         4
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    150.00    230.00     54.64   2.596    -16.881         3
    155.00    230.00     57.63   2.510    -13.871         4
    160.00    230.00     60.88   2.554    -12.074         4
----- Critical Circle After the Current Mode of Search -----
X: 155.00     Y: 235.00     Radius: 61.612
Factor of safety: 2.509     Side force inclination: -14.259
```



```
UTEXAS4 S/N:00143  - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSusc(post construction).dat

 White Tanks. End of Construction Case
 Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

TABLE NO. 38
**************************************************
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
**************************************************

------ Output for Circles Tangent to a Given Horizontal Line ------
------ Tangent line elevation, Y: 173.39

                                  1-Stage
Center Coordinates                Factor  Side Force
                                    of    Inclination
     X         Y        Radius    Safety   (degrees)   Iterations          Message
s
     5.00     85.00    -88.39 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                               Center of circle
 is below the toe (lowest point) of the slope

   155.00     85.00    -88.39 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                               Center of circle
 is below the toe (lowest point) of the slope

   305.00     85.00    -88.39 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                               Center of circle
 is below the toe (lowest point) of the slope

     5.00    235.00     61.61 Center rejected as follows:      UTEXAS ERROR NUM
BER 8070
                                                               Circle is for op
posite facing slope

   305.00    235.00     61.61 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                               Circle does not
intersect the slope.

     5.00    385.00    211.61 Center rejected as follows:      UTEXAS ERROR NUM
BER 8070
                                                               Circle is for op
posite facing slope

   155.00    385.00    211.61    4.172     -9.262         5
   305.00    385.00    211.61 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                               Circle does nr
intersect the slope.
```



```
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    130.00    210.00     36.61   8.572    -10.952        13     UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
le became inverted.
                                                               A vertical crack
 was added to prevent inversion.

    155.00    210.00     36.61 Center rejected as follows:      UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
le became inverted.
                                                               A vertical crack
 was added to prevent inversion.
                                                               UTEXAS ERROR NUM
BER 9270
                                                               Solution did not
 converge in iteration limit of 100  iterations
                                                               Failed to conver
ge during stage 1 computations

    180.00    210.00     36.61 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8210
                                                               Circle intersect
s the slope 4 times and there is more than one
                                                               valid segment.
Only the uppermost valid segment was analyzed.
                                                               UTEXAS WARNING N
UMBER 8140
                                                               Left end of circ
le became inverted.
                                                               A vertical crack
 was added to prevent inversion.
                                                               UTEXAS ERROR NUM
BER 9270
                                                               Solution did not
 converge in iteration limit of 100  iterations
                                                               Failed to conver
ge during stage 1 computations

    130.00    235.00     61.61   5.473    -12.080         7
    180.00    235.00     61.61  11.593      5.127        24
    130.00    260.00     86.61   4.777    -12.717         6
    155.00    260.00     86.61   2.836    -12.537         4
    180.00    260.00     86.61   7.759    -10.885        12
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    140.00    220.00     46.61   3.538    -14.937         3
    155.00    220.00     46.61   4.005    -12.238         5
    170.00    220.00     46.61 Center rejected as follows:      UTEXAS ERROR .
BER 9270
                                                               Solution did not
 converge in iteration limit of 100  iterations
                                                               Failed to conver
ge during stage 1 computations

    140.00    235.00     61.61   3.615    -13.841         4
    170.00    235.00     61.61   6.816     -6.129        11
    140.00    250.00     76.61   3.741    -13.141         4
    155.00    250.00     76.61   2.627    -13.271         4
```

```
    170.00    250.00     76.61   5.332    -11.817         7
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    150.00    230.00     56.61   2.604    -14.712         3
    155.00    230.00     56.61   2.942    -14.454         3
    160.00    230.00     56.61   4.262    -12.489         5
    150.00    235.00     61.61   2.678    -14.376         3
    160.00    235.00     61.61   3.795    -13.436         4
    150.00    240.00     66.61   2.754    -14.004         3
    155.00    240.00     66.61   2.471    -13.933         4
    160.00    240.00     66.61   3.381    -13.688         4
    - - - - New 9-Point Grid (only new points calculated) - - - - - -
    150.00    245.00     71.61   2.872    -13.575         3
    155.00    245.00     71.61   2.548    -13.607         4
    160.00    245.00     71.61   3.003    -13.583         3
----- Critical Circle After the Current Mode of Search -----
X: 155.00     Y: 240.00     Radius: 66.612
Factor of safety: 2.471     Side force inclination: -13.933
```



```
UTEXAS4 S/N:00143  - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSusc(post construction).dat

 White Tanks. End of Construction Case
 Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

TABLE NO. 31
**********************************************************
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
**********************************************************

------ Output for Circles with a Given, Constant Radius ------
------ Radius: 66.61

                                1-Stage
Center Coordinates              Factor  Side Force
                                  of    Inclination
     X         Y       Radius   Safety   (degrees)   Iterations          Message
s

      5.00     90.00     66.61 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                               Center of circle
 is below the toe (lowest point) of the slope

    155.00     90.00     66.61 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                               Center of circle
 is below the toe (lowest point) of the slope

    305.00     90.00     66.61 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                               Center of circle
 is below the toe (lowest point) of the slope

      5.00    240.00     66.61 Center rejected as follows:      UTEXAS ERROR NUM
BER 8070
                                                               Circle is for op
posite facing slope

    305.00    240.00     66.61 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                               Circle does not
tersect the slope.

      5.00    390.00     66.61 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                               Circle does not
intersect the slope.

    155.00    390.00     66.61 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                               Circle does not
intersect the slope.
```



```
    305.00    390.00     66.61 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                               Circle does not
intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    130.00    215.00     66.61 Center rejected as follows:      UTEXAS WARNING N
UMBER 8080
                                                               Circle passes be
low the limiting depth of: 160.000

    155.00    215.00     66.61 Center rejected as follows:      UTEXAS WARNING N
UMBER 8080
                                                               Circle passes be
low the limiting depth of: 160.000

    180.00    215.00     66.61 Center rejected as follows:      UTEXAS WARNING N
UMBER 8080
                                                               Circle passes be
low the limiting depth of: 160.000

    130.00    240.00     66.61   5.256    -12.498         7
    180.00    240.00     66.61  10.432     -2.664        19
    130.00    265.00     66.61 Center rejected as follows:      UTEXAS ERROR NUM
BER 9270
                                                               Solution did not
 converge in iteration limit of 100  iterations
                                                               Failed to conver
ge during stage 1 computations

    155.00    265.00     66.61  35.888    -18.909        68
    180.00    265.00     66.61 Center rejected as follows:      UTEXAS ERROR NUM
BER 9270
                                                               Solution did not
 converge in iteration limit of 100  iterations
                                                               Failed to conver
ge during stage 1 computations

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    140.00    225.00     66.61 Center rejected as follows:      UTEXAS WARNING N
UMBER 8080
                                                               Circle passes be
low the limiting depth of: 160.000

    155.00    225.00     66.61 Center rejected as follows:      UTEXAS WARNING N
UMBER 8080
                                                               Circle passes be
low the limiting depth of: 160.000

    170.00    225.00     66.61 Center rejected as follows:      UTEXAS WARNING N
UMBER 8080
                                                               Circle passes be
low the limiting depth of: 160.000

    140.00    240.00     66.61   3.654    -13.545         4
    170.00    240.00     66.61   6.240     -9.304        10
    140.00    255.00     66.61  31.368    -13.820        59
    155.00    255.00     66.61  20.982    -23.128        38
    170.00    255.00     66.61  20.824    -33.535        37
- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
```



```
    150.00    235.00     66.61   3.068    -11.884         4
    155.00    235.00     66.61   2.788    -11.847         4
    160.00    235.00     66.61   2.577    -11.804         4
    150.00    240.00     66.61   2.754    -14.004         3
    160.00    240.00     66.61   3.381    -13.688         4
    150.00    245.00     66.61   3.408    -18.504         3
    155.00    245.00     66.61   4.811    -22.336         6
    160.00    245.00     66.61   6.255    -24.880        10
----- Critical Circle After the Current Mode of Search -----
X: 155.00     Y: 240.00     Radius: 66.612
Factor of safety: 2.471     Side force inclination: -13.933
```

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 33

1-STAGE FINAL CRITICAL CIRCLE INFORMATION

X Coordinate of Center	155.00
Y Coordinate of Center	240.00
Radius	66.61
Factor of Safety	2.471
Side Force Inclination (degrees)	-13.93
Number of Circles Tried	112
Number of Circles F Calculated for	75
Time Required for Search (seconds)	0.5

	137.50	175.73					
20	139.19	175.31	18795	4	0.0	35.00	0.0
	140.89	174.90					
21	141.19	174.84	3458	4	0.0	35.00	0.0
	141.50	174.77					
22	143.22	174.46	19559	4	0.0	35.00	0.0
	144.93	174.15					
23	146.66	173.94	19931	4	0.0	35.00	0.0
	148.39	173.72					
24	149.95	173.60	18026	4	0.0	35.00	0.0
	151.50	173.48					
25	153.24	173.43	4758	4	0.0	35.00	0.0
	154.99	173.39					
26	154.99	173.39	19	4	0.0	35.00	0.0
	155.00	173.39					
27	156.74	173.43	4758	4	0.0	35.00	0.0
	158.49	173.48					
28	160.22	173.62	4670	4	0.0	35.00	0.0
	161.96	173.75					
29	163.69	173.98	4496	4	0.0	35.00	0.0
	165.42	174.21					
30	167.13	174.53	4238	4	0.0	35.00	0.0
	168.85	174.84					
31	170.07	175.13	2855	4	0.0	35.00	0.0
	171.30	175.41					
32	172.98	175.88	3589	4	0.0	35.00	0.0
	174.66	176.36					
33	176.31	176.91	3087	4	0.0	35.00	0.0
	177.96	177.47					
34	179.58	178.11	2526	4	0.0	35.00	0.0
	181.20	178.76					
35	182.79	179.49	1917	4	0.0	35.00	0.0
	184.37	180.21					
36	185.92	181.02	1269	4	0.0	35.00	0.0
	187.46	181.83					
37	188.96	182.72	595	4	0.0	35.00	0.0
	190.46	183.61					
38	191.01	183.96	48	4	0.0	35.00	0.0
	191.56	184.31					

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 43

Coordinate, Weight, Strength and Pore Water Pressure Information for Individual Slices for Conventional Computations or First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

Slice No.	X	Y	Slice Weight	Matl. No.	Cohesion	Friction Angle	Pore Pressure
	95.03	211.01					
1	95.82	209.47	323	2	500.0	19.00	0.0
	96.62	207.92					
2	97.50	206.41	1058	2	500.0	19.00	0.0
	98.38	204.90					
3	99.34	203.45	1902	2	500.0	19.00	0.0
	100.30	201.99					
4	101.33	200.58	2841	2	500.0	19.00	0.0
	102.36	199.18					
5	103.47	197.83	3862	2	500.0	19.00	0.0
	104.57	196.48					
6	105.74	195.19	4953	2	500.0	19.00	0.0
	106.92	193.90					
7	108.16	192.67	6097	2	500.0	19.00	0.0
	109.40	191.45					
8	110.55	190.41	6402	2	500.0	19.00	0.0
	111.70	189.38					
9	113.05	188.28	8352	2	500.0	19.00	0.0
	114.41	187.18					
10	115.82	186.16	9568	2	500.0	19.00	0.0
	117.23	185.13					
11	117.33	185.07	688	2	500.0	19.00	0.0
	117.42	185.00					
12	118.01	184.61	4267	4	0.0	35.00	0.0
	118.60	184.21					
13	118.61	184.21	74	4	0.0	35.00	0.0
	118.62	184.20					
14	120.11	183.29	11438	4	0.0	35.00	0.0
	121.59	182.37					
15	123.12	181.54	12805	4	0.0	35.00	0.0
	124.65	180.70					
16	126.22	179.95	14146	4	0.0	35.00	0.0
	127.80	179.20					
17	129.41	178.53	15446	4	0.0	35.00	0.0
	131.02	177.86					
18	132.66	177.27	16690	4	0.0	35.00	0.0
	134.30	176.69					
19	135.98	176.21	17079	4	0.0	35.00	0.0

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 44

Seismic Forces and Forces Due to Distributed Loads for Individual Slices for Conventional Computations or the First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

There are no seismic forces or forces due to distributed loads for the current shear surface

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47
****
* Information for the Iterative Solution for the Factor of *
* Safety and Side Force Inclination by Spencer's Procedure *
****
Allowable force imbalance for convergence: 3
Allowable moment imbalance for convergence: 348

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	-17.1887	-1.224e+004	2.497e+006		
First-order corrections to F and Theta					-0.7157	6.3165
Reduced values - Deltas were too large					-0.3246	2.8648
2	2.67540	-14.3239	-5.894e+003	1.217e+006		
First-order corrections to F and Theta					-0.2248	0.5380
Second-order corrections to F and Theta					-0.2061	0.3997
3	2.46929	-13.9242	3.632e+001	-7.261e+003		
First-order corrections to F and Theta					0.0013	-0.0089
Second-order corrections to F and Theta					0.0013	-0.0089
4	2.47059	-13.9331	-1.037e-005	1.783e-003		
First-order corrections to F and Theta					-0.0000	0.0000

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 55
****
* Check of Computations by Spencer's Procedure (Results are for the *
* critical shear surface in the case of an automatic search.) *
****

Summation of Horizontal Forces: 3.04086e-011

Summation of Vertical Forces: 1.24736e-011

Summation of Moments: -2.85945e-009

Mohr Coulomb Shear Force/Shear Strength Check Summation: 1.37037e-011

***** CAUTION ***** Effective Or Total Normal Stress on Shear Surface is Negative at Points Along the UPPER One-Half of the Shear Surface - A Tension Crack may Be Needed.

***** CAUTION ***** Forces Between Slices are NEGATIVE at Points Along the UPPER one-half of the Shear Surface - A Tension Crack may Be Needed

***** CAUTION ***** Some of the Forces Between Slices Act at Points Above the Surface of the Slope or Below the Shear Surface - Either a Tension Crack may be Needed or the SOLUTION MAY NOT BE A VALID SOLUTION

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 58
****
* Final Results for Stresses Along the Shear Surface *
* (Results are for the critical shear surface in the case of a search.) *
****

SPENCER'S PROCEDURE USED TO COMPUTE THE FACTOR OF SAFETY
Factor of Safety: 2.471 Side Force Inclination: -13.93

Slice No.	X-Center	Y-Center	Total Normal Stress	Effective Normal Stress	Shear Stress
	VALUES AT CENTER OF BASE OF SLICE				
1	95.82	209.47	-81.7	-81.7	191.0
2	97.50	206.41	187.4	187.4	228.5
3	99.34	203.45	472.8	472.8	268.3
4	101.33	200.58	770.8	770.8	309.8
5	103.47	197.83	1078.4	1078.4	352.7
6	105.74	195.19	1393.1	1393.1	396.5
7	108.16	192.67	1712.5	1712.5	441.0
8	110.55	190.41	2016.5	2016.5	483.4
9	113.05	188.28	2320.6	2320.6	525.8
10	115.82	186.16	2642.3	2642.3	570.6
11	117.33	185.07	2814.7	2814.7	594.7
12	118.01	184.61	2819.4	2819.4	799.1
13	118.61	184.21	2883.9	2883.9	817.3
14	120.11	183.29	3064.4	3064.4	868.5
15	123.12	181.54	3429.4	3429.4	971.9
16	126.22	179.95	3797.7	3797.7	1076.3
17	129.41	178.53	4168.3	4168.3	1181.4
18	132.66	177.27	4540.1	4540.1	1286.7
19	135.90	176.21	4904.3	4904.3	1390.0
20	139.19	175.31	5236.1	5236.1	1484.0
21	141.19	174.84	5418.6	5418.6	1535.7
22	143.22	174.46	5558.1	5558.1	1575.3
23	146.66	173.94	5779.3	5779.3	1638.0
24	149.95	173.60	5978.9	5978.9	1694.5
25	153.24	173.43	1446.1	1446.1	409.9
26	154.99	173.39	1473.7	1473.7	417.7
27	156.74	173.43	1490.3	1490.3	422.4
28	160.22	173.62	1512.9	1512.9	428.8
29	163.69	173.98	1512.4	1512.4	428.7
30	167.13	174.53	1486.9	1486.9	421.4
31	170.07	175.13	1444.9	1444.9	409.5
32	172.98	175.88	1369.3	1369.3	388.1
33	176.31	176.91	1245.4	1245.4	353.0
34	179.58	178.11	1084.7	1084.7	307.4
35	182.79	179.49	882.1	882.1	250.0

36	185.92	181.02	631.1	631.1	178.9
37	188.96	182.72	322.7	322.7	91.5
38	191.01	183.96	74.3	74.3	21.1

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 59

Final Results for Side Forces and Stresses Between Slices
(Results are for the critical shear surface in the case of a search.)

VALUES AT RIGHT SIDE OF SLICE

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	96.62	-576	209.27	0.402	-68.4	-264.0
2	98.38	-408	209.91	0.752	-149.3	30.3
3	100.30	482	197.94	Below	-211.0	305.6
4	102.36	2056	199.65	0.036	-273.0	578.9
5	104.57	4252	198.30	0.113	-338.6	851.0
6	106.92	6996	196.61	0.142	-408.2	1120.3
7	109.40	10198	194.86	0.156	-481.5	1384.1
8	111.70	13342	193.31	0.161	-549.2	1611.7
9	114.41	17127	191.60	0.163	-627.4	1857.9
10	117.23	21055	189.95	0.163	-706.8	2090.7
11	117.42	21322	189.84	0.163	-712.2	2105.8
12	118.60	22637	189.25	0.164	-726.5	2158.8
13	118.62	22659	189.24	0.164	-726.7	2159.7
14	121.59	25771	187.83	0.165	-763.7	2279.1
15	124.65	28604	186.49	0.164	-800.0	2378.1
16	127.80	31013	185.23	0.162	-831.1	2449.0
17	131.02	32851	184.08	0.159	-852.5	2484.3
18	134.30	33969	183.05	0.156	-859.7	2476.3
19	137.50	34227	182.21	0.153	-848.8	2420.5
20	140.89	33513	181.51	0.153	-815.3	2324.7
21	141.50	33268	181.40	0.153	-806.3	2300.1
22	144.93	31232	180.98	0.156	-737.2	2119.9
23	148.39	27993	180.88	0.162	-631.3	1858.4
24	151.50	24024	181.25	0.175	-279.4	1943.8
25	154.99	22689	180.82	0.640	3491.6	301.4
26	155.00	22683	180.82	0.640	3489.2	302.8
27	158.49	21026	180.50	0.610	2937.4	605.4
28	161.96	19063	180.31	0.583	2460.6	829.7
29	165.42	16827	180.23	0.558	2041.3	985.5
30	168.85	14364	180.29	0.536	1668.0	1077.5
31	171.30	12483	180.41	0.521	1424.3	1103.3
32	174.66	9812	180.70	0.509	1174.7	1057.7
33	177.96	7178	181.11	0.499	946.1	961.7
34	181.20	4713	181.67	0.492	739.1	809.6
35	184.37	2574	182.37	0.496	559.7	590.4
36	187.46	952	183.24	0.536	428.1	276.8
37	190.46	78	184.10	0.658	198.3	5.1

38	191.56	-0	184.31	0.000	0.0	0.0

Read end-of-file on input while looking for another command word.
End of input data assumed - normal termination.

```
GRAPHIC OUTPUT
HEADING
 White Tanks. Steady-State Drained,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

Profile Lines
1   1    Existing Dam
12.5    193
        213.5
        213.5
  ..7   185

2   2    Common Fill - Downstream
77.3    208.1
137.5   218
141.5   218

3   3    Soil Cement
118.62  185
141.5   218
151.5   218
151.5   216.5
151.5   185

4   4     Foundation
-74     185
-31.7   189
12.5    193
111.7   185
118.6   185
151.5   185
171.3   185
260     182


Material Properties
1    Existing Dam
  125
  Conventional Shear
  0     35
  Piezometric Line
  1
2    Common Fill
  120
  Conventional Shear
  0     35
  Piezometric Line
  1
3    Soil Cement
  135
  Conventional Shear
  72000     0
  Piezometric Line
  1
4    Foundation
  118
  Nonlinear
 -5000     0
  3        0
```



```
  10000   7002

  Piezometric Line
  1

Piezometric Line
1       62.4
-74     125
-31.7   142
-13.5   146
0       149.7
17.9    153.45
55.7    160.26
84.06   164.63
102.9   165.7
121.7   166.3
125.2   178.26
125.6   184.87
126.2   189.34
128     193.3
128.8   196.9
130.8   199.52
131.9   201.57
132.9   203.6
134.9   205.7
137.0   207.93
139.6   210.15
141.8   211.86
143     212.59
144.3   213.39
145.4   214.09
148.2   215.49
149.8   216.5
151.5   216.5
260     216.5


Distributed loads
151.5   216.5   0         0
151.5   185     1965.6    0
171.3   185     1965.6    0
260     182     2152.8    0

Analysis and Computations
Circular Search 1
-2   291   40   175
Point
-13  191

 pute
```

TABLE NO. 1
COMPUTER PROGRAM DESIGNATION: UTEXAS4
Originally Coded By Stephen G. Wright
Version No. 4.0.1.5 - Last Revision Date: 2/15/2003
(C) Copyright 1985-2002 S. G. Wright - All rights reserved

```
**************************************************************************
* RESULTS OF COMPUTATIONS PERFORMED USING THIS SOFTWARE                  *
* SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY HAVE                *
* BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL DATA               *
* OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE ALGORITHMS         *
* AND ANALYTICAL PROCEDURES USED IN THIS SOFTWARE AND MUST HAVE          *
* READ ALL DOCUMENTATION FOR THIS SOFTWARE BEFORE ATTEMPTING             *
* TO USE IT.  NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT             *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR              *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS              *
* OR ADAPTABILITY OF THIS SOFTWARE.                                      *
**************************************************************************
```


UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 3

```
**************************
* NEW PROFILE LINE DATA *
**************************
```

----- Profile Line No. 1 - Material Type (Number): 1 -----

Description: Existing Dam

Point	X	Y
1	12.50	193.00
2	59.00	213.50
3	69.20	213.50
4	111.70	185.00

----- Profile Line No. 2 - Material Type (Number): 2 -----

Description: Common Fill - Downstream

Point	X	Y
1	77.30	208.10
2	137.50	218.00
3	141.50	218.00

----- Profile Line No. 3 - Material Type (Number): 3 -----

Description: Soil Cement

Point	X	Y
1	118.62	185.00
2	141.50	218.00
3	151.50	218.00
4	151.50	216.50
5	151.50	185.00

----- Profile Line No. 4 - Material Type (Number): 4 -----

Description: Foundation

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00

3	12.50	193.00
4	111.70	185.00
5	118.60	185.00
6	151.50	185.00
7	171.30	185.00
8	260.00	182.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 4

```
**************************************************************************
* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
**************************************************************************
```

---------- DATA FOR MATERIAL NUMBER 1 ----------

Description: Existing Dam

Unit weight of soil (material): 125.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 2 ----------

Description: Common Fill

Unit weight of soil (material): 120.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 3 ----------

Description: Soil Cement

Unit weight of soil (material): 135.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 72000.0
Friction angle - - - - - 0.00 (degrees)

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

DATA FOR MATERIAL NUMBER 4

Description: Foundation

Unit weight of soil (material): 118.0

---- NONLINEAR SHEAR STRENGTH ENVELOPE ----

Point	Normal Stress	Shear Stress
1	-5000.0	0.0
2	0.0	0.0
3	10000.0	7002.0

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 6

**** NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS ****

Piezometric Line Number 1

Unit weight of fluid (water): 62.4

Point	X	Y
1	-74.00	125.00
2	-31.70	142.00
3	-13.50	146.00
4	0.00	149.70
5	17.90	153.45
6	55.70	160.26
7	84.06	164.63
8	102.90	165.70
9	121.70	166.30
10	125.20	178.26
11	125.60	184.87
12	126.20	189.34
13	128.00	193.30
14	128.80	196.90
15	130.80	199.52
16	131.90	201.57
17	132.90	203.60
18	134.90	205.70
19	137.00	207.93
20	139.60	210.15
21	141.80	211.86
22	143.00	212.59
23	144.30	213.39
24	145.40	214.09
25	148.20	215.49
26	149.80	216.50
7	151.50	216.50
8	260.00	216.50

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 11

**** NEW DISTRIBUTED LOAD DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS ****

Point	X	Y	Normal Pressure	Shear Stress
1	151.50	216.50	0.0	0.0
2	151.50	185.00	1965.6	0.0
3	171.30	185.00	1965.6	0.0
4	260.00	182.00	2152.8	0.0

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 16

**** NEW ANALYSIS/COMPUTATION DATA ****

Starting Center Coordinate for Search at -
X: -2.00
Y: 291.00

Required accuracy for critical center
(= minimum spacing between grid points): 40.000

Critical shear surface not allowed to pass below Y: 175.00

For the initial mode of search circles pass through the fixed
point at - X: -13.00, Y: 191.00

The following represent default values or values that were prevously defined:
Subtended angle for slice subdivision: 3.00(degrees)
There is no crack.
There is no water in a crack.
Conventional (single-stage) computations will be performed.
Seismic coefficient: 0.000
Unit weight of water (or other fluid) in crack: 62.4
Automatic search output will be in long form.
Search will be continued after the initial mode to find a most critical circle.
Maximum number of trial grids for a given search mode: 50
No restrictions exist on the lateral extent of the search.
No shear surfaces other than the most critical will be saved for display later.
Neither slope face was explicitly designated for analysis.
Standard sign convention used for direction of shear stress on shear surface.
Procedure of Analysis: Spencer

Iteration limit: 100
Force imbalance: 1.000000e-005 (fraction of total weight)
Moment imbalance: 1.000000e-005 (fraction of moment due to total weight)
Minimum weight required for computations to be performed: 100
Initial trial factor of safety: 3.000
Initial trial side force inclination: 17.189 (degrees)
Minimum (most negative) side force inclination allowed in Spencer's procedure: -10.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 26
****
* NEW, COMPUTED SLOPE GEOMETRY DATA *
****

These slope geometry were generated from the Profile Lines.

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00
3	12.50	193.00
4	59.00	213.50
5	69.20	213.50
6	77.30	208.07
7	77.30	208.10
8	111.70	213.76
9	118.60	214.89
10	118.62	214.90
11	137.50	218.00
12	141.50	218.00
13	151.50	218.00
14	151.50	185.00
15	171.30	185.00
16	260.00	182.00

UTEXAS WARNING NUMBER 4240
Possible artesian pressures detected at x = 151.50
from piezometric line number 1 (Stage 1).

Search will be conducted for LEFT face of slope

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 29
****
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
****

------ Output for Circles Through a Fixed Point ------
------ Fixed point at - X: -13.00 Y: 191.00

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	Messages
-1202.00	-909.00	1619.79	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-2.00	-909.00	1100.05	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
1198.00	-909.00	1636.01	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-1202.00	291.00	1193.20	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-2.00	291.00	100.60	1.906	18.452	5	
1198.00	291.00	1215.12	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-1202.00	1491.00	1761.74	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-2.00	1491.00	1300.05	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations

1198.00	1491.00	1776.66	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

-202.00	91.00	213.82	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-2.00	91.00	100.60	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
198.00	91.00	233.50	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-202.00	291.00	213.82	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
198.00	291.00	233.50	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-202.00	491.00	354.57	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-2.00	491.00	300.20	3.610	11.891	7	
198.00	491.00	366.77	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

-122.00	171.00	110.82	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-2.00	171.00	22.83	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
118.00	171.00	132.52	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope

-122.00	291.00	147.92	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
118.00	291.00	164.81	Center rejected as follows:			UTEXAS WARNING NUMBER 8080 Circle passes below the limiting depth of: 175.000
-122.00	411.00	245.52	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-2.00	411.00	220.27	3.016	11.985	4	
118.00	411.00	256.05	Center rejected as follows:			UTEXAS WARNING NUMBER 8080 Circle passes below the limiting depth of: 175.000

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

-42.00	251.00	66.64	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations
-2.00	251.00	61.00	2.705	14.398	3	
38.00	251.00	78.75	4.514	9.006	8	
-42.00	291.00	104.12	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations
38.00	291.00	112.25	4.241	9.921	8	
-42.00	331.00	142.97	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations
-2.00	331.00	140.43	2.155	16.272	4	
38.00	331.00	149.00	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations

----- Critical Circle After the Current Mode of Search -----
X: -2.00 Y: 291.00 Radius: 100.603
Factor of safety: 1.906 Side force inclination: 18.452

****
CAUTION - THE FACTOR OF SAFETY COULD NOT BE COMPUTED

FOR SOME OF THE GRID POINTS AROUND THE MINIMUM

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 30

* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *

------ Output for Circles Tangent to a Given Horizontal Line ------
------ Tangent line elevation, Y: 190.40

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	Messages
-1202.00	-909.00	-1099.40	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-2.00	-909.00	-1099.40	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
1198.00	-909.00	-1099.40	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-1202.00	291.00	100.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
1198.00	291.00	100.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-1202.00	1491.00	1300.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-2.00	1491.00	1300.60	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations
1198.00	1491.00	1300.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.

1198.00	1491.00	1300.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

-202.00	91.00	-99.40	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-2.00	91.00	-99.40	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
198.00	91.00	-99.40	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-202.00	291.00	100.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
198.00	291.00	100.60	Center rejected as follows:			UTEXAS ERROR NUMBER 8070 Circle is for opposite facing slope
-202.00	491.00	300.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-2.00	491.00	300.60	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations
198.00	491.00	300.60	Center rejected as follows:			UTEXAS ERROR NUMBER 8070 Circle is for opposite facing slope

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

-122.00	171.00	-19.40	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-2.00	171.00	-19.40	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope

118.00	171.00	-19.40	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-122.00	291.00	100.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
118.00	291.00	100.60	Center rejected as follows:			UTEXAS ERROR NUMBER 8070 Circle is for opposite facing slope
-122.00	411.00	220.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-2.00	411.00	220.60	3.048	11.735	4	
118.00	411.00	220.60	Center rejected as follows:			UTEXAS ERROR NUMBER 8070 Circle is for opposite facing slope

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

-42.00	251.00	60.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-2.00	251.00	60.60	2.669	14.500	3	
38.00	251.00	60.60	3.357	11.311	5	
-42.00	291.00	100.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
38.00	291.00	100.60	3.976	10.602	20	
-42.00	331.00	140.60	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-2.00	331.00	140.60	2.178	16.018	4	
38.00	331.00	140.60	Center rejected as follows:			UTEXAS ERROR NUMBER 9270 Solution did not converge in iteration limit of 100 iterations Failed to converge during stage 1 computations

----- Critical Circle After the Current Mode of Search -----
X: -2.00 Y: 291.00 Radius: 100.603
Factor of safety: 1.906 Side force inclination: 18.452

CAUTION - THE FACTOR OF SAFETY COULD NOT BE COMPUTED
FOR SOME OF THE GRID POINTS AROUND THE MINIMUM

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 33

1-STAGE FINAL CRITICAL CIRCLE INFORMATION

CAUTION - THE FACTOR OF SAFETY COULD NOT BE COMPUTED
FOR SOME OF THE GRID POINTS AROUND THE MINIMUM

X Coordinate of Center	-2.00
Y Coordinate of Center	291.00
Radius	100.60
Factor of Safety	1.906
Side Force Inclination (degrees)	18.45
Number of Circles Tried	65
Number of Circles F Calculated for	12
Time Required for Search (seconds)	0.3

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 43

Coordinate, Weight, Strength and Pore Water Pressure Information for Individual Slices for Conventional Computations or First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

Slice No.	X	Y	Slice Weight	Matl. No.	Cohesion	Friction Angle	Pore Pressure
	-11.40	190.84					
1	-8.77	190.66	257	4	NONLINEAR ENVELOPE		0.0
	-6.15	190.48					
2	-4.07	190.44	519	4	NONLINEAR ENVELOPE		0.0
	-2.00	190.40					
3	-1.00	190.41	324	4	NONLINEAR ENVELOPE		0.0
	0.00	190.42					
4	2.63	190.54	974	4	NONLINEAR ENVELOPE		0.0
	5.26	190.66					
5	7.88	190.92	1029	4	NONLINEAR ENVELOPE		0.0
	10.50	191.18					
6	11.50	191.31	376	4	NONLINEAR ENVELOPE		0.0
	12.50	191.45					
7	15.10	191.89	1427	4	NONLINEAR ENVELOPE		0.0
	17.69	192.34					
8	17.80	192.36	78	4	NONLINEAR ENVELOPE		0.0
	17.90	192.38					
9	18.21	192.45	241	4	NONLINEAR ENVELOPE		0.0
	18.53	192.51					
10	21.09	193.12	2351	1	0.0	35.00	0.0
	23.66	193.72					
11	26.18	194.46	2889	1	0.0	35.00	0.0
	28.71	195.20					
12	31.20	196.07	3216	1	0.0	35.00	0.0
	33.68	196.94					
13	36.12	197.94	3337	1	0.0	35.00	0.0
	38.56	198.93					
14	40.94	200.06	3262	1	0.0	35.00	0.0
	43.32	201.18					
15	45.64	202.43	3003	1	0.0	35.00	0.0
	47.96	203.68					
16	50.21	205.05	2577	1	0.0	35.00	0.0
	52.46	206.41					
17	54.08	207.50	1551	1	0.0	35.00	0.0
	55.70	208.59					
18	57.35	209.79	1229	1	0.0	35.00	0.0
	59.00	211.00					
19	60.57	212.25	492	1	0.0	35.00	0.0
	62.15	213.50					

No water in crack.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
HGO, Date NOV 02, 2004

LE NO. 44

Seismic Forces and Forces Due to Distributed Loads for Individual Slices for Conventional Computations or the First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

There are no seismic forces or forces due to distributed loads for the current shear surface

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47

Information for the Iterative Solution for the Factor of Safety and Side Force Inclination by Spencer's Procedure

Trial No. 1 with Nonlinear Strength Envelope
Allowable force imbalance for convergence: 2.9132e-001
Allowable moment imbalance for convergence: 10

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	17.1887	3.768e+003	-6.792e+005		
First-order corrections to F and Theta					-1.7243	0.2778
Reduced values - Deltas were too large					-0.5000	0.0806
2	2.50000	17.2693	2.459e+003	-4.436e+005		
First-order corrections to F and Theta					-0.7838	0.3589
Reduced values - Deltas were too large					-0.5000	0.2290
3	2.00000	17.4983	5.014e+002	-9.144e+004		
First-order corrections to F and Theta					-0.1006	0.6524
Second-order corrections to F and Theta					-0.0947	0.9270
4	1.90529	18.4252	-1.446e+000	2.120e+002		
First-order corrections to F and Theta					0.0004	0.0270
Second-order corrections to F and Theta					0.0004	0.0269
5	1.90565	18.4522	1.084e-007	3.015e-006		
First-order corrections to F and Theta					-0.0000	-0.0000

After trial 1 the following changes were computed for the nonlinear strength envelopes:
Maximum change in shear strength: 0.000 (percent)
trengths from nonlinear envelope have converged.
inal computations will be performed next.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47

Information for the Iterative Solution for the Factor of Safety and Side Force Inclination by Spencer's Procedure

Final Trial with Nonlinear Strength Envelope
Allowable force imbalance for convergence: 2.9132e-001
Allowable moment imbalance for convergence: 10

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	17.1887	3.768e+003	-6.792e+005		
First-order corrections to F and Theta					-1.7243	0.2778
Reduced values - Deltas were too large					-0.5000	0.0806
2	2.50000	17.2693	2.459e+003	-4.436e+005		
First-order corrections to F and Theta					-0.7838	0.3589
Reduced values - Deltas were too large					-0.5000	0.2290
3	2.00000	17.4983	5.014e+002	-9.144e+004		
First-order corrections to F and Theta					-0.1006	0.6524
Second-order corrections to F and Theta					-0.0947	0.9270
4	1.90529	18.4252	-1.446e+000	2.120e+002		
First-order corrections to F and Theta					0.0004	0.0270
Second-order corrections to F and Theta					0.0004	0.0269
5	1.90565	18.4522	1.084e-007	3.015e-006		
First-order corrections to F and Theta					-0.0000	-0.0000

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 55

Check of Computations by Spencer's Procedure (Results are for the critical shear surface in the case of an automatic search.)

Summation of Horizontal Forces: 1.20792e-012

Summation of Vertical Forces: 6.96332e-013

Summation of Moments: 0.00000e+000

Mohr Coulomb Shear Force/Shear Strength Check Summation: 6.18172e-013

***** CAUTION ***** Some of the Forces Between Slices Act at Points Above the Surface of the Slope or Below the Shear Surface - Either a Tension Crack may be Needed or the SOLUTION MAY NOT BE A VALID SOLUTION

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 58

Final Results for Stresses Along the Shear Surface
(Results are for the critical shear surface in the case of a search.)

SPENCER'S PROCEDURE USED TO COMPUTE THE FACTOR OF SAFETY
Factor of Safety: 1.986 Side Force Inclination: 18.45

Slice No.	X-Center	Y-Center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	-8.77	190.66	59.0	59.0	21.7
2	-4.07	190.44	145.0	145.0	53.3
3	-1.00	190.41	183.0	183.0	67.2
4	2.63	190.54	203.5	203.5	74.8
5	7.88	190.92	207.4	207.4	76.2
6	11.50	191.31	193.9	193.9	71.2
7	15.10	191.89	275.3	275.3	101.2
8	17.80	192.36	363.3	363.3	133.5
9	18.21	192.45	375.2	375.2	137.9
10	21.09	193.12	439.9	439.9	161.6
11	26.18	194.46	528.1	528.1	194.0
12	31.20	196.07	576.2	576.2	211.7
13	36.12	197.94	587.9	587.9	216.0
14	40.94	200.06	566.7	566.7	208.2
15	45.64	202.43	516.1	516.1	189.6
16	50.21	205.05	439.2	439.2	161.4
17	54.08	207.50	355.2	355.2	130.5
18	57.35	209.79	267.9	267.9	98.4
19	60.57	212.25	108.9	108.9	40.0

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 59

Final Results for Side Forces and Stresses Between Slices
(Results are for the critical shear surface in the case of a search.)

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	-6.15	142	191.54	Above	912.5	-587.6
2	-2.00	388	191.79	Above	1271.6	-701.2
3	0.00	526	192.00	Above	1567.6	-880.2
4	5.26	889	192.80	Above	2816.9	-1816.5
5	10.50	1197	193.84	Above	5347.3	-3964.9
6	12.50	1291	194.30	Above	7114.8	-5536.8
7	17.69	1585	195.42	Above	2183.7	-1162.8
8	17.90	1599	195.47	Above	2113.7	-1101.5
9	18.53	1639	195.60	0.982	1924.5	-935.6
10	23.66	1952	196.78	0.728	1045.2	-162.6
11	28.71	2164	198.15	0.597	656.9	172.9
12	33.68	2218	199.74	0.519	434.6	344.4
13	38.56	2090	201.53	0.467	286.7	427.4
14	43.32	1792	203.49	0.428	178.0	451.1
15	47.96	1362	205.62	0.392	92.5	429.2
16	52.46	862	207.89	0.353	22.5	366.5
17	55.70	493	209.68	0.315	-15.2	285.8
18	59.00	154	211.73	0.290	-15.2	132.3
19	62.15	0	213.58	1.000	0.0	0.0

Read end-of-file on input while looking for another command word.
End of input data assumed - normal termination.

```
GRAPHIC OUTPUT
HEADING
 White Tanks.  Pseudo-Static-Post Seismic Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

Profile Lines
1   1    Existing Dam
   5    193
        213.5
        213.5
  ..7   185

2   2    Common Fill - Downstream
77.3    208.1
137.5   218
141.5   218

3   3    Soil Cement
118.62  185
141.5   218
151.5   218
151.5   216.5
151.5   185

4   4     Foundation
-74     185
-31.7   189
12.5    193
111.7   185
118.6   185
151.5   185
171.3   185
260     182


Material Properties
1     Existing Dam
  125
  Conventional Shear
  0    28
  No Piezometric Line
2     Common Fill
  120
  Conventional Shear
  0     28
  No Piezometric Line
3     Soil Cement
  135
  Conventional Shear
  57600   0
  No Piezometric Line
4     Foundation
  118
  Conventional Shear
  0    35
  No Piezometric Line

Analysis and Computations
   cular Search 1
```



```
0  293  40  165
Tangent
180
SEI
0.06

Compute
```

TABLE NO. 1
COMPUTER PROGRAM DESIGNATION: UTEXAS4
Originally Coded By Stephen G. Wright
Version No. 4.0.1.5 - Last Revision Date: 2/15/2003
(C) Copyright 1985-2002 S. G. Wright - All rights reserved

```
**********************************************************************
* RESULTS OF COMPUTATIONS PERFORMED USING THIS SOFTWARE              *
* SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY HAVE            *
* BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL DATA           *
* OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE ALGORITHMS     *
* AND ANALYTICAL PROCEDURES USED IN THIS SOFTWARE AND MUST HAVE      *
* READ ALL DOCUMENTATION FOR THIS SOFTWARE BEFORE ATTEMPTING         *
* TO USE IT.  NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT         *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR          *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS          *
* OR ADAPTABILITY OF THIS SOFTWARE.                                  *
**********************************************************************
```


UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR8\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Post Seismic Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 3
****
* NEW PROFILE LINE DATA *
****

----- Profile Line No. 1 - Material Type (Number): 1 -----

Description: Existing Dam

Point	X	Y
1	12.50	193.00
2	59.00	213.50
3	69.20	213.50
4	111.70	185.00

----- Profile Line No. 2 - Material Type (Number): 2 -----

Description: Common Fill - Downstream

Point	X	Y
1	77.30	208.10
2	137.50	218.00
3	141.50	218.00

----- Profile Line No. 3 - Material Type (Number): 3 -----

Description: Soil Cement

Point	X	Y
1	118.62	185.00
2	141.50	218.00
3	151.50	218.00
4	151.50	216.50
5	151.50	185.00

----- Profile Line No. 4 - Material Type (Number): 4 -----

Description: Foundation

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00

3	12.50	193.00
4	111.70	185.00
5	118.60	185.00
6	151.50	185.00
7	171.30	185.00
8	260.00	182.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR8\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 4
****
* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
****

---------- DATA FOR MATERIAL NUMBER 1 ----------

Description: Existing Dam

Unit weight of soil (material): 125.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 28.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 2 ----------

Description: Common Fill

Unit weight of soil (material): 120.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 28.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 3 ----------

Description: Soil Cement

Unit weight of soil (material): 135.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 57600.0
Friction angle - - - - - 0.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 4 ----------

Description: Foundation

Unit weight of soil (material): 118.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

(zero) pore water pressures.
tive pore water pressures are NOT allowed - set to zero.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 16
****
* NEW ANALYSIS/COMPUTATION DATA *
****

Starting Center Coordinate for Search at -
X: 0.00
Y: 293.00

Required accuracy for critical center
(= minimum spacing between grid points): 40.000

Critical shear surface not allowed to pass below Y: 165.00
For the initial mode of search circles are tangent to horizontal line at -
Y: 180.00
Radius: 113.00

Seismic coefficient: 0.060
Seismic force acts at center of gravity.

The following represent default values or values that were prevously defined:
Subtended angle for slice subdivision: 3.00(degrees)
There is no crack.
There is no water in a crack.
Conventional (single-stage) computations will be performed.
Unit weight of water (or other fluid) in crack: 62.4
Automatic search output will be in long form.
Search will be continued after the initial mode to find a most critical circle.
Maximum number of trial grids for a given search mode: 50
No restrictions exist on the lateral extent of the search.
No shear surfaces other than the most critical will be saved for display later.
Neither slope face was explicitly designated for analysis.
Standard sign convention used for direction of shear stress on shear surface.
Procedure of Analysis: Spencer

Iteration limit: 100
orce imbalance: 1.000000e-005 (fraction of total weight)
ment imbalance: 1.000000e-005 (fraction of moment due to total weight)
inimum weight required for computations to be performed: 100
itial trial factor of safety: 3.000
Initial trial side force inclination: 17.189 (degrees)
Minimum (most negative) side force inclination allowed in Spencer's procedure: -10.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 26
****
* NEW, COMPUTED SLOPE GEOMETRY DATA *
****

These slope geometry were generated from the Profile Lines.

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00
3	12.50	193.00
4	59.00	213.50
5	69.20	213.50
6	77.30	208.07
7	77.30	208.10
8	111.70	213.76
9	118.60	214.89
10	118.62	214.90
11	137.50	218.00
12	141.50	218.00
13	151.50	218.00
14	151.50	185.00
15	171.30	185.00
16	260.00	182.00

Search will be conducted for LEFT face of slope

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 30
****
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
****

------ Output for Circles Tangent to a Given Horizontal Line ------
------ Tangent line elevation, Y: 180.00

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	Messages
-1200.00	-907.00	-1087.00	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
0.00	-907.00	-1087.00	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
1200.00	-907.00	-1087.00	Center rejected as follows:			UTEXAS ERROR NUMBER 8050 Center of circle is below the toe (lowest point) of the slope
-1200.00	293.00	113.00	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
0.00	293.00	113.00	2.322	14.073	4	
1200.00	293.00	113.00	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
-1200.00	1493.00	1313.00	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.
0.00	1493.00	1313.00	Center rejected as follows:			UTEXAS NOTICE NUMBER 8060 Circle does not intersect the slope.

```
   1200.00    1493.00    1313.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
   -200.00      93.00     -87.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

      0.00      93.00     -87.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

    200.00      93.00     -87.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

   -200.00     293.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

    200.00     293.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8210
                                                                 Circle intersect
s the slope 4 times and there is more than one
                                                                 valid segment.
Only the uppermost valid segment was analyzed.
                                                                 UTEXAS ERROR NUM
BER 8070
                                                                 Circle is for op
posite facing slope

   -200.00     493.00     313.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

      0.00     493.00     313.00  13.117     18.549         22
    200.00     493.00     313.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8070
                                                                 Circle is for op
posite facing slope

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
   -120.00     173.00      -7.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

      0.00     173.00      -7.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

    120.00     173.00      -7.00 Center rejected as follows:      UTEXAS ERROR NUM
```



```
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

   -120.00     293.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

    120.00     293.00     113.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8070
                                                                 Circle is for op
posite facing slope

   -120.00     413.00     233.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

      0.00     413.00     233.00   2.765     12.851         4
    120.00     413.00     233.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8070
                                                                 Circle is for op
posite facing slope

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
    -40.00     253.00      73.00   5.026      8.198         7
      0.00     253.00      73.00   2.379     15.386         4
     40.00     253.00      73.00   3.136     14.719         3
    -40.00     293.00     113.00   4.868      8.338         7
     40.00     293.00     113.00   3.093     14.617         3
    -40.00     333.00     153.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

      0.00     333.00     153.00   2.547     12.998         4
     40.00     333.00     153.00   3.058     14.288         3
----- Critical Circle After the Current Mode of Search -----
X: 0.00      Y: 293.00      Radius: 113.000
Factor of safety: 2.322      Side force inclination: 14.073

**************************************************************
CAUTION - THE FACTOR OF SAFETY COULD NOT BE COMPUTED
FOR SOME OF THE GRID POINTS AROUND THE MINIMUM
**************************************************************
```



```
UTEXAS4 S/N:00143  - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

 White Tanks.  Pseudo-Static-Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

TABLE NO. 31
**************************************************
* OUTPUT FOR TYPE 1 AUTOMATIC SEARCH WITH CIRCLES *
**************************************************

------ Output for Circles with a Given, Constant Radius ------
------ Radius: 113.00

                                        1-Stage
Center Coordinates                      Factor  Side Force
                                          of    Inclination
     X          Y        Radius        Safety   (degrees)   Iterations          Message
s
  -1200.00   -907.00     113.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

      0.00   -907.00     113.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

   1200.00   -907.00     113.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

  -1200.00    293.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

   1200.00    293.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

  -1200.00   1493.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

      0.00   1493.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

   1200.00   1493.00     113.00 Center rejected as follows:      UTEXAS NOTICE
```



```
MBER 8060
                                                                 Circle does not
intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
   -200.00      93.00     113.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

      0.00      93.00     113.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

    200.00      93.00     113.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

   -200.00     293.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

    200.00     293.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8210
                                                                 Circle intersect
s the slope 4 times and there is more than one
                                                                 valid segment.
Only the uppermost valid segment was analyzed.
                                                                 UTEXAS ERROR NUM
BER 8070
                                                                 Circle is for op
posite facing slope

   -200.00     493.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

      0.00     493.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does not
intersect the slope.

    200.00     493.00     113.00 Center rejected as follows:      UTEXAS NOTICE NU
MBER 8060
                                                                 Circle does
intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -
   -120.00     173.00     113.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
 is below the toe (lowest point) of the slope

      0.00     173.00     113.00 Center rejected as follows:      UTEXAS ERROR NUM
BER 8050
                                                                 Center of circle
```

is below the toe (lowest point) of the slope

120.00 173.00 113.00 Center rejected as follows: UTEXAS ERROR NUMBER 8050
Center of circle

is below the toe (lowest point) of the slope

-120.00 293.00 113.00 Center rejected as follows: UTEXAS NOTICE NUMBER 8060
Circle does not

rsect the slope.

120.00 293.00 113.00 Center rejected as follows: UTEXAS ERROR NUMBER 8070
Circle is for op

posite facing slope

-120.00 413.00 113.00 Center rejected as follows: UTEXAS NOTICE NUMBER 8060
Circle does not

intersect the slope.

0.00 413.00 113.00 Center rejected as follows: UTEXAS NOTICE NUMBER 8060
Circle does not

intersect the slope.

120.00 413.00 113.00 Center rejected as follows: UTEXAS NOTICE NUMBER 8060
Circle does not

intersect the slope.

- - - - - - New 9-Point Grid (only new points calculated) - - - - - -

-40.00 253.00 113.00 Center rejected as follows: UTEXAS NOTICE NUMBER 8060
Circle does not

intersect the slope.

0.00 253.00 113.00 Center rejected as follows: UTEXAS NOTICE NUMBER 8060
Circle does not

intersect the slope.

40.00 253.00 113.00 Center rejected as follows: UTEXAS WARNING NUMBER 8080
Circle passes be

low the limiting depth of: 165.000

-40.00 293.00 113.00 4.868 8.338 7
40.00 293.00 113.00 3.893 14.617 3

-40.00 333.00 113.00 Center rejected as follows: UTEXAS NOTICE NUMBER 8060
Circle does not

intersect the slope.

0.00 333.00 113.00 Center rejected as follows: UTEXAS NOTICE NUMBER 8060
Circle does not

intersect the slope.

40.00 333.00 113.00 Center rejected as follows: UTEXAS NOTICE NUMBER 8060
Circle does not

intersect the slope.

----- Critical Circle After the Current Mode of Search -----
X: 0.00 Y: 293.00 Radius: 113.000
Factor of safety: 2.322 Side force inclination: 14.073

****
CAUTION - THE FACTOR OF SAFETY COULD NOT BE COMPUTED
FOR SOME OF THE GRID POINTS AROUND THE MINIMUM
****

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 33
****
* 1-STAGE FINAL CRITICAL CIRCLE INFORMATION *
****

CAUTION - THE FACTOR OF SAFETY COULD NOT BE COMPUTED
FOR SOME OF THE GRID POINTS AROUND THE MINIMUM

X Coordinate of Center	0.00
Y Coordinate of Center	293.00
Radius	113.00
Factor of Safety	2.322
Side Force Inclination (degrees)	14.07
Number of Circles Tried	65
Number of Circles F Calculated for	12
Time Required for Search (seconds)	0.1

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 43
****
* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the critical shear surface in the *
* case of an automatic search.) *
****

Slice No.	X	Y	Slice Weight	Matl. No.	Cohesion	Friction Angle	Pore Pressure
	-41.86	188.04					
1	-39.08	187.02	842	4	0.0	35.00	0.0
	-36.31	185.99					
2	-34.00	185.26	1913	4	0.0	35.00	0.0
	-31.70	184.54					
3	-28.84	183.78	3696	4	0.0	35.00	0.0
	-25.98	183.03					
4	-23.08	182.42	5027	4	0.0	35.00	0.0
	-20.19	181.82					
5	-17.27	181.37	6168	4	0.0	35.00	0.0
	-14.34	180.91					
6	-11.40	180.62	7099	4	0.0	35.00	0.0
	-8.46	180.32					
7	-5.50	180.17	7808	4	0.0	35.00	0.0
	-2.55	180.03					
8	-1.27	180.01	3529	4	0.0	35.00	0.0
	0.00	180.00					
9	2.96	180.08	8415	4	0.0	35.00	0.0
	5.91	180.15					
10	8.86	180.39	8549	4	0.0	35.00	0.0
	11.81	180.62					
11	12.16	180.66	1000	4	0.0	35.00	0.0
	12.50	180.69					
12	15.43	181.10	9187	4	0.0	35.00	0.0
	18.36	181.50					
13	21.27	182.06	10337	4	0.0	35.00	0.0
	24.17	182.62					
14	27.04	183.32	11209	4	0.0	35.00	0.0
	29.91	184.03					
15	32.75	184.89	11801	4	0.0	35.00	0.0
	35.58	185.75					
16	38.36	186.75	12114	4	0.0	35.00	0.0
	41.14	187.76					
17	43.87	188.90	12155	4	0.0	35.00	0.0
	46.59	190.05					
18	46.78	190.14	829	4	0.0	35.00	0.0
	46.96	190.22					
19	49.62	191.52	11855	1	0.0	28.00	0.0
	52.28	192.82					

20	54.86	194.26	11261	1	0.0	28.00	0.0
	57.45	195.69					
21	58.22	196.16	3297	1	0.0	28.00	0.0
	59.00	196.63					
22	61.48	198.24	9470	1	0.0	28.00	0.0
	63.96	199.85					
23	66.36	201.58	7132	1	0.0	28.00	0.0
	68.75	203.32					
24	68.98	203.49	562	1	0.0	28.00	0.0
	69.20	203.67					
25	71.49	205.54	3679	1	0.0	28.00	0.0
	73.78	207.41					
26	74.75	208.27	366	1	0.0	28.00	0.0
	75.72	209.13					

No water in crack.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47

Information for the Iterative Solution for the Factor of Safety and Side Force Inclination by Spencer's Procedure

Allowable force imbalance for convergence: 2
Allowable moment imbalance for convergence: 44

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	17.1887	1.081e+004	-1.768e+006		
First-order corrections to F and Theta					-0.8481	-2.1014
Reduced values - Deltas were too large					-0.5000	-1.2389
2	2.50000	15.9499	3.113e+003	-4.858e+005		
First-order corrections to F and Theta					-0.1866	-1.6499
Second-order corrections to F and Theta					-0.1789	-1.8692
3	2.32107	14.0806	-1.632e+001	3.071e+003		
First-order corrections to F and Theta					0.0006	-0.0072
Second-order corrections to F and Theta					0.0006	-0.0072
4	2.32170	14.0735	1.889e-006	-2.799e-004		
First-order corrections to F and Theta					-0.0000	-0.0000

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 44

Seismic Forces and Forces Due to Distributed Loads for Individual Slices for Conventional Computations or the First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

Slices No.	X	Seismic Force	Y for Seismic Force	FORCES DUE TO DISTRIBUTED LOADS Normal Force	Shear Force	X	Y
1	-39.08	-51	187.66	0	0	-39.08	187.02
2	-34.00	-115	187.02	0	0	-34.00	185.26
3	-28.84	-222	186.52	0	0	-28.84	183.78
4	-23.08	-302	186.10	0	0	-23.08	182.42
5	-17.27	-370	185.84	0	0	-17.27	181.37
6	-11.40	-426	185.73	0	0	-11.40	180.62
7	-5.50	-468	185.77	0	0	-5.50	180.17
8	-1.27	-212	185.88	0	0	-1.27	180.01
9	2.96	-505	186.11	0	0	2.96	180.08
10	8.86	-513	186.53	0	0	8.86	180.39
11	12.16	-60	186.81	0	0	12.16	180.66
12	15.43	-551	187.73	0	0	15.43	181.10
13	21.27	-620	189.55	0	0	21.27	182.06
14	27.04	-673	191.48	0	0	27.04	183.32
15	32.75	-708	193.52	0	0	32.75	184.89
16	38.36	-727	195.67	0	0	38.36	186.75
17	43.87	-729	197.91	0	0	43.87	188.90
18	46.78	-50	199.13	0	0	46.78	190.14
19	49.62	-711	200.44	0	0	49.62	191.52
20	54.86	-676	202.97	0	0	54.86	194.26
21	58.22	-198	204.66	0	0	58.22	196.16
22	61.48	-568	205.87	0	0	61.48	198.24
23	66.36	-428	207.54	0	0	66.36	201.58
24	68.98	-34	208.50	0	0	68.98	203.49
25	71.49	-221	208.75	0	0	71.49	205.54
26	74.75	-22	209.02	0	0	74.75	208.27

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 55

Check of Computations by Spencer's Procedure (Results are for the critical shear surface in the case of an automatic search.)

Summation of Horizontal Forces: 1.69642e-011

Summation of Vertical Forces: 1.72804e-011

Summation of Moments: -3.08319e-010

Mohr Coulomb Shear Force/Shear Strength Check Summation: 4.14957e-012

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
HGO, Date NOV 02, 2004

TABLE NO. 58

****
* Final Results for Stresses Along the Shear Surface *
* (Results are for the critical shear surface in the case of a search.) *
****

SPENCER'S PROCEDURE USED TO COMPUTE THE FACTOR OF SAFETY
Factor of Safety: 2.322 Side Force Inclination: 14.07

-------- VALUES AT CENTER OF BASE OF SLICE --------

Slice No.	X-Center	Y-Center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	-39.08	187.02	207.4	207.4	62.5
2	-34.00	185.26	545.0	545.0	164.4
3	-28.84	183.78	817.5	817.5	246.6
4	-23.08	182.42	1056.8	1056.8	318.7
5	-17.27	181.37	1238.5	1238.5	373.5
6	-11.40	180.62	1368.1	1368.1	412.6
7	-5.50	180.17	1450.2	1450.2	437.4
8	-1.27	180.01	1486.0	1486.0	448.2
9	2.96	180.08	1492.8	1492.8	450.2
10	8.86	180.39	1475.1	1475.1	444.9
11	12.16	180.66	1454.1	1454.1	438.5
12	15.43	181.10	1543.2	1543.2	465.4
13	21.27	182.06	1700.9	1700.9	513.0
14	27.04	183.32	1812.3	1812.3	546.6
15	32.75	184.89	1880.5	1880.5	567.1
16	38.36	186.75	1908.1	1908.1	575.5
17	43.87	188.90	1897.8	1897.8	572.4
18	46.78	190.14	1882.0	1882.0	567.6
19	49.62	191.52	1866.4	1866.4	427.4
20	54.86	194.26	1773.8	1773.8	406.2
21	58.22	196.16	1700.1	1700.1	389.4
22	61.48	198.24	1498.9	1498.9	343.3
23	66.36	201.58	1136.7	1136.7	260.3
24	68.98	203.49	938.8	938.8	215.0
25	71.49	205.54	592.7	592.7	135.7
26	74.75	208.27	136.0	136.0	31.1

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSdsc(post seismic).dat

White Tanks. Pseudo-Static-Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 59

****
* Final Results for Side Forces and Stresses Between Slices *
* (Results are for the critical shear surface in the case of a search.) *
****

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	-36.31	743	187.67	0.651	534.3	26.4
2	-31.70	2223	186.75	0.495	468.0	498.6
3	-25.98	4722	186.10	0.473	592.9	818.5
4	-20.19	7631	185.72	0.475	764.1	1036.1
5	-14.34	10655	185.58	0.484	964.9	1175.7
6	-8.46	13562	185.67	0.496	1192.9	1246.2
7	-2.55	16174	185.98	0.512	1451.9	1250.8
8	0.00	17177	186.17	0.520	1574.4	1233.2
9	5.91	19163	186.78	0.541	1893.1	1141.9
10	11.81	20634	187.60	0.566	2272.8	976.6
11	12.50	20771	187.70	0.570	2322.2	952.2
12	18.36	21729	188.68	0.510	1582.3	1411.2
13	24.17	22210	189.76	0.460	1054.1	1720.3
14	29.91	22107	190.98	0.417	648.1	1928.3
15	35.58	21363	192.34	0.378	320.0	2058.1
16	41.14	19963	193.84	0.340	45.7	2121.3
17	46.59	17933	195.46	0.301	-188.0	2123.1
18	46.96	17772	195.58	0.298	-202.7	2121.8
19	52.28	14380	197.57	0.268	-307.9	1882.6
20	57.45	10595	199.71	0.235	-355.6	1556.8
21	59.00	9379	200.40	0.224	-354.8	1433.1
22	63.96	5574	202.74	0.212	-287.7	1079.7
23	68.75	2345	205.25	0.189	-193.4	640.3
24	69.20	2075	205.51	0.187	-179.1	588.5
25	73.78	201	208.11	0.232	-39.4	168.4
26	75.72	0	209.13	0.000	0.0	0.0

ad end-of-file on input while looking for another command word.
End of input data assumed - normal termination.

```
GRAPHIC OUTPUT
HEADING
 White Tanks. End of Construction Case
 Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

Profile Lines
1   1    Existing Dam
12.5    193
59      213.5
69.2    213.5
111.7   185

2   2    Common Fill - Downstream
77.3    208.1
137.5   218
141.5   218

3   3    Soil Cement
118.62  185
141.5   218
151.5   218
151.5   216.5
151.5   185

4   4    Foundation
-74     185
-31.7   189
12.5    193
111.7   185
118.6   185
151.5   185
171.3   185
260     182


Material Properties
1    Existing Dam
  125
  Conventional Shear
  0    35
  No Piezometric Line
2    Common Fill
  120
  Conventional Shear
  500   19
  No Piezometric Line
3    Soil Cement
  135
  Conventional Shear
  28800    0
  No Piezometric Line
4    Foundation
  118
  Conventional Shear
  0    35
  No Piezometric Line

Analysis and Computations
```



```
Circular
22  238
Point
21.5  193

Compute
```

TABLE NO. 1
COMPUTER PROGRAM DESIGNATION: UTEXAS4
Originally Coded By Stephen G. Wright
Version No. 4.0.1.5 - Last Revision Date: 2/15/2003
(C) Copyright 1985-2002 S. G. Wright - All rights reserved

* RESULTS OF COMPUTATIONS PERFORMED USING THIS SOFTWARE *
* SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY HAVE *
* BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL DATA *
* R FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE ALGORITHMS *
* ND ANALYTICAL PROCEDURES USED IN THIS SOFTWARE AND MUST HAVE *
* EAD ALL DOCUMENTATION FOR THIS SOFTWARE BEFORE ATTEMPTING *
* TO USE IT. NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS *
* OR ADAPTABILITY OF THIS SOFTWARE. *

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 3
* NEW PROFILE LINE DATA *

----- Profile Line No. 1 - Material Type (Number): 1 -----
Description: Existing Dam

Point	X	Y
1	12.50	193.00
2	59.00	213.50
3	69.20	213.50
4	111.70	185.00

----- Profile Line No. 2 - Material Type (Number): 2 -----
Description: Common Fill - Downstream

Point	X	Y
1	77.30	208.10
2	137.50	218.00
3	141.50	218.00

----- Profile Line No. 3 - Material Type (Number): 3 -----
Description: Soil Cement

Point	X	Y
1	118.62	185.00
2	141.50	218.00
3	151.50	218.00
4	151.50	216.50
5	151.50	185.00

----- Profile Line No. 4 - Material Type (Number): 4 -----
Description: Foundation

Point	X	Y
1	-74.00	185.00

2	-31.70	189.00
3	12.50	193.00
4	111.70	185.00
5	118.60	185.00
6	151.50	185.00
7	171.30	185.00
8	260.00	182.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 4
* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *

---------- DATA FOR MATERIAL NUMBER 1 ----------
Description: Existing Dam

Unit weight of soil (material): 125.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 2 ----------
Description: Common Fill

Unit weight of soil (material): 120.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 500.0
Friction angle - - - - - 19.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 3 ----------
Description: Soil Cement

Unit weight of soil (material): 135.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 28800.0
Friction angle - - - - - 0.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 4 ----------

Description: Foundation

Unit weight of soil (material): 118.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 16
****
* NEW ANALYSIS/COMPUTATION DATA *
****

Center coordinates for center of circle -
X: 22.00
Y: 238.00
Circle passes through the point at -
X: 21.50
Y: 193.00
Radius: 45.00

The following represent default values or values that were prevously defined:
Subtended angle for slice subdivision: 3.00(degrees)
There is no crack.
There is no water in a crack.
Conventional (single-stage) computations will be performed.
Seismic coefficient: 0.000
Unit weight of water (or other fluid) in crack: 62.4
Automatic search output will be in long form.
Search will be continued after the initial mode to find a most critical circle.
No restrictions exist on the lateral extent of the search.
No shear surfaces other than the most critical will be saved for display later.
Neither slope face was explicitly designated for analysis.
Standard sign convention used for direction of shear stress on shear surface.
Procedure of Analysis: Spencer

Iteration limit: 100
Force imbalance: 1.000000e-005 (fraction of total weight)
Moment imbalance: 1.000000e-005 (fraction of moment due to total weight)
Minimum weight required for computations to be performed: 100
Initial trial factor of safety: 3.000
Initial trial side force inclination: 17.189 (degrees)
Minimum (most negative) side force inclination allowed in Spencer's procedure: -10.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 26
****
* NEW, COMPUTED SLOPE GEOMETRY DATA *
****

These slope geometry were generated from the Profile Lines.

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00
3	12.50	193.00
4	59.00	213.50
5	69.20	213.50
6	77.30	208.07
7	77.30	208.10
8	111.70	213.76
9	118.60	214.89
10	118.62	214.90
11	137.50	218.00
12	141.50	218.00
13	151.50	218.00
14	151.50	185.00
15	171.30	185.00
16	260.00	182.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 43
****
* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the critical shear surface in the *
* case of an automatic search.) *
****

Slice No.	X	Y	Slice Weight	Matl. No.	Cohesion	Friction Angle	Pore Pressure
	14.08	193.70					
1	15.25	193.52	201	1	0.0	35.00	0.0
	16.41	193.35					
2	17.59	193.23	590	1	0.0	35.00	0.0
	18.76	193.11					
3	19.94	193.06	947	1	0.0	35.00	0.0
	21.11	193.01					
4	21.56	193.00	443	1	0.0	35.00	0.0
	22.00	193.00					
5	23.18	193.03	1378	1	0.0	35.00	0.0
	24.36	193.06					
6	25.53	193.15	1642	1	0.0	35.00	0.0
	26.70	193.24					
7	27.87	193.40	1863	1	0.0	35.00	0.0
	29.04	193.55					
8	30.20	193.77	2038	1	0.0	35.00	0.0
	31.36	193.98					
9	32.50	194.26	2166	1	0.0	35.00	0.0
	33.65	194.53					
10	34.78	194.87	2247	1	0.0	35.00	0.0
	35.91	195.20					
11	37.02	195.59	2281	1	0.0	35.00	0.0
	38.13	195.99					
12	39.22	196.44	2269	1	0.0	35.00	0.0
	40.30	196.89					
13	41.37	197.40	2215	1	0.0	35.00	0.0
	42.43	197.90					
14	43.47	198.46	2119	1	0.0	35.00	0.0
	44.50	199.03					
15	45.51	199.64	1986	1	0.0	35.00	0.0
	46.51	200.26					
16	47.48	200.92	1820	1	0.0	35.00	0.0
	48.45	201.59					
17	49.39	202.31	1624	1	0.0	35.00	0.0
	50.32	203.03					
18	51.22	203.79	1406	1	0.0	35.00	0.0
	52.11	204.56					
19	52.97	205.37	1169	1	0.0	35.00	0.0

	53.82	206.18					
20	54.63	207.03	921	1	0.0	35.00	0.0
	55.44	207.89					
21	56.21	208.78	667	1	0.0	35.00	0.0
	56.97	209.68					
22	57.69	210.61	414	1	0.0	35.00	0.0
	58.41	211.55					
23	58.70	211.97	104	1	0.0	35.00	0.0
	59.00	212.38					
1	59.37	212.94	52	1	0.0	35.00	0.0
	59.75	213.50					

No water in crack.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\WSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 44

****
* Seismic Forces and Forces Due to Distributed Loads for *
* Individual Slices for Conventional Computations or the *
* First Stage of Multi-Stage Computations. *
* (Information is for the critical shear surface in the *
* case of an automatic search.) *
****

There are no seismic forces or forces due to distributed loads
for the current shear surface

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\WSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47

****
* Information for the Iterative Solution for the Factor of *
* Safety and Side Force Inclination by Spencer's Procedure *
****

Allowable force imbalance for convergence: 3.2560e-001
Allowable moment imbalance for convergence: 12

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	17.1887	4.743e+003	-8.504e+005		
First-order corrections to F and Theta					-1.8677	0.8692
Reduced values - Deltas were too large					-0.5000	0.2327
2	2.50000	17.4214	3.223e+003	-5.789e+005		
First-order corrections to F and Theta					-0.8796	1.1221
Reduced values - Deltas were too large					-0.5000	0.6378
3	2.00000	18.0593	9.362e+002	-1.717e+005		
First-order corrections to F and Theta					-0.1505	2.0245
Second-order corrections to F and Theta					-0.1291	3.3482
Reduced values - Deltas were too large					-0.1104	2.8648
4	1.88956	20.9241	1.378e+002	-2.510e+004		
First-order corrections to F and Theta					-0.0158	0.7140
Second-order corrections to F and Theta					-0.0148	0.8006
5	1.87473	21.7247	-5.025e-002	3.837e+000		
First-order corrections to F and Theta					0.0000	0.0024
Second-order corrections to F and Theta					0.0000	0.0024
6	1.87476	21.7271	-9.640e-011	1.328e-008		
First-order corrections to F and Theta					0.0000	0.0000

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\WSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 55

****
* Check of Computations by Spencer's Procedure (Results are for the *
* critical shear surface in the case of an automatic search.) *
****

Summation of Horizontal Forces: 1.69997e-012

Summation of Vertical Forces: 1.42109e-012

Summation of Moments: 3.38332e-010

Mohr Coulomb Shear Force/Shear Strength Check Summation: 1.25766e-012

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 58

*** Final Results for Stresses Along the Shear Surface ***
*** (Results are for the critical shear surface in the case of a search.) ***

SPENCER'S PROCEDURE USED TO COMPUTE THE FACTOR OF SAFETY
Factor of Safety: 1.875 Side Force Inclination: 21.73

Slice No.	X-Center	Y-Center	Total Normal Stress	Effective Normal Stress	Shear Stress
			VALUES AT CENTER OF BASE OF SLICE		
1	15.25	193.52	117.5	117.5	43.9
2	17.59	193.23	324.6	324.6	121.2
3	19.94	193.06	493.2	493.2	184.2
4	21.56	193.00	591.4	591.4	220.9
5	23.18	193.03	671.2	671.2	250.7
6	25.53	193.15	766.6	766.6	286.3
7	27.87	193.40	836.9	836.9	312.6
8	30.20	193.77	884.7	884.7	330.4
9	32.50	194.26	912.0	912.0	340.6
10	34.78	194.87	921.0	921.0	344.0
11	37.02	195.59	913.2	913.2	341.1
12	39.22	196.44	890.4	890.4	332.6
13	41.37	197.40	854.1	854.1	319.0
14	43.47	198.46	805.6	805.6	300.9
15	45.51	199.64	746.6	746.6	278.8
16	47.48	200.92	678.2	678.2	253.3
17	49.39	202.31	602.1	602.1	224.9
18	51.22	203.79	519.5	519.5	194.0
19	52.97	205.37	432.0	432.0	161.3
20	54.63	207.03	341.0	341.0	127.4
21	56.21	208.78	248.3	248.3	92.7
22	57.69	210.61	155.4	155.4	58.1
23	58.70	211.97	90.5	90.5	33.8
24	59.37	212.94	34.9	34.9	13.0

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 59

*** Final Results for Side Forces and Stresses Between Slices ***
*** (Results are for the critical shear surface in the case of a search.) ***

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
			VALUES AT RIGHT SIDE OF SLICE			
1	16.41	155	193.99	0.464	81.8	126.5
2	18.76	542	194.05	0.353	21.9	358.5
3	21.11	1066	194.27	0.333	-0.4	522.6
4	22.00	1282	194.38	0.330	-6.4	574.8
5	24.36	1873	194.74	0.326	-15.1	688.6
6	26.70	2445	195.20	0.325	-19.7	774.4
7	29.04	2954	195.74	0.324	-21.8	835.9
8	31.36	3369	196.36	0.325	-22.2	875.8
9	33.65	3669	197.06	0.325	-21.4	896.1
10	35.91	3842	197.85	0.326	-19.7	898.9
11	38.13	3884	198.70	0.327	-17.5	885.7
12	40.30	3799	199.63	0.327	-14.8	858.1
13	42.43	3597	200.63	0.328	-11.9	817.7
14	44.50	3293	201.69	0.329	-8.8	765.8
15	46.51	2906	202.81	0.331	-5.8	703.8
16	48.45	2461	204.00	0.332	-2.9	633.0
17	50.32	1984	205.24	0.333	-0.3	554.9
18	52.11	1503	206.53	0.335	2.0	470.7
19	53.82	1046	207.87	0.337	3.7	381.8
20	55.44	640	209.26	0.338	4.6	289.6
21	56.97	314	210.67	0.340	3.9	195.6
22	58.41	91	212.09	0.322	-3.6	103.8
23	59.00	31	212.79	0.366	5.2	47.1
24	59.75	0	213.50	0.000	0.0	0.0

Read end-of-file on input while looking for another command word.
End of input data assumed - normal termination.

```
GRAPHIC OUTPUT
HEADING
 White Tanks. End of Construction Case
 Undrained Shear Strength,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

Profile Lines
   1    Existing Dam
    5    193
         213.5
   .2    213.5
111.7    185

2   2    Common Fill - Downstream
77.3     208.1
137.5    218
141.5    218

3   3    Soil Cement
118.62   185
141.5    218
151.5    218
151.5    216.5
151.5    185

4   4     Foundation
-74      185
-31.7    189
12.5     193
111.7    185
118.6    185
151.5    185
171.3    185
260      182


Material Properties
1    Existing Dam
  125
  Conventional Shear
  0     35
  No Piezometric Line
2    Common Fill
  120
  Conventional Shear
  500   19
  No Piezometric Line
3    Soil Cement
  135
  Conventional Shear
  28800    0
  No Piezometric Line
4    Foundation
  110
  Conventional Shear
  0     35
  No Piezometric Line

Analysis and Computations
```



```
Circular
18   257
Point
77.2  208.127

Compute
```

TABLE NO. 1
COMPUTER PROGRAM DESIGNATION: UTEXAS4
Originally Coded By Stephen G. Wright
Version No. 4.0.1.5 - Last Revision Date: 2/15/2003
(C) Copyright 1985-2002 S. G. Wright - All rights reserved

```
**************************************************************
* RESULTS OF COMPUTATIONS PERFORMED USING THIS SOFTWARE      *
* SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY HAVE    *
* BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL DATA   *
* OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE ALGORITHMS *
* AND ANALYTICAL PROCEDURES USED IN THIS SOFTWARE AND MUST HAVE *
* READ ALL DOCUMENTATION FOR THIS SOFTWARE BEFORE ATTEMPTING *
* TO USE IT.  NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR  *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS  *
* OR ADAPTABILITY OF THIS SOFTWARE.                          *
**************************************************************
```


UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 3
****
* NEW PROFILE LINE DATA *
****

----- Profile Line No. 1 - Material Type (Number): 1 -----

Description: Existing Dam

Point	X	Y
1	12.50	193.00
2	59.00	213.50
3	69.20	213.50
4	111.70	185.00

----- Profile Line No. 2 - Material Type (Number): 2 -----

Description: Common Fill - Downstream

Point	X	Y
1	77.30	208.10
2	137.50	218.00
3	141.50	218.00

----- Profile Line No. 3 - Material Type (Number): 3 -----

Description: Soil Cement

Point	X	Y
1	118.62	185.00
2	141.50	218.00
3	151.50	218.00
4	151.50	216.50
5	151.50	185.00

----- Profile Line No. 4 - Material Type (Number): 4 -----

Description: Foundation

Point	X	Y
1	-74.00	185.00

2	-31.70	189.00
3	12.50	193.00
4	111.70	185.00
5	118.60	185.00
6	151.50	185.00
7	171.30	185.00
8	260.00	182.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 4
****
* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
****

---------- DATA FOR MATERIAL NUMBER 1 ----------

Description: Existing Dam

Unit weight of soil (material): 125.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 2 ----------

Description: Common Fill

Unit weight of soil (material): 120.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 500.0
Friction angle - - - - - 19.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 3 ----------

Description: Soil Cement

Unit weight of soil (material): 135.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 28800.0
Friction angle - - - - - 0.00 (degrees)

No (zero) pore water pressures.
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 4 ----------

Description: Foundation

Unit weight of soil (material): 118.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

(zero) pore water pressures.
tive pore water pressures are NOT allowed - set to zero.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 16
****
* NEW ANALYSIS/COMPUTATION DATA *
****

Center coordinates for center of circle -
X: 18.00
Y: 257.00

Circle passes through the point at -
X: 77.20
Y: 208.13
Radius: 76.77

The following represent default values or values that were prevously defined:
Subtended angle for slice subdivision: 3.00(degrees)
There is no crack.
There is no water in a crack.
Conventional (single-stage) computations will be performed.
Seismic coefficient: 0.000
Unit weight of water (or other fluid) in crack: 62.4
Automatic search output will be in long form.
Search will be continued after the initial mode to find a most critical circle.
No restrictions exist on the lateral extent of the search.
No shear surfaces other than the most critical will be saved for display later.
Neither slope face was explicitly designated for analysis.
Standard sign convention used for direction of shear stress on shear surface.
Procedure of Analysis: Spencer

Iteration limit: 100
Force imbalance: 1.000000e-005 (fraction of total weight)
Moment imbalance: 1.000000e-005 (fraction of moment due to total weight)
Minimum weight required for computations to be performed: 100
Initial trial factor of safety: 3.000
Initial trial side force inclination: 17.189 (degrees)
Minimum (most negative) side force inclination allowed in Spencer's procedure: -10.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 26
****
* NEW, COMPUTED SLOPE GEOMETRY DATA *
****

These slope geometry were generated from the Profile Lines.

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00
3	12.50	193.00
4	59.00	213.50
5	69.20	213.50
6	77.30	208.07
7	77.30	208.10
8	111.70	213.76
9	118.60	214.89
10	118.62	214.90
11	137.50	218.00
12	141.50	218.00
13	151.50	218.00
14	151.50	185.00
15	171.30	185.00
16	260.00	182.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 43
****
* Coordinate, Weight, Strength and Pore Water Pressure *
* Information for Individual Slices for Conventional *
* Computations or First Stage of Multi-Stage Computations. *
* (Information is for the critical shear surface in the *
* case of an automatic search.) *
****

Slice No.	X	Y	Slice Weight	Matl. No.	Cohesion	Friction Angle	Pore Pressure
	-19.64	190.09					
1	-17.86	189.15	461	4	0.0	35.00	0.0
	-16.08	188.21					
2	-14.26	187.37	1381	4	0.0	35.00	0.0
	-12.44	186.52					
3	-10.57	185.78	2261	4	0.0	35.00	0.0
	-8.71	185.03					
4	-6.80	184.38	3085	4	0.0	35.00	0.0
	-4.90	183.73					
5	-2.97	183.18	3841	4	0.0	35.00	0.0
	-1.04	182.63					
6	0.92	182.18	4517	4	0.0	35.00	0.0
	2.88	181.74					
7	4.86	181.39	5101	4	0.0	35.00	0.0
	6.84	181.05					
8	8.84	180.81	5585	4	0.0	35.00	0.0
	10.83	180.57					
9	11.67	180.50	2446	4	0.0	35.00	0.0
	12.50	180.43					
10	14.51	180.34	6447	4	0.0	35.00	0.0
	16.51	180.25					
11	17.26	180.24	2629	4	0.0	35.00	0.0
	18.00	180.23					
12	20.01	180.29	7707	4	0.0	35.00	0.0
	22.02	180.34					
13	24.02	180.50	8482	4	0.0	35.00	0.0
	26.02	180.65					
14	28.02	180.92	9124	4	0.0	35.00	0.0
	30.01	181.18					
15	31.98	181.54	9629	4	0.0	35.00	0.0
	33.96	181.91					
16	35.91	182.38	9992	4	0.0	35.00	0.0
	37.87	182.85					
17	39.80	183.42	10212	4	0.0	35.00	0.0
	41.72	183.99					
18	43.62	184.66	10291	4	0.0	35.00	0.0
	45.51	185.33					
19	47.37	186.10	10231	4	0.0	35.00	0.0

	49.22	186.87					
20	51.04	187.73	10037	4	0.0	35.00	0.0
	52.85	188.60					
21	53.79	189.10	5203	4	0.0	35.00	0.0
	54.74	189.59					
22	56.48	190.60	9470	1	0.0	35.00	0.0
	58.21	191.61					
23	58.61	191.85	2108	1	0.0	35.00	0.0
	59.00	192.10					
24	60.67	193.22	8470	1	0.0	35.00	0.0
	62.34	194.33					
25	63.95	195.54	7228	1	0.0	35.00	0.0
	65.56	196.74					
26	67.10	198.03	5974	1	0.0	35.00	0.0
	68.65	199.31					
27	68.92	199.56	962	1	0.0	35.00	0.0
	69.20	199.80					
28	70.66	201.18	4144	1	0.0	35.00	0.0
	72.12	202.56					
29	73.51	204.01	2288	1	0.0	35.00	0.0
	74.90	205.47					
30	76.05	206.80	607	1	0.0	35.00	0.0
	77.20	208.13					

No water in crack.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 44

Seismic Forces and Forces Due to Distributed Loads for Individual Slices for Conventional Computations or the First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

There are no seismic forces or forces due to distributed loads for the current shear surface

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47

Information for the Iterative Solution for the Factor of Safety and Side Force Inclination by Spencer's Procedure

Allowable force imbalance for convergence: 2
Allowable moment imbalance for convergence: 62

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	17.1887	-2.099e+003	4.971e+005		
First-order corrections to F and Theta					-0.0324	-6.1850
Reduced values - Deltas were too large					-0.0150	-2.8648
2	2.98500	14.3239	-1.175e+003	2.726e+005		
First-order corrections to F and Theta					0.0022	-2.9743
Reduced values - Deltas were too large					0.0021	-2.8648
3	2.98711	11.4592	-8.328e+001	1.411e+004		
First-order corrections to F and Theta					0.0063	0.0212
Second-order corrections to F and Theta					0.0063	0.0211
4	2.99342	11.4802	3.783e-004	-7.017e-002		
First-order corrections to F and Theta					-0.0000	0.0000

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 55

Check of Computations by Spencer's Procedure (Results are for the critical shear surface in the case of an automatic search.)

Summation of Horizontal Forces: 1.60725e-011

Summation of Vertical Forces: 1.29603e-011

Summation of Moments: -3.20142e-010

Mohr Coulomb Shear Force/Shear Strength Check Summation: 6.65068e-012

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 58

****
* Final Results for Stresses Along the Shear Surface *
* (Results are for the critical shear surface in the case of a search.) *
****

SPENCER'S PROCEDURE USED TO COMPUTE THE FACTOR OF SAFETY
Factor of Safety: 2.993 Side Force Inclination: 11.48

-------- VALUES AT CENTER OF BASE OF SLICE --------

Slice No.	X-Center	Y-Center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	-17.86	189.15	179.9	179.9	42.1
2	-14.26	187.37	504.9	504.9	118.1
3	-10.57	185.78	779.8	779.8	182.4
4	-6.88	184.38	1009.9	1009.9	236.2
5	-2.97	183.18	1199.5	1199.5	280.6
6	0.92	182.18	1351.8	1351.8	316.2
7	4.86	181.39	1469.6	1469.6	343.8
8	8.84	180.81	1555.1	1555.1	363.8
9	11.67	180.50	1600.1	1600.1	374.3
10	14.51	180.34	1721.9	1721.9	402.8
11	17.26	180.24	1867.1	1867.1	436.8
12	20.01	180.29	1990.1	1990.1	465.5
13	24.02	180.50	2145.0	2145.0	501.8
14	28.02	180.92	2267.1	2267.1	530.3
15	31.98	181.54	2357.6	2357.6	551.5
16	35.91	182.38	2418.0	2418.0	565.6
17	39.80	183.42	2449.4	2449.4	573.0
18	43.62	184.66	2453.3	2453.3	573.9
19	47.37	186.10	2430.7	2430.7	568.6
20	51.04	187.73	2383.2	2383.2	557.5
21	53.79	189.10	2332.9	2332.9	545.7
22	56.48	190.60	2258.6	2258.6	528.3
23	58.61	191.85	2191.3	2191.3	512.6
24	60.67	193.22	2036.8	2036.8	476.4
25	63.95	195.54	1755.4	1755.4	410.6
26	67.10	198.03	1469.4	1469.4	343.7
27	68.92	199.56	1300.8	1300.8	304.3
28	70.66	201.18	1038.7	1038.7	243.0
29	73.51	204.01	584.7	584.7	136.8
30	76.05	206.80	180.6	180.6	42.2

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\
STABILITY-NEW GEOMETRY\NSusd(post construction).dat

White Tanks. End of Construction Case
Undrained Shear Strength,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 59

****
* Final Results for Side Forces and Stresses Between Slices *
* (Results are for the critical shear surface in the case of a search.) *
****

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	-16.08	497	189.51	0.591	342.4	100.7
2	-12.44	1807	188.43	0.452	298.9	540.7
3	-8.71	3692	187.64	0.432	352.2	843.4
4	-4.98	5948	187.03	0.429	433.8	1080.9
5	-1.04	8399	186.58	0.431	530.1	1270.1
6	2.88	10897	186.27	0.437	636.5	1418.4
7	6.84	13318	186.12	0.443	751.6	1530.1
8	10.83	15560	186.10	0.451	875.1	1608.3
9	12.50	16423	186.14	0.454	928.8	1632.0
10	16.51	18395	186.29	0.416	616.2	1866.3
11	18.00	19084	186.37	0.404	520.5	1941.6
12	22.02	20779	186.65	0.375	299.5	2116.3
13	26.02	22140	187.06	0.350	119.5	2250.6
14	30.01	23083	187.61	0.329	-30.5	2345.7
15	33.96	23545	188.28	0.310	-157.8	2402.5
16	37.87	23485	189.09	0.293	-263.7	2421.1
17	41.72	22885	190.03	0.276	-352.3	2401.1
18	45.51	21745	191.10	0.260	-423.3	2341.3
19	49.22	20085	192.30	0.243	-475.7	2239.4
20	52.85	17940	193.63	0.227	-507.1	2091.7
21	54.74	16624	194.39	0.218	-513.6	1992.9
22	58.21	13855	195.92	0.200	-503.8	1764.2
23	59.00	13171	196.29	0.196	-496.7	1702.9
24	62.34	10150	197.99	0.191	-443.8	1481.7
25	65.56	7188	199.79	0.182	-381.6	1222.3
26	68.65	4416	201.72	0.170	-299.0	909.0
27	69.20	3938	202.10	0.168	-279.1	842.5
28	72.12	1739	204.24	0.187	-166.1	545.7
29	74.90	392	206.56	0.261	-39.6	222.8
30	77.20	-0	208.13	1.000	0.0	0.0

Read end-of-file on input while looking for another command word.
End of input data assumed - normal termination.

```
GRAPHIC OUTPUT
HEADING
 White Tanks. Steady-State Drained,
 Units lbs-ft ,
 By HGO, Date NOV 02, 2004

Profile Lines
1   1    Existing Dam
12.5    193
59      213.5
69.2    213.5
111.7   185

2   2    Common Fill - Downstream
77.3    208.1
137.5   218
141.5   218

3   3    Soil Cement
118.62  185
141.5   218
151.5   218
151.5   216.5
151.5   185

4   4    Foundation
-74     185
-31.7   189
12.5    193
111.7   185
118.6   185
151.5   185
171.3   185
260     182


Material Properties
1    Existing Dam
  125
  Conventional Shear
  0    35
  Piezometric Line
  1
2    Common Fill
  120
  Conventional Shear
  0    35
  Piezometric Line
  1
3    Soil Cement
  135
  Conventional Shear
  72000    0
  Piezometric Line
  1
4    Foundation
  118
  Nonlinear
 -5000    0
  0       0
```



```
  10000   7002

  Piezometric Line
  1

Piezometric Line
1       62.4
-74     125
-31.7   142
-13.5   146
0       149.7
17.9    153.45
55.7    160.26
84.06   164.63
102.9   165.7
121.7   166.3
125.2   178.26
125.6   184.87
126.2   189.34
128     193.3
128.8   196.9
130.8   199.52
131.9   201.57
132.9   203.6
134.9   205.7
137.0   207.93
139.6   210.15
141.8   211.86
143     212.59
144.3   213.39
145.4   214.09
148.2   215.49
149.8   216.5
151.5   216.5
260     216.5


Distributed loads
151.5   216.5   0         0
151.5   185     1965.6    0
171.3   185     1965.6    0
260     182     2152.8    0

Analysis and Computations
Circular
-2   291
Point
77.2  208.127

Compute
```

TABLE NO. 1
COMPUTER PROGRAM DESIGNATION: UTEXAS4
Originally Coded By Stephen G. Wright
Version No. 4.0.1.5 - Last Revision Date: 2/15/2003
(C) Copyright 1985-2002 S. G. Wright - All rights reserved

```
**************************************************************************
* RESULTS OF COMPUTATIONS PERFORMED USING THIS SOFTWARE                  *
* SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY HAVE                *
  BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL DATA              *
  & FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE ALGORITHMS         *
  AND ANALYTICAL PROCEDURES USED IN THIS SOFTWARE AND MUST HAVE         *
* READ ALL DOCUMENTATION FOR THIS SOFTWARE BEFORE ATTEMPTING             *
* TO USE IT.  NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT             *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR              *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS              *
* OR ADAPTABILITY OF THIS SOFTWARE.                                      *
**************************************************************************
```


UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 3
****
* NEW PROFILE LINE DATA *
****

----- Profile Line No. 1 - Material Type (Number): 1 -----

Description: Existing Dam

Point	X	Y
1	12.50	193.00
2	59.00	213.50
3	69.20	213.50
4	111.70	185.00

----- Profile Line No. 2 - Material Type (Number): 2 -----

Description: Common Fill - Downstream

Point	X	Y
1	77.30	208.10
2	137.50	218.00
3	141.50	218.00

----- Profile Line No. 3 - Material Type (Number): 3 -----

Description: Soil Cement

Point	X	Y
1	118.62	185.00
2	141.50	218.00
3	151.50	218.00
4	151.50	216.50
5	151.50	185.00

----- Profile Line No. 4 - Material Type (Number): 4 -----

Description: Foundation

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00

3	12.50	193.00
4	111.70	185.00
5	118.60	185.00
6	151.50	185.00
7	171.30	185.00
8	260.00	182.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 4
```
**************************************************************************
* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
**************************************************************************
```

---------- DATA FOR MATERIAL NUMBER 1 ----------

Description: Existing Dam

Unit weight of soil (material): 125.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 2 ----------

Description: Common Fill

Unit weight of soil (material): 120.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 0.0
Friction angle - - - - - 35.00 (degrees)

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

---------- DATA FOR MATERIAL NUMBER 3 ----------

Description: Soil Cement

Unit weight of soil (material): 135.0

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 72000.0
Friction angle - - - - - 0.00 (degrees)

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

DATA FOR MATERIAL NUMBER 4

Description: Foundation

Unit weight of soil (material): 118.0

---- NONLINEAR SHEAR STRENGTH ENVELOPE ----

Point	Normal Stress	Shear Stress
1	-5000.0	0.0
2	0.0	0.0
3	10000.0	7002.0

Pore water pressures are defined by a piezometric line.
Piezometric line number: 1
Negative pore water pressures are NOT allowed - set to zero.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 6

NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS

Piezometric Line Number 1

Unit weight of fluid (water): 62.4

Point	X	Y
1	-74.00	125.00
2	-31.70	142.00
3	-13.50	146.00
4	0.00	149.70
5	17.90	153.45
6	55.70	160.26
7	84.06	164.63
8	102.90	165.70
9	121.70	166.30
10	125.20	178.26
11	125.60	184.87
12	126.20	189.34
13	128.00	193.30
14	128.80	196.90
15	130.80	199.52
16	131.90	201.57
17	132.90	203.60
18	134.90	205.70
19	137.00	207.93
20	139.60	210.15
21	141.80	211.86
22	143.00	212.59
23	144.30	213.39
24	145.40	214.09
25	148.20	215.49
26	149.80	216.50
27	151.50	216.50
28	260.00	216.50

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 11

NEW DISTRIBUTED LOAD DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS

Point	X	Y	Normal Pressure	Shear Stress
1	151.50	216.50	0.0	0.0
2	151.50	185.00	1965.6	0.0
3	171.30	185.00	1965.6	0.0
4	260.00	182.00	2152.8	0.0

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 16

NEW ANALYSIS/COMPUTATION DATA

Center coordinates for center of circle -
X: -2.00
Y: 291.00
Circle passes through the point at -
X: 77.20
Y: 208.13
Radius: 114.63

The following represent default values or values that were prevously defined:
Subtended angle for slice subdivision: 3.00(degrees)
There is no crack.
There is no water in a crack.
Conventional (single-stage) computations will be performed.
Seismic coefficient: 0.000
Unit weight of water (or other fluid) in crack: 62.4
Automatic search output will be in long form.
Search will be continued after the initial mode to find a most critical circle.
No restrictions exist on the lateral extent of the search.
No shear surfaces other than the most critical will be saved for display later.
Neither slope face was explicitly designated for analysis.
Standard sign convention used for direction of shear stress on shear surface.
Procedure of Analysis: Spencer

Iteration limit: 100
Force imbalance: 1.000000e-005 (fraction of total weight)
Moment imbalance: 1.000000e-005 (fraction of moment due to total weight)
Minimum weight required for computations to be performed: 100
Initial trial factor of safety: 3.000
Initial trial side force inclination: 17.189 (degrees)
Minimum (most negative) side force inclination allowed in Spencer's procedure: -10.00

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 26
NEW, COMPUTED SLOPE GEOMETRY DATA

These slope geometry were generated from the Profile Lines.

Point	X	Y
1	-74.00	185.00
2	-31.70	189.00
3	12.50	193.00
4	59.00	213.50
5	69.20	213.50
6	77.30	208.07
7	77.30	208.10
8	111.70	213.76
9	118.60	214.89
10	118.62	214.90
11	137.50	218.00
12	141.50	218.00
13	151.50	218.00
14	151.50	185.00
15	171.30	185.00
16	260.00	182.00

UTEXAS WARNING NUMBER 4240
Possible artesian pressures detected at x = 151.50
from piezometric line number 1 (Stage 1).

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 43
Coordinate, Weight, Strength and Pore Water Pressure Information for Individual Slices for Conventional Computations or First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

Slice No.	X	Y	Slice Weight	Matl. No.	Cohesion	Friction Angle	Pore Pressure
	-50.66	187.21					
1	-47.91	186.01	949	4	NONLINEAR ENVELOPE		0.0
	-45.16	184.80					
2	-42.35	183.75	2815	4	NONLINEAR ENVELOPE		0.0
	-39.54	182.69					
3	-36.68	181.78	4554	4	NONLINEAR ENVELOPE		0.0
	-33.82	180.87					
4	-32.76	180.58	2084	4	NONLINEAR ENVELOPE		0.0
	-31.70	180.28					
5	-28.78	179.58	6668	4	NONLINEAR ENVELOPE		0.0
	-25.86	178.88					
6	-22.91	178.33	7982	4	NONLINEAR ENVELOPE		0.0
	-19.96	177.78					
7	-16.99	177.39	9085	4	NONLINEAR ENVELOPE		0.0
	-14.01	177.00					
8	-13.76	176.97	828	4	NONLINEAR ENVELOPE		0.0
	-13.50	176.95					
9	-10.51	176.72	10025	4	NONLINEAR ENVELOPE		0.0
	-7.52	176.50					
10	-4.76	176.43	9764	4	NONLINEAR ENVELOPE		0.0
	-2.00	176.37					
11	-1.00	176.38	3635	4	NONLINEAR ENVELOPE		0.0
	0.00	176.39					
12	3.00	176.52	11054	4	NONLINEAR ENVELOPE		0.0
	6.00	176.65					
13	8.98	176.93	11100	4	NONLINEAR ENVELOPE		0.0
	11.97	177.22					
14	12.23	177.26	984	4	NONLINEAR ENVELOPE		0.0
	12.50	177.29					
15	15.20	177.70	10562	4	NONLINEAR ENVELOPE		0.0
	17.90	178.11					
16	20.84	178.71	12650	4	NONLINEAR ENVELOPE		0.0
	23.78	179.30					
17	26.69	180.06	13464	4	NONLINEAR ENVELOPE		0.0
	29.59	180.81					
18	32.45	181.71	13984	4	NONLINEAR ENVELOPE		0.0
	35.32	182.61					
19	38.13	183.66	14214	4	NONLINEAR ENVELOPE		0.0
	40.94	184.71					
20	43.69	185.91	14162	4	NONLINEAR ENVELOPE		0.0
	46.44	187.11					
21	49.13	188.44	13839	4	NONLINEAR ENVELOPE		0.0
	51.81	189.78					
22	51.85	189.80	196	4	NONLINEAR ENVELOPE		0.0
	51.89	189.82					
23	53.79	190.89	9682	1	0.0	35.00	0.0
	55.70	191.95					
24	57.35	192.95	8178	1	0.0	35.00	0.0
	59.00	193.95					
25	61.50	195.61	11173	1	0.0	35.00	0.0
	64.00	197.27					
26	66.40	199.06	8690	1	0.0	35.00	0.0
	68.81	200.85					
27	69.01	201.01	608	1	0.0	35.00	0.0
	69.20	201.16					
28	71.50	203.09	5106	1	0.0	35.00	0.0
	73.80	205.01					
29	75.50	206.57	1148	1	0.0	35.00	0.0
	77.21	208.13					

No water in crack.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 44
Seismic Forces and Forces Due to Distributed Loads for Individual Slices for Conventional Computations or the First Stage of Multi-Stage Computations. (Information is for the critical shear surface in the case of an automatic search.)

There are no seismic forces or forces due to distributed loads
for the current shear surface

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47
****
* Information for the Iterative Solution for the Factor of *
* Safety and Side Force Inclination by Spencer's Procedure *
****

Trial No. 1 with Nonlinear Strength Envelope
Allowable force imbalance for convergence: 2
Allowable moment imbalance for convergence: 49

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	17.1887	-9.018e+003	1.803e+006		
First-order corrections to F and Theta					0.2491	-8.6511
Reduced values - Deltas were too large					0.0825	-2.8648
2	3.08249	14.3239	-6.182e+003	1.224e+006		
First-order corrections to F and Theta					0.2378	-4.5730
Reduced values - Deltas were too large					0.1490	-2.8648
3	3.23146	11.4592	-2.531e+003	4.862e+005		
First-order corrections to F and Theta					0.1332	-1.1248
Second-order corrections to F and Theta					0.1423	-1.0583
4	3.37372	10.4009	6.191e+000	-9.367e+002		
First-order corrections to F and Theta					-0.0005	-0.0042
Second-order corrections to F and Theta					-0.0005	-0.0042
5	3.37319	10.3967	-1.753e-007	3.253e-005		
First-order corrections to F and Theta					0.0000	-0.0000

After trial 1 the following changes were computed for the nonlinear strength envelopes:
Maximum change in shear strength: 0.000 (percent)
Strengths from nonlinear envelope have converged.
Final computations will be performed next.

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 47
****
* Information for the Iterative Solution for the Factor of *
* Safety and Side Force Inclination by Spencer's Procedure *
****

Final Trial with Nonlinear Strength Envelope
Allowable force imbalance for convergence: 2
Allowable moment imbalance for convergence: 49

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	17.1887	-9.018e+003	1.803e+006		
First-order corrections to F and Theta					0.2491	-8.6511
Reduced values - Deltas were too large					0.0825	-2.8648
2	3.08249	14.3239	-6.182e+003	1.224e+006		
First-order corrections to F and Theta					0.2378	-4.5730
Reduced values - Deltas were too large					0.1490	-2.8648
3	3.23146	11.4592	-2.531e+003	4.862e+005		
First-order corrections to F and Theta					0.1332	-1.1248
Second-order corrections to F and Theta					0.1423	-1.0583
4	3.37372	10.4009	6.191e+000	-9.367e+002		
First-order corrections to F and Theta					-0.0005	-0.0042
Second-order corrections to F and Theta					-0.0005	-0.0042
5	3.37319	10.3967	-1.753e-007	3.253e-005		
First-order corrections to F and Theta					0.0000	-0.0000

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 55
****
* Check of Computations by Spencer's Procedure (Results are for the *
* critical shear surface in the case of an automatic search.) *
****

Summation of Horizontal Forces: 2.33555e-011

Summation of Vertical Forces: 1.63709e-011

Summation of Moments: -1.51340e-009

Mohr Coulomb Shear Force/Shear Strength Check Summation: 6.53699e-012

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
By HGO, Date NOV 02, 2004

TABLE NO. 58
****
* Final Results for Stresses Along the Shear Surface *
* (Results are for the critical shear surface in the case of a search.) *
****

SPENCER'S PROCEDURE USED TO COMPUTE THE FACTOR OF SAFETY
Factor of Safety: 3.373 Side Force Inclination: 10.40

Slice No.	VALUES AT CENTER OF BASE OF SLICE -------- X-Center	Y-Center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	-47.91	186.01	218.1	218.1	45.3
2	-42.35	183.75	615.0	615.0	127.7
3	-36.68	181.78	950.4	950.4	197.3
4	-32.76	180.58	1151.3	1151.3	239.0
5	-28.78	179.58	1316.5	1316.5	273.3
6	-22.91	178.33	1521.0	1521.0	315.7
7	-16.99	177.39	1677.3	1677.3	348.2
8	-13.76	176.97	1747.9	1747.9	362.8
9	-10.51	176.72	1795.6	1795.6	372.7
10	-4.76	176.43	1858.8	1858.8	385.8
11	-1.00	176.38	1882.7	1882.7	390.8
12	3.00	176.52	1883.2	1883.2	390.9
13	8.98	176.93	1859.0	1859.0	385.9
14	12.23	177.26	1835.1	1835.1	380.9
15	15.20	177.70	1915.2	1915.2	397.5
16	20.84	178.71	2065.4	2065.4	428.7
17	26.69	180.06	2179.8	2179.8	452.5
18	32.45	181.71	2251.4	2251.4	467.3
19	38.13	183.66	2281.9	2281.9	473.7
20	43.69	185.91	2273.2	2273.2	471.9
21	49.13	188.44	2227.3	2227.3	462.3
22	51.85	189.80	2194.8	2194.8	455.6
23	53.79	190.89	2152.7	2152.7	446.9
24	57.35	192.95	2067.6	2067.6	429.2
25	61.50	195.61	1829.8	1829.8	379.8
26	66.40	199.06	1440.5	1440.5	299.0
27	69.01	201.01	1229.2	1229.2	255.2
28	71.50	203.09	860.4	860.4	178.6
29	75.50	206.57	255.6	255.6	53.1

UTEXAS4 S/N:00143 - Version: 4.0.1.5 - Latest Revision: 2/15/2003
Licensed for use by: URS CORPORATION, URS Corporation, Denver, CO
Time and date of run: Wed Nov 03 10:26:35 2004
Name of input data file: C:\Documents and Settings\GXOZGUR0\Desktop\White_Tanks\STABILITY-NEW GEOMETRY\NSdsc.dat

White Tanks. Steady-State Drained,
Units lbs-ft ,
HGO, Date NOV 02, 2004

E NO. 59

****
* Final Results for Side Forces and Stresses Between Slices *
* (Results are for the critical shear surface in the case of a search.) *
****

---------- VALUES AT RIGHT SIDE OF SLICE ----------

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	-45.16	786	186.51	0.584	397.2	131.8
2	-39.54	2837	185.17	0.445	337.2	664.9
3	-33.82	5739	184.24	0.425	391.1	1033.3
4	-31.70	6947	183.96	0.422	416.1	1151.4
5	-25.86	10446	183.38	0.423	519.3	1410.4
6	-19.96	14034	183.04	0.428	637.2	1611.2
7	-14.01	17479	182.91	0.434	766.8	1761.1
8	-13.50	17762	182.91	0.435	778.3	1772.0
9	-7.52	20844	183.01	0.443	919.7	1871.9
10	-2.00	23258	183.29	0.452	1059.6	1926.8
11	0.00	24020	183.43	0.455	1112.8	1938.8
12	6.00	25901	183.99	0.466	1282.2	1949.9
13	11.97	27158	184.73	0.477	1467.4	1928.9
14	12.50	27239	184.81	0.478	1484.7	1925.8
15	17.90	27826	185.64	0.436	974.5	2194.6
16	23.78	27877	186.70	0.396	554.1	2383.3
17	29.59	27221	187.94	0.362	230.2	2484.1
18	35.32	25810	189.36	0.330	-24.4	2507.5
19	40.94	23642	190.96	0.300	-222.9	2456.3
20	46.44	20753	192.74	0.270	-369.7	2326.9
21	51.81	17214	194.72	0.240	-461.2	2109.2
22	51.89	17159	194.75	0.240	-462.0	2105.3
23	55.70	14241	196.31	0.217	-486.9	1880.8
24	59.00	11482	197.79	0.197	-473.3	1628.3
25	64.00	7225	200.27	0.185	-390.7	1266.4
26	68.81	3442	202.96	0.167	-267.8	803.2
27	69.20	3159	203.21	0.166	-252.7	756.3
28	73.80	628	206.26	0.231	-70.1	298.7
29	77.21	-0	208.13	0.000	0.0	0.0

Read end-of-file on input while looking for another command word.
End of input data assumed - normal termination.

UTEXAS3 Input and Output Files

Transition Section

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:20:2004 Time: 15:39: 7 Input file: ec20.inn

TABLE NO. 1

```
COMPUTER PROGRAM DESIGNATION - UTEXAS3
Originally Coded By Stephen G. Wright
Version No: 1.208
Last Revision Date 2/22/98
(C) Copyright 1985-1998 S. G. Wright
All Rights Reserved
```

```
      RESULTS OF COMPUTATIONS PERFORMED USING THIS COMPUTER
PROGRAM SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY
HAVE BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL
DATA OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE
ALGORITHMS AND ANALYTICAL PROCEDURES USED IN THE COMPUTER
PROGRAM AND MUST HAVE READ ALL DOCUMENTATION FOR THIS
PROGRAM BEFORE ATTEMPTING ITS USE.

      NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT
MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR
IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS
OR ADAPTABILITY OF THIS COMPUTER PROGRAM.
```

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:20:2004 Time: 15:39: 7 Input file: ec20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 2

NEW PROFILE LINE DATA

PROFILE LINE 1 - MATERIAL TYPE = 1
Existing Dam

Point	X	Y
1	63.000	194.000
2	111.750	213.500
3	126.750	213.500
4	175.500	194.000

PROFILE LINE 2 - MATERIAL TYPE = 2
Aesthetic Fill

Point	X	Y
1	126.750	213.500
2	149.250	213.500

Point	X	Y
3	199.750	193.300
4	245.000	191.500

PROFILE LINE 3 - MATERIAL TYPE = 3
Foundation

Point	X	Y
1	.000	191.000
2	63.000	194.000
3	175.500	194.000
4	203.000	183.000
5	228.000	183.000
6	245.000	191.500
7	300.000	191.500

All new profile lines defined - No old lines retained
1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:20:2004 Time: 15:39: 7 Input file: ec20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 3

NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS

DATA FOR MATERIAL TYPE 1
Existing Dam

Unit weight of material = 125.000

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - .000
Friction angle - - - - - 33.000 degrees

No (or zero) pore water pressures

DATA FOR MATERIAL TYPE 2
Aesthetic Fill

Unit weight of material = 120.000

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - 500.000
Friction angle - - - - - 19.000 degrees

No (or zero) pore water pressures

DATA FOR MATERIAL TYPE 3
Foundation

Unit weight of material = 118.000

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - .000

No (or zero) pore water pressures

All new material properties defined - No old data retained
1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:20:2004 Time: 15:39: 7 Input file: ec20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 15

NEW ANALYSIS/COMPUTATION DATA

Circular Shear Surface(s)

Automatic Search Performed

Starting Center Coordinate for Search at -
X = 230.000
Y = 240.000

Required accuracy for critical center (= minimum
spacing between grid points) = 5.000

Critical shear surface not allowed to pass below Y = 150.000

For the initial mode of search
all circles pass through the point at -
X = 130.000
Y = 205.000

Maximum number of iterations allowed for
calculating the factor of safety = 200

THE FOLLOWING REPRESENT EITHER DEFAULT OR PREVIOUSLY DEFINED VALUES:

Initial trial estimate for the factor of safety = 3.000

Initial trial estimate for side force inclination = 15.000 degrees
(Applicable to Spencer's procedure only)

Allowed force imbalance for convergence = 100.000

Allowed moment imbalance for convergence = 100.000

Initial trial values for factor of safety (and side force inclination
for Spencer's procedure) will be kept constant during search

Maximum subtended angle to be used for subdivision of the
circle into slices = 3.00 degrees

Depth of crack = .000

Search will be continued to locate a more critical shear
surface (if one exists) after the initial mode is complete

Depth of water in crack = .000

Unit weight of water in crack = 62.400

Seismic coefficient = .000

Conventional (single-stage) computations to be performed

Procedure used to compute the factor of safety: SPENCER
1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:20:2004 Time: 15:39: 7 Input file: ec20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 16

NEW SLOPE GEOMETRY DATA

NOTE - NO DATA WERE INPUT, SLOPE GEOMETRY DATA
WERE GENERATED BY THE PROGRAM

Slope Coordinates -

Point	X	Y
1	.000	191.000
2	63.000	194.000
3	111.750	213.500
4	126.750	213.500
5	149.250	213.500
6	199.750	193.300
7	245.000	191.500
8	300.000	191.500

FATAL ERROR FOR INITIAL TRIAL CIRCLE FOR AUTOMATIC SEARCH
SEARCH ABORTED - See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:20:2004 Time: 15:39: 7 Input file: ec20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 17
INFORMATION FOR CURRENT MODE OF SEARCH - All Circles Pass Through
the Fixed Point at X = 130.000 and Y = 205.000

Center Coordinates X	Center Coordinates Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations

80.00	90.00	125.40	Center of circle is below lowest point of slope - CIRCLE REJECTED
230.00	90.00	152.40	Center of circle is below lowest point of slope - CIRCLE REJECTED
380.00	90.00	275.18	Center of circle is below lowest point of slope - CIRCLE REJECTED
80.00	240.00	61.03	Opposite slope face - CIRCLE REJECTED
230.00	240.00	185.95	Bottom of circle exceeds allowable depth - CIRCLE REJECTED
380.00	240.00	252.44	Bottom of circle exceeds allowable depth - CIRCLE REJECTED
80.00	390.00	191.64	Opposite slope face - CIRCLE REJECTED
230.00	390.00	210.30	3.813 -7.46 4
380.00	390.00	311.01	Bottom of circle exceeds allowable depth - CIRCLE REJECTED
80.00	540.00	338.71	Opposite slope face - CIRCLE REJECTED
230.00	540.00	349.61	4.587 -8.80 6
380.00	540.00	418.00	Bottom of circle exceeds allowable depth - CIRCLE REJECTED
205.00	365.00	176.71	3.434 -9.19 4
230.00	365.00	188.68	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
255.00	365.00	203.04	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
205.00	390.00	199.62	3.576 -9.55 4
255.00	390.00	223.27	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
205.00	415.00	222.99	3.688 -10.02 4
230.00	415.00	232.59	3.718 -7.79 4
255.00	415.00	244.39	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
180.00	340.00	143.96	3.597 -10.54 4
205.00	340.00	154.43	3.237 -9.29 3
230.00	340.00	168.00	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
180.00	365.00	167.63	3.960 -9.76 5
180.00	390.00	191.64	4.334 -9.06 5
180.00	315.00	120.83	3.260 -11.33 3
205.00	315.00	133.14	2.954 -9.58 3
230.00	315.00	148.66	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
180.00	290.00	98.62	2.846 -12.03 3
205.00	290.00	113.36	3.178 -9.05 4
230.00	290.00	131.24	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
155.00	265.00	65.00	4.915 -8.14 7
180.00	265.00	78.10	2.718 -11.52 3

205.00	265.00	96.05	3.692 -8.24 4
155.00	290.00	88.60	5.492 -7.40 8
155.00	315.00	112.81	6.170 -6.59 9
155.00	240.00	43.01	4.524 -8.83 6
180.00	240.00	61.03	2.943 -10.38 3
205.00	240.00	82.76	4.713 -6.94 7
165.00	250.00	57.01	3.296 -10.76 4
180.00	250.00	67.27	2.783 -10.98 3
195.00	250.00	79.06	3.362 -9.81 4
165.00	265.00	69.46	3.595 -10.43 4
195.00	265.00	88.46	3.027 -9.58 4
165.00	280.00	82.76	3.832 -9.88 4
180.00	280.00	98.14	2.773 -11.87 3
195.00	280.00	99.25	2.981 -9.30 3
175.00	260.00	71.06	2.747 -12.11 3
180.00	260.00	74.33	2.722 -11.37 3
185.00	260.00	77.78	2.818 -10.37 3
175.00	265.00	75.00	2.793 -12.00 3
185.00	265.00	81.39	2.788 -10.53 3
175.00	270.00	79.06	2.851 -11.87 3
180.00	270.00	82.01	2.727 -11.65 3
185.00	270.00	85.15	2.773 -10.67 3

At the end of the current mode of search the most critical circle which was found has the following values -
X-center = 180.00 Y-center = 265.00 Radius = 78.10
Factor of Safety = 2.718 Side Force Inclination = -11.52

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:20:2004 Time: 15:39: 7 Input file: ec20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 18
INFORMATION FOR CURRENT MODE OF SEARCH - All Circles Are Tangent to a Horizontal Line at Y = 186.898

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations
30.00	115.00	-71.90	Center of circle is below lowest point of slope - CIRCLE REJECTED		
180.00	115.00	-71.90	Center of circle is below lowest point of slope - CIRCLE REJECTED		
330.00	115.00	-71.90	Center of circle is below lowest point of slope - CIRCLE REJECTED		
30.00	265.00	78.10	Opposite slope face - CIRCLE REJECTED		
330.00	265.00	78.10	See Message on Next Line(s)		
CIRCLE DOES NOT INTERSECT SLOPE					
30.00	415.00	228.10	See Message on Next Line(s)		
CIRCLE DOES NOT INTERSECT SLOPE					

180.00	415.00	228.10	4.812 -5.73 6
330.00	415.00	228.10	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
155.00	240.00	53.10	4.352 -8.39 6
180.00	240.00	53.10	2.551 -12.26 4
205.00	240.00	53.10	5.107 -9.72 7
155.00	265.00	78.10	4.674 -7.19 6
205.00	265.00	78.10	3.596 -10.56 4
155.00	290.00	103.10	5.238 -6.16 7
180.00	290.00	103.10	2.987 -10.31 3
205.00	290.00	103.10	3.240 -10.16 3
155.00	215.00	28.10	5.394 -7.03 9
180.00	215.00	28.10	2.968 -9.33 4
205.00	215.00	28.10	8.204 -7.50 14
165.00	225.00	38.10	3.362 -10.30 4
180.00	225.00	38.10	2.684 -12.18 4
195.00	225.00	38.10	3.394 -9.26 4
165.00	240.00	53.10	3.277 -10.52 4
195.00	240.00	53.10	2.980 -10.45 3
165.00	255.00	68.10	3.342 -10.23 4
180.00	255.00	68.10	2.615 -12.13 4
195.00	255.00	68.10	2.791 -11.82 3
175.00	235.00	48.10	2.667 -12.23 3
180.00	235.00	48.10	2.546 -12.31 4
185.00	235.00	48.10	2.544 -12.03 5
175.00	240.00	53.10	2.661 -12.38 4
185.00	240.00	53.10	2.538 -11.95 4
175.00	245.00	58.10	2.676 -12.38 3
180.00	245.00	58.10	2.566 -12.23 4
185.00	245.00	58.10	2.546 -11.85 4
190.00	235.00	48.10	2.698 -11.34 3
190.00	240.00	53.10	2.645 -11.54 4
190.00	245.00	58.10	2.626 -11.49 4

At the end of the current mode of search the most critical circle which was found has the following values -
X-center = 185.00 Y-center = 240.00 Radius = 53.10
Factor of Safety = 2.538 Side Force Inclination = -11.95

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:20:2004 Time: 15:39: 7 Input file: ec20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 19
INFORMATION FOR CURRENT MODE OF SEARCH - All Circles Have the Same Radius - Radius = 53.102

Center Coordinates X	Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations

35.00	90.00	53.10	Center of circle is below lowest point of slope - CIRCLE REJECTED
185.00	90.00	53.10	Center of circle is below lowest point of slope - CIRCLE REJECTED
335.00	90.00	53.10	Center of circle is below lowest point of slope - CIRCLE REJECTED
35.00	240.00	53.10	Opposite slope face - CIRCLE REJECTED
335.00	240.00	53.10	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
35.00	390.00	53.10	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
185.00	390.00	53.10	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
335.00	390.00	53.10	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
160.00	215.00	53.10	5.516 -6.42 8
185.00	215.00	53.10	4.458 -6.63 7
210.00	215.00	53.10	6.254 -6.15 11
160.00	240.00	53.10	3.737 -9.49 4
210.00	240.00	53.10	7.132 -8.67 11
160.00	265.00	53.10	85.725 -11.64 168
185.00	265.00	53.10	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
210.00	265.00	53.10	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
170.00	225.00	53.10	3.766 -8.87 5
185.00	225.00	53.10	3.430 -8.76 5
200.00	225.00	53.10	3.884 -8.46 5
170.00	240.00	53.10	2.917 -11.60 3
200.00	240.00	53.10	3.634 -9.73 4
170.00	255.00	53.10	4.792 -11.07 6
185.00	255.00	53.10	14.339 -13.51 26
200.00	255.00	53.10	See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE			
180.00	235.00	53.10	2.761 -11.16 3
185.00	235.00	53.10	2.735 -10.84 3
190.00	235.00	53.10	2.798 -10.53 3
180.00	240.00	53.10	2.551 -12.26 4
190.00	240.00	53.10	2.645 -11.54 4
180.00	245.00	53.10	2.608 -12.55 6
185.00	245.00	53.10	2.635 -13.21 5
190.00	245.00	53.10	3.060 -13.85 3

At the end of the current mode of search the most critical circle which was found has the following values -
X-center = 185.00 Y-center = 240.00 Radius = 53.10
Factor of Safety = 2.538 Side Force Inclination = -11.95

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO

6	148.3	201.7	1029.3	1029.3	263.4
7	150.3	199.8	1194.1	1194.1	305.5
8	152.5	198.1	1317.5	1317.5	337.1
9	154.7	196.4	1430.4	1430.4	366.0
10	157.0	194.9	1531.5	1531.5	391.8
11	158.3	194.1	1584.1	1584.1	405.3
12	159.7	193.3	1637.4	1637.4	372.5
13	162.2	192.1	1699.7	1699.7	386.6
14	164.7	190.9	1746.6	1746.6	397.3
15	167.3	190.0	1777.1	1777.1	404.2
16	169.9	189.1	1790.2	1790.2	407.2
17	172.6	188.4	1785.1	1785.1	406.1
18	174.7	187.9	1769.5	1769.5	402.5
19	176.9	187.5	1742.6	1742.6	396.4
20	179.6	187.2	1694.8	1694.8	385.5
21	182.4	187.0	1626.0	1626.0	369.9
22	184.4	186.9	1565.0	1565.0	356.0
23	186.4	186.9	1488.6	1488.6	338.6
24	189.2	187.1	1364.5	1364.5	310.4
25	191.3	187.3	1252.9	1252.9	285.0
26	193.4	187.6	1159.2	1159.2	354.3
27	196.2	188.1	980.5	980.5	330.0
28	198.6	188.7	796.6	796.6	305.1
29	201.1	189.4	656.3	656.3	286.0
30	202.7	189.9	598.6	598.6	277.1
31	204.3	190.5	511.3	511.3	266.4
32	206.9	191.6	365.8	365.8	246.6
33	208.8	192.6	234.6	234.6	228.8

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .00 (= .199E-02)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = .01 (= .573E-02)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = 44.04 (= .440E+02)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .00 (= .866E-03)
SHOULD NOT EXCEED .100E+03

****** CAUTION ****** EFFECTIVE OR TOTAL NORMAL STRESS ON SHEAR SURFACE IS NEGATIVE AT POINTS ALONG THE UPPER ONE-HALF OF THE SHEAR SURFACE - A TENSION CRACK MAY BE NEEDED.

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:20:2004 Time: 15:39: 7 Input file: ec20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 39
****
* Final Results for Side Forces and Stresses Between Slices. *
* (Results for Critical Shear Surface in Case of a Search.) *
****

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = 2.538 Side Force Inclination = -11.95 Degrees

VALUES AT RIGHT SIDE OF SLICE

Slice No.	X-Right	Side Force	Y-Coord. of Side Force Location	Fraction of Height	Sigma at Top	Sigma at Bottom
1	148.4	-492.	212.2	.435	-124.0	-281.5
2	142.8	-554.	211.6	.593	-188.9	-51.5
3	143.6	-251.	215.7	ABOVE	-215.9	142.9
4	145.4	814.	202.5	BELOW	-310.1	489.9
5	147.3	2115.	202.9	.828	-348.8	729.1
6	149.3	3569.	202.1	.106	-373.8	928.8
7	151.4	5130.	201.0	.153	-395.5	1126.0
8	153.6	6669.	199.9	.186	-395.4	1291.1
9	155.8	8136.	198.9	.212	-388.9	1425.3
10	158.2	9484.	197.8	.233	-355.9	1533.2
11	158.5	9628.	197.7	.235	-352.5	1543.9
12	160.9	10917.	196.7	.250	-332.0	1653.7
13	163.4	12002.	195.8	.263	-302.3	1738.4
14	166.0	12856.	194.9	.276	-265.1	1800.1
15	168.6	13457.	194.2	.288	-221.2	1840.0
16	171.3	13790.	193.5	.300	-171.0	1858.7
17	174.0	13850.	192.9	.311	-114.6	1856.8
18	175.5	13766.	192.6	.318	-80.4	1847.1
19	178.2	13411.	192.1	.331	-13.6	1814.2
20	181.0	12808.	191.8	.345	61.1	1761.8
21	183.8	11984.	191.5	.360	145.2	1698.7
22	185.0	11566.	191.4	.367	185.1	1654.3
23	187.8	10493.	191.3	.385	286.8	1560.7
24	190.6	9310.	191.2	.405	401.4	1459.0
25	192.1	8633.	191.1	.417	472.1	1404.6
26	194.8	7115.	191.2	.459	702.8	1163.2
27	197.5	5611.	191.4	.523	1076.7	820.3
28	199.8	4441.	191.6	.608	1662.3	352.5
29	202.4	3102.	191.9	.609	1493.3	309.9
30	203.0	2804.	192.0	.611	1459.4	293.5
31	205.6	1570.	192.3	.616	1292.7	231.5
32	208.1	504.	192.6	.533	767.8	512.8
33	209.5	0.	-3349.6	BELOW	.8	.8

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .00 (= .199E-02)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = .01 (= .573E-02)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = 44.04 (= .440E+02)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .00 (= .866E-03)
SHOULD NOT EXCEED .100E+03

****** CAUTION ****** FORCES BETWEEN SLICES ARE NEGATIVE AT POINTS ALONG THE UPPER ONE-HALF OF THE SHEAR SURFACE - A TENSION CRACK MAY BE NEEDED.

****** CAUTION ****** SOME OF THE FORCES BETWEEN SLICES ACT AT POINTS ABOVE THE SURFACE OF THE SLOPE OR BELOW THE SHEAR SURFACE - EITHER A TENSION CRACK MAY BE NEEDED OR THE SOLUTION MAY NOT BE A VALID SOLUTION

END-OF-FILE ENCOUNTERED WHILE READING COMMAND
WORDS - END OF PROBLEM(S) ASSUMED

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn

TABLE NO. 1
COMPUTER PROGRAM DESIGNATION - UTEXAS3
Originally Coded By Stephen G. Wright
Version No. 1.208
Last Revision Date 2/22/98
(C) Copyright 1985-1998 S. G. Wright
All Rights Reserved

RESULTS OF COMPUTATIONS PERFORMED USING THIS COMPUTER PROGRAM SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY HAVE BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL DATA OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE ALGORITHMS AND ANALYTICAL PROCEDURES USED IN THE COMPUTER PROGRAM AND MUST HAVE READ ALL DOCUMENTATION FOR THIS PROGRAM BEFORE ATTEMPTING ITS USE.

NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS OR ADAPTABILITY OF THIS COMPUTER PROGRAM.

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 2
NEW PROFILE LINE DATA

PROFILE LINE 1 - MATERIAL TYPE = 1
Existing Dam

Point	X	Y
1	63.000	194.000
2	111.750	213.500
3	126.750	213.500
4	175.500	194.000

PROFILE LINE 2 - MATERIAL TYPE = 2
Common Fill

Point	X	Y
1	126.750	213.500
2	149.250	213.500

3	199.750	193.300
4	245.000	191.500

PROFILE LINE 3 - MATERIAL TYPE = 3
Foundation

Point	X	Y
1	.000	191.000
2	63.000	194.000
3	175.500	194.000
4	203.000	183.000
5	228.000	183.000
6	245.000	191.500
7	300.000	191.500

All new profile lines defined - No old lines retained
1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 3
NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS

DATA FOR MATERIAL TYPE 1
Existing Dam

Unit weight of material = 125.000

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - .000
Friction angle - - - - - 33.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 2
Common Fill

Unit weight of material = 120.000

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - .000
Friction angle - - - - - 33.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 3
Foundation

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - .000
Friction angle - - - - - 30.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

All new material properties defined - No old data retained
1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 5
NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS

Line No.	Point	X	Y
1 - Unit weight of water = 62.40			
1	1	.000	175.000
1	2	123.000	188.000
1	3	124.000	194.000
1	4	130.000	201.000
1	5	149.250	213.500
1	6	300.000	213.500

All new piezometric lines defined - No old lines retained
1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 10
NEW SURFACE PRESSURE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS

ALL NEW DATA INPUT - NO OLD DATA RETAINED

Surface Pressures -

Point	X	Y	Normal Pressure	Shear Stress
1	149.250	213.500	.000	.000
2	199.750	193.300	1260.000	.000
3	245.000	191.500	1373.000	.000
4	300.000	191.500	1373.000	.000

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,

By ISG, Date Aug 2004

TABLE NO. 15
NEW ANALYSIS/COMPUTATION DATA

Circular Shear Surface(s)

Automatic Search Performed

Starting Center Coordinate for Search at -
X = 230.000
Y = 240.000

Required accuracy for critical center (= minimum spacing between grid points) = 5.000

Critical shear surface not allowed to pass below Y = 150.000

For the initial mode of search
all circles pass through the point at -
X = 130.000
Y = 205.000

Search terminated after initial mode completed

Maximum number of iterations allowed for calculating the factor of safety = 200

THE FOLLOWING REPRESENT EITHER DEFAULT OR PREVIOUSLY DEFINED VALUES:

Initial trial estimate for the factor of safety = 3.000

Initial trial estimate for side force inclination = 15.000 degrees
(Applicable to Spencer's procedure only)

Allowed force imbalance for convergence = 100.000

Allowed moment imbalance for convergence = 100.000

Initial trial values for factor of safety (and side force inclination for Spencer's procedure) will be kept constant during search

Maximum subtended angle to be used for subdivision of the circle into slices = 3.00 degrees

Depth of crack = .000

Depth of water in crack = .000

Unit weight of water in crack = 62.400

Seismic coefficient = .000

Conventional (single-stage) computations to be performed

Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 16
NEW SLOPE GEOMETRY DATA

NOTE - NO DATA WERE INPUT, SLOPE GEOMETRY DATA
WERE GENERATED BY THE PROGRAM

Slope Coordinates -

Point	X	Y
1	.000	191.000
2	63.000	194.000
3	111.750	213.500
4	126.750	213.500
5	149.250	213.500
6	199.750	193.300
7	245.000	191.500
8	300.000	191.500

FATAL ERROR FOR INITIAL TRIAL CIRCLE FOR AUTOMATIC SEARCH
SEARCH ABORTED - See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 17
INFORMATION FOR CURRENT MODE OF SEARCH - All Circles Pass Through
the Fixed Point at X = 130.000 and Y = 205.000

Center Coordinates X	Center Coordinates Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	
80.00	90.00	125.40				Center of circle is below lowest point of slope - CIRCLE REJECTED
230.00	90.00	152.40				Center of circle is below lowest point of slope - CIRCLE REJECTED
380.00	90.00	275.18				Center of circle is below lowest point of slope - CIRCLE REJECTED
80.00	240.00	61.03				Opposite slope face - CIRCLE REJECTED
230.00	240.00	185.95				Bottom of circle exceeds allowable depth - CIRCLE REJECTED

380.00	240.00	252.44				Bottom of circle exceeds allowable depth - CIRCLE REJECTED
80.00	390.00	191.64				Opposite slope face - CIRCLE REJECTED
230.00	390.00	210.30	4.162	-2.13	5	
380.00	390.00	311.01				Bottom of circle exceeds allowable depth - CIRCLE REJECTED
80.00	540.00	338.71				Opposite slope face - CIRCLE REJECTED
230.00	540.00	349.61	4.181	-3.30	5	
380.00	540.00	418.00				Bottom of circle exceeds allowable depth - CIRCLE REJECTED
205.00	365.00	176.71	3.326	-1.93	4	
230.00	365.00	188.68				See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE						
255.00	365.00	203.04				See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE						
205.00	390.00	199.62	3.465	-1.84	4	
255.00	390.00	223.27				See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE						
205.00	415.00	222.99	3.705	-2.28	4	
230.00	415.00	232.59	4.075	-2.13	5	
255.00	415.00	244.39				See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE						
180.00	340.00	143.96	4.177	-1.85	5	
205.00	340.00	154.43	3.274	-2.11	4	
230.00	340.00	168.00				See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE						
180.00	365.00	167.63	4.703	-1.98	6	
180.00	390.00	191.64	5.281	-1.83	7	
180.00	315.00	120.83	3.722	-1.96	4	
205.00	315.00	133.14	3.264	-2.29	4	
230.00	315.00	148.66				See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE						
180.00	290.00	98.62	3.285	-2.04	4	
205.00	290.00	113.36	3.431	-2.44	5	
230.00	290.00	131.24				See Message on Next Line(s)
CIRCLE DOES NOT INTERSECT SLOPE						
155.00	265.00	65.00	6.841	-2.33	9	
180.00	265.00	78.10	2.921	-2.44	4	
205.00	265.00	96.05	3.874	-2.49	7	
155.00	290.00	88.68	6.940	-2.15	11	
155.00	315.00	112.81	8.179	-1.98	13	
155.00	240.00	43.01	5.386	-2.61	9	
180.00	240.00	61.03	3.121	-2.71	5	
205.00	240.00	82.76	4.846	-2.26	8	
165.00	250.00	57.81	3.789	-2.52	6	

180.00	250.00	67.27	2.959	-2.67	5
195.00	250.00	79.06	3.574	-2.57	6
165.00	265.00	69.46	4.178	-2.38	6
195.00	265.00	88.46	3.251	-2.57	5
165.00	280.00	82.76	4.519	-2.28	6
180.00	280.00	98.14	3.858	-2.19	4
195.00	280.00	99.25	3.113	-2.45	4
175.00	260.00	71.86	3.979	-2.46	4
180.00	260.00	74.33	2.912	-2.53	4
185.00	260.00	77.78	2.966	-2.57	4
175.00	265.00	75.00	3.135	-2.37	4
185.00	265.00	81.39	2.932	-2.51	4
175.00	270.00	79.06	3.214	-2.29	4
180.00	270.00	82.01	2.949	-2.36	4
185.00	270.00	85.15	2.916	-2.43	4
175.00	255.00	67.27	3.822	-2.56	4
180.00	255.00	70.71	2.923	-2.61	4
185.00	255.00	74.33	3.018	-2.62	5

At the end of the current mode of search the most critical
circle which was found has the following values -
X-center = 180.00 Y-center = 260.00 Radius = 74.33
Factor of Safety = 2.912 Side Force Inclination = -2.53

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 21
1-STAGE FINAL CRITICAL CIRCLE INFORMATION

X Coordinate of Center	180.000
Y Coordinate of Center	260.000
Radius	74.330
Factor of Safety	2.912
Side Force Inclination	-2.53

Number of circles tried - - - - - - 58
No. of circles F calc. for - - - - - 41

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 26
Coordinate, Weight, Strength and Pore Water Pressure
Information for Individual Slices for Conventional
Computations or First Stage of Multi-Stage Computations.
(Information is for the Critical Shear Surface in the
Case of an Automatic Search.)

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	122.0	213.5					
1	122.5	212.9	74.7	1	.00	33.00	.0
	123.0	212.3					
2	123.5	211.7	224.1	1	.00	33.00	.0
	124.0	211.1					
3	125.3	209.7	1254.6	1	.00	33.00	.0
	126.6	208.3					
4	126.7	208.2	76.3	1	.00	33.00	.0
	126.8	208.1					
5	128.1	206.8	2332.6	1	.00	33.00	.0
	129.5	205.4					
6	129.8	205.2	476.7	1	.00	33.00	.0
	130.0	205.0					
7	131.3	203.9	3155.6	1	.00	33.00	.0
	132.6	202.7					
8	134.2	201.5	4544.3	1	.00	33.00	136.9
	135.7	200.3					
9	137.3	199.2	5627.4	1	.00	33.00	408.2
	138.9	198.1					
10	140.5	197.0	6692.8	1	.00	33.00	673.8
	142.2	196.0					
11	143.9	195.1	7721.0	1	.00	33.00	933.8
	145.6	194.1					
12	145.7	194.1	540.5	1	.00	33.00	1069.1
	145.8	194.0					
13	147.5	193.2	8582.9	3	.00	30.00	1199.2
	149.3	192.3					
14	151.0	191.6	9288.7	3	.00	30.00	1368.4
	152.8	190.8					
15	154.7	190.1	9424.9	3	.00	30.00	1457.1
	156.5	189.5					
16	158.4	188.9	9444.4	3	.00	30.00	1533.9
	160.2	188.4					
17	162.1	187.9	9335.4	3	.00	30.00	1598.5
	164.0	187.4					
18	165.9	187.0	9095.8	3	.00	30.00	1650.8
	167.8	186.7					
19	169.7	186.4	8725.9	3	.00	30.00	1690.6
	171.7	186.1					
20	173.6	186.0	8138.6	3	.00	30.00	1717.7
	175.5	185.8					

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:42:47 Input file: ss21.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 26
Coordinate, Weight, Strength and Pore Water Pressure
Information for Individual Slices for Conventional
Computations or First Stage of Multi-Stage Computations.
(Information is for the Critical Shear Surface in the
Case of an Automatic Search.)

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure

```
      SHOULD NOT EXCEED      .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION  =        .01  (=  .919E-02)
      SHOULD NOT EXCEED      .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN =      14.23  (=  .142E+02)
      SHOULD NOT EXCEED      .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM   =        .00  (=  .149E-02)
      SHOULD NOT EXCEED      .100E+03


END-OF-FILE ENCOUNTERED WHILE READING COMMAND
WORDS - END OF PROBLEM(S) ASSUMED
```

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn

TABLE NO. 1

```
*************************************************
* COMPUTER PROGRAM DESIGNATION - UTEXAS3 *
* Originally Coded By Stephen G. Wright *
* Version No. 1.208 *
* Last Revision Date 2/22/98 *
* (C) Copyright 1985-1998 S. G. Wright *
* All Rights Reserved *
*************************************************
```

```
*****************************************************************
*                                                               *
*      RESULTS OF COMPUTATIONS PERFORMED USING THIS COMPUTER    *
* PROGRAM SHOULD NOT BE USED FOR DESIGN PURPOSES UNLESS THEY    *
* HAVE BEEN VERIFIED BY INDEPENDENT ANALYSES, EXPERIMENTAL      *
* DATA OR FIELD EXPERIENCE. THE USER SHOULD UNDERSTAND THE      *
* ALGORITHMS AND ANALYTICAL PROCEDURES USED IN THE COMPUTER     *
* PROGRAM AND MUST HAVE READ ALL DOCUMENTATION FOR THIS         *
* PROGRAM BEFORE ATTEMPTING ITS USE.                            *
*                                                               *
*      NEITHER SHINOAK SOFTWARE NOR STEPHEN G. WRIGHT           *
* MAKE OR ASSUME LIABILITY FOR ANY WARRANTIES, EXPRESSED OR     *
* IMPLIED, CONCERNING THE ACCURACY, RELIABILITY, USEFULNESS     *
* OR ADAPTABILITY OF THIS COMPUTER PROGRAM.                     *
*                                                               *
*****************************************************************
```

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 2

```
**************************
* NEW PROFILE LINE DATA *
**************************
```

PROFILE LINE 1 - MATERIAL TYPE = 1
Existing Dam

Point	X	Y
1	63.000	194.000
2	111.750	213.500
3	126.750	213.500
4	175.500	194.000

PROFILE LINE 2 - MATERIAL TYPE = 2
Common Fill

Point	X	Y
1	126.750	213.500
2	149.250	213.500

3	199.750	193.300
4	245.000	191.500

PROFILE LINE 3 - MATERIAL TYPE = 3
Foundation

Point	X	Y
1	.000	191.000
2	63.000	194.000
3	175.500	194.000
4	203.000	183.000
5	228.000	183.000
6	245.000	191.500
7	300.000	191.500

All new profile lines defined - No old lines retained
1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 3

```
*************************************************************************
* NEW MATERIAL PROPERTY DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
*************************************************************************
```

DATA FOR MATERIAL TYPE 1
Existing Dam

Unit weight of material = 125.000

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - .000
Friction angle - - - - - 33.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 2
Common Fill

Unit weight of material = 120.000

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - .000
Friction angle - - - - - 33.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

DATA FOR MATERIAL TYPE 3
Foundation

CONVENTIONAL (ISOTROPIC) SHEAR STRENGTHS
Cohesion - - - - - - - - .000
Friction angle - - - - - 30.000 degrees

Pore water pressures defined by piezometric line
Number of the piezometric line used = 1
Negative pore pressures set to zero

All new material properties defined - No old data retained
1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 5

```
*************************************************************************
* NEW PIEZOMETRIC LINE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
*************************************************************************
```

Line No.	Point	X	Y
1 - Unit weight of water = 62.40			
1	1	.000	175.000
1	2	123.000	188.000
1	3	124.000	194.000
1	4	130.000	201.000
1	5	149.250	213.500
1	6	300.000	213.500

All new piezometric lines defined - No old lines retained
1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 10

```
*************************************************************************
* NEW SURFACE PRESSURE DATA - CONVENTIONAL/FIRST-STAGE COMPUTATIONS *
*************************************************************************
```

ALL NEW DATA INPUT - NO OLD DATA RETAINED

Surface Pressures -

Point	X	Y	Normal Pressure	Shear Stress
1	149.250	213.500	.000	.000
2	199.750	193.300	1268.000	.000
3	245.000	191.500	1373.000	.000
4	300.000	191.500	1373.000	.000

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,

By ISG, Date Aug 2004

TABLE NO. 15

```
**********************************
* NEW ANALYSIS/COMPUTATION DATA *
**********************************
```

Circular Shear Surface(s)

Automatic Search Performed

Starting Center Coordinate for Search at -
X = 88.000
Y = 230.000

Required accuracy for critical center (= minimum spacing between grid points) = 5.000

Critical shear surface not allowed to pass below Y = 180.000

For the initial mode of search
all circles pass through the point at -
X = 149.250
Y = 213.500

Search terminated after initial mode completed

Maximum number of iterations allowed for calculating the factor of safety = 200

THE FOLLOWING REPRESENT EITHER DEFAULT OR PREVIOUSLY DEFINED VALUES:

Initial trial estimate for the factor of safety = 3.000

Initial trial estimate for side force inclination = 15.000 degrees
(Applicable to Spencer's procedure only)

Allowed force imbalance for convergence = 100.000

Allowed moment imbalance for convergence = 100.000

Initial trial values for factor of safety (and side force inclination for Spencer's procedure) will be kept constant during search

Maximum subtended angle to be used for subdivision of the circle into slices = 3.00 degrees

Depth of crack = .000

Depth of water in crack = .000

Unit weight of water in crack = 62.400

Seismic coefficient = .000

Conventional (single-stage) computations to be performed

Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 16
NEW SLOPE GEOMETRY DATA

NOTE - NO DATA WERE INPUT, SLOPE GEOMETRY DATA
WERE GENERATED BY THE PROGRAM

Slope Coordinates -

Point	X	Y
1	.000	191.000
2	63.000	194.000
3	111.750	213.500
4	126.750	213.500
5	149.250	213.500
6	199.750	193.300
7	245.000	191.500
8	300.000	191.500

FATAL ERROR FOR INITIAL TRIAL CIRCLE FOR AUTOMATIC SEARCH
SEARCH ABORTED - See Message on Next Line(s)
ONLY ONE SLICE GENERATED - CIRCLE REJECTED

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 17
INFORMATION FOR CURRENT MODE OF SEARCH - All Circles Pass Through
the Fixed Point at X = 149.250 and Y = 213.500

Center Coordinates X	Center Coordinates Y	Radius	1-Stage Factor of Safety	Side Force Inclination (degrees)	Iterations	
-70.00	80.00	256.70	Center of circle is below lowest point of slope - CIRCLE REJECTED			
80.00	80.00	158.39	Center of circle is below lowest point of slope - CIRCLE REJECTED			
230.00	80.00	156.02	Center of circle is below lowest point of slope - CIRCLE REJECTED			
-70.00	230.00	219.87	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
80.00	230.00	71.19	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
230.00	230.00	82.42	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
-70.00	380.00	275.30	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
80.00	380.00	188.33	3.510	10.63	4	
230.00	380.00	185.85	Opposite slope face - CIRCLE REJECTED			
-70.00	530.00	385.02	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
80.00	530.00	323.99	5.417	7.88	9	
230.00	530.00	326.64	See Message on Next Line(s)			
CIRCLE DOES NOT INTERSECT SLOPE						
55.00	355.00	170.82	2.940	9.40	3	
80.00	355.00	157.54	3.261	11.35	4	
105.00	355.00	148.26	See Message on Next Line(s)			
Last Trial Values =			6.232	37.93	201	
(Last Trial Values Shown Above Are Not Correct Final Values)						
FATAL ERROR IN CALCULATING FACTOR OF SAFETY						
SOLUTION DID NOT CONVERGE WITHIN 200 ITERATIONS						
55.00	380.00	191.33	2.812	10.37	3	
105.00	380.00	172.28	6.993	5.80	14	
55.00	405.00	213.44	See Message on Next Line(s)			
ONLY ONE SLICE GENERATED - CIRCLE REJECTED						
80.00	405.00	203.64	3.798	9.89	5	
105.00	405.00	196.55	7.697	5.32	15	
30.00	355.00	185.05	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
30.00	380.00	204.88	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
30.00	405.00	225.59	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
40.00	365.00	186.78	Bottom of circle exceeds allowable depth - CIRCLE REJECTED			
55.00	365.00	178.42	2.878	9.75	3	
70.00	365.00	170.98	2.917	12.51	3	
40.00	380.00	199.14	See Message on Next Line(s)			
CIRCLE DOES NOT INTERSECT SLOPE						
70.00	380.00	184.40	3.026	12.11	3	
40.00	395.00	211.84	See Message on Next Line(s)			
CIRCLE DOES NOT INTERSECT SLOPE						
55.00	395.00	204.51	See Message on Next Line(s)			
ONLY ONE SLICE GENERATED - CIRCLE REJECTED						
70.00	395.00	198.85	3.147	11.67	7	
50.00	375.00	189.56	2.988	9.25	3	
55.00	375.00	186.99	2.831	10.14	3	
60.00	375.00	184.52	See Message on Next Line(s)			
ONLY ONE SLICE GENERATED - CIRCLE REJECTED						

50.00	380.00	193.84	2.957	9.39	3
60.00	380.00	188.91	2.748	11.80	3
50.00	385.00	198.15	2.928	9.55	3
55.00	385.00	195.69	2.796	10.63	3
60.00	385.00	193.33	2.754	12.12	3
65.00	375.00	182.15	2.787	12.77	3
65.00	380.00	186.60	See Message on Next Line(s)		
ONLY ONE SLICE GENERATED - CIRCLE REJECTED					
65.00	385.00	191.08	2.879	12.69	3

At the end of the current mode of search the most critical
circle which was found has the following values -
X-center = 60.00 Y-center = 380.00 Radius = 188.91
Factor of Safety = 2.748 Side Force Inclination = 11.80

CAUTION FACTOR OF SAFETY COULD NOT BE COMPUTED FOR SOME
OF GRID POINTS AROUND THE MINIMUM
RESULTS MAY BE ERRONEOUS

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 21
1-STAGE FINAL CRITICAL CIRCLE INFORMATION

X Coordinate of Center	60.000
Y Coordinate of Center	380.000
Radius	188.912
Factor of Safety	2.748
Side Force Inclination	11.80
Number of circles tried	42
No. of circles F calc. for	21

CAUTION FACTOR OF SAFETY COULD NOT BE COMPUTED FOR SOME
OF GRID POINTS AROUND THE MINIMUM
RESULTS MAY BE ERRONEOUS

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 26
Coordinate, Height, Strength and Pore Water Pressure
Information for Individual Slices for Conventional
Computations or First Stage of Multi-Stage Computations.
(Information is for the Critical Shear Surface in the
Case of an Automatic Search.)

Slice No.	X	Y	Slice Weight	Matl. Type	Friction Cohesion	Friction Angle	Pore Pressure
	35.5	192.7					
1	40.4	192.2	868.3	3	.00	30.00	.0
	45.3	191.7					
2	50.2	191.4	2315.8	3	.00	30.00	.0
	55.2	191.1					
3	57.6	191.1	1494.2	3	.00	30.00	.0
	60.0	191.1					
4	61.5	191.1	1801.4	3	.00	30.00	.0
	63.0	191.1					
5	67.9	191.3	5566.5	3	.00	30.00	.0
	72.9	191.5					
6	77.8	192.0	9619.5	3	.00	30.00	.0
	82.7	192.5					
7	87.6	193.2	12986.9	3	.00	30.00	.0
	92.5	193.9					
8	92.8	194.8	793.2	3	.00	30.00	.0
	93.8	194.0					
9	97.9	195.8	15699.8	1	.00	33.00	.0
	102.7	196.8					
10	107.2	197.1	16398.8	1	.00	33.00	.0
	111.8	198.3					
11	116.5	199.8	16170.6	1	.00	33.00	.0
	121.2	201.3					
12	122.1	201.6	2698.6	1	.00	33.00	.0
	123.0	201.9					
13	123.5	202.1	1427.4	1	.00	33.00	.0
	124.0	202.3					
14	125.4	202.8	3689.7	1	.00	33.00	.0
	126.8	203.3					
15	128.4	203.9	3887.6	1	.00	33.00	.0
	130.0	204.5					
16	134.5	206.5	7823.9	1	.00	33.00	.0
	139.1	208.4					
17	139.2	208.5	88.1	1	.00	33.00	.0
	139.2	208.5					
18	143.7	210.7	2981.7	2	.00	33.00	.0
	148.1	212.9					
19	148.7	213.2	42.2	2	.00	33.00	.0
	149.2	213.5					

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 10:35:32 Input file: ss20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 27
Seismic Forces and Forces Due to Surface Pressures for
Individual Slices for Conventional Computations or the
First Stage of Multi-Stage Computations.
(Information is for the Critical Shear Surface in the
Case of an Automatic Search.)

Slice No.	Seismic X	Seismic Y	FORCES DUE TO SURFACE PRESSURES Normal	Shear

```
HEADING
 White Tanks. Steady-State Drained,
 Units lbs-ft ,
 By ISG, Date Aug 2004
Profile Lines
1   1   Existing Dam
63      194
111.75  213.5
126.75  213.5
175.5   194

2   2   Common Fill
126.75  213.5
149.25  213.5
199.75  193.3
245     191.5

3   3   Foundation
0       191
63      194
175.5   194
203     183
228     183
245     191.5
300     191.5


Material Properties
1    Existing Dam
  125
  Conventional Shear
  0    28
  No Piezometric Line
2    Common Fill
  120
  Conventional Shear
  0    28
  No Piezometric Line
3    Foundation
  118
  Conventional Shear
  0    25
  No Piezometric Line

Analysis and Computations
circular search
230   240   5    150
POINT
130   205
STOP
Iterations
200
SEISMIC
0.06

Plot
compute
```


ISG 4PRINT

Friction angle - - - - - 25.000 degrees

80.00 90.00 125.40 Center of circle is below lowest

```
     205.00     400.00     208.93 See Message on Next Line(s)
Last Trial Values =                1.904       3.30          5
(Last Trial Values Shown Above Are Not Correct Final Values)
VALUE OF SIDE FORCE INCLINATION BECAME OUTSIDE RANGE OF

FROM  -80.00 TO    10.00 DEGREES

     210.00     400.00     210.77   1.827     -15.01         5
     215.00     400.00     212.72   1.894     -12.92         5

     205.00     395.00     204.27 See Message on Next Line(s)
Last Trial Values =                1.902       3.17          5
(Last Trial Values Shown Above Are Not Correct Final Values)
VALUE OF SIDE FORCE INCLINATION BECAME OUTSIDE RANGE OF

FROM  -80.00 TO    10.00 DEGREES

     210.00     395.00     206.16   1.828     -14.62         5
     215.00     395.00     208.15   1.901     -12.69         6
```

At the end of the current mode of search the most critical circle which was found has the following values -
X-center =   210.00   Y-center =   400.00   Radius =   210.77
Factor of Safety =   1.827   Side Force Inclination = -15.01

```
***** CAUTION ***** FACTOR OF SAFETY COULD NOT BE COMPUTED FOR SOME
                    OF GRID POINTS AROUND THE MINIMUM
***** RESULTS MAY BE ERRONEOUS *****
```

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004   Time: 11: 0:33   Input file: ps20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 21

```
*****  1-STAGE FINAL CRITICAL CIRCLE INFORMATION  *****
X Coordinate of Center - - - - - - -   210.000
Y Coordinate of Center - - - - - - -   400.000
Radius - - - - - - - - - - - - - - -   210.772
Factor of Safety - - - - - - - - - -     1.827
Side Force Inclination - - - - - - -    -15.01

Number of circles tried  - - - - - -  147
No. of circles F calc. for - - - - -  120
```

```
***** CAUTION ***** FACTOR OF SAFETY COULD NOT BE COMPUTED FOR SOME
                    OF GRID POINTS AROUND THE MINIMUM
***** RESULTS MAY BE ERRONEOUS *****
```

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004   Time: 11: 0:33   Input file: ps20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 26


```
*****************************************************************
*  Coordinate, Weight, Strength and Pore Water Pressure         *
*  Information for Individual Slices for Conventional           *
*  Computations or First Stage of Multi-Stage Computations.     *
*  (Information is for the Critical Shear Surface in the        *
*  Case of an Automatic Search.)                                *
*****************************************************************
```

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	111.8	213.5					
1	116.8	211.1	3020.3	1	.00	28.00	.0
	121.7	208.6					
2	124.2	207.5	3795.0	1	.00	28.00	.0
	126.8	206.4					
3	131.9	204.3	11655.5	1	.00	28.00	.0
	137.0	202.3					
4	142.2	200.5	16656.7	1	.00	28.00	.0
	147.4	198.7					
5	148.3	198.4	3315.5	1	.00	28.00	.0
	149.3	198.2					
6	154.6	196.7	19016.5	1	.00	28.00	.0
	159.9	195.3					
7	162.6	194.6	9047.2	1	.00	28.00	.0
	165.4	194.0					
8	170.5	193.0	14604.9	3	.00	25.00	.0
	175.5	192.1					
9	179.3	191.5	9111.8	3	.00	25.00	.0
	183.1	190.9					
10	188.6	190.4	9701.2	2	.00	28.00	.0
	194.1	189.8					
11	196.9	189.7	3232.2	2	.00	28.00	.0
	199.8	189.5					
12	201.4	189.4	1491.7	2	.00	28.00	.0
	203.0	189.3					
13	206.5	189.3	3146.4	2	.00	28.00	.0
	210.0	189.2					
14	215.5	189.4	4369.3	2	.00	28.00	.0
	221.0	189.5					
15	224.5	189.8	2139.0	2	.00	28.00	.0
	228.0	190.0					
16	233.5	190.6	1770.7	2	.00	28.00	.0
	239.0	191.2					
17	240.3	191.4	85.1	2	.00	28.00	.0
	241.7	191.6					

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004   Time: 11: 0:33   Input file: ps20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 27

```
*****************************************************************
*  Seismic Forces and Forces Due to Surface Pressures for       *
*  Individual Slices for Conventional  Computations or the      *
*  First Stage of Multi-Stage Computations.                     *
*  (Information is for the Critical Shear Surface in the        *
*  Case of an Automatic Search.)                                *
*****************************************************************
```


				FORCES DUE TO SURFACE PRESSURES			
Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	116.8	-181.	212.3	0.	0.	.0	.0
2	124.2	-228.	210.5	0.	0.	.0	.0
3	131.9	-699.	208.9	0.	0.	.0	.0
4	142.2	-999.	206.9	0.	0.	.0	.0
5	148.3	-199.	205.9	0.	0.	.0	.0
6	154.6	-1141.	204.0	0.	0.	.0	.0
7	162.6	-543.	201.3	0.	0.	.0	.0
8	170.5	-876.	199.0	0.	0.	.0	.0
9	179.3	-547.	196.5	0.	0.	.0	.0
10	188.6	-582.	194.1	0.	0.	.0	.0
11	196.9	-194.	192.0	0.	0.	.0	.0
12	201.4	-90.	191.3	0.	0.	.0	.0
13	206.5	-189.	191.2	0.	0.	.0	.0
14	215.5	-262.	191.0	0.	0.	.0	.0
15	224.5	-128.	191.0	0.	0.	.0	.0
16	233.5	-106.	191.3	0.	0.	.0	.0
17	240.3	-5.	191.6	0.	0.	.0	.0

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004   Time: 11: 0:33   Input file: ps20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 29

```
**********************************************************************
*  Information Generated During Iterative Solution for the Factor    *
*  of Safety and Side Force Inclination by Spencer's Procedure       *
**********************************************************************

        Trial      Trial
        Factor   Side Force    Force       Moment                 Delta
Iter-     of    Inclination  Imbalance   Imbalance    Delta-F     Theta
ation   Safety   (degrees)     (lbs.)    (ft.-lbs.)             (degrees)

   1   3.00000   -15.0000  -.1276E+05   .2964E+07
First-order corrections to F and THETA .........  -.194E+01  .359E-01
Values factored by  .258E+00 - Deltas too large   -.500E+00  .926E-02

   2   2.50000   -14.9907  -.8803E+04   .2044E+07
First-order corrections to F and THETA .........  -.925E+00  .457E-01
Values factored by  .541E+00 - Deltas too large   -.500E+00  .247E-01

   3   2.00000   -14.9660  -.2837E+04   .6591E+06
First-order corrections to F and THETA .........  -.189E+00 -.143E+00
Second-order correction - Iteration   1 ........  -.174E+00 -.143E+00
Second-order correction - Iteration   2 ........  -.174E+00 -.143E+00

   4   1.82609   -15.1090   .2266E+02  -.6080E+04
First-order corrections to F and THETA .........   .102E-02  .986E-01
Second-order correction - Iteration   1 ........   .102E-02  .986E-01

   5   1.82711   -15.0104   .6638E-03  -.5270E+01
First-order corrections to F and THETA .........  -.147E-05  .625E-03
```



```
Factor of Safety - - - - - - - -     1.827
Side Force Inclination - - - - -   -15.01
Number of Iterations - - - - - -     5
```

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004   Time: 11: 0:33   Input file: ps20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 30

```
******************************************************************
*  Final Results for Stresses Along the Shear Surface            *
*  (Results for Critical Shear Surface in Case of a Search.)     *
******************************************************************
```

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = 1.827   Side Force Inclination = -15.01 Degrees

--------- VALUES AT CENTER OF BASE OF SLICE---------

Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	116.8	211.1	250.7	250.7	73.0
2	124.2	207.5	631.1	631.1	183.7
3	131.9	204.3	977.1	977.1	284.4
4	142.2	200.5	1410.7	1410.7	410.5
5	148.3	198.4	1654.8	1654.8	481.6
6	154.6	196.7	1635.8	1635.8	476.0
7	162.6	194.6	1538.5	1538.5	447.7
8	170.5	193.0	1379.5	1379.5	352.1
9	179.3	191.5	1164.6	1164.6	297.2
10	188.6	190.4	888.1	888.1	258.5
11	196.9	189.7	589.4	589.4	171.5
12	201.4	189.4	478.0	478.0	139.1
13	206.5	189.3	474.9	474.9	138.2
14	215.5	189.4	429.5	429.5	125.0
15	224.5	189.8	341.9	341.9	99.5
16	233.5	190.6	184.9	184.9	53.8
17	240.3	191.4	36.0	36.0	10.5

```
CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION      =          .00  (=  .330E-02)
     SHOULD NOT EXCEED        .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION    =          .00  (=  .136E-02)
     SHOULD NOT EXCEED        .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN   =         4.70  (=  .470E+01)
     SHOULD NOT EXCEED        .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM     =          .00  (=  .973E-03)
     SHOULD NOT EXCEED        .100E+03
```

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004   Time: 11: 0:33   Input file: ps20.inn
White Tanks. Steady-State Drained,
Units lbs-ft ,
By ISG, Date Aug 2004

```
HEADING
 White Tanks. Rapid Drawdown,
 Units lbs-ft ,
 By ISG, Date Aug 2004
Profile Lines
1   1   Existing Dam
63      194
111.75  213.5
126.75  213.5
175.5   194

2   2   Common Fill
126.75  213.5
149.25  213.5
199.75  193.3
245     191.5

3   3   Foundation
0       191
63      194
175.5   194
203     183
228     183
245     191.5
300     191.5


Material Properties
1    Existing Dam
  125
  Conventional Shear
  500    19
  Piezometric Line
  1
2    Common Fill
  120
  Conventional Shear
  500    19
  Piezometric Line
  1
3    Foundation
  118
  Conventional Shear
  0      30
  Piezometric Line
  1

Piezometric Line
1   62.4
0       175
123     188
124     194
130     201
149.25  213.5
199.75  193.3
245     191.5
300     191.5


Analysis and Computations
circular search
230   240   5    150
POINT
199.75   193.3
STOP
Iterations
200

Plot
compute
```


1-4-4PRINT

Unit weight of material = 118.000

1	.000	191.000
2	63.000	194.000

Date: 8:26:2004 Time: 15: 8:37 Input file: rd20.inn
White Tanks. Rapid Drawdown,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 26

Coordinate, Weight, Strength and Pore Water Pressure Information for Individual Slices for Conventional Computations or First Stage of Multi-Stage Computations. (Information is for the Critical Shear Surface in the Case of an Automatic Search.)

Slice No.	X	Y	Slice Weight	Matl. Type	Cohesion	Friction Angle	Pore Pressure
	167.9	189.7					
21	168.8	189.4	3655.9	3	.00	30.00	1016.7
	169.8	189.1					
22	170.7	188.8	3652.5	3	.00	30.00	1003.2
	171.7	188.6					
23	172.6	188.4	3612.7	3	.00	30.00	982.9
	173.6	188.2					
24	174.5	188.1	3513.5	3	.00	30.00	955.9
	175.5	187.9					
25	176.5	187.8	3430.8	3	.00	30.00	922.3
	177.4	187.7					
26	178.4	187.7	3293.4	3	.00	30.00	881.9
	179.4	187.7					
27	179.7	187.7	978.8	3	.00	30.00	852.8
	180.8	187.7					
28	181.8	187.7	3064.3	3	.00	30.00	819.5
	182.8	187.7					
29	182.9	187.8	2852.7	3	.00	30.00	764.4
	183.9	187.9					
30	184.9	188.0	2612.4	3	.00	30.00	703.1
	185.8	188.1					
31	186.8	188.3	2346.3	3	.00	30.00	635.8
	187.8	188.5					
32	188.3	188.6	1116.7	3	.00	30.00	581.2
	188.8	188.7					
33	189.7	188.9	1896.8	2	500.00	19.00	522.2
	190.7	189.2					
34	191.6	189.5	1575.1	2	500.00	19.00	448.6
	192.5	189.8					
35	193.4	190.2	1241.4	2	500.00	19.00	353.8
	194.3	190.5					
36	195.2	190.9	899.2	2	500.00	19.00	261.9
	196.1	191.3					
37	197.0	191.8	553.3	2	500.00	19.00	165.3
	197.9	192.2					
38	198.7	192.7	208.5	2	500.00	19.00	64.1
	199.6	193.2					
39	199.7	193.2	2.3	2	500.00	19.00	6.2
	199.8	193.3					

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 15: 8:37 Input file: rd20.inn
White Tanks. Rapid Drawdown,

Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 27

Seismic Forces and Forces Due to Surface Pressures for Individual Slices for Conventional Computations or the First Stage of Multi-Stage Computations. (Information is for the Critical Shear Surface in the Case of an Automatic Search.)

			FORCES DUE TO SURFACE PRESSURES				
Slice No.	X	Seismic Force	Y for Seismic Force	Normal Force	Shear Force	X	Y
1	144.8	0.	213.8	0.	0.	.0	.0
2	145.2	0.	212.4	0.	0.	.0	.0
3	145.8	0.	211.8	0.	0.	.0	.0
4	146.6	0.	210.9	0.	0.	.0	.0
5	147.5	0.	210.0	0.	0.	.0	.0
6	148.3	0.	209.4	0.	0.	.0	.0
7	148.9	0.	208.9	0.	0.	.0	.0
8	149.8	0.	208.1	0.	0.	.0	.0
9	151.0	0.	207.1	0.	0.	.0	.0
10	152.3	0.	206.1	0.	0.	.0	.0
11	153.6	0.	205.1	0.	0.	.0	.0
12	155.1	0.	204.1	0.	0.	.0	.0
13	156.5	0.	203.2	0.	0.	.0	.0
14	158.1	0.	202.3	0.	0.	.0	.0
15	159.0	0.	201.8	0.	0.	.0	.0
16	160.0	0.	201.3	0.	0.	.0	.0
17	161.7	0.	200.5	0.	0.	.0	.0
18	163.4	0.	199.7	0.	0.	.0	.0
19	165.2	0.	198.9	0.	0.	.0	.0
20	167.0	0.	198.2	0.	0.	.0	.0
21	168.8	0.	197.5	0.	0.	.0	.0
22	170.7	0.	196.9	0.	0.	.0	.0
23	172.6	0.	196.3	0.	0.	.0	.0
24	174.5	0.	195.8	0.	0.	.0	.0
25	176.5	0.	195.3	0.	0.	.0	.0
26	178.4	0.	194.8	0.	0.	.0	.0
27	179.7	0.	194.5	0.	0.	.0	.0
28	181.8	0.	194.3	0.	0.	.0	.0
29	182.9	0.	193.9	0.	0.	.0	.0
30	184.9	0.	193.6	0.	0.	.0	.0
31	186.8	0.	193.4	0.	0.	.0	.0
32	188.3	0.	193.2	0.	0.	.0	.0
33	189.7	0.	193.1	0.	0.	.0	.0
34	191.6	0.	193.0	0.	0.	.0	.0
35	193.4	0.	193.0	0.	0.	.0	.0
36	195.2	0.	193.0	0.	0.	.0	.0
37	197.0	0.	193.1	0.	0.	.0	.0
38	198.7	0.	193.2	0.	0.	.0	.0
39	199.7	0.	193.3	0.	0.	.0	.0

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 15: 8:37 Input file: rd20.inn
White Tanks. Rapid Drawdown,

Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 29

Information Generated During Iterative Solution for the Factor of Safety and Side Force Inclination by Spencer's Procedure

Iteration	Trial Factor of Safety	Trial Side Force Inclination (degrees)	Force Imbalance (lbs.)	Moment Imbalance (ft.-lbs.)	Delta-F	Delta Theta (degrees)
1	3.00000	-15.0000	-.9634E+04	.2189E+07		
First-order corrections to F and THETA					-.187E+01	-.425E+01
Values factored by .268E+00 - Deltas too large					-.500E+00	-.114E+01
2	2.50000	-16.1381	-.6574E+04	.1484E+07		
First-order corrections to F and THETA					-.599E+00	-.114E+02
Values factored by .757E+00 - Deltas too large					-.453E+00	-.859E+01
3	2.04696	-24.7325	-.3667E+03	-.4045E+05		
First-order corrections to F and THETA					-.482E+00	.148E+02
Values factored by .581E+00 - Deltas too large					-.280E+00	.859E+01
4	1.76647	-16.1381	.5152E+03	-.1797E+06		
First-order corrections to F and THETA					-.951E-01	.678E+01
Second-order correction - Iteration 1					-.795E-01	.678E+01
Second-order correction - Iteration 2					-.794E-01	.678E+01
Second-order correction - Iteration 3					-.794E-01	.678E+01
5	1.68789	-9.3579	-.2450E+02	-.5295E+04		
First-order corrections to F and THETA					-.270E-01	.164E+01
Second-order correction - Iteration 1					-.263E-01	.164E+01
Second-order correction - Iteration 2					-.263E-01	.164E+01
6	1.66084	-7.7169	-.2705E-01	-.9692E+02		
First-order corrections to F and THETA					-.238E-03	.162E-01
Second-order correction - Iteration 1					-.237E-03	.162E-01
7	1.66060	-7.7007	-.1205E-02	.3198E+00		
First-order corrections to F and THETA					.553E-07	-.940E-05

Factor of Safety - - - - - - - - 1.661
Side Force Inclination - - - - - -7.70
Number of Iterations - - - - - - 7

1 UTEXAS3 - VER. 1.208 - 2/22/98 - (C) 1985-1998 S. G. WRIGHT
Ten (10) copies licensed to Woodward-Clyde Int'l - Denver, CO
Date: 8:26:2004 Time: 15: 8:37 Input file: rd20.inn
White Tanks. Rapid Drawdown,
Units lbs-ft ,
By ISG, Date Aug 2004

TABLE NO. 38

Final Results for Stresses Along the Shear Surface (Results for Critical Shear Surface in Case of a Search.)

SPENCER'S PROCEDURE USED TO COMPUTE FACTOR OF SAFETY
Factor of Safety = 1.661 Side Force Inclination = -7.70 Degrees

	VALUES AT CENTER OF BASE OF SLICE				
Slice No.	X-center	Y-center	Total Normal Stress	Effective Normal Stress	Shear Stress
1	144.8	212.6	-361.4	-361.4	226.2
2	145.2	211.3	-251.2	-251.2	249.8
3	145.8	210.1	-119.8	-198.7	261.5
4	146.6	208.3	86.3	-129.5	274.2
5	147.5	206.6	291.7	-68.9	286.8
6	148.3	205.2	455.4	-21.3	296.7
7	148.9	204.3	576.8	14.2	304.8
8	149.8	203.0	713.6	73.5	316.3
9	151.0	201.5	862.4	155.4	333.3
10	152.3	200.0	1003.0	235.1	349.8
11	153.6	198.6	1134.7	312.0	365.8
12	155.1	197.2	1256.7	385.7	381.1
13	156.5	196.0	1368.6	455.6	395.6
14	158.1	194.8	1469.7	521.4	409.2
15	159.0	194.1	1525.3	558.4	416.9
16	160.0	193.5	1657.5	676.2	235.1
17	161.7	192.5	1714.9	712.8	247.8
18	163.4	191.6	1761.4	745.4	259.1
19	165.2	190.7	1796.6	773.4	268.9
20	167.0	190.0	1820.0	796.6	277.0
21	168.8	189.4	1831.3	814.5	283.2
22	170.7	188.8	1830.1	826.8	287.5
23	172.6	188.4	1816.8	833.1	289.6
24	174.5	188.1	1788.9	833.8	289.6
25	176.5	187.8	1751.2	828.9	288.2
26	178.4	187.7	1702.6	820.6	285.3
27	179.7	187.7	1664.8	812.8	282.3
28	181.8	187.7	1618.2	798.7	277.7
29	182.9	187.8	1537.3	772.9	268.7
30	184.9	188.8	1441.8	738.7	256.8
31	186.8	188.3	1331.2	695.4	241.8
32	188.3	188.6	1237.6	656.5	228.2
33	189.7	188.9	1238.2	708.8	447.9
34	191.6	189.5	1097.6	657.8	437.3
35	193.4	190.2	951.1	597.3	425.8
36	195.2	190.9	798.4	528.5	410.7
37	197.0	191.8	615.2	450.8	394.4
38	198.7	192.7	425.8	368.9	375.9
39	199.7	193.2	313.1	306.9	364.7

CHECK SUMS - (ALL SHOULD BE SMALL)
SUM OF FORCES IN VERTICAL DIRECTION = .00 (= .199E-02)
SHOULD NOT EXCEED .100E+03
SUM OF FORCES IN HORIZONTAL DIRECTION = .01 (= .559E-02)
SHOULD NOT EXCEED .100E+03
SUM OF MOMENTS ABOUT COORDINATE ORIGIN = -.38 (= -.376E+00)
SHOULD NOT EXCEED .100E+03
SHEAR STRENGTH/SHEAR FORCE CHECK-SUM = .00 (= .923E-03)
SHOULD NOT EXCEED .100E+03

Appendix G.3
Sliding and Overturning Stability Analyses

URS **EXHIBIT 4.7-2**

CALCULATION COVER SHEET

Client: FCDMC Project Name: White Tanks FRS #3

Project/Calculation Number: 23443748

Title: Soil Cement Section Stability

Total Number of Pages (including cover sheet): 31

Total Number of Computer Runs: 8

Prepared by: Ed Villano Date: 10-25-04

Checked by: Todd Ringsmuth / Rich Millet Date: 10-25-04

Description and Purpose:

See attached

Design Basis/References/Assumptions

See attached

Remarks/Conclusions/Results:

See attached

Calculation Approved by: Todd Ringsmuth 10-25-04
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

Project Manager/Date

Stability Calculation
Soil Cement Core
White Tanks FRS No. 3

Problem

Estimate the factors of safety for the fissure risk zone embankment for the following cases:

Cases 1 and 2 – Soil cement section with upstream and downstream fill. No uplift is included based on results of seepage modeling. It is assumed that fissure flow is not present for this case. The soil cement section has a vertical upstream face and a 0.65:1 (horizontal:vertical) downstream face. The cases evaluate reservoir loading of the PMF and 200-year storm (Spillway Flood).

Cases 3 and 4 – Soil cement section without upstream and downstream fill. It is assumed that fissure flow has occurred and washed away the downstream fill and soils. No uplift is included for this case because it is assumed that if the downstream fill and soils wash away from the dam (including the Holocene soils), the downstream water surface will match the toe of the soil cement core. The soil cement section has a vertical upstream face and a 0.65:1 (horizontal:vertical) downstream face. The cases evaluate reservoir loading of the PMF and Spillway Flood.

Cases 5 and 6 – Soil cement section without upstream and downstream fill. It is assumed that fissure flow has occurred and washed away the downstream fill and soils. The soil cement section has upstream and downstream slopes of 0.6:1. These cases were run to allow comparison to the design presented in the 90 percent submittal. No uplift is included for this case because it is assumed that if the downstream fill and soils wash away from the dam (including the Holocene soils), the downstream water surface will match the toe of the soil cement core. The cases evaluate reservoir loading of the PMF and Spillway Flood.

Cases 7 and 8 – Soil cement section without upstream and downstream fill. It is assumed that fissure flow has occurred and washed away the downstream fill and soils. These cases were run to run to evaluate the effect of uplift on the soil cement core assuming a layer has debonded and allows uplift internally. The soil cement section has a vertical upstream face and a 0.65:1 (horizontal:vertical) downstream face. Both cases were run for a reservoir loading of the PMF.

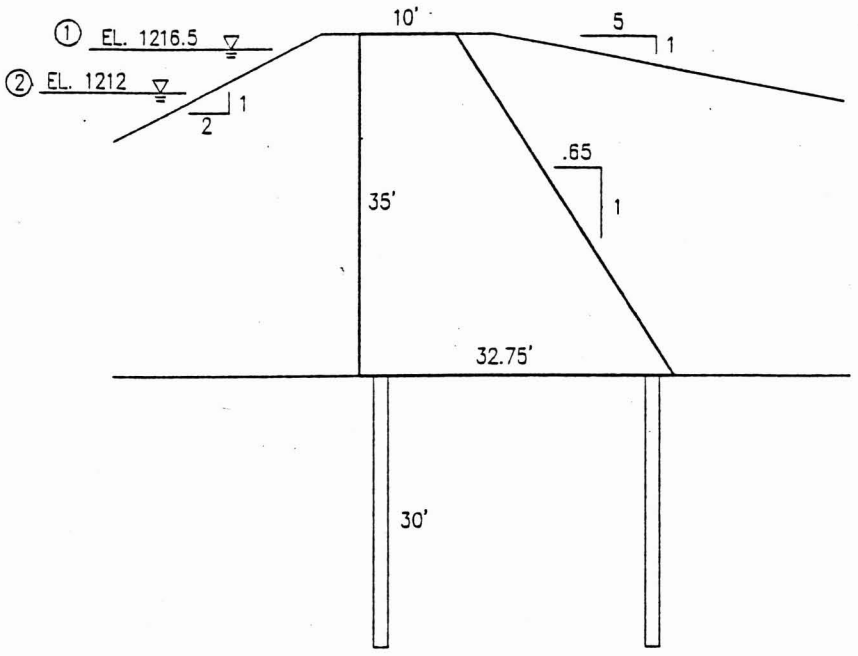
Results

The stability evaluation represents a 2-dimensinal analysis of the soil cement section. The model used to calculate stability factors of safety are provided in Appendix A. The models provided for each case include additional information that is not relevant to a 2-dimensional analysis. The relevant sections of the model are 1, 2, 3, 5, and 8.

The stability modeling results are provided in Table 1. Each of the 8 cases are presented on Figure 1, with a general cross-section of loads shown on Figure 2.

TABLE 1
White Tanks FRS No. 3
Phase 1 Soil Cement Structure
Stability Analyses

Case No.	Case Description	Downstream Slope of Soil Cement Core			
		0.6:1		0.65:1	
		Sliding FOS	O/T FOS	Sliding FOS	O/T FOS
1	Modified Section, no uplift, reservoir at PMF (1216.5), with upstream and downstream fill	--	--	10+	5.3
2	Modified Section, no uplift, reservoir at emergency spillway (1212), with upstream and downstream fill	--	--	10+	6.6
3	Modified Section, zero uplift at downstream toe, reservoir at PMF (1216.5), no upstream or downstream fill	--	--	1.2	1.6
4	Modified Section, zero uplift at downstream toe, reservoir at emergency spillway (1212) no upstream or downstream fill	--	--	1.7	2.2
5	Original Design Section (0.6:1 upstream and downstream slopes), zero uplift at downstream toe, reservoir at PMF (1216.5), no upstream or downstream fill	2.1	2.0	--	--
6	Original Design Section (0.6:1 upstream and downstream slopes), zero uplift at downstream toe, reservoir at emergency spillway (1212), no upstream or downstream fill	2.6	2.0	--	--
7	Modified Section, with uplift applied at 1/3 full section (zero uplift at downstream end), reservoir at PMF (1216.5), no upstream or downstream fill, Phi = 35	--	--	3.2	2.8
8	Modified Section, with uplift applied at 2/3 full section (zero uplift at downstream end), reservoir at PMF (1216.5), no upstream or downstream fill, Phi = 35	--	--	1.6	2.1

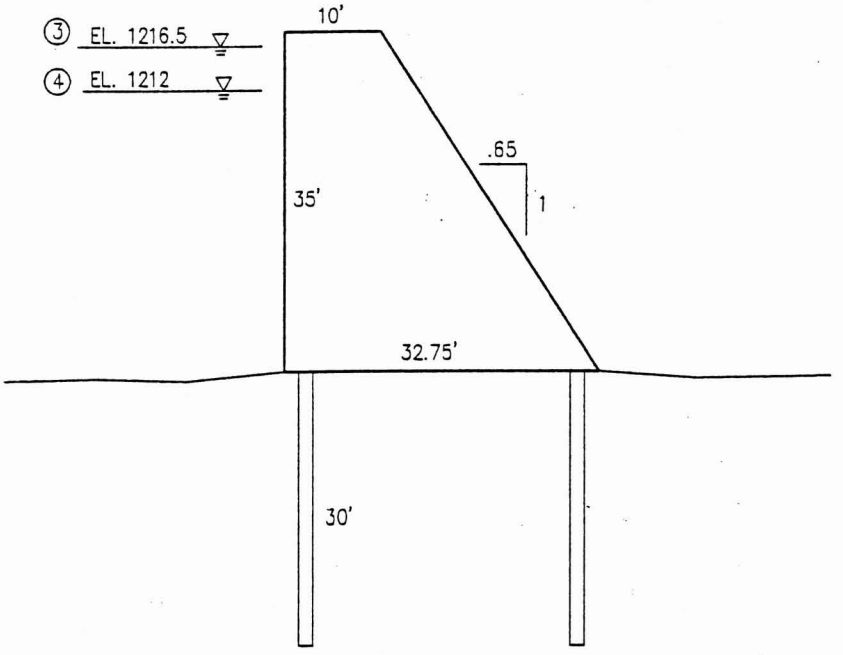


A – UNUSUAL LOADING CONDITIONS–MODIFIED SECTION

CASE ① – PMF

CASE ② – SPILLWAY FLOOD – 200 YR. STORM

NOTE: SEEP–W ANALYSIS INDICATE NO UPLIFT PRESSURE FOR THESE TWO CASES. SEE DESIGN REPORT APPENDIX G–1.



B – EXTREME LOADING CONDITIONS–MODIFIED SECTION

CASE ③ – PMF + UPLIFT + COMPLETE UP AND DOWNSTREAM FISSURE EROSION

CASE ④ – SPILLWAY FLOOD + UPLIFT + COMPLETE UP AND DOWNSTREAM FISSURE EROSION

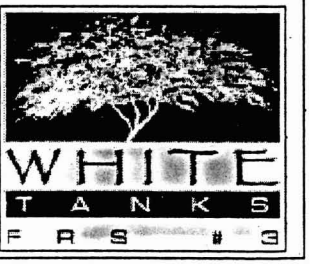
WHITE TANKS F.R.S. NO. 3

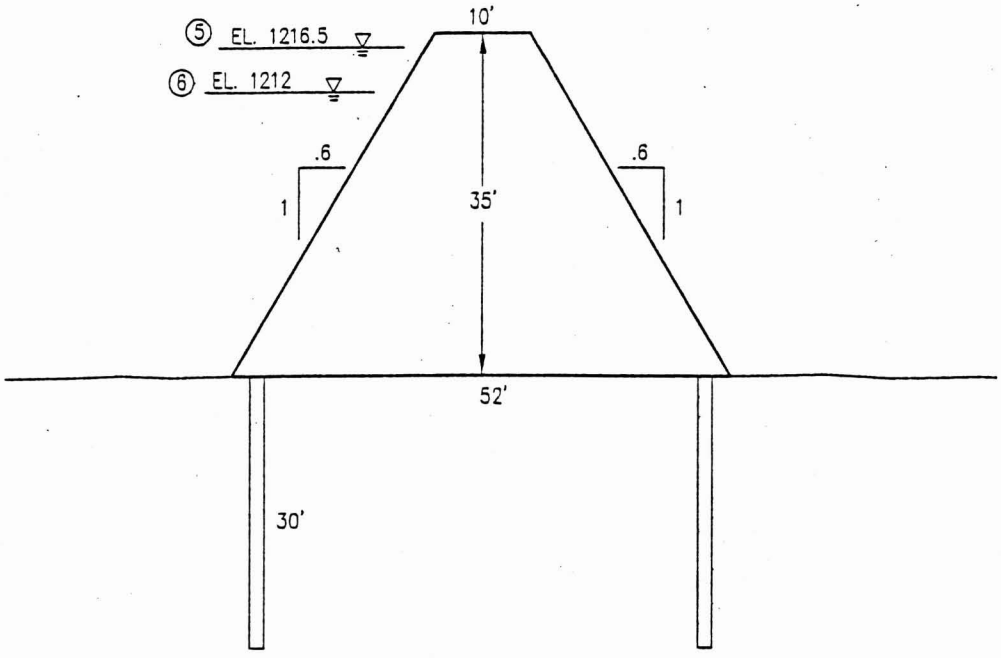
FIGURE 1

URS JOB NO. 23443748
DATE: 10-28-04

URS

Flood Control District of Maricopa County

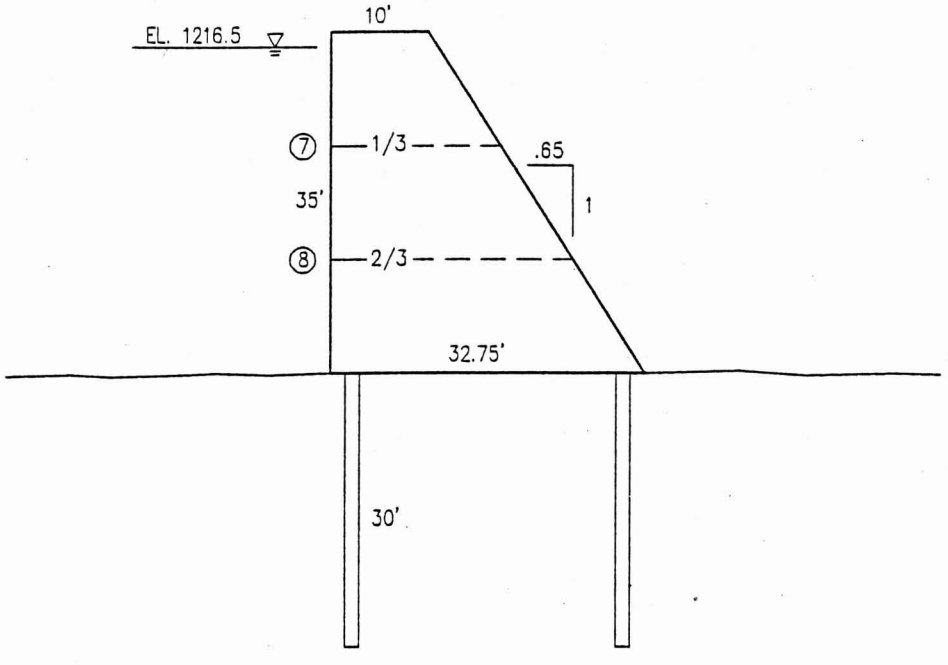




C – EXTREME LOADING CONDITIONS–ORIGINAL SECTION

CASE ⑤ – PMF + UPLIFT + COMPLETE UP AND DOWNSTREAM FISSURE EROSION

CASE ⑥ – SPILLWAY FLOOD + UPLIFT + COMPLETE UP AND DOWNSTREAM FISSURE EROSION



D – EXTREME LOADING CONDITIONS–MODIFIED SECTION

CASE ⑦ – PMF + COMPLETE UP AND DOWNSTREAM FISSURE EROSION + DEBONDING AT AT 1/3 DAM HEIGHT WITH UPLIFT

CASE ⑧ – PMF + COMPLETE UP AND DOWNSTREAM FISSURE EROSION + DEBONDING AT AT 2/3 DAM HEIGHT WITH UPLIFT

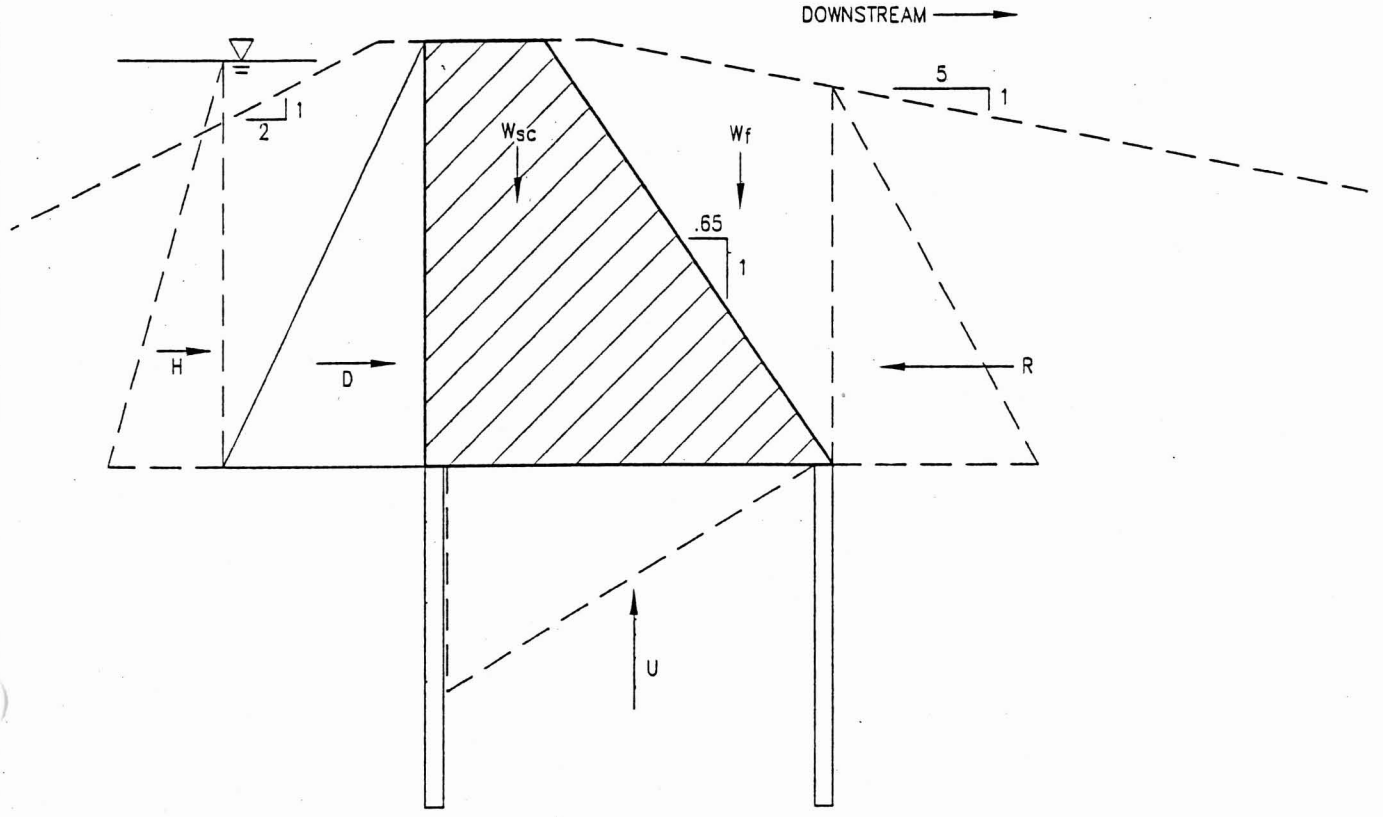
WHITE TANKS F.R.S. NO. 3
FIGURE 1 - CONTINUED

URS JOB NO. 23443748
DATE: 10-26-04

URS

Flood Control District of Maricopa County

WHITE TANKS FAS # 3



$$\text{F.S. (SLIDING)} = \frac{(P-U)\tan\phi}{V}$$

LEGEND

W_{sc} = SOIL CEMENT LOAD

W_f = SOIL EMBANKMENT VERTICAL LOAD

R = RESISTANCE "AT REST" SOIL HORIZONTAL FORCE

D = DRIVING "AT REST" SOIL HORIZONTAL FORCE

U = UPLIFT FORCE (DUE TO FISSURE)

H = RESERVOIR WATER LOAD

$P = W_{sc} + W_f$

$V = H+D-R$

WHITE TANKS F.R.S. NO. 3

FIGURE 2 - PROGRESSIVE STABILITY ANALYSIS LOADING DIAGRAM AND LEGEND PHASE I FRS NO. 3 EMBANKMENT

URS JOB NO. 23443748
DATE: 10-19-04

URS

Flood Control District of Maricopa County

WHITE TANKS FRS # 3

Project: White Tanks FRS No. 3
Feature: Phase 1 Soil Cement Structure
Detail: Stability Analysis; Case 1 (No Fissure Uplift; PMF Reservoir Elev. 1216.5, Full U/S and D/S Silt)
File: WT_Case_1

Job No: 23443748 **Date:** 10/26/04
By: Ed Villano **Time:** 03:09 PM
Chkd.By:

Input the type of measurement system to be used ('english' , 'metric' , or 'SI'):
english

[1]. Gravity Cross-section:

(a) Overall Dimensions, Elev., Width, & Crest Station:

Dam Crest Elevation =	35.000	feet
Section Elevation =	0.000	feet
Base Elevation =	0.000	feet
Crest Station =	100.00	feet
Crest Thickness =	10.000	feet
Width =	1.000	feet
Section Elevation Length =	32.750	feet
Base Elevation Length =	32.750	feet
Conversion Length =	12.000	feet
Drain Distance from D/S Toe of Dam (Section El.) =	0.000	feet
Drain of U/S Uplift Effectiveness =	0%	

For Drain Distance Enter the following values:
D>0 assumes drained condition with drains located at 'D' from Toe.
D=0 assumes undrained uplift condition.
D<0 assumes no uplift condition.

For Drain Effectiveness Enter the following values:
for D<0 ,E is unused.
for D=0 ,E is percent reduction for all uplift pressure along base
for D>0 ,E is percent reduction for uplift pressure at drain location HW - e (HW - TW)

(b) Section Slopes, Upstream and Downstream Face

A negitive upstream slope signifies a ledge at the designated elevation, a length equal to the slope number.

Upstream Slope

Slope (H/V) =	0.000	
Slope Top Elevation =	0.000	feet

Downstream Slopes

Slope 1 (H/V) =	0.650	
Slope 1 Elevation =	35.000	feet
Slope 2 (H/V) =	0.650	
Slope 2 Elevation =	34.708	feet
Slope 3 (H/V) =	0.650	
Slope 3 Elevation =	32.330	feet
Slope 4 (H/V) =	0.650	
Slope 4 Elevation =	27.594	feet
Slope 5 (H/V) =	0.650	
Slope 5 Elevation =	15.000	feet
Slope 6 (H/V) =	0.650	
Slope 6 Elevation =	0.000	feet

[2]. Material Properties:

Concrete Unit Weight =	125.00	lb/ft^3
Water Unit Weight =	62.40	lb/ft^3
Ice Force =	0.00	lb/ft^2
Silt (horizontal) Unit Weight =	85.00	lb/ft^3
Silt (vertical) Unit Weight =	120.00	lb/ft^3
Coefficient of Internal Friction =	35.000	degrees
Foundation Cohesion =	0.000	lb/in^2
Tensile Strength at Section Elev. =	0.000	lb/in^2
Safety Factor =	3.000	

[3]. Reservior and Tailwater Elevations:

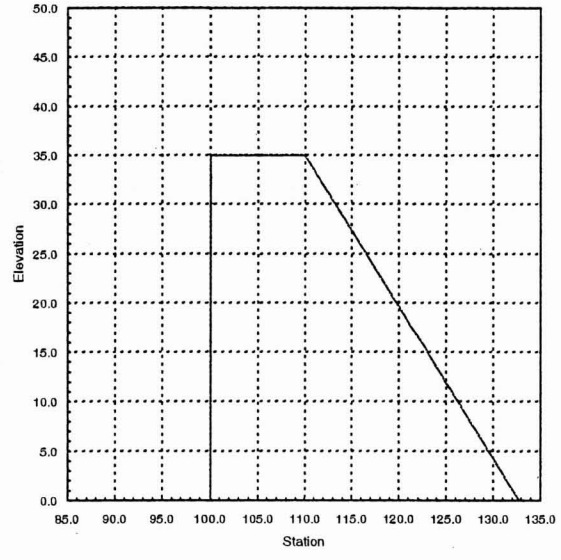
Reservoir Water Surface Elevation =	33.500	feet
Reservoir Silt Elevation =	35.000	feet
Ice Thickness =	0.000	feet
Tailsilt Elevation =	35.000	feet
Tailwater Elevation =	0.000	feet
Tailwater Coefficient =	67%	
Post Tension Anchor Force =	0.00E+00	lbs.
Post Tension Distance from Dam's Base Toe =	32.750	feet

The tailwater coefficient is input as a percentage. It is used to reduce the effective tailwater load on the downstream face of the structure due to several characteristics(eg. air entrainment, velocity, etc.). The uplift pressure at the toe is not effected by the coefficient.

[4]. Earthquake Parameters:

U/S Slope Earthquake Coefficient, Ce =	0.735	
D/S Slope Earthquake Coefficient, Ce =	0.500	
Horizontal Ground Acceleration =	0.000	g
Vertical Ground Acceleration =	0.000	g

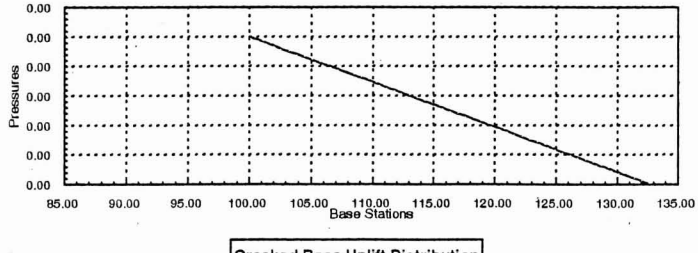
White Tanks FRS No. 3
Soil Cement Structure



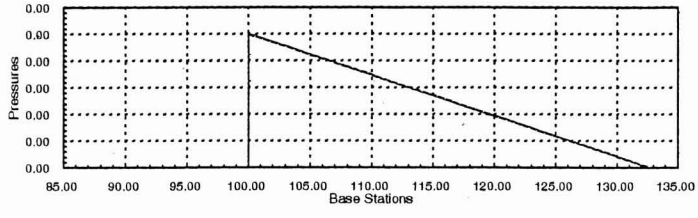
The computed uplift forces are based on the FERC criteria stated in "Chapter 3 - Engineering Guidelines for the Evaluation of Hydropower Projects". Uplift pressures can be computed by leaving the Over-ride values equal to zero (0), or changed (over-rided) to reflect unique conditions.

Uplift used in Stability Analysis			Over-ride Computed Uplift Values with:	
Pressure @ Section's Heel =	0.00	lb/in^2	Heel Pres. =	0.00 lb/in^2
Pressure @ Section's Drain =	0.00	lb/in^2	Drain Pres. =	0.00 lb/in^2
Pressure @ Section's Toe =	0.00	lb/in^2	Toe Pres. =	0.00 lb/in^2

Uncracked Base Uplift Distribution



Cracked Base Uplift Distribution



[5]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs	Vertical Arm (Toe) x feet	Horizontal Arm (Base) y feet	Moment Fy x lb-ft	Moment Fx y lb-ft	Moment @ Centroid Mc lb-ft
i) Thrust Block Gravity Load:							
(a) Gravity Forces:	(93,516)	--	21.05	14.40	(1,968,781)	0	(437,462)
(b) Gravity Earthquake Inertia Forces:	0	0	--	--	0	0	0
(c) Post Tension Anchor Forces:	0	--	32.75	--	0	--	0
ii) Reservoir ,Silt, and Ice:							
(a) Reservoir Forces:	0	35,012	0.00	11.18	0	391,456	391,456
(b) Silt Forces:	0	13,938	0.00	11.84	0	164,958	164,958
(c) Ice Forces:	--	0	--	33.50	--	0	0
(d) Reservoir Psuedo-static Forces:	0	0	--	0.00	0	0	0
(e) Silt Psuedo-static Forces:	0	0	--	0.00	0	0	0
iii) Tailwater & Tailsilt:							
(a) Tailwater Forces:	0	0	0.00	0.00	0	0	0
(b) Tailsilt Forces:	(47,775)	(52,063)	7.58	11.67	(362,352)	(607,493)	(187,529)
(c) Tailwater Psuedo-static Forces:	0	0	--	0.00	0	0	0
(d) Tailsilt Psuedo-static Forces:	0	0	--	0.00	0	0	0
Sub-Total without Uplift	(141,291)	(3,112)			(2,331,132)	(51,078)	(68,577)
iv) Uplift Forces:							
(a) Uplift Forces (uncracked base):	0	--	21.83	--	5	--	1
Total with Uplift	(141,290)	(3,112)			(2,331,127)	(51,078)	(68,576)

[6]. Stress Analysis:

Uncracked Base Analysis

Area, A = 32.8 feet^2 Centroid (from toe) c = 16.375 feet Moment of Inertia, I = 2927 feet^4	Vertical Load Fy lbs	Moment @ Centroid Mc lb-ft	Allowable Tensile Stress lb/in^2	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(a) Without Uplift	(141,291)	(68,577)	14.5	(30.0)	(2.7)	(32.6) (compression)	(27.3) (compression)
(b) With Uplift	(141,290)	(68,576)	0.0	(30.0)	(2.7)	(32.6) (compression)	(27.3) (compression)

Cracked Base Analysis

Uncracked Length T' feet	Uplift U' lbs	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Uplift Moment, toe M* lb-ft	(P + U*) lbs	Vert. Load Moment, toe (Fy x) lb-ft	Vert. Load Arm e feet	Vert. Load Moment centroid lb-ft	Total Moment centroid lb-ft	Upstream Stress sigma lb/in^2	
0.00	0	0.00	0.00	0.00	8	(141,290)	(2,331,125)	16.50	(2,331,125)	(2,382,203)	uncracked	(compression)
6.55	0	6.55	3.28	23.42	8	(141,290)	(2,331,125)	13.22	(1,868,399)	(1,919,478)	uncracked	(compression)
13.10	0	13.10	6.55	187.34	7	(141,290)	(2,331,125)	9.95	(1,405,674)	(1,456,752)	uncracked	(compression)
19.65	0	19.65	9.83	632.28	7	(141,290)	(2,331,126)	6.67	(942,949)	(994,027)	uncracked	(compression)
26.20	0	26.20	13.10	1498.73	6	(141,290)	(2,331,126)	3.40	(480,223)	(531,301)	uncracked	(compression)
32.75	0	32.75	16.38	2927.20	5	(141,290)	(2,331,127)	0.12	(17,497)	(68,576)	uncracked	(compression)
Uncracked Length 32.75	0	32.75	16.38	2927.20	5	(141,290)	(2,331,127)	0.12	(17,497)	(68,576)	uncracked	(compression)

Note: Depress Cntrl-C for refined Cracked Base Analysis Macro.
Depress Cntrl-R to reset cracked base analysis.

[7]. Final Stress Distribution:

Vertical Load Fy lbs	Summation Moment @ Toe, (Fy x) lb-ft	Summation Moment @ Toe, (Fx y) lb-ft	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Summation Moment @ Centroid, Mc lb-ft	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(141,290)	(2,331,127)	(51,078)	32.75	16.38	2927	(68,576)	(30.0)	(2.7)	(32.6) (compression)	(27.3) (compression)

[8]. Stability Analysis:

1. Sliding-Stability:

$$F.S. = \frac{(C \times A) + (P - U') \tan(\phi)}{V}$$

$$F.S. = \frac{0 + 98{,}933}{-3{,}112}$$

$$F.S. = \underline{-31.79}$$

2. Overturning Moment:

$$F.S. = \frac{\text{Sum Resisting Moment (toe)}}{\text{Sum Overturning Moment (toe)}}$$

$$F.S. = \frac{-2{,}938{,}626}{556{,}420}$$

$$F.S. = \underline{5.28}$$

3. Floatation:

$$F.S. = \frac{\text{Sum Weight}}{\text{Sum Uplift}}$$

$$F.S. = \frac{-141{,}291}{0}$$

$$F.S. = \underline{599196.88}$$

[9]. Stability for Sloped Failure Surface:

(a) Effects of Shear Key:

Upstream Shear Key Depth =	20.000	feet
Downstream Shear Key Depth =	7.000	feet
Width between Upstream and Downstream Key =	29.000	feet

[10]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs
I) Thrust Block Gravity Load:		
(a) Gravity Forces:	(93,516)	--
(b) Gravity Earthquake Inertia Forces:	0	0
(c) Post Tension Anchor Forces:	0	--
(d) Gnd above Failure plane, below Dam:	(46,980)	
II) Reservoir ,Silt, and Ice:	0	0
(a) Reservoir Forces:	0	89,232
(b) Silt Forces:	0	128,563
(c) Ice Forces:	--	0
(d) Reservoir Psuedo-static Forces:	0	0
(e) Silt Psuedo-static Forces:	0	0
III) Tailwater & Tailsilt:	0	0
(a) Tailwater Forces:	0	0
(b) Tailsilt Forces:	(47,775)	(52,063)
(c) Tailwater Psuedo-static Forces:	0	0
(d) Tailsilt Psuedo-static Forces:	0	0
Sub-Total without Uplift	(188,271)	165,732
IV) Uplift Forces:		
(a) Normal Undrained Uplift Forces:	26,772	

[11]. Transformed Normal and Thrust Loads:

Angle of Failure Surface deg	Horizontal Load Fx lbs	Vertical Load Fy lbs	Uplift Load lbs	Normal Load lbs	Thrust Load lbs	Sliding Stability F.O.S.
24.1	165,732	(188,271)	26,772	212,820	74,219	2.01

1. USBR, Engineering Monograph No. 11, U.S. Department of the Interior, date unknown.
2. USBR, Engineering Monograph No. 19, U.S. Department of the Interior, Design Criteria for Concete Arch and Gravity Dams, 1977.
3. USBR, "Design of Gravity Dams", U.S. Department of the Interior, 1976.
4. USBR, "Design of Small Dams", U.S. Department of the Interior, 1987.
5. USBR, Report, "Design of Gravity Walls", U.S. Department of the Interior, 1977.
6. USBR, Design Standard No. 9, U.S. Department of the Interior, 1959.
7. U.S. Army Corps of Engineers, EM 1110-2-2200, Gravity Dam Design, 1958.
8. U.S. Army Corps of Engineers, ETL 1110-2-256, Sliding Stability for Concrete Structures, 1981.
9. U.S. Army Corps of Engineers, ER 1110-2-1806, Earthquake Design and Analysis for Corps of Engineers Projects, 1983.
10. U.S. Army Corps of Engineers, ETL 1110-2-203, Earthquake Analysis and Design of Concrete Gravity Dams, 1985.
11. Westergaard, H.M.,ASCE Papers, "Water Pressures on Dams During Earthquakes.",November 1931.
12. FERC, Engineering Guidelines for the Evaluation of Hydropower Projects, 1991.

Project: White Tanks FRS No. 3
Feature: Phase 1 Soil Cement Structure
Detail: Stability Analysis; Case 2 (No Fissure Uplift; Reservoir Elev 1212, Full U/S and D/S Silt)
File: WT_Case_2

Job No: 23443748 **Date:** 10/26/04
By: Ed Villano **Time:** 03:09 PM
Chkd.By:

Input the type of measurement system to be used ('english' , 'metric' , or 'SI'):
english

[1]. Gravity Cross-section:

(a) Overall Dimensions, Elev., Width, & Crest Station:

Dam Crest Elevation =	35.000	feet
Section Elevation =	0.000	feet
Base Elevation =	0.000	feet
Crest Station =	100.00	feet
Crest Thickness =	10.000	feet
Width =	1.000	feet
Section Elevation Length =	32.750	feet
Base Elevation Length =	32.750	feet
Conversion Length =	12.000	feet
Drain Distance from D/S Toe of Dam (Section El.) =	0.000	feet
Drain of U/S Uplift Effectiveness =	0%	

For Drain Distance Enter the following values:
D>0 assumes drained condition with drains located at 'D' from Toe.
D=0 assumes undrained uplift condition.
D<0 assumes no uplift condition.

For Drain Effectiveness Enter the following values:
for D<0 ,E is unused.
for D=0 ,E is percent reduction for all uplift pressure along base
for D>0 ,E is percent reduction for uplift pressure at drain location HW - e (HW - TW)

(b) Section Slopes, Upstream and Downstream Face

A negitive upstream slope signifies a ledge at the designated elevation, a length equal to the slope number.

Upstream Slope

Slope (H/V) =	0.000	
Slope Top Elevation =	0.000	feet

Downstream Slopes

Slope 1 (H/V) =	0.650	
Slope 1 Elevation =	35.000	feet
Slope 2 (H/V) =	0.650	
Slope 2 Elevation =	34.708	feet
Slope 3 (H/V) =	0.650	
Slope 3 Elevation =	32.330	feet
Slope 4 (H/V) =	0.650	
Slope 4 Elevation =	27.594	feet
Slope 5 (H/V) =	0.650	
Slope 5 Elevation =	15.000	feet
Slope 6 (H/V) =	0.650	
Slope 6 Elevation =	0.000	feet

[2]. Material Properties:

Concrete Unit Weight =	125.00	lb/ft^3
Water Unit Weight =	62.40	lb/ft^3
Ice Force =	0.00	lb/ft^2
Silt (horizontal) Unit Weight =	85.00	lb/ft^3
Silt (vertical) Unit Weight =	120.00	lb/ft^3
Coefficient of Internal Friction =	35.000	degrees
Foundation Cohesion =	0.000	lb/in^2
Tensile Strength at Section Elev. =	0.000	lb/in^2
Safety Factor =	3.000	

[3]. Reservior and Tailwater Elevations:

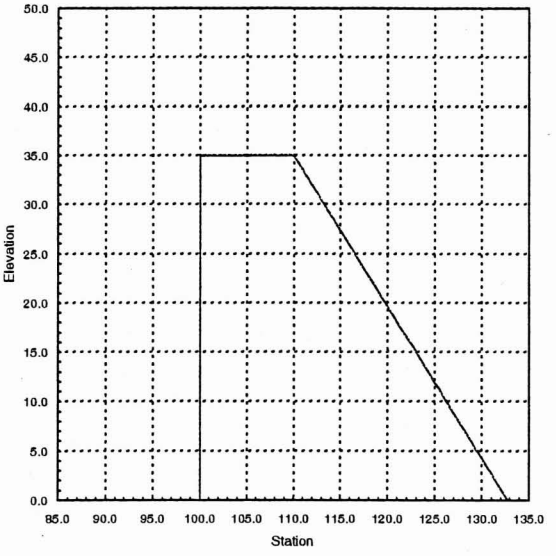
Reservoir Water Surface Elevation =	29.000	feet
Reservoir Silt Elevation =	35.000	feet
Ice Thickness =	0.000	feet
Tailsilt Elevation =	35.000	feet
Tailwater Elevation =	0.000	feet
Tailwater Coefficient =	67%	
Post Tension Anchor Force =	0.00E+00	lbs.
Post Tension Distance from Dam's Base Toe =	32.750	feet

The tailwater coefficient is input as a percentage. It is used to reduce the effective tailwater load on the downstream face of the structure due to several characteristics(eg. air entrainment, velocity, etc.). The uplift pressure at the toe is not effected by the coefficient.

[4]. Earthquake Parameters:

U/S Slope Earthquake Coefficient, Ce =	0.735	
D/S Slope Earthquake Coefficient, Ce =	0.500	
Horizontal Ground Acceleration =	0.000	g
Vertical Ground Acceleration =	0.000	g

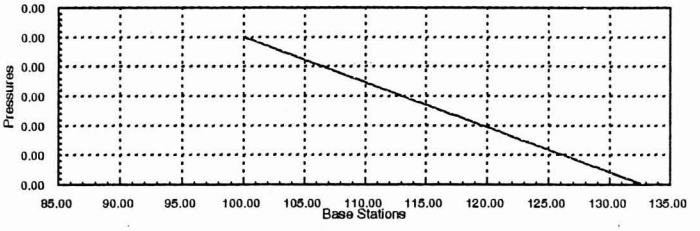
White Tanks FRS No. 3
Soil Cement Structure



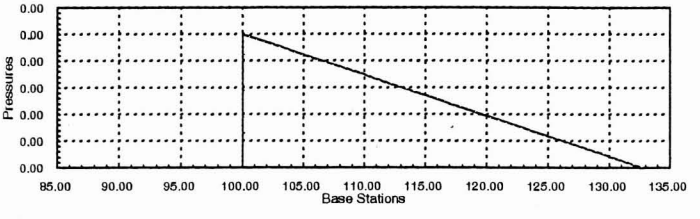
The computed uplift forces are based on the FERC criteria stated in "Chapter 3 - Engineering Guidelines for the Evaluation of Hydropower Projects". Uplift pressures can be computed by leaving the Over-ride values equal to zero (0), or changed (over-rided) to reflect unique conditions.

Uplift used in Stability Analysis			Over-ride Computed Uplift Values with:	
Pressure @ Section's Heel =	0.00	lb/in^2	Heel Pres. =	0.00 lb/in^2
Pressure @ Section's Drain =	0.00	lb/in^2	Drain Pres. =	0.00 lb/in^2
Pressure @ Section's Toe =	0.00	lb/in^2	Toe Pres. =	0.00 lb/in^2

Uncracked Base Uplift Distribution



Cracked Base Uplift Distribution



Project: White Tanks FRS No. 3 | **Job No:** 23443748 | **Date:** 10/26/04
Feature: Phase 1 Soil Cement Structure | **By:** Ed Villano | **Time:** 03:09 PM
Detail: Stability Analysis; Case 2 (No Fissure Uplift; Reservoir Elev 1212, Full U/S and D/S Silt) | **Chkd.By:**
File: WT_Case_2

[5]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs	Vertical Arm (Toe) x feet	Horizontal Arm (Base) y feet	Moment Fy x lb-ft	Moment Fx y lb-ft	Moment @ Centroid Mc lb-ft
I) Thrust Block Gravity Load:							
(a) Gravity Forces:	(93,516)	--	21.05	14.40	(1,968,781)	0	(437,462)
(b) Gravity Earthquake Inertia Forces:	0	0	--	--	0	0	0
(c) Post Tension Anchor Forces:	0	--	32.75	--	0	--	0
II) Reservoir ,Silt, and Ice:							
(a) Reservoir Forces:	0	26,222	0.00	9.67	0	253,602	253,602
(b) Silt Forces:	0	14,702	0.00	12.85	0	188,870	188,870
(c) Ice Forces:	--	0	--	29.00	--	0	0
(d) Reservoir Psuedo-static Forces:	0	0	--	0.00	0	0	0
(e) Silt Psuedo-static Forces:	0	0	--	0.00	0	0	0
III) Tailwater & Tailsilt:							
(a) Tailwater Forces:	0	0	0.00	0.00	0	0	0
(b) Tailsilt Forces:	(47,775)	(52,063)	7.58	11.67	(362,352)	(607,493)	(187,529)
(c) Tailwater Psuedo-static Forces:	0	0	--	0.00	0	0	0
(d) Tailsilt Psuedo-static Forces:	0	0	--	0.00	0	0	0
Sub-Total without Uplift	(141,291)	(11,138)			(2,331,132)	(165,022)	(182,520)
Iv) Uplift Forces:							
(a) Uplift Forces (uncracked base):	0	--	21.83	--	5	--	1
Total with Uplift	(141,290)	(11,138)			(2,331,127)	(165,022)	(182,519)

[6]. Stress Analysis:

Uncracked Base Analysis

Area, A = 32.8 feet^2 Centroid (from toe) c = 16.375 feet Moment of Inertia, I = 2927 feet^4	Vertical Load Fy lbs	Moment @ Centroid Mc lb-ft	Allowable Tensile Stress lb/in^2	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(a) Without Uplift	(141,291)	(182,520)	12.6	(30.0)	(7.1)	(37.1) (compression)	(22.9) (compression)
(b) With Uplift	(141,290)	(182,519)	0.0	(30.0)	(7.1)	(37.1) (compression)	(22.9) (compression)

Cracked Base Analysis

Uncracked Length T' feet	Uplift U' lbs	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Uplift Moment, toe M' lb-ft	(P + U') lbs	Vert. Load Moment, toe (Fy x) lb-ft	Vert. Load Arm e feet	Vert. Load Moment centroid lb-ft	Total Moment centroid lb-ft	Upstream Stress sigma lb/in^2	
0.00	0	0.00	0.00	0.00	8	(141,290)	(2,331,125)	16.50	(2,331,125)	(2,496,146)	uncracked	(compression)
6.55	0	6.55	3.28	23.42	8	(141,290)	(2,331,125)	13.22	(1,868,399)	(2,033,421)	uncracked	(compression)
13.10	0	13.10	6.55	187.34	7	(141,290)	(2,331,125)	9.95	(1,405,674)	(1,570,696)	uncracked	(compression)
19.65	0	19.65	9.83	632.28	7	(141,290)	(2,331,126)	6.67	(942,949)	(1,107,970)	uncracked	(compression)
26.20	0	26.20	13.10	1498.73	6	(141,290)	(2,331,126)	3.40	(480,223)	(645,245)	uncracked	(compression)
32.75	0	32.75	16.38	2927.20	5	(141,290)	(2,331,127)	0.12	(17,497)	(182,519)	uncracked	(compression)
Uncracked Length 32.75	0	32.75	16.38	2927.20	5	(141,290)	(2,331,127)	0.12	(17,497)	(182,519)	uncracked	(compression)

Note: Depress Cntrl-C for refined Cracked Base Analysis Macro.
Depress Cntrl-R to reset cracked base analysis.

[7]. Final Stress Distribution:

Vertical Load Fy lbs	Summation Moment @ Toe, (Fy x) lb-ft	Summation Moment @ Toe, (Fx y) lb-ft	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Summation Moment @ Centroid, Mc lb-ft	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(141,290)	(2,331,127)	(165,022)	32.75	16.38	2927	(182,519)	(30.0)	(7.1)	(37.1) (compression)	(22.9) (compression)

[8]. Stability Analysis:

1. Sliding-Stability:

$$F.S. = \frac{(C \times A) + (P - U') \tan(\phi)}{V}$$

$$F.S. = \frac{0 + 98{,}933}{-11{,}138}$$

$$F.S. = \underline{-8.88}$$

2. Overturning Moment:

$$F.S. = \frac{\text{Sum Resisting Moment (toe)}}{\text{Sum Overturning Moment (toe)}}$$

$$F.S. = \frac{-2{,}938{,}626}{442{,}477}$$

$$F.S. = \underline{6.64}$$

3. Floatation:

$$F.S. = \frac{\text{Sum Weight}}{\text{Sum Uplift}}$$

$$F.S. = \frac{-141{,}291}{0}$$

$$F.S. = \underline{599196.88}$$

[9]. Stability for Sloped Failure Surface:

(a) Effects of Shear Key:

Upstream Shear Key Depth =	20.000	feet
Downstream Shear Key Depth =	7.000	feet
Width between Upstream and Downstream Key =	29.000	feet

[10]. External Forces on Block:

Description of Load	Vertical Load Fy lbs.	Horizontal Load Fx lbs.
I) Thrust Block Gravity Load:		
(a) Gravity Forces:	(93,516)	--
(b) Gravity Earthquake Inertia Forces:	0	0
(c) Post Tension Anchor Forces:	0	--
(d) Gnd above Failure plane, below Dam:	(46,980)	
ii) Reservoir ,Silt, and Ice:	0	0
(a) Reservoir Forces:	0	73,788
(b) Silt Forces:	0	128,563
(c) Ice Forces:	--	0
(d) Reservoir Psuedo-static Forces:	0	0
(e) Silt Psuedo-static Forces:	0	0
iii) Tailwater & Tailsilt:	0	0
(a) Tailwater Forces:	0	0
(b) Tailsilt Forces:	(47,775)	(52,063)
(c) Tailwater Psuedo-static Forces:	0	0
(d) Tailsilt Psuedo-static Forces:	0	0
Sub-Total without Uplift	(188,271)	150,288
iv) Uplift Forces:		
(a) Normal Undrained Uplift Forces:	26,772	

[11]. Transformed Normal and Thrust Loads:

Angle of Failure Surface deg	Horizontal Load Fx lbs	Vertical Load Fy lbs	Uplift Load lbs	Normal Load lbs	Thrust Load lbs	Sliding Stability F.O.S.
24.1	150,288	(188,271)	26,772	206,503	60,126	2.40

1. USBR, Engineering Monograph No. 11, U.S. Department of the Interior, date unknown.
2. USBR, Engineering Monograph No. 19, U.S. Department of the Interior, Design Criteria for Concete Arch and Gravity Dams, 1977.
3. USBR, "Design of Gravity Dams", U.S. Department of the Interior, 1976.
4. USBR, "Design of Small Dams", U.S. Department of the Interior, 1987.
5. USBR, Report, "Design of Gravity Walls", U.S. Department of the Interior, 1977.
6. USBR, Design Standard No. 9, U.S. Department of the Interior, 1959.
7. U.S. Army Corps of Engineers, EM 1110-2-2200, Gravity Dam Design, 1958.
8. U.S. Army Corps of Engineers, ETL 1110-2-256, Sliding Stability for Concrete Structures, 1981.
9. U.S. Army Corps of Engineers, ER 1110-2-1806, Earthquake Design and Analysis for Corps of Engineers Projects, 1983.
10. U.S. Army Corps of Engineers, ETL 1110-2-203, Earthquake Analysis and Design of Concrete Gravity Dams, 1985.
11. Westergaard, H.M.,ASCE Papers, "Water Pressures on Dams During Earthquakes.",November 1931.
12. FERC, Engineering Guidelines for the Evaluation of Hydropower Projects, 1991.

Project: White Tanks FRS No. 3
Feature: Phase 1 Soil Cement Structure
Detail: Stability Analysis; Case 3 (Fissure Uplift; PMF Reservoir Elev. 1216.5, No U/S and D/S Silt)
File: WT_Case_3

Job No: 23443748 **Date:** 10/26/04
By: Ed Villano **Time:** 03:09 PM
Chkd.By:

Input the type of measurement system to be used ('english' , 'metric' , or 'SI'):

english

[1]. Gravity Cross-section:

(a) Overall Dimensions, Elev., Width, & Crest Station:

Dam Crest Elevation =	35.000	feet
Section Elevation =	0.000	feet
Base Elevation =	0.000	feet
Crest Station =	100.00	feet
Crest Thickness =	10.000	feet
Width =	1.000	feet
Section Elevation Length =	32.750	feet
Base Elevation Length =	32.750	feet
Conversion Length =	12.000	feet
Drain Distance from D/S Toe of Dam (Section El.) =	0.000	feet
Drain of U/S Uplift Effectiveness =	0%	

For Drain Distance Enter the following values:
D>0 assumes drained condition with drains located at 'D' from Toe.
D=0 assumes undrained uplift condition.
D<0 assumes no uplift condition.

For Drain Effectiveness Enter the following values:
for D<0 ,E is unused.
for D=0 ,E is percent reduction for all uplift pressure along base
for D>0 ,E is percent reduction for uplift pressure at drain location HW - e (HW - TW)

(b) Section Slopes, Upstream and Downstream Face

A negitive upstream slope signifies a ledge at the designated elevation, a length equal to the slope number.

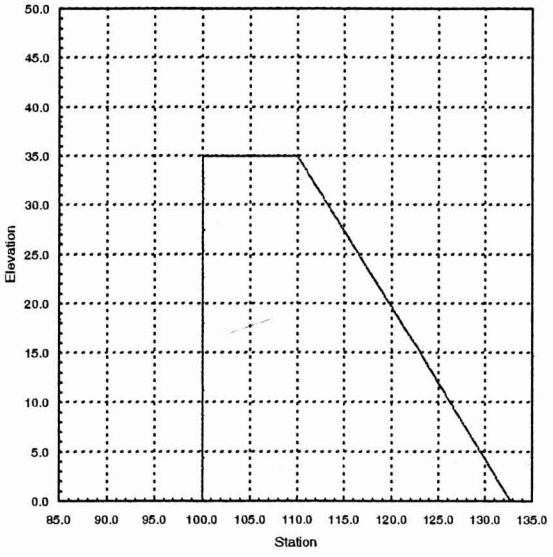
Upstream Slope

Slope (H/V) =	0.000	
Slope Top Elevation =	0.000	feet

Downstream Slopes

Slope 1 (H/V) =	0.650	
Slope 1 Elevation =	35.000	feet
Slope 2 (H/V) =	0.650	
Slope 2 Elevation =	34.708	feet
Slope 3 (H/V) =	0.650	
Slope 3 Elevation =	32.330	feet
Slope 4 (H/V) =	0.650	
Slope 4 Elevation =	27.594	feet
Slope 5 (H/V) =	0.650	
Slope 5 Elevation =	15.000	feet
Slope 6 (H/V) =	0.650	
Slope 6 Elevation =	0.000	feet

White Tanks FRS No. 3
Soil Cement Structure



[2]. Material Properties:

Concrete Unit Weight =	125.00	lb/ft^3
Water Unit Weight =	62.40	lb/ft^3
Ice Force =	0.00	lb/ft^2
Silt (horizontal) Unit Weight =	85.00	lb/ft^3
Silt (vertical) Unit Weight =	120.00	lb/ft^3
Coefficient of Internal Friction =	35.000	degrees
Foundation Cohesion =	0.000	lb/in^2
Tensile Strength at Section Elev. =	0.000	lb/in^2
Safety Factor =	3.000	

The computed uplift forces are based on the FERC criteria stated in "Chapter 3 - Engineering Guidelines for the Evaluation of Hydropower Projects". Uplift pressures can be computed by leaving the Over-ride values equal to zero (0), or changed (over-rided) to reflect unique conditions.

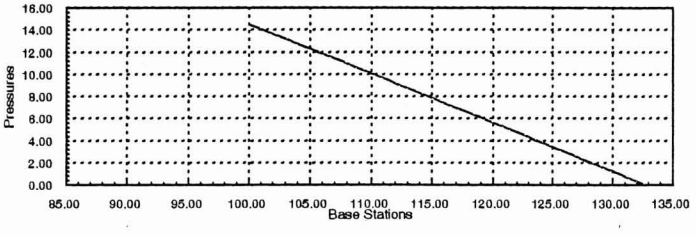
Uplift used in Stability Analysis			Over-ride Computed Uplift Values with:	
Pressure @ Section's Heel =	14.51	lb/in^2	Heel Pres. =	14.51 lb/in^2
Pressure @ Section's Drain =	0.00	lb/in^2	Drain Pres. =	0.00 lb/in^2
Pressure @ Section's Toe =	0.00	lb/in^2	Toe Pres. =	0.00 lb/in^2

[3]. Reservior and Tailwater Elevations:

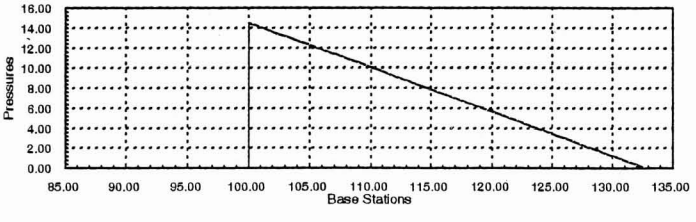
Reservoir Water Surface Elevation =	33.500	feet
Reservoir Silt Elevation =	0.000	feet
Ice Thickness =	0.000	feet
Tailsilt Elevation =	0.000	feet
Tailwater Elevation =	0.000	feet
Tailwater Coefficient =	67%	
Post Tension Anchor Force =	0.00E+00	lbs.
Post Tension Distance from Dam's Base Toe =	32.750	feet

The tailwater coefficient is input as a percentage. It is used to reduce the effective tailwater load on the downstream face of the structure due to several characteristics(eg. air entrainment, velocity, etc.). The uplift pressure at the toe is not effected by the coefficient.

Uncracked Base Uplift Distribution



Cracked Base Uplift Distribution



[4]. Earthquake Parameters:

U/S Slope Earthquake Coefficient, Ce =	0.735	
D/S Slope Earthquake Coefficient, Ce =	0.500	
Horizontal Ground Acceleration =	0.000	g
Vertical Ground Acceleration =	0.000	g

[5]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs	Vertical Arm (Toe) x feet	Horizontal Arm (Base) y feet	Moment Fy x lb-ft	Moment Fx y lb-ft	Moment @ Centroid Mc lb-ft
i) Thrust Block Gravity Load:							
(a) Gravity Forces:	(93,516)	--	21.05	14.40	(1,968,781)	0	(437,462)
(b) Gravity Earthquake Inertia Forces:	0	0	--	--	0	0	0
(c) Post Tension Anchor Forces:	0	--	32.75	--	0	--	0
ii) Reservoir ,Silt, and Ice:							
(a) Reservoir Forces:	0	35,012	0.00	11.18	0	391,456	391,456
(b) Silt Forces:	0	0	0.00	0.00	0	0	0
(c) Ice Forces:	--	0	--	33.50	--	0	0
(d) Reservoir Psuedo-static Forces:	0	0	--	0.00	0	0	0
(e) Silt Psuedo-static Forces:	0	0	--	0.00	0	0	0
iii) Tailwater & Tailsilt:							
(a) Tailwater Forces:	0	0	0.00	0.00	0	0	0
(b) Tailsilt Forces:	0	0	0.00	0.00	0	0	0
(c) Tailwater Psuedo-static Forces:	0	0	--	0.00	0	0	0
(d) Tailsilt Psuedo-static Forces:	0	0	--	0.00	0	0	0
Sub-Total without Uplift	(93,516)	35,012			(1,968,781)	391,456	(46,006)
iv) Uplift Forces:							
(a) Uplift Forces (uncracked base):	34,215	--	21.83	--	746,966	--	186,703
Total with Uplift	(59,301)	35,012			(1,221,814)	391,456	140,697

[6]. Stress Analysis:

Uncracked Base Analysis

Area, A = 32.8 feet^2 Centroid (from toe), c = 16.375 feet Moment of Inertia, I = 2927 feet^4	Vertical Load Fy lbs	Moment @ Centroid Mc lb-ft	Allowable Tensile Stress lb/in^2	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(a) Without Uplift	(93,516)	(46,006)	14.5	(19.8)	(1.8)	(21.6) (compression)	(18.0) (compression)
(b) With Uplift	(59,301)	140,697	0.0	(12.6)	5.5	(7.1) (compression)	(18.0) (compression)

Cracked Base Analysis

Uncracked Length T feet	Uplift U' lbs	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Uplift Moment, toe M" lb-ft	(P + U') lbs	Vert. Load Moment, toe (Fy x) lb-ft	Vert. Load Arm e' feet	Vert. Load Moment centroid lb-ft	Total Moment centroid lb-ft	Upstream Stress sigma lb/in^2	
0.00	68,429	0.00	0.00	0.00	1,120,527	(25,086)	(848,253)	33.81	(848,253)	(456,797)	uncracked	(compression)
6.55	61,586	6.55	3.28	23.42	1,105,582	(31,929)	(863,198)	23.76	(758,630)	(367,173)	uncracked	(compression)
13.10	54,743	13.10	6.55	187.34	1,060,747	(38,772)	(908,033)	16.87	(654,075)	(262,618)	uncracked	(compression)
19.65	47,900	19.65	9.83	632.28	986,022	(45,615)	(982,759)	11.72	(534,589)	(143,133)	uncracked	(compression)
26.20	41,057	26.20	13.10	1498.73	881,407	(52,458)	(1,087,374)	7.63	(400,172)	(8,716)	uncracked	(compression)
32.75	34,215	32.75	16.38	2927.20	746,902	(59,301)	(1,221,879)	4.23	(250,824)	140,632	uncracked	(compression)
Uncracked Length 32.75	34,215	32.75	16.38	2927.20	746,902	(59,301)	(1,221,879)	4.23	(250,824)	140,632	uncracked	(compression)

Note: Depress Cntrl-C for refined Cracked Base Analysis Macro.
Depress Cntrl-R to reset cracked base analysis.

[7]. Final Stress Distribution:

Vertical Load Fy lbs	Summation Moment @ Toe, (Fy x) lb-ft	Summation Moment @ Toe, (Fx y) lb-ft	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Summation Moment @ Centroid, Mc lb-ft	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(59,301)	(1,221,879)	391,456	32.75	16.38	2927	140,632	(12.6)	5.5	(7.1) (compression)	(18.0) (compression)

[8]. Stability Analysis:

1. Sliding-Stability:

$$F.S. = \frac{(C \times A) + (P - U') \tan(\text{phi})}{V}$$

$$F.S. = \frac{0 + 41,523}{35,012}$$

$$F.S. = \underline{1.19}$$

2. Overturning Moment:

$$F.S. = \frac{\text{Sum Resisting Moment (toe)}}{\text{Sum Overturning Moment (toe)}}$$

$$F.S. = \frac{-1,968,781}{1,138,358}$$

$$F.S. = \underline{1.73}$$

3. Floatation:

$$F.S. = \frac{\text{Sum Weight}}{\text{Sum Uplift}}$$

$$F.S. = \frac{-93,516}{34,215}$$

$$F.S. = \underline{2.73}$$

[9]. Stability for Sloped Failure Surface:

(a) Effects of Shear Key:

Upstream Shear Key Depth =	20.000	feet
Downstream Shear Key Depth =	7.000	feet
Width between Upstream and Downstream Key =	29.000	feet

[10]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs
I) Thrust Block Gravity Load:		
(a) Gravity Forces:	(93,516)	--
(b) Gravity Earthquake Inertia Forces:	0	0
(c) Post Tension Anchor Forces:	0	--
(d) Gnd above Failure plane, below Dam:	(46,980)	
II) Reservoir ,Silt, and Ice:	0	0
(a) Reservoir Forces:	0	89,232
(b) Silt Forces:	0	(35,063)
(c) Ice Forces:	--	0
(d) Reservoir Psuedo-static Forces:	0	0
(e) Silt Psuedo-static Forces:	0	0
III) Tailwater & Tailsilt:	0	0
(a) Tailwater Forces:	0	0
(b) Tailsilt Forces:	0	0
(c) Tailwater Psuedo-static Forces:	0	0
(d) Tailsilt Psuedo-static Forces:	0	0
Sub-Total without Uplift	(140,496)	54,170
IV) Uplift Forces:		
(a) Normal Undrained Uplift Forces:	59,974	

[11]. Transformed Normal and Thrust Loads:

Angle of Failure Surface deg	Horizontal Load Fx lbs	Vertical Load Fy lbs	Uplift Load lbs	Normal Load lbs	Thrust Load lbs	Sliding Stability F.O.S.
24.1	54,170	(140,496)	59,974	90,388	-8,040	(7.87)

1. USBR, Engineering Monograph No. 11, U.S. Department of the Interior, date unknown.
2. USBR, Engineering Monograph No. 19, U.S. Department of the Interior, Design Criteria for Concete Arch and Gravity Dams, 1977.
3. USBR, "Design of Gravity Dams", U.S. Department of the Interior, 1976.
4. USBR, "Design of Small Dams", U.S. Department of the Interior, 1987.
5. USBR, Report, "Design of Gravity Walls", U.S. Department of the Interior, 1977.
6. USBR, Design Standard No. 9, U.S. Department of the Interior, 1959.
7. U.S. Army Corps of Engineers, EM 1110-2-2200, Gravity Dam Design, 1958.
8. U.S. Army Corps of Engineers, ETL 1110-2-256, Sliding Stability for Concrete Structures, 1981.
9. U.S. Army Corps of Engineers, ER 1110-2-1806, Earthquake Design and Analysis for Corps of Engineers Projects, 1983.
10. U.S. Army Corps of Engineers, ETL 1110-2-203, Earthquake Analysis and Design of Concrete Gravity Dams, 1985.
11. Westergaard, H.M.,ASCE Papers, "Water Pressures on Dams During Earthquakes.",November 1931.
12. FERC, Engineering Guidelines for the Evaluation of Hydropower Projects, 1991.

Project: White Tanks FRS No. 3
Feature: Phase 1 Soil Cement Structure
Detail: Stability Analysis; Case 4 (Fissure Uplift; Reservoir Elev. 1212, No U/S and D/S Silt)
File: WT_Case_4

Job No: 23443748 **Date:** 10/26/04
By: Ed Villano **Time:** 03:09 PM
Chkd.By:

Input the type of measurement system to be used ('english' , 'metric' , or 'SI'):

english

[1]. Gravity Cross-section:

(a) Overall Dimensions, Elev., Width, & Crest Station:

Dam Crest Elevation =	35.000	feet
Section Elevation =	0.000	feet
Base Elevation =	0.000	feet
Crest Station =	100.00	feet
Crest Thickness =	10.000	feet
Width =	1.000	feet
Section Elevation Length =	32.750	feet
Base Elevation Length =	32.750	feet
Conversion Length =	12.000	feet
Drain Distance from D/S Toe of Dam (Section El.) =	0.000	feet
Drain of U/S Uplift Effectiveness =	0%	

For Drain Distance Enter the following values:
D>0 assumes drained condition with drains located at 'D' from Toe.
D=0 assumes undrained uplift condition.
D<0 assumes no uplift condition.

For Drain Effectiveness Enter the following values:
for D<0 ,E is unused.
for D=0 ,E is percent reduction for all uplift pressure along base
for D>0 ,E is percent reduction for uplift pressure at drain location HW - e (HW - TW)

(b) Section Slopes, Upstream and Downstream Face

A negitive upstream slope signifies a ledge at the designated elevation, a length equal to the slope number.

Upstream Slope

Slope (H/V) =	0.000	
Slope Top Elevation =	0.000	feet

Downstream Slopes

Slope 1 (H/V) =	0.650	
Slope 1 Elevation =	35.000	feet
Slope 2 (H/V) =	0.650	
Slope 2 Elevation =	34.708	feet
Slope 3 (H/V) =	0.650	
Slope 3 Elevation =	32.330	feet
Slope 4 (H/V) =	0.650	
Slope 4 Elevation =	27.594	feet
Slope 5 (H/V) =	0.650	
Slope 5 Elevation =	15.000	feet
Slope 6 (H/V) =	0.650	
Slope 6 Elevation =	0.000	feet

[2]. Material Properties:

Concrete Unit Weight =	125.00	lb/ft^3
Water Unit Weight =	62.40	lb/ft^3
Ice Force =	0.00	lb/ft^2
Silt (horizontal) Unit Weight =	85.00	lb/ft^3
Silt (vertical) Unit Weight =	120.00	lb/ft^3
Coefficient of Internal Friction =	35.000	degrees
Foundation Cohesion =	0.000	lb/in^2
Tensile Strength at Section Elev. =	0.000	lb/in^2
Safety Factor =	3.000	

[3]. Reservior and Tailwater Elevations:

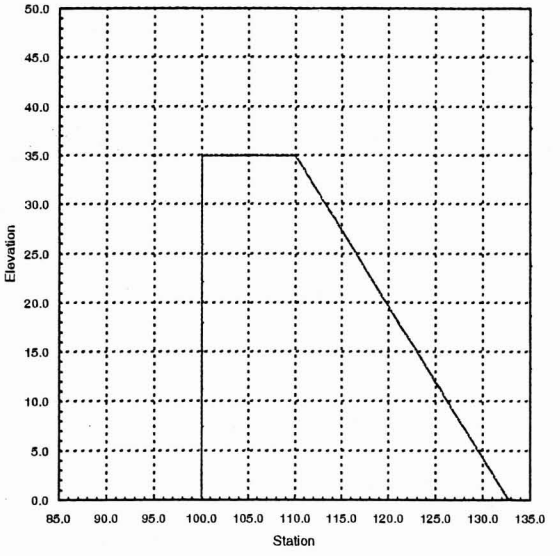
Reservoir Water Surface Elevation =	29.000	feet
Reservoir Silt Elevation =	0.000	feet
Ice Thickness =	0.000	feet
Tailsilt Elevation =	0.000	feet
Tailwater Elevation =	0.000	feet
Tailwater Coefficient =	67%	
Post Tension Anchor Force =	0.00E+00	lbs.
Post Tension Distance from Dam's Base Toe =	32.750	feet

The tailwater coefficient is input as a percentage. It is used to reduce the effective tailwater load on the downstream face of the structure due to several characteristics(eg. air entrainment, velocity, etc.). The uplift pressure at the toe is not effected by the coefficient.

[4]. Earthquake Parameters:

U/S Slope Earthquake Coefficient, Ce =	0.735	
D/S Slope Earthquake Coefficient, Ce =	0.500	
Horizontal Ground Acceleration =	0.000	g
Vertical Ground Acceleration =	0.000	g

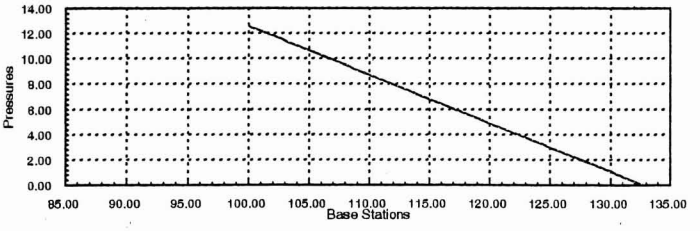
White Tanks FRS No. 3
Soil Cement Structure



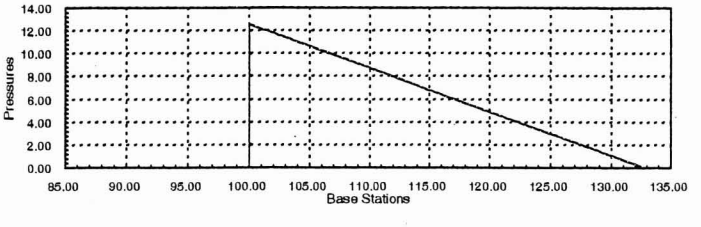
The computed uplift forces are based on the FERC criteria stated in "Chapter 3 - Engineering Guidelines for the Evaluation of Hydropower Projects". Uplift pressures can be computed by leaving the Over-ride values equal to zero (0), or changed (over-rided) to reflect unique conditions.

Uplift used in Stability Analysis			Over-ride Computed Uplift Values with:	
Pressure @ Section's Heel =	12.57	lb/in^2	Heel Pres. =	12.57 lb/in^2
Pressure @ Section's Drain =	0.00	lb/in^2	Drain Pres. =	0.00 lb/in^2
Pressure @ Section's Toe =	0.00	lb/in^2	Toe Pres. =	0.00 lb/in^2

Uncracked Base Uplift Distribution



Cracked Base Uplift Distribution



Project: White Tanks FRS No. 3 | **Job No:** 23443748 | **Date:** 10/26/04
Feature: Phase 1 Soil Cement Structure | **By:** Ed Villano | **Time:** 03:09 PM
Detail: Stability Analysis; Case 4 (Fissure Uplift; Reservoir Elev. 1212, No U/S and D/S Silt) | **Chkd.By:**
File: WT_Case_4

[5]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs	Vertical Arm (Toe) x feet	Horizontal Arm (Base) y feet	Moment Fy x lb-ft	Moment Fx y lb-ft	Moment @ Centroid Mc lb-ft
I) Thrust Block Gravity Load:							
(a) Gravity Forces:	(93,516)	--	21.05	14.40	(1,968,781)	0	(437,462)
(b) Gravity Earthquake Inertia Forces:	0	0	--	--	0	0	0
(c) Post Tension Anchor Forces:	0	--	32.75	--	0	--	0
II) Reservoir ,Silt, and Ice:							
(a) Reservoir Forces:	0	26,222	0.00	9.67	0	253,602	253,602
(b) Silt Forces:	0	0	0.00	0.00	0	0	0
(c) Ice Forces:	--	0	--	29.00	--	0	0
(d) Reservoir Psuedo-static Forces:	0	0	--	0.00	0	0	0
(e) Silt Psuedo-static Forces:	0	0	--	0.00	0	0	0
III) Tailwater & Tailsilt:							
(a) Tailwater Forces:	0	0	0.00	0.00	0	0	0
(b) Tailsilt Forces:	0	0	0.00	0.00	0	0	0
(c) Tailwater Psuedo-static Forces:	0	0	--	0.00	0	0	0
(d) Tailsilt Psuedo-static Forces:	0	0	--	0.00	0	0	0
Sub-Total without Uplift	(93,516)	26,222			(1,968,781)	253,602	(183,861)
IV) Uplift Forces:							
(a) Uplift Forces (uncracked base):	29,640	--	21.83	--	647,096	--	161,740
Total with Uplift	(63,876)	26,222			(1,321,684)	253,602	(22,120)

[6]. Stress Analysis:

Uncracked Base Analysis

Area, A = 32.8 feet^2 Centroid (from toe) c = 16.375 feet Moment of Inertia, I = 2927 feet^4	Vertical Load Fy lbs	Moment @ Centroid Mc lb-ft	Allowable Tensile Stress lb/in^2	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(a) Without Uplift	(93,516)	(183,861)	12.6	(19.8)	(7.1)	(27.0) (compression)	(12.7) (compression)
(b) With Uplift	(63,876)	(22,120)	0.0	(13.5)	(0.9)	(14.4) (compression)	(12.7) (compression)

Cracked Base Analysis

Uncracked Length T' feet	Uplift U' lbs	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Uplift Moment, toe M' lb-ft	(P + U') lbs	Vert. Load Moment, toe (Fy x) lb-ft	Vert. Load Arm e' feet	Vert. Load Moment centroid lb-ft	Total Moment centroid lb-ft	Upstream Stress sigma lb/in^2	
0.00	59,280	0.00	0.00	0.00	970,712	(34,236)	(998,069)	29.15	(998,069)	(744,467)	uncracked	(compression)
6.55	53,352	6.55	3.28	23.42	957,765	(40,164)	(1,011,016)	21.90	(879,480)	(625,878)	uncracked	(compression)
13.10	47,424	13.10	6.55	187.34	918,924	(46,092)	(1,049,856)	16.23	(747,957)	(494,355)	uncracked	(compression)
19.65	41,496	19.65	9.83	632.28	854,190	(52,020)	(1,114,591)	11.60	(603,499)	(349,897)	uncracked	(compression)
26.20	35,568	26.20	13.10	1498.73	763,562	(57,948)	(1,205,219)	7.70	(446,106)	(192,504)	uncracked	(compression)
32.75	29,640	32.75	16.38	2927.20	647,040	(63,876)	(1,321,741)	4.32	(275,778)	(22,177)	uncracked	(compression)
Uncracked Length 32.75	29,640	32.75	16.38	2927.20	647,040	(63,876)	(1,321,741)	4.32	(275,778)	(22,177)	uncracked	(compression)

Note: Depress Cntrl-C for refined Cracked Base Analysis Macro.
Depress Cntrl-R to reset cracked base analysis.

[7]. Final Stress Distribution:

Vertical Load Fy lbs	Summation Moment @ Toe, (Fy x) lb-ft	Summation Moment @ Toe, (Fx y) lb-ft	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Summation Moment @ Centroid, Mc lb-ft	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(63,876)	(1,321,741)	253,602	32.75	16.38	2927	(22,177)	(13.5)	(0.9)	(14.4) (compression)	(12.7) (compression)

[8]. Stability Analysis:

1. Sliding-Stability:

$$F.S. = \frac{(C \times A) + (P - U') \tan(\text{phi})}{V}$$

$$F.S. = \frac{0 + 44{,}726}{26{,}222}$$

$$F.S. = 1.71$$

2. Overturning Moment:

$$F.S. = \frac{\text{Sum Resisting Moment (toe)}}{\text{Sum Overturning Moment (toe)}}$$

$$F.S. = \frac{-1{,}968{,}781}{900{,}642}$$

$$F.S. = 2.19$$

3. Floatation:

$$F.S. = \frac{\text{Sum Weight}}{\text{Sum Uplift}}$$

$$F.S. = \frac{-93{,}516}{29{,}640}$$

$$F.S. = 3.16$$

[9]. Stability for Sloped Failure Surface:

(a) Effects of Shear Key:

Upstream Shear Key Depth =	20.000	feet
Downstream Shear Key Depth =	7.000	feet
Width between Upstream and Downstream Key =	29.000	feet

[10]. External Forces on Block:

Description of Load	Vertical Load Fy lbs.	Horizontal Load Fx lbs.
I) Thrust Block Gravity Load:		
(a) Gravity Forces:	(93,516)	--
(b) Gravity Earthquake Inertia Forces:	0	0
(c) Post Tension Anchor Forces:	0	--
(d) Gnd above Failure plane, below Dam:	(46,980)	
II) Reservoir ,Silt, and Ice:	0	0
(a) Reservoir Forces:	0	73,788
(b) Silt Forces:	0	(35,063)
(c) Ice Forces:	--	0
(d) Reservoir Psuedo-static Forces:	0	0
(e) Silt Psuedo-static Forces:	0	0
III) Tailwater & Tailsilt:	0	0
(a) Tailwater Forces:	0	0
(b) Tailsilt Forces:	0	0
(c) Tailwater Psuedo-static Forces:	0	0
(d) Tailsilt Psuedo-static Forces:	0	0
Sub-Total without Uplift	(140,496)	38,726
IV) Uplift Forces:		
(a) Normal Undrained Uplift Forces:	55,535	

[11]. Transformed Normal and Thrust Loads:

Angle of Failure Surface deg	Horizontal Load Fx lbs	Vertical Load Fy lbs	Uplift Load lbs	Normal Load lbs	Thrust Load lbs	Sliding Stability F.O.S.
24.1	38,726	(140,496)	55,535	88,510	-22,133	(2.80)

1. USBR, Engineering Monograph No. 11, U.S. Department of the Interior, date unknown.
2. USBR, Engineering Monograph No. 19, U.S. Department of the Interior, Design Criteria for Concete Arch and Gravity Dams, 1977.
3. USBR, "Design of Gravity Dams", U.S. Department of the Interior, 1976.
4. USBR, "Design of Small Dams", U.S. Department of the Interior, 1987.
5. USBR, Report, "Design of Gravity Walls", U.S. Department of the Interior, 1977.
6. USBR, Design Standard No. 9, U.S. Department of the Interior, 1959.
7. U.S. Army Corps of Engineers, EM 1110-2-2200, Gravity Dam Design, 1958.
8. U.S. Army Corps of Engineers, ETL 1110-2-256, Sliding Stability for Concrete Structures, 1981.
9. U.S. Army Corps of Engineers, ER 1110-2-1806, Earthquake Design and Analysis for Corps of Engineers Projects, 1983.
10. U.S. Army Corps of Engineers, ETL 1110-2-203, Earthquake Analysis and Design of Concrete Gravity Dams, 1985.
11. Westergaard, H.M.,ASCE Papers, "Water Pressures on Dams During Earthquakes.",November 1931.
12. FERC, Engineering Guidelines for the Evaluation of Hydropower Projects, 1991.

Project: White Tanks FRS No. 3 | **Job No:** 23443748 | **Date:** 10/26/04
Feature: Phase 1 Soil Cement Structure | **By:** Ed Villano | **Time:** 03:09 PM
Detail: Stability Analysis; Case 5 (Full Section, Full Fissure Uplift; PMF Reservoir Elev. 1216.5, No U/S and D/S Silt) | **Chkd.By:**
File: WT_Case_5

Input the type of measurement system to be used ('english' , 'metric' , or 'SI'):
english

[1]. Gravity Cross-section:

(a) Overall Dimensions, Elev., Width, & Crest Station:

Dam Crest Elevation =	35.000	feet
Section Elevation =	0.000	feet
Base Elevation =	0.000	feet
Crest Station =	100.00	feet
Crest Thickness =	10.000	feet
Width =	1.000	feet
Section Elevation Length =	52.000	feet
Base Elevation Length =	52.000	feet
Conversion Length =	12.000	feet
Drain Distance from D/S Toe of Dam (Section El.) =	0.000	feet
Drain of U/S Uplift Effectiveness =	0%	

For Drain Distance Enter the following values:
D>0 assumes drained condition with drains located at 'D' from Toe.
D=0 assumes undrained uplift condition.
D<0 assumes no uplift condition.

For Drain Effectiveness Enter the following values:
for D<0 ,E is unused.
for D=0 ,E is percent reduction for all uplift pressure along base
for D>0 ,E is percent reduction for uplift pressure at drain location HW - e (HW - TW)

(b) Section Slopes, Upstream and Downstream Face

A negitive upstream slope signifies a ledge at the designated elevation, a length equal to the slope number.

Upstream Slope

Slope (H/V) =	0.600	
Slope Top Elevation =	35.000	feet

Downstream Slopes

Slope 1 (H/V) =	0.600	
Slope 1 Elevation =	35.000	feet
Slope 2 (H/V) =	0.600	
Slope 2 Elevation =	34.708	feet
Slope 3 (H/V) =	0.600	
Slope 3 Elevation =	32.330	feet
Slope 4 (H/V) =	0.600	
Slope 4 Elevation =	27.594	feet
Slope 5 (H/V) =	0.600	
Slope 5 Elevation =	15.000	feet
Slope 6 (H/V) =	0.600	
Slope 6 Elevation =	0.000	feet

[2]. Material Properties:

Concrete Unit Weight =	125.00	lb/ft^3
Water Unit Weight =	62.40	lb/ft^3
Ice Force =	0.00	lb/ft^2
Silt (horizontal) Unit Weight =	85.00	lb/ft^3
Silt (vertical) Unit Weight =	120.00	lb/ft^3
Coefficient of Internal Friction =	35.000	degrees
Foundation Cohesion =	0.000	lb/in^2
Tensile Strength at Section Elev. =	0.000	lb/in^2
Safety Factor =	3.000	

[3]. Reservior and Tailwater Elevations:

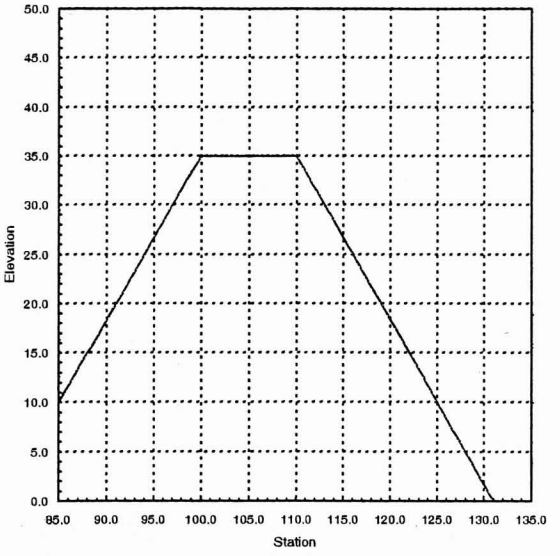
Reservoir Water Surface Elevation =	33.500	feet
Reservoir Silt Elevation =	0.000	feet
Ice Thickness =	0.000	feet
Tailsilt Elevation =	0.000	feet
Tailwater Elevation =	0.000	feet
Tailwater Coefficient =	67%	
Post Tension Anchor Force =	0.00E+00	lbs.
Post Tension Distance from Dam's Base Toe =	52.000	feet

The tailwater coefficient is input as a percentage. It is used to reduce the effective tailwater load on the downstream face of the structure due to several characteristics(eg. air entrainment, velocity, etc.). The uplift pressure at the toe is not effected by the coefficient.

[4]. Earthquake Parameters:

U/S Slope Earthquake Coefficient, Ce =	0.735	
D/S Slope Earthquake Coefficient, Ce =	0.500	
Horizontal Ground Acceleration =	0.000	g
Vertical Ground Acceleration =	0.000	g

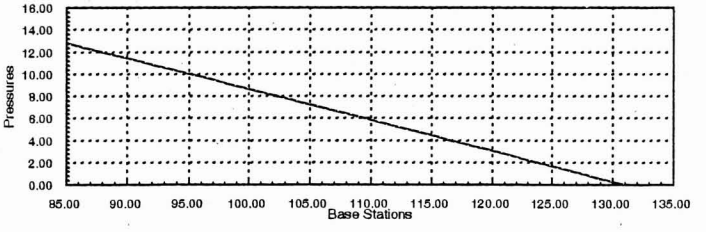
White Tanks FRS No. 3
Soil Cement Structure



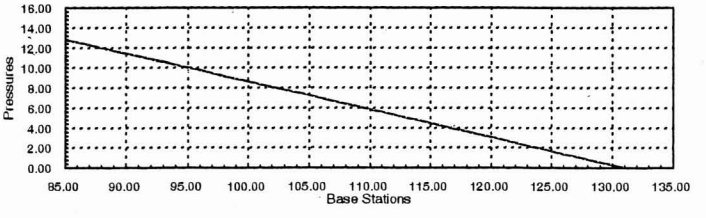
The computed uplift forces are based on the FERC criteria stated in "Chapter 3 - Engineering Guidelines for the Evaluation of Hydropower Projects". Uplift pressures can be computed by leaving the Over-ride values equal to zero (0), or changed (over-rided) to reflect unique conditions.

Uplift used in Stability Analysis			Over-ride Computed Uplift Values with:	
Pressure @ Section's Heel =	14.51	lb/in^2	Heel Pres. =	14.51 lb/in^2
Pressure @ Section's Drain =	0.00	lb/in^2	Drain Pres. =	0.00 lb/in^2
Pressure @ Section's Toe =	0.00	lb/in^2	Toe Pres. =	0.00 lb/in^2

Uncracked Base Uplift Distribution



Cracked Base Uplift Distribution



Project: White Tanks FRS No. 3 | **Job No:** 23443748 | **Date:** 10/26/04
Feature: Phase 1 Soil Cement Structure | **By:** Ed Villano | **Time:** 03:09 PM
Detail: Stability Analysis; Case 5 (Full Section, Full Fissure Uplift; PMF Reservoir Elev. 1216.5, No U/S and D/S Silt) | **Chkd.By:**
File: WT_Case_5

[5]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs	Vertical Arm (Toe) x feet	Horizontal Arm (Base) y feet	Moment Fy x lb-ft	Moment Fx y lb-ft	Moment @ Centroid Mc lb-ft
I) Thrust Block Gravity Load:							
(a) Gravity Forces:	(135,625)	--	26.00	13.55	(3,526,600)	0	(350)
(b) Gravity Earthquake Inertia Forces:	0	0	--	--	0	0	0
(c) Post Tension Anchor Forces:	0	--	52.00	--	0	--	0
II) Reservoir ,Silt, and Ice:							
(a) Reservoir Forces:	(21,007)	35,012	45.29	11.18	(951,458)	391,456	(13,810)
(b) Silt Forces:	0	0	0.00	0.00	0	0	0
(c) Ice Forces:	--	0	--	33.50	--	0	0
(d) Reservoir Psuedo-static Forces:	0	0	--	0.00	0	0	0
(e) Silt Psuedo-static Forces:	0	0	--	0.00	0	0	0
III) Tailwater & Tailsilt:							
(a) Tailwater Forces:	0	0	0.00	0.00	0	0	0
(b) Tailsilt Forces:	0	0	0.00	0.00	0	0	0
(c) Tailwater Psuedo-static Forces:	0	0	--	0.00	0	0	0
(d) Tailsilt Psuedo-static Forces:	0	0	--	0.00	0	0	0
Sub-Total without Uplift	(156,632)	35,012			(4,478,058)	391,456	(14,161)
IV) Uplift Forces:							
(a) Uplift Forces (uncracked base):	54,325	--	34.66	--	1,883,151	--	470,690
Total with Uplift	(102,307)	35,012			(2,594,907)	391,456	456,529

[6]. Stress Analysis:

Uncracked Base Analysis

Area, A = 52.0 feet^2 Centroid (from toe) c = 26.000 feet Moment of Inertia, I = 11717 feet^4	Vertical Load Fy lbs	Moment @ Centroid Mc lb-ft	Allowable Tensile Stress lb/in^2	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(a) Without Uplift	(156,632)	(14,161)	14.5	(20.9)	(0.2)	(21.1) (compression)	(20.7) (compression)
(b) With Uplift	(102,307)	456,529	0.0	(13.7)	7.0	(6.6) (compression)	(20.7) (compression)

Cracked Base Analysis

Uncracked Length T' feet	Uplift U' lbs	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Uplift Moment, toe M* lb-ft	(P + U') lbs	Vert. Load Moment, toe (Fy x) lb-ft	Vert. Load Arm e' feet	Vert. Load Moment centroid lb-ft	Total Moment centroid lb-ft	Upstream Stress sigma lb/in^2	
0.00	108,651	0.00	0.00	0.00	2,824,923	(47,981)	(1,653,135)	34.45	(1,653,135)	(1,261,679)	uncracked	(compression)
10.40	97,786	10.40	5.20	93.74	2,787,245	(58,847)	(1,690,813)	23.53	(1,384,811)	(993,354)	uncracked	(compression)
20.80	86,921	20.80	10.40	749.91	2,674,213	(69,712)	(1,803,845)	15.48	(1,078,844)	(687,388)	uncracked	(compression)
31.20	76,056	31.20	15.60	2530.94	2,485,826	(80,577)	(1,992,232)	9.12	(735,235)	(343,779)	uncracked	(compression)
41.60	65,191	41.60	20.80	5999.27	2,222,084	(91,442)	(2,255,974)	3.87	(353,984)	37,472	uncracked	(compression)
52.00	54,325	52.00	26.00	11717.33	1,882,988	(102,307)	(2,595,071)	-0.63	64,909	456,365	uncracked	(compression)
Uncracked Length 52.00	54,325	52.00	26.00	11717.33	1,882,988	(102,307)	(2,595,071)	-0.63	64,909	456,365	uncracked	(compression)

Note: Depress Cntrl-C for refined Cracked Base Analysis Macro.
Depress Cntrl-R to reset cracked base analysis.

[7]. Final Stress Distribution:

Vertical Load Fy lbs	Summation Moment @ Toe, (Fy x) lb-ft	Summation Moment @ Toe, (Fx y) lb-ft	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Summation Moment @ Centroid, Mc lb-ft	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(102,307)	(2,595,071)	391,456	52.00	26.00	11717	456,365	(13.7)	7.0	(6.6) (compression)	(20.7) (compression)

[8]. Stability Analysis:

1. Sliding-Stability:

$$F.S. = \frac{(C \times A) + (P - U') \tan(\text{phi})}{V}$$

$$F.S. = \frac{0 + 71,636}{35,012}$$

$$F.S. = \underline{2.05}$$

2. Overturning Moment:

$$F.S. = \frac{\text{Sum Resisting Moment (toe)}}{\text{Sum Overturning Moment (toe)}}$$

$$F.S. = \frac{-4,478,058}{2,274,444}$$

$$F.S. = \underline{1.97}$$

3. Floatation:

$$F.S. = \frac{\text{Sum Weight}}{\text{Sum Uplift}}$$

$$F.S. = \frac{-156,632}{54,325}$$

$$F.S. = \underline{2.88}$$

[9]. Stability for Sloped Failure Surface:

(a) Effects of Shear Key:

Upstream Shear Key Depth =	20.000	feet
Downstream Shear Key Depth =	7.000	feet
Width between Upstream and Downstream Key =	29.000	feet

[10]. External Forces on Block:

Description of Load	Vertical Load Fy lbs.	Horizontal Load Fx lbs.
i) Thrust Block Gravity Load:		
(a) Gravity Forces:	(135,625)	--
(b) Gravity Earthquake Inertia Forces:	0	0
(c) Post Tension Anchor Forces:	0	--
(d) Gnd above Failure plane, below Dam:	(46,980)	
ii) Reservoir ,Silt, and Ice:	0	0
(a) Reservoir Forces:	(21,007)	89,232
(b) Silt Forces:	0	(35,063)
(c) Ice Forces:	--	0
(d) Reservoir Psuedo-static Forces:	0	0
(e) Silt Psuedo-static Forces:	0	0
iii) Tailwater & Tailsilt:	0	0
(a) Tailwater Forces:	0	0
(b) Tailsilt Forces:	0	0
(c) Tailwater Psuedo-static Forces:	0	0
(d) Tailsilt Psuedo-static Forces:	0	0
Sub-Total without Uplift	(203,612)	54,170
iv) Uplift Forces:		
(a) Normal Undrained Uplift Forces:	59,974	

[11]. Transformed Normal and Thrust Loads:

Angle of Failure Surface deg.	Horizontal Load Fx lbs.	Vertical Load Fy lbs.	Uplift Load lbs.	Normal Load lbs.	Thrust Load lbs.	Sliding Stability F.O.S.
24.1	54,170	(203,612)	59,974	147,983	-33,859	(3.06)

1. USBR, Engineering Monograph No. 11, U.S. Department of the Interior, date unknown.
2. USBR, Engineering Monograph No. 19, U.S. Department of the Interior, Design Criteria for Concete Arch and Gravity Dams, 1977.
3. USBR, "Design of Gravity Dams", U.S. Department of the Interior, 1976.
4. USBR, "Design of Small Dams", U.S. Department of the Interior, 1987.
5. USBR, Report, "Design of Gravity Walls", U.S. Department of the Interior, 1977.
6. USBR, Design Standard No. 9, U.S. Department of the Interior, 1959.
7. U.S. Army Corps of Engineers, EM 1110-2-2200, Gravity Dam Design, 1958.
8. U.S. Army Corps of Engineers, ETL 1110-2-256, Sliding Stability for Concrete Structures, 1981.
9. U.S. Army Corps of Engineers, ER 1110-2-1806, Earthquake Design and Analysis for Corps of Engineers Projects, 1983.
10. U.S. Army Corps of Engineers, ETL 1110-2-203, Earthquake Analysis and Design of Concrete Gravity Dams, 1985.
11. Westergaard, H.M.,ASCE Papers, "Water Pressures on Dams During Earthquakes.",November 1931.
12. FERC, Engineering Guidelines for the Evaluation of Hydropower Projects, 1991.

Project: White Tanks FRS No. 3
Feature: Phase 1 Soil Cement Structure
Detail: Stability Analysis; Case 6 (Full Section, Full Fissure Uplift; Reservoir Elev. 1212, No U/S and D/S Silt)
File: WT_Case_6

Job No: 23443748 **Date:** 10/26/04
By: Ed Villano **Time:** 03:09 PM
Chkd.By:

Input the type of measurement system to be used ('english' , 'metric' , or 'SI'):
english

[1]. Gravity Cross-section:

(a) Overall Dimensions, Elev., Width, & Crest Station:

Dam Crest Elevation =	35.000	feet
Section Elevation =	0.000	feet
Base Elevation =	0.000	feet
Crest Station =	100.00	feet
Crest Thickness =	10.000	feet
Width =	1.000	feet
Section Elevation Length =	52.000	feet
Base Elevation Length =	52.000	feet
Conversion Length =	12.000	feet
Drain Distance from D/S Toe of Dam (Section El.) =	0.000	feet
Drain of U/S Uplift Effectiveness =	0%	

For Drain Distance Enter the following values:
D>0 assumes drained condition with drains located at 'D' from Toe.
D=0 assumes undrained uplift condition.
D<0 assumes no uplift condition.

For Drain Effectiveness Enter the following values:
for D<0 ,E is unused.
for D=0 ,E is percent reduction for all uplift pressure along base
for D>0 ,E is percent reduction for uplift pressure at drain location HW - e (HW - TW)

(b) Section Slopes, Upstream and Downstream Face

A negitive upstream slope signifies a ledge at the designated elevation, a length equal to the slope number.

Upstream Slope

Slope (H/V) =	0.600	
Slope Top Elevation =	35.000	feet

Downstream Slopes

Slope 1 (H/V) =	0.600	
Slope 1 Elevation =	35.000	feet
Slope 2 (H/V) =	0.600	
Slope 2 Elevation =	34.708	feet
Slope 3 (H/V) =	0.600	
Slope 3 Elevation =	32.330	feet
Slope 4 (H/V) =	0.600	
Slope 4 Elevation =	27.594	feet
Slope 5 (H/V) =	0.600	
Slope 5 Elevation =	15.000	feet
Slope 6 (H/V) =	0.600	
Slope 6 Elevation =	0.000	feet

[2]. Material Properties:

Concrete Unit Weight =	125.00	lb/ft^3
Water Unit Weight =	62.40	lb/ft^3
Ice Force =	0.00	lb/ft^2
Silt (horizontal) Unit Weight =	85.00	lb/ft^3
Silt (vertical) Unit Weight =	120.00	lb/ft^3
Coefficient of Internal Friction =	35.000	degrees
Foundation Cohesion =	0.000	lb/in^2
Tensile Strength at Section Elev. =	0.000	lb/in^2
Safety Factor =	3.000	

[3]. Reservior and Tailwater Elevations:

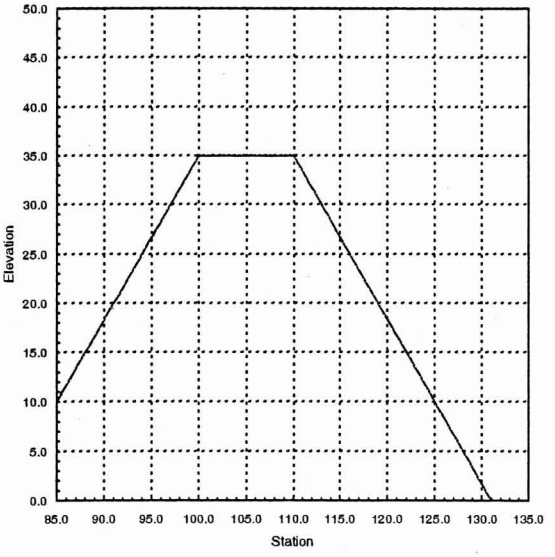
Reservoir Water Surface Elevation =	29.000	feet
Reservoir Silt Elevation =	0.000	feet
Ice Thickness =	0.000	feet
Tailsilt Elevation =	0.000	feet
Tailwater Elevation =	0.000	feet
Tailwater Coefficient =	67%	
Post Tension Anchor Force =	0.00E+00	lbs.
Post Tension Distance from Dam's Base Toe =	52.000	feet

The tailwater coefficient is input as a percentage. It is used to reduce the effective tailwater load on the downstream face of the structure due to several characteristics(eg. air entrainment, velocity, etc.). The uplift pressure at the toe is not effected by the coefficient.

[4]. Earthquake Parameters:

U/S Slope Earthquake Coefficient, Ce =	0.735	
D/S Slope Earthquake Coefficient, Ce =	0.500	
Horizontal Ground Acceleration =	0.000	g
Vertical Ground Acceleration =	0.000	g

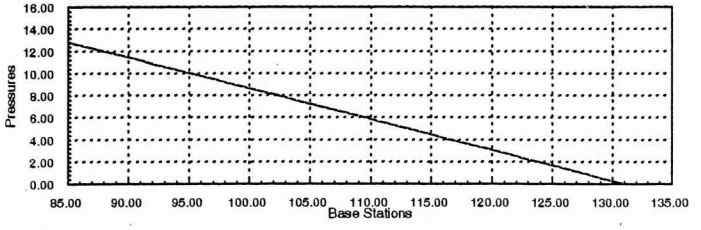
White Tanks FRS No. 3
Soil Cement Structure



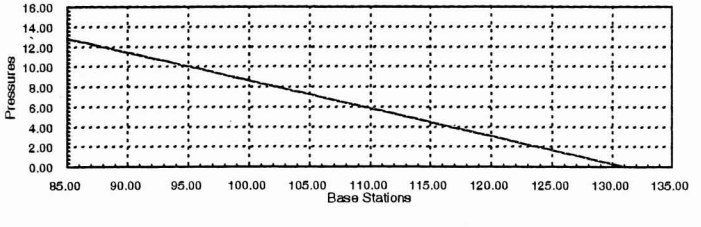
The computed uplift forces are based on the FERC criteria stated in "Chapter 3 - Engineering Guidelines for the Evaluation of Hydropower Projects". Uplift pressures can be computed by leaving the Over-ride values equal to zero (0), or changed (over-rided) to reflect unique conditions.

Uplift used in Stability Analysis			Over-ride Computed Uplift Values with:	
Pressure @ Section's Heel =	14.51	lb/in^2	Heel Pres. =	14.51 lb/in^2
Pressure @ Section's Drain =	0.00	lb/in^2	Drain Pres. =	0.00 lb/in^2
Pressure @ Section's Toe =	0.00	lb/in^2	Toe Pres. =	0.00 lb/in^2

Uncracked Base Uplift Distribution



Cracked Base Uplift Distribution



[5]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs	Vertical Arm (Toe) x feet	Horizontal Arm (Base) y feet	Moment Fy, x lb-ft	Moment Fx, y lb-ft	Moment @ Centroid Mc lb-ft
I) Thrust Block Gravity Load:							
(a) Gravity Forces:	(135,625)	--	26.00	13.55	(3,526,600)	0	(350)
(b) Gravity Earthquake Inertia Forces:	0	0	--	--	0	0	0
(c) Post Tension Anchor Forces:	0	--	52.00	--	0	--	0
Ii) Reservoir ,Silt, and Ice:							
(a) Reservoir Forces:	(15,733)	26,222	46.20	9.67	(726,819)	253,602	(64,160)
(b) Silt Forces:	0	0	0.00	0.00	0	0	0
(c) Ice Forces:	--	0	--	29.00	--	0	0
(d) Reservoir Psuedo-static Forces:	0	0	--	0.00	0	0	0
(e) Silt Psuedo-static Forces:	0	0	--	0.00	0	0	0
Iii) Tailwater & Tailsilt:							
(a) Tailwater Forces:	0	0	0.00	0.00	0	0	0
(b) Tailsilt Forces:	0	0	0.00	0.00	0	0	0
(c) Tailwater Psuedo-static Forces:	0	0	--	0.00	0	0	0
(d) Tailsilt Psuedo-static Forces:	0	0	--	0.00	0	0	0
Sub-Total without Uplift	(151,358)	26,222			(4,253,419)	253,602	(64,510)
Iv) Uplift Forces:							
(a) Uplift Forces (uncracked base):	54,325	--	34.66	--	1,883,151	--	470,690
Total with Uplift	(97,033)	26,222			(2,370,268)	253,602	406,180

[6]. Stress Analysis:

Uncracked Base Analysis

Area, A = 52.0 feet^2 Centroid (from toe) c = 26.000 feet Moment of Inertia, I = 11717 feet^4	Vertical Load Fy lbs	Moment @ Centroid Mc lb-ft	Allowable Tensile Stress lb/in^2	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(a) Without Uplift	(151,358)	(64,510)	12.6	(20.2)	(1.0)	(21.2) (compression)	(19.2) (compression)
(b) With Uplift	(97,033)	406,180	0.0	(13.0)	6.3	(6.7) (compression)	(19.2) (compression)

Cracked Base Analysis

Uncracked Length T feet	Uplift U' lbs	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Uplift Moment, toe M' lb-ft	(P + U') lbs	Vert. Load Moment, toe (Fy x) lb-ft	Vert. Load Arm e' feet	Vert. Load Moment centroid lb-ft	Total Moment centroid lb-ft	Upstream Stress sigma lb/in^2	
0.00	108,651	0.00	0.00	0.00	2,824,923	(42,707)	(1,428,496)	33.45	(1,428,496)	(1,174,895)	uncracked	(compression)
10.40	97,786	10.40	5.20	93.74	2,787,245	(53,572)	(1,466,174)	22.17	(1,187,598)	(933,997)	uncracked	(compression)
20.80	86,921	20.80	10.40	749.91	2,674,213	(64,437)	(1,579,206)	14.11	(909,058)	(655,457)	uncracked	(compression)
31.20	76,056	31.20	15.60	2530.94	2,485,826	(75,302)	(1,767,593)	7.87	(592,876)	(339,274)	uncracked	(compression)
41.60	65,191	41.60	20.80	5999.27	2,222,084	(86,167)	(2,031,335)	2.77	(239,052)	14,550	uncracked	(compression)
52.00	54,325	52.00	26.00	11717.33	1,882,988	(97,033)	(2,370,432)	-1.57	152,415	406,016	uncracked	(compression)
Uncracked Length 52.00	54,325	52.00	26.00	11717.33	1,882,988	(97,033)	(2,370,432)	-1.57	152,415	406,016	uncracked	(compression)

Note: Depress Cntrl-C for refined Cracked Base Analysis Macro.
Depress Cntrl-R to reset cracked base analysis.

[7]. Final Stress Distribution:

Vertical Load Fy lbs	Summation Moment @ Toe, (Fy x) lb-ft	Summation Moment @ Toe, (Fx y) lb-ft	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Summation Moment @ Centroid, Mc lb-ft	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(97,033)	(2,370,432)	253,602	52.00	26.00	11717	406,016	(13.0)	6.3	(6.7) (compression)	(19.2) (compression)

[8]. Stability Analysis:

1. Sliding-Stability:

$$F.S. = \frac{(C \times A) + (P - U') \tan(\text{phi})}{V}$$

$$F.S. = \frac{0 + 67{,}943}{26{,}222}$$

$$F.S. = \underline{2.59}$$

2. Overturning Moment:

$$F.S. = \frac{\text{Sum Resisting Moment (toe)}}{\text{Sum Overturning Moment (toe)}}$$

$$F.S. = \frac{-4{,}253{,}419}{2{,}136{,}589}$$

$$F.S. = \underline{1.99}$$

3. Floatation:

$$F.S. = \frac{\text{Sum Weight}}{\text{Sum Uplift}}$$

$$F.S. = \frac{-151{,}358}{54{,}325}$$

$$F.S. = \underline{2.79}$$

[9]. Stability for Sloped Failure Surface:

(a) Effects of Shear Key:

Upstream Shear Key Depth =	20.000	feet
Downstream Shear Key Depth =	7.000	feet
Width between Upstream and Downstream Key =	29.000	feet

[10]. External Forces on Block:

Description of Load	Vertical Load Fy lbs.	Horizontal Load Fx lbs.
I) Thrust Block Gravity Load:		
(a) Gravity Forces:	(135,625)	--
(b) Gravity Earthquake Inertia Forces:	0	0
(c) Post Tension Anchor Forces:	0	--
(d) Gnd above Failure plane, below Dam:	(46,980)	
II) Reservoir ,Silt, and Ice:	0	0
(a) Reservoir Forces:	(15,733)	73,788
(b) Silt Forces:	0	(35,063)
(c) Ice Forces:	--	0
(d) Reservoir Psuedo-static Forces:	0	0
(e) Silt Psuedo-static Forces:	0	0
III) Tailwater & Tailsilt:	0	0
(a) Tailwater Forces:	0	0
(b) Tailsilt Forces:	0	0
(c) Tailwater Psuedo-static Forces:	0	0
(d) Tailsilt Psuedo-static Forces:	0	0
Sub-Total without Uplift	(198,338)	38,726
IV) Uplift Forces:		
(a) Normal Undrained Uplift Forces:	59,974	

[11]. Transformed Normal and Thrust Loads:

Angle of Failure Surface deg	Horizontal Load Fx lbs	Vertical Load Fy lbs	Uplift Load lbs	Normal Load lbs	Thrust Load lbs	Sliding Stability F.O.S.
24.1	38,726	(198,338)	59,974	136,853	-45,794	(2.09)

1. USBR, Engineering Monograph No. 11, U.S. Department of the Interior, date unknown.

2. USBR, Engineering Monograph No. 19, U.S. Department of the Interior, Design Criteria for Concete Arch and Gravity Dams, 1977.

3. USBR, "Design of Gravity Dams", U.S. Department of the Interior, 1976.

4. USBR, "Design of Small Dams", U.S. Department of the Interior, 1987.

5. USBR, Report, "Design of Gravity Walls", U.S. Department of the Interior, 1977.

6. USBR, Design Standard No. 9, U.S. Department of the Interior, 1959.

7. U.S. Army Corps of Engineers, EM 1110-2-2200, Gravity Dam Design, 1958.

8. U.S. Army Corps of Engineers, ETL 1110-2-256, Sliding Stability for Concrete Structures, 1981.

9. U.S. Army Corps of Engineers, ER 1110-2-1806, Earthquake Design and Analysis for Corps of Engineers Projects, 1983.

10. U.S. Army Corps of Engineers, ETL 1110-2-203, Earthquake Analysis and Design of Concrete Gravity Dams, 1985.

11. Westergaard, H.M.,ASCE Papers, "Water Pressures on Dams During Earthquakes.",November 1931.

12. FERC, Engineering Guidelines for the Evaluation of Hydropower Projects, 1991.

Project: White Tanks FRS No. 3 | **Job No:** 23443748 | **Date:** 10/26/04
Feature: Phase 1 Soil Cement Structure | **By:** Ed Villano | **Time:** 03:09 PM
Detail: Stability Analysis; Case 7 (1/3 Section, 1/3 Uplift; PMF Reservoir Elev. 1216.5, No U/S and D/S Silt, phi=35) | **Chkd.By:**
File: WT_Case_7

Input the type of measurement system to be used ('english' , 'metric' , or 'SI'):

english

[1]. Gravity Cross-section:

(a) Overall Dimensions, Elev., Width, & Crest Station:

Dam Crest Elevation =	35.000	feet
Section Elevation =	23.333	feet
Base Elevation =	23.333	feet
Crest Station =	100.00	feet
Crest Thickness =	10.000	feet
Width =	1.000	feet
Section Elevation Length =	17.584	feet
Base Elevation Length =	17.584	feet
Conversion Length =	12.000	feet
Drain Distance from D/S Toe of Dam (Section El.) =	0.000	feet
Drain of U/S Uplift Effectiveness =	0%	

For Drain Distance Enter the following values:
D>0 assumes drained condition with drains located at 'D' from Toe.
D=0 assumes undrained uplift condition.
D<0 assumes no uplift condition.

For Drain Effectiveness Enter the following values:
for D<0 ,E is unused.
for D=0 ,E is percent reduction for all uplift pressure along base
for D>0 ,E is percent reduction for uplift pressure at drain location HW - e (HW - TW)

(b) Section Slopes, Upstream and Downstream Face

A negitive upstream slope signifies a ledge at the designated elevation, a length equal to the slope number.

Upstream Slope

Slope (H/V) =	0.000	
Slope Top Elevation =	23.333	feet

Downstream Slopes

Slope 1 (H/V) =	0.650	
Slope 1 Elevation =	35.000	feet
Slope 2 (H/V) =	0.650	
Slope 2 Elevation =	32.667	feet
Slope 3 (H/V) =	0.650	
Slope 3 Elevation =	30.333	feet
Slope 4 (H/V) =	0.650	
Slope 4 Elevation =	28.000	feet
Slope 5 (H/V) =	0.650	
Slope 5 Elevation =	25.667	feet
Slope 6 (H/V) =	0.650	
Slope 6 Elevation =	23.333	feet

[2]. Material Properties:

Concrete Unit Weight =	125.00	lb/ft^3
Water Unit Weight =	62.40	lb/ft^3
Ice Force =	0.00	lb/ft^2
Silt (horizontal) Unit Weight =	85.00	lb/ft^3
Silt (vertical) Unit Weight =	120.00	lb/ft^3
Coefficient of Internal Friction =	35.000	degrees
Foundation Cohesion =	0.000	lb/in^2
Tensile Strength at Section Elev. =	0.000	lb/in^2
Safety Factor =	3.000	

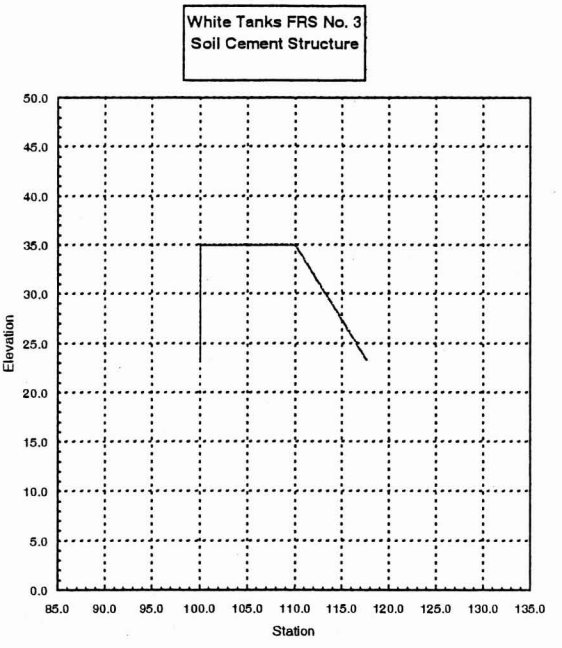
[3]. Reservior and Tailwater Elevations:

Reservoir Water Surface Elevation =	33.500	feet
Reservoir Silt Elevation =	0.000	feet
Ice Thickness =	0.000	feet
Tailsilt Elevation =	0.000	feet
Tailwater Elevation =	0.000	feet
Tailwater Coefficient =	67%	
Post Tension Anchor Force =	0.00E+00	lbs.
Post Tension Distance from Dam's Base Toe =	17.584	feet

The tailwater coefficient is input as a percentage. It is used to reduce the effective tailwater load on the downstream face of the structure due to several characteristics(eg. air entrainment, velocity, etc.). The uplift pressure at the toe is not effected by the coefficient.

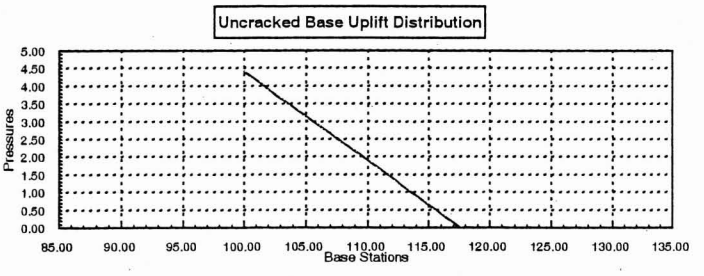
[4]. Earthquake Parameters:

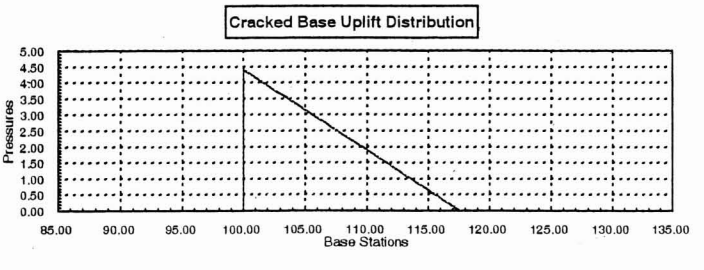
U/S Slope Earthquake Coefficient, Ce =	0.735	
D/S Slope Earthquake Coefficient, Ce =	0.500	
Horizontal Ground Acceleration =	0.000	g
Vertical Ground Acceleration =	0.000	g



The computed uplift forces are based on the FERC criteria stated in "Chapter 3 - Engineering Guidelines for the Evaluation of Hydropower Projects". Uplift pressures can be computed by leaving the Over-ride values equal to zero (0), or changed (over-rided) to reflect unique conditions.

Uplift used in Stability Analysis			Over-ride Computed Uplift Values with:	
Pressure @ Section's Heel =	4.41	lb/in^2	Heel Pres. =	4.41 lb/in^2
Pressure @ Section's Drain =	0.00	lb/in^2	Drain Pres. =	0.00 lb/in^2
Pressure @ Section's Toe =	0.00	lb/in^2	Toe Pres. =	0.00 lb/in^2





[5]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs	Vertical Arm (Toe) x feet	Horizontal Arm (Base) y feet	Moment Fy x lb-ft	Moment Fx y lb-ft	Moment @ Centroid Mc lb-ft
i) Thrust Block Gravity Load:							
(a) Gravity Forces:	(51,284)	--	15.83	9.99	(811,803)	0	(166,489)
(b) Gravity Earthquake Inertia Forces:	0	0	--	--	0	0	0
(c) Post Tension Anchor Forces:	0	--	25.17	--	0	--	0
ii) Reservoir ,Silt, and Ice:							
(a) Reservoir Forces:	0	14,869	0.00	7.28	0	108,317	108,317
(b) Silt Forces:	0	0	0.00	0.00	0	0	0
(c) Ice Forces:	--	0	--	21.83	--	0	0
(d) Reservoir Psuedo-static Forces:	0	0	--	0.00	0	0	0
(e) Silt Psuedo-static Forces:	0	0	--	0.00	0	0	0
iii) Tailwater & Tailsilt:							
(a) Tailwater Forces:	0	0	0.00	0.00	0	0	0
(b) Tailsilt Forces:	0	0	0.00	0.00	0	0	0
(c) Tailwater Psuedo-static Forces:	0	0	--	0.00	0	0	0
(d) Tailsilt Psuedo-static Forces:	0	0	--	0.00	0	0	0
Sub-Total without Uplift	(51,284)	14,869			(811,803)	108,317	(58,172)
iv) Uplift Forces:							
(a) Uplift Forces (uncracked base):	17,141	--	16.78	--	287,572	--	71,878
Total with Uplift	(34,142)	14,869			(524,231)	108,317	13,706

[6]. Stress Analysis:

Uncracked Base Analysis

Area, A = 25.2 feet^2 Centroid (from toe) c = 12.993 feet Moment of Inertia, I = 1328 feet^4	Vertical Load Fy lbs	Moment @ Centroid Mc lb-ft	Allowable Tensile Stress lb/in^2	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(a) Without Uplift	(51,284)	(58,172)	9.5	(14.2)	(3.8)	(18.0) (compression)	(10.3) (compression)
(b) With Uplift	(34,142)	13,706	0.0	(9.4)	0.9	(8.5) (compression)	(10.3) (compression)

Cracked Base Analysis

Uncracked Length T feet	Uplift U' lbs	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Uplift Moment, toe M' lb-ft	(P + U') lbs	Vert. Load Moment, toe (Fy x) lb-ft	Vert. Load Arm e feet	Vert. Load Moment centroid lb-ft	Total Moment centroid lb-ft	Upstream Stress sigma lb/in^2	
0.00	34,283	0.00	0.00	0.00	431,387	(17,001)	(380,415)	22.38	(380,415)	(272,098)	uncracked	(compression)
5.03	30,854	5.03	2.52	10.63	425,634	(20,429)	(386,169)	16.39	(334,756)	(226,439)	uncracked	(compression)
10.07	27,425	10.07	5.03	85.01	408,373	(23,857)	(403,430)	11.88	(283,348)	(175,031)	uncracked	(compression)
15.10	23,998	15.10	7.55	286.91	379,605	(27,286)	(432,198)	8.29	(226,192)	(117,875)	uncracked	(compression)
20.13	20,570	20.13	10.07	680.07	339,329	(30,714)	(472,473)	5.32	(163,288)	(54,971)	uncracked	(compression)
25.17	17,141	25.17	12.58	1328.26	287,547	(34,142)	(524,256)	2.77	(94,636)	13,681	uncracked	(compression)
Uncracked Length 25.17	17,141	25.17	12.58	1328.26	287,547	(34,142)	(524,256)	2.77	(94,636)	13,681	uncracked	(compression)

Note: Depress Cntrl-C for refined Cracked Base Analysis Macro.
Depress Cntrl-R to reset cracked base analysis.

[7]. Final Stress Distribution:

Vertical Load Fy lbs	Summation Moment @ Toe, (Fy x) lb-ft	Summation Moment @ Toe, (Fx y) lb-ft	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Summation Moment @ Centroid, Mc lb-ft	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(34,142)	(524,256)	108,317	25.17	12.58	1328	13,681	(9.4)	0.9	(8.5) (compression)	(10.3) (compression)

[8]. Stability Analysis:

1. Sliding-Stability:

$$F.S. = \frac{(C \times A) + (P - U') \tan(\phi)}{V}$$

$$F.S. = \frac{0 + 23{,}907}{14{,}869}$$

F.S. = 1.61

2. Overturning Moment:

$$F.S. = \frac{\text{Sum Resisting Moment (toe)}}{\text{Sum Overturning Moment (toe)}}$$

$$F.S. = \frac{-811{,}803}{395{,}864}$$

F.S. = 2.05

3. Floatation:

$$F.S. = \frac{\text{Sum Weight}}{\text{Sum Uplift}}$$

$$F.S. = \frac{-51{,}284}{17{,}141}$$

F.S. = 2.99

[9]. Stability for Sloped Failure Surface:

(a) Effects of Shear Key:

Upstream Shear Key Depth =	20.000	feet
Downstream Shear Key Depth =	7.000	feet
Width between Upstream and Downstream Key =	29.000	feet

[10]. External Forces on Block:

Description of Load	Vertical Load Fy lbs.	Horizontal Load Fx lbs.
I) Thrust Block Gravity Load:		
(a) Gravity Forces:	(20,114)	--
(b) Gravity Earthquake Inertia Forces:	0	0
(c) Post Tension Anchor Forces:	0	--
(d) Gnd above Failure plane, below Dam:	(46,980)	
II) Reservoir ,Silt, and Ice:	0	0
(a) Reservoir Forces:	0	28,323
(b) Silt Forces:	0	(51,590)
(c) Ice Forces:	--	0
(d) Reservoir Psuedo-static Forces:	0	0
(e) Silt Psuedo-static Forces:	0	0
III) Tailwater & Tailsilt:	0	0
(a) Tailwater Forces:	0	0
(b) Tailsilt Forces:	0	0
(c) Tailwater Psuedo-static Forces:	0	0
(d) Tailsilt Psuedo-static Forces:	0	0
Sub-Total without Uplift	(67,094)	(23,267)
Iv) Uplift Forces:		
(a) Normal Undrained Uplift Forces:	36,863	

[11]. Transformed Normal and Thrust Loads:

Angle of Failure Surface deg	Horizontal Load Fx lbs	Vertical Load Fy lbs	Uplift Load lbs	Normal Load lbs	Thrust Load lbs	Sliding Stability F.O.S.
24.1	(23,267)	(67,094)	36,863	14,843	-48,676	(0.21)

1. USBR, Engineering Monograph No. 11, U.S. Department of the Interior, date unknown.
2. USBR, Engineering Monograph No. 19, U.S. Department of the Interior, Design Criteria for Concete Arch and Gravity Dams, 1977.
3. USBR, "Design of Gravity Dams", U.S. Department of the Interior, 1976.
4. USBR, "Design of Small Dams", U.S. Department of the Interior, 1987.
5. USBR, Report, "Design of Gravity Walls", U.S. Department of the Interior, 1977.
6. USBR, Design Standard No. 9, U.S. Department of the Interior, 1959.
7. U.S. Army Corps of Engineers, EM 1110-2-2200, Gravity Dam Design, 1958.
8. U.S. Army Corps of Engineers, ETL 1110-2-256, Sliding Stability for Concrete Structures, 1981.
9. U.S. Army Corps of Engineers, ER 1110-2-1806, Earthquake Design and Analysis for Corps of Engineers Projects, 1983.
10. U.S. Army Corps of Engineers, ETL 1110-2-203, Earthquake Analysis and Design of Concrete Gravity Dams, 1985.
11. Westergaard, H.M.,ASCE Papers, "Water Pressures on Dams During Earthquakes.",November 1931.
12. FERC, Engineering Guidelines for the Evaluation of Hydropower Projects, 1991.

Project: White Tanks FRS No. 3 | **Job No:** 23443748 | **Date:** 10/26/04
Feature: Phase 1 Soil Cement Structure | **By:** Ed Villano | **Time:** 03:09 PM
Detail: Stability Analysis; Case 8 (2/3 Section, 2/3 Uplift; PMF Reservoir Elev. 1216.5, No U/S and D/S Silt, phi=35) | **Chkd.By:**
File: WT_Case_8

Input the type of measurement system to be used ('english' , 'metric' , or 'SI'):
english

[1]. Gravity Cross-section:

(a) Overall Dimensions, Elev., Width, & Crest Station:

Dam Crest Elevation =	35.000	feet
Section Elevation =	11.667	feet
Base Elevation =	11.667	feet
Crest Station =	100.00	feet
Crest Thickness =	10.000	feet
Width =	1.000	feet
Section Elevation Length =	25.166	feet
Base Elevation Length =	25.166	feet
Conversion Length =	12.000	feet
Drain Distance from D/S Toe of Dam (Section El.) =	0.000	feet
Drain of U/S Uplift Effectiveness =	0%	

For Drain Distance Enter the following values:
D>0 assumes drained condition with drains located at 'D' from Toe.
D=0 assumes undrained uplift condition.
D<0 assumes no uplift condition.

For Drain Effectiveness Enter the following values:
for D<0 ,E is unused.
for D=0 ,E is percent reduction for all uplift pressure along base
for D>0 ,E is percent reduction for uplift pressure at drain location HW - e (HW - TW)

(b) Section Slopes, Upstream and Downstream Face

A negitive upstream slope signifies a ledge at the designated elevation, a length equal to the slope number.

Upstream Slope

Slope (H/V) =	0.000	
Slope Top Elevation =	11.667	feet

Downstream Slopes

Slope 1 (H/V) =	0.650	
Slope 1 Elevation =	35.000	feet
Slope 2 (H/V) =	0.650	
Slope 2 Elevation =	30.333	feet
Slope 3 (H/V) =	0.650	
Slope 3 Elevation =	25.666	feet
Slope 4 (H/V) =	0.650	
Slope 4 Elevation =	21.000	feet
Slope 5 (H/V) =	0.650	
Slope 5 Elevation =	16.334	feet
Slope 6 (H/V) =	0.650	
Slope 6 Elevation =	11.667	feet

[2]. Material Properties:

Concrete Unit Weight =	125.00	lb/ft^3
Water Unit Weight =	62.40	lb/ft^3
Ice Force =	0.00	lb/ft^2
Silt (horizontal) Unit Weight =	85.00	lb/ft^3
Silt (vertical) Unit Weight =	120.00	lb/ft^3
Coefficient of Internal Friction =	35.000	degrees
Foundation Cohesion =	0.000	lb/in^2
Tensile Strength at Section Elev. =	0.000	lb/in^2
Safety Factor =	3.000	

[3]. Reservior and Tailwater Elevations:

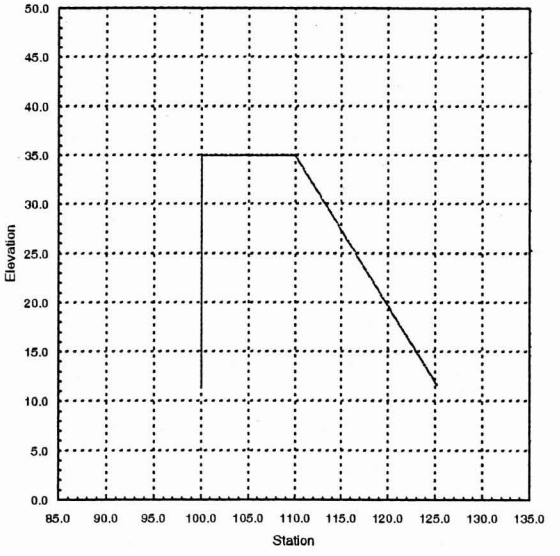
Reservoir Water Surface Elevation =	33.500	feet
Reservoir Silt Elevation =	0.000	feet
Ice Thickness =	0.000	feet
Tailsilt Elevation =	0.000	feet
Tailwater Elevation =	0.000	feet
Tailwater Coefficient =	67%	
Post Tension Anchor Force =	0.00E+00	lbs.
Post Tension Distance from Dam's Base Toe =	25.166	feet

The tailwater coefficient is input as a percentage. It is used to reduce the effective tailwater load on the downstream face of the structure due to several characteristics(eg. air entrainment, velocity, etc.). The uplift pressure at the toe is not effected by the coefficient.

[4]. Earthquake Parameters:

U/S Slope Earthquake Coefficient, Ce =	0.735	
D/S Slope Earthquake Coefficient, Ce =	0.500	
Horizontal Ground Acceleration =	0.000	g
Vertical Ground Acceleration =	0.000	g

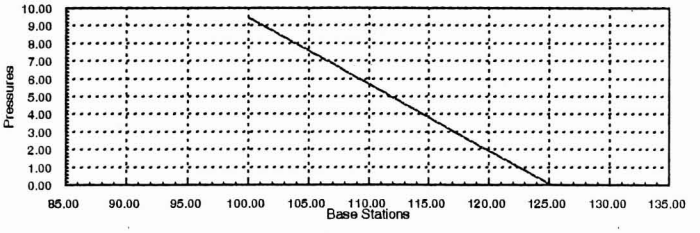
White Tanks FRS No. 3
Soil Cement Structure



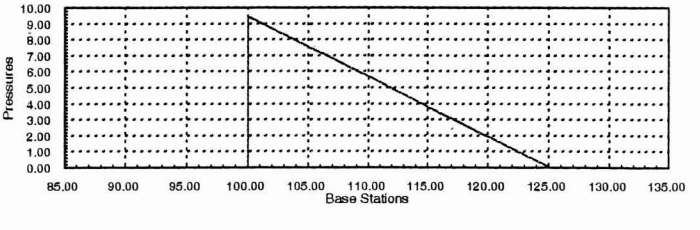
The computed uplift forces are based on the FERC criteria stated in "Chapter 3 - Engineering Guidelines for the Evaluation of Hydropower Projects". Uplift pressures can be computed by leaving the Over-ride values equal to zero (0), or changed (over-rided) to reflect unique conditions.

Uplift used in Stability Analysis			Over-ride Computed Uplift Values with:	
Pressure @ Section's Heel =	9.46	lb/in^2	Heel Pres. =	9.46 lb/in^2
Pressure @ Section's Drain =	0.00	lb/in^2	Drain Pres. =	0.00 lb/in^2
Pressure @ Section's Toe =	0.00	lb/in^2	Toe Pres. =	0.00 lb/in^2

Uncracked Base Uplift Distribution



Cracked Base Uplift Distribution



Project: White Tanks FRS No. 3 | **Job No:** 23443748 | **Date:** 10/26/04
Feature: Phase 1 Soil Cement Structure | **By:** Ed Villano | **Time:** 03:09 PM
Detail: Stability Analysis; Case 8 (2/3 Section, 2/3 Uplift; PMF Reservoir Elev. 1216.5, No U/S and D/S Silt, phi=35) | **Chkd.By:**
File: WT_Case_8

[5]. External Forces on Block:

Description of Load	Vertical Load Fy lbs	Horizontal Load Fx lbs	Vertical Arm (Toe) x feet	Horizontal Arm (Base) y feet	Moment Fy x lb-ft	Moment Fx y lb-ft	Moment @ Centroid Mc lb-ft
i) Thrust Block Gravity Load:							
(a) Gravity Forces:	(51,284)	--	15.83	9.99	(811,803)	0	(166,489)
(b) Gravity Earthquake Inertia Forces:	0	0	--	--	0	0	0
(c) Post Tension Anchor Forces:	0	--	25.17	--	0	--	0
ii) Reservoir ,Silt, and Ice:							
(a) Reservoir Forces:	0	14,869	0.00	7.28	0	108,317	108,317
(b) Silt Forces:	0	0	0.00	0.00	0	0	0
(c) Ice Forces:	--	0	--	21.83	--	0	0
(d) Reservoir Psuedo-static Forces:	0	0	--	0.00	0	0	0
(e) Silt Psuedo-static Forces:	0	0	--	0.00	0	0	0
iii) Tailwater & Tailsilt:							
(a) Tailwater Forces:	0	0	0.00	0.00	0	0	0
(b) Tailsilt Forces:	0	0	0.00	0.00	0	0	0
(c) Tailwater Psuedo-static Forces:	0	0	--	0.00	0	0	0
(d) Tailsilt Psuedo-static Forces:	0	0	--	0.00	0	0	0
Sub-Total without Uplift	(51,284)	14,869			(811,803)	108,317	(58,172)
iv) Uplift Forces:							
(a) Uplift Forces (uncracked base):	17,141	--	16.78	--	287,572	--	71,878
Total with Uplift	(34,142)	14,869			(524,231)	108,317	13,706

[6]. Stress Analysis:

Uncracked Base Analysis

Area, A = 25.2 feet^2 Centroid (from toe) c = 12.583 feet Moment of Inertia, I = 1328 feet^4	Vertical Load Fy lbs	Moment @ Centroid Mc lb-ft	Allowable Tensile Stress lb/in^2	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(a) Without Uplift	(51,284)	(58,172)	9.5	(14.2)	(3.8)	(18.0) (compression)	(10.3) (compression)
(b) With Uplift	(34,142)	13,706	0.0	(9.4)	0.9	(8.5) (compression)	(10.3) (compression)

Cracked Base Analysis

Uncracked Length T' feet	Uplift U' lbs	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Uplift Moment, toe M* lb-ft	(P + U') lbs	Vert. Load Moment, toe (Fy x) lb-ft	Vert. Load Arm e feet	Vert. Load Moment centroid lb-ft	Total Moment centroid lb-ft	Upstream Stress sigma lb/in^2	
0.00	34,283	0.00	0.00	0.00	431,387	(17,001)	(380,415)	22.38	(380,415)	(272,098)	uncracked	(compression)
5.03	30,854	5.03	2.52	10.63	425,634	(20,429)	(386,169)	16.39	(334,756)	(226,439)	uncracked	(compression)
10.07	27,426	10.07	5.03	85.01	408,373	(23,857)	(403,430)	11.88	(283,348)	(175,031)	uncracked	(compression)
15.10	23,998	15.10	7.55	286.91	379,605	(27,286)	(432,198)	8.29	(226,192)	(117,875)	uncracked	(compression)
20.13	20,570	20.13	10.07	680.07	339,329	(30,714)	(472,473)	5.32	(163,288)	(54,971)	uncracked	(compression)
25.17	17,141	25.17	12.58	1328.26	287,547	(34,142)	(524,256)	2.77	(94,636)	13,681	uncracked	(compression)
Uncracked Length 25.17	17,141	25.17	12.58	1328.26	287,547	(34,142)	(524,256)	2.77	(94,636)	13,681	uncracked	(compression)

Note: Depress Cntrl-C for refined Cracked Base Analysis Macro.
Depress Cntrl-R to reset cracked base analysis.

[7]. Final Stress Distribution:

Vertical Load Fy lbs	Summation Moment @ Toe, (Fy x) lb-ft	Summation Moment @ Toe, (Fx y) lb-ft	Area A ft^2	Centroid c feet	Moment of Inertia I ft^4	Summation Moment @ Centroid, Mc lb-ft	Fx / A lb/in^2	M c / I lb/in^2	Upstream Stress lb/in^2	Downstream Stress lb/in^2
(34,142)	(524,256)	108,317	25.17	12.58	1328	13,681	(9.4)	0.9	(8.5) (compression)	(10.3) (compression)

[8]. Stability Analysis:

1. Sliding-Stability:

$$F.S. = \frac{(C \times A) + (P - U') \tan(phi)}{V}$$

$$F.S. = \frac{0 + 23{,}907}{14{,}869}$$

$$F.S. = 1.61$$

2. Overturning Moment:

$$F.S. = \frac{\text{Sum Resisting Moment (toe)}}{\text{Sum Overturning Moment (toe)}}$$

$$F.S. = \frac{-811{,}803}{395{,}864}$$

$$F.S. = 2.05$$

3. Floatation:

$$F.S. = \frac{\text{Sum Weight}}{\text{Sum Uplift}}$$

$$F.S. = \frac{-51{,}284}{17{,}141}$$

$$F.S. = 2.99$$

[9]. Stability for Sloped Failure Surface:

(a) Effects of Shear Key:

Upstream Shear Key Depth =	20.000	feet
Downstream Shear Key Depth =	7.000	feet
Width between Upstream and Downstream Key =	29.000	feet

[10]. External Forces on Block:

Description of Load	Vertical Load Fy lbs.	Horizontal Load Fx lbs.
i) Thrust Block Gravity Load:		
(a) Gravity Forces:	(51,284)	--
(b) Gravity Earthquake Inertia Forces:	0	0
(c) Post Tension Anchor Forces:	0	--
(d) Gnd above Failure plane, below Dam:	(46,980)	
ii) Reservoir ,Silt, and Ice:	0	0
(a) Reservoir Forces:	0	54,530
(b) Silt Forces:	0	(49,111)
(c) Ice Forces:	--	0
(d) Reservoir Psuedo-static Forces:	0	0
(e) Silt Psuedo-static Forces:	0	0
iii) Tailwater & Tailsilt:	0	0
(a) Tailwater Forces:	0	0
(b) Tailsilt Forces:	0	0
(c) Tailwater Psuedo-static Forces:	0	0
(d) Tailsilt Psuedo-static Forces:	0	0
Sub-Total without Uplift	(98,264)	5,418
iv) Uplift Forces:		
(a) Normal Undrained Uplift Forces:	48,418	

[11]. Transformed Normal and Thrust Loads:

Angle of Failure Surface deg.	Horizontal Load Fx lbs.	Vertical Load Fy lbs.	Uplift Load lbs.	Normal Load lbs.	Thrust Load lbs.	Sliding Stability F.O.S.
24.1	5,418	(98,264)	48,418	43,465	-35,251	(0.86)

1. USBR, Engineering Monograph No. 11, U.S. Department of the Interior, date unknown.

2. USBR, Engineering Monograph No. 19, U.S. Department of the Interior, Design Criteria for Concete Arch and Gravity Dams, 1977.

3. USBR, "Design of Gravity Dams", U.S. Department of the Interior, 1976.

4. USBR, "Design of Small Dams", U.S. Department of the Interior, 1987.

5. USBR, Report, "Design of Gravity Walls", U.S. Department of the Interior, 1977.

6. USBR, Design Standard No. 9, U.S. Department of the Interior, 1959.

7. U.S. Army Corps of Engineers, EM 1110-2-2200, Gravity Dam Design, 1958.

8. U.S. Army Corps of Engineers, ETL 1110-2-256, Sliding Stability for Concrete Structures, 1981.

9. U.S. Army Corps of Engineers, ER 1110-2-1806, Earthquake Design and Analysis for Corps of Engineers Projects, 1983.

10. U.S. Army Corps of Engineers, ETL 1110-2-203, Earthquake Analysis and Design of Concrete Gravity Dams, 1985.

11. Westergaard, H.M.,ASCE Papers, "Water Pressures on Dams During Earthquakes.",November 1931.

12. FERC, Engineering Guidelines for the Evaluation of Hydropower Projects, 1991.

Appendix G.4
Settlement Analyses

CALCULATION COVER SHEET

Client: Maricopa County

Project Name: White Tanks FRS #3

Project/Calculation Number: 23443748.00312

Title: RC Pipe Settlement calculations using FLAC elastic modeling

Total Number of Pages (including cover sheet): 10

Total Number of Computer Runs: -

Prepared By: Lois Boxill **Date:** November 3, 2004

Checked By: JSG **Date:** 11/8/04

Description and Purpose

To create and run a finite difference elastic model of the various construction stages of the flood retarding structure to be remediated using a soil cement core and base with structural and architectural common fill in the upstream and downstream embankments. The model was created in order to predict the magnitude of deformations of materials on which a reinforced concrete pipe in the outlet works section would be placed. FLAC v.4 finite difference software was used to analyze the deformations at six locations as identified on the attached figures.

Design Basis/References/Assumptions

Since determinations of the magnitude of material deformations during the various construction stages of the embankment along the RC pipe of the outlet works was the goal of this exercise, six nodal points were located within the region of interest as indicated in the attached figures. Each phase of analysis was conducted under static loading conditions. All elements were modeled as elastic using the material properties presented in Table 1 found on page 2. It should also be noted that this model predicts the deformations of the soil cement materials on which the RC pipe will be placed and does not account for the actual material properties of the RC pipe. This elastic model therefore does not predict the actual deformations that might be observed in the RC pipe since the stiffness of the RC pipe has not been modeled.

Remarks/Conclusions/Results

See Table 2 for the deformations occurring at each of the nodal points during the various construction phases. The largest material deformation of approximately 5.2 inches occurred at a point that would be located beneath the approximate midpoint of the RC pipe. The second largest deformation of 4.7 inches was recorded beneath the central portion of the downstream embankment common fill. At the completion of the last construction stage of the rehabilitated structure, the finite difference model predicated deformations of the soil cement on which the RC pipe would be placed ranging between 0.9 and 5.2 inches with the largest deformations occurring beneath the central portions of the RC pipe as seen on Sheet 2 of 2 in the figures attached.

Calculation Approved By: Todd Ringsmuth 11/9/04
Project Manager/Date

Revision No.:	Revision Description:	Approved By:

Project Manager/Date

Table 1: Summary of Material Properties

Material Type	Unit Weight (pcf)
Upper Existing Embankment	125.0
Lower Existing Embankment	118.0
Soil Cement	135.0
Embankment Common Fill	120.0
Holocene Foundation	118.0
Upper & Lower Pleistocene	118.0
Young's Modulus, E (ksi)	5.00
Bulk Modulus, K (ksi)	5.56
Shear Modulus, G (ksi)	1.85
Poisson's Ratio, v	0.35

Note: Using the Young's Modulus value of 5ksi determined from Beckwith and Hansen (1982) as suitable for moderately cemented calcareous soils, and a Poison's Ratio of 0.35 typically used for dry materials, the bulk modulus and shear modulus were calculated using the following classic elastic theory equations where:

$$K = \frac{E}{3(1-2\nu)} \qquad \text{and} \qquad G = \frac{E}{2(1+\nu)}$$

$K = \frac{5\,ksi}{3(1-2(0.35))}$

$= 5.56\,ksi$

$= 5.56\,\frac{kip}{in^2} \times \frac{144\,in^2}{1\,ft^2}$

$= \underline{800\,ksf}$

$G = \frac{5\,ksi}{2(1+0.35)}$

$= 1.85\,ksi$

$= 1.85\,\frac{kips}{in^2} \times \frac{144\,in^2}{1\,ft^2}$

$= \underline{266\,ksf}$

Table 2: Summary of Deformations at Nodal Points Beneath the RC Pipe

		RC Pipe Nodal Points					
		1	2	3	4	5	6
Stage 2 - Initial Conditions - placement of lower central and D/S Soil cement sections	Deformation (ft)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-	-
	Deformation (in)	**0.0**	**0.0**	**0.0**	**0.0**	-	-
Stage 3 - Completion of central and D/S Soil cement sections	Deformation (ft)	-1.91E-01	-8.56E-02	-3.58E-02	-7.19E-03	-	-
	Deformation (in)	**-2.3**	**-1.0**	**-0.4**	**-0.1**	-	-
Stage 4 - Placement of U/S Common Fill	Deformation (ft)	-2.61E-01	-2.05E-01	-1.50E-01	-6.59E-02	-	-
	Deformation (in)	**-3.1**	**-2.5**	**-1.8**	**-0.8**	-	-
Stage 5 - Removal of existing embankments	Deformation (ft)	-2.26E-01	-1.98E-01	-1.58E-01	-8.25E-02	-	-
	Deformation (in)	**-2.7**	**-2.4**	**-1.9**	**-1.0**	-	-
Stage 6 - Placement of D/S Soil Cement	Deformation (ft)	-2.79E-01	-2.18E-01	-1.63E-01	-7.94E-02	-9.50E-02	-6.61E-02
	Deformation (in)	**-3.3**	**-2.6**	**-2.0**	**-1.0**	**-1.1**	**-0.8**
Stage 7 - Placement of D/S Common Fill	Deformation (ft)	-4.29E-01	-2.81E-01	-1.89E-01	-7.78E-02	-2.97E-01	-1.39E-01
	Deformation (in)	**-5.2**	**-3.4**	**-2.3**	**-0.9**	**-4.7**	**-2.5**

"Calcareous Soils of the Southwestern United States"
Beckwith and Hansen, 1982

Classification and Engineering Properties

Various classification systems developed for carbonaceous soils and rocks, summarized by Burnett and Epps [*20*], do not lend themselves to use for the calcareous soils of the Southwestern United States because they were developed for sedimentary deposits rather than secondary deposition of carbonates. A simple system, shown in Table 2, categorizing the calcareous soils (and rocks) of the Southwest into five classes of increasing strength has been developed by the first author's organization. It has been found that this system, in conjunction with Unified Soil Classification and a careful description of structure and discontinuities as discussed in the following, is satisfactory for engineering purposes.

Class 1 Soils

Class 1 calcareous soils in the Southwestern United States were formed in the arid environment of approximately the past 12 000 years and possess highly moisture-sensitive properties which distinguish them from older calcareous deposits. These distinctive properties place them in the category of "collapsing" soils as described by a number of authors [*21-23*]. Class 1 soils are predominantly low-gradient alluvial fan deposits and alluvial

TABLE 2—*Engineering classification of calcareous soils of the Southwestern United States.*

Class	Typical Properties	Description
1	dry properties; θ = 30 deg C = 200 lb/ft^2 E_s = 1 to 5 ksi N = <15	Holocene "collapsing" soils. Gile et al [*10,11*]. Stage I of development. Weakly cemented with filaments and particle grain coatings
2	E_s = 5 to 10 ksi θ = 33 to 37 deg C = 1.0 to 3.0 ksf N = 5 to 25	moderately cemented. Moderately weakened by moisture increases. Gile et al, Stage II, often nodular structure with continuously cemented matrix. Pleistocene
3	E_s = 8 to 15 ksi θ = 35 to 42 deg C = 3.0 to 6.0 ksf N = 25 to 60	strongly cemented, only slightly affected by moisture increases. Gile et al, Stage III, often has laminated or stratified structure. Pleistocene
4	E_s = 15 to 50 ksi q_u = 10 to 20 ksf N = 60 to 200+	very strongly cemented with essentially the properties of soft rock. Not significantly affected by moisture increases, often has stratified structure. Gile et al, Stage IV. Pleistocene or older
5	E_s = 50 to 500 ksi q_u = 1.5 to 5.0 ksi N = 200+	moderately hard rock. Rock mechanics approaches necessary for investigation and analysis. Gile et al, Stage IV. Pleistocene or older

Metric conversion factors:
1 lb/ft^2 = 47.9 Pa.
1 ksi = 6.90 MPa.
1 ksf = 47.9 kPa.

Elastic settlement equation assumes infinite depth. Therefore, E_s should reflect average shallow and deeper soil properties, weighted more toward shallow soil properties due to greater stress at shallower depths. Assume average soil properties are reflected by mid-range of Class 2 soil, with E = 8 ksi.

White Tanks FRS #3
Gated Outlet Section
i,j coordinates for FLAC

I-coordinate Values				
x-coordinate of 1st I =		-35		
I-number	Distance to next I node	x-coodinate	Mesh size used	Number of elements
1	40	-35	1.5	27
28	25	5	1.25	20
48	11	30	1.25	9
57	12	41	1.25	10
67	7	53	1.25	6
73	7	60	1.25	6
79	13	67	1.25	10
89	9	80	1.25	7
96	9	89	1.25	7
103	5	98	1.25	4
107	18	103	1.25	14
121	9	121	1.25	7
128	4	130	1.25	3
131	10	134	1.25	8
139	4	144	1.25	3
142	12.27	148	1.25	10
152	1.93	160	1.25	2
154	3.25	162	1.25	3
157	8.55	165	1.25	7
164	10	174	1.25	8
172	4	184	1.25	3
175	12	188	1.25	10
185	19	200	1.25	15
200	7	219	1.25	6
206	9	226	1.25	7
213	40	235	1.5	27
240		275		

J-coordinate Values				
y-coordinate of 1st J =		1053		
J-number	Distance to next J node	y-coodinate	Mesh size used	Number of elements
1	120	1053	1.5	80
81	10	1173	1.5	7
88	2	1183	1.25	2
90	5	1185	1.25	4
94	2	1190	1.25	2
96	0.92	1192	1.25	1
97	1.34	1193	1.25	1
98	7.68	1194	1.25	6
104	2	1202	1.25	2
106	10	1204	1.25	8
114	4	1214	1.25	3
117		1218		

27

12

11/1/04, 3:42 PM

```
; ---------------------------------------------------------------
; ---  White Tanks FRS No. 3
; ---  Project No.     :  23443748
; ---  Cross Section   :  Gated outlet structure - revised geometry
; ---  Case            :  Elastic Analysis to Estimate Pipe Settlement Profile
; ---  By              :  Lois Boxill
; ---  Date            :  October, 2004
; ---------------------------------------------------------------

new
config ex 20

set small
set gravity=32.2   ; gravity in ft/sec2
water bulk=1.0 density=1.9379  ; bulk is dumy, density=62.4/32.2

;=================
;  Mesh Generation
;=================
call meshfrs3.flc
save mesh.sav

pause
;============================
;   Assign Group Names
;============================

def Group_Names
loop i(1,izones)
    loop j(1,jzones)
       caseof ex_1(i,j)
            case 1 ; ------- Holocene Foundation
                command
                    group=Zone_1 i=i  j=j
                end_command
            case 2 ; ------- Existing Embankment
                command
                    group=Zone_2 i=i  j=j
                end_command
            case 3 ; ------- D/s Middle Arch. Fill
                command
                    group=Zone_3 i=i  j=j
                end_command
            case 4 ; ------- D/s Lower Arch. Fill
                command
                    group=Zone_4 i=i  j=j
                end_command
            case 5 ; ------- D/s Upper Arch. Fill
                command
                    group=Zone_5 i=i  j=j
                end_command
            case 6 ; ------- Middle Arch. Fill
                command
                    group=Zone_6 i=i  j=j
                end_command
            case 7 ; ------- Lower Arch. Fill
                command
                    group=Zone_7 i=i  j=j
                end_command
            case 8 ; ------- Upper Embankment
                command
                    group=Zone_8 i=i  j=j
                end_command
            case 9 ; ------- Middle Embankment
                command
                    group=Zone_9 i=i  j=j
                end_command
            case 10 ; ------- Lower Embankment
                command
                    group=Zone_10 i=i  j=j
                end_command
            case 11 ; ------- U/s Embankment Fill
                command
                    group=Zone_11 i=i  j=j
                end_command
            case 12 ; ------- Middle Embankment Fill
                command
                    group=Zone_12 i=i  j=j
                end_command
            case 13 ; ------- Lower Embankment Fill
                command
                    group=Zone_13 i=i  j=j
                end_command
            case 14 ; ------- U/s Middle Embankment Fill
                command
                    group=Zone_14 i=i  j=j
                end_command
            case 15 ; ------- U/s Lower Embankment Fill
                command
                    group=Zone_15 i=i  j=j
                end_command
            case 16 ; ------- Upper Pleistocene
                command
                    group=Zone_16 i=i  j=j
                end_command
            case 17 ; ------- Lower Pleistocene
                command
                    group=Zone_17 i=i  j=j
                end_command
        endcase
    endloop
endloop
end
Group_Names

;====================================
; Define Initial Conditions          Stage 2
;====================================

model=null                                  group=Zone_5
model=null                                  group=Zone_8
model=null                                  group=Zone_11
model=null                                  group=Zone_6
model=null                                  group=Zone_9
model=null                                  group=Zone_12
model=null                                  group=Zone_7
model=null                                  group=Zone_14


model=elastic                               group=Zone_1
prop density=3.66 shear=266e3 bulk=800e3    group=Zone_1

model=elastic                               group=Zone_2
prop density=3.88 shear=266e3 bulk=800e3    group=Zone_2

model=elastic                               group=Zone_3
prop density=3.88 shear=266e3 bulk=800e3    group=Zone_3

model=elastic                               group=Zone_4
prop density=3.66 shear=266e3 bulk=800e3    group=Zone_4

model=elastic                               group=Zone_10
```

```
prop density=4.19 shear=266e3 bulk=800e3  group=Zone_10

model=elastic                             group=Zone_13
prop density=4.19 shear=266e3 bulk=800e3  group=Zone_13

model=elastic                             group=Zone_15
prop density=4.19 shear=266e3 bulk=800e3  group=Zone_15

model=elastic                             group=Zone_16
prop density=3.66 shear=266e3 bulk=800e3  group=Zone_16

model=elastic                             group=Zone_17
prop density=3.66 shear=266e3 bulk=800e3  group=Zone_17


;============================
;  Assign Boundary Conditions
;============================

fix  x y j=1
fix  x   i=1
fix  x   i=ig

;====================================
;  Analyze - Initial Conditions
;====================================

step 7000
save Initial.sav

ini xdisp=0  ydisp=0  xvel=0   yvel=0

;====================================
;  Define Histories
;====================================
hist nstep 100
hist unbalance
hist ydisp i=131  j=94  ; 2 (1)
hist ydisp i=154  j=94  ; 3 (2)
hist ydisp i=172  j=94  ; 4 (3)
hist ydisp i=200  j=94  ; 5 (4)

;================================================
; Step 1 - Complete remaining Soil-Cement Section  Stage 3
;================================================

model=elastic                             group=Zone_9
prop density=4.19 shear=266e3 bulk=800e3  group=Zone_9

model=elastic                             group=Zone_8
prop density=4.19 shear=266e3 bulk=800e3  group=Zone_8

step 10000
save Step_1.sav

;================================================
; Step 2 - Place Upstream Common Fill              Stage 4
;================================================

model=elastic                             group=Zone_12
prop density=3.73 shear=266e3 bulk=800e3  group=Zone_12

model=elastic                             group=Zone_11
prop density=3.73 shear=266e3 bulk=800e3  group=Zone_11

model=elastic                             group=Zone_14
prop density=3.73 shear=266e3 bulk=800e3  group=Zone_14

step 10000
save Step_2.sav

;====================================
;  Step 3 - Remove Exisitng Embankment   Stage 5
;====================================

model=null                                group=Zone_2
model=null                                group=Zone_3
model=null                                group=Zone_4

step 10000
save Step_3.sav

;================================================
; Step 4 - Place Downstream Soil-Cement Layer      Stage 6
;================================================

model=elastic                             group=Zone_4
prop density=4.19 shear=266e3 bulk=800e3  group=Zone_4

model=elastic                             group=Zone_7
prop density=4.19 shear=266e3 bulk=800e3  group=Zone_7

step 10000
save Step_4.sav


;========================================
; Step 5 - Construct Downstream Common Fill  Stage 7
;========================================

model=elastic                             group=Zone_3
prop density=3.73 shear=266e3 bulk=800e3  group=Zone_3

model=elastic                             group=Zone_5
prop density=3.73 shear=266e3 bulk=800e3  group=Zone_5

model=elastic                             group=Zone_6
prop density=3.73 shear=266e3 bulk=800e3  group=Zone_6

hist ydisp i=57   j=94      ; 6 (6)
hist ydisp i=103  j=94      ; 7 (5)

step 10000
save Step_5.sav
```

(#) - Nodal points

1471-4PRINT

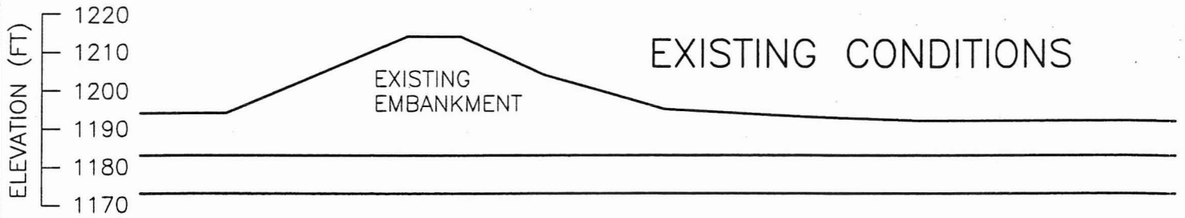
```
; ------------------------------------------------------------
; --- White Tanks FRS #3
; --- Project No    : 23443748
; --- Cross Section: Gated Outlet Structure - Revised Geometry
; --- Analysis Case: Mesh generation
; --- Date          : October 2004
; ------------------------------------------------------------

;================
; Mesh Generation
;================
;--Table 11     #X interval+1  , # Y interval+1
   table 11 27,12
;--Table 12      i# grid , X coordinate
   table 12  1,-35 28,5 48,30 57,41 67,53 73,60 79,67 89,80 96,89
   table 12  103,98 107,103 121,121 128,130
   table 12  131,134 139,144 142,148 152,160 154,162 157,165
   table 12  164,174 172,184 175,188 185,200 200,219 206,226
   table 12  213,235 240,275
;--Table 13      j# grid , Y coordinate
   table 13  1,1053 81,1173 88,1183 90,1185 94,1190 96,1192 97,1193
   table 13  98,1194 104,1202 106,1204 114,1214 117,1218
;--Table 14   i# grid , X ratio
   table 14 1,1.0 28,1.0 48,1.0 57,1.0 67,1.0 73,1.0 79,1.0 89,1.0
   table 14 96,1.0 103,1.0 107,1.0 121,1.0 128,1.0
   table 14 131,1.0 139,1.0 142,1.0 152,1.0 154,1.0 157,1.0 164,1.0
   table 14 172,1.0 175,1.0 185,1.0 200,1.0 206,1.0 213,1.0 240,1.0
;--Table 15 j# grid , Y ratio
   table 15 1,1.0 81,1.0 88,1.0 90,1.0 94,1.0 96,1.0 97,1.0
   table 15 98,1.0 104,1.0 106,1.0 114,1.0 117,1.0
;--Table 16 X,Y coordinate of Top Surface
   table 16 -35,1194 5,1194 53,1214 67,1214 89,1204 130,1218
   table 16 134,1218 144,1218 148,1218 200,1192 235,1192
   table 16 275,1192
def ini_vars
   nx=xtable(11,1)
   ny=ytable(11,1)
   ig=xtable(12,nx)
   iz=ig-1
   jg=xtable(13,ny)
   jz=jg-1
   inodes=ig
end
ini_vars
grid iz,jz
m el

;================
;  Generate Mesh
;================
call gen_mesh.fis
gen table 16
model null reg 28,106
model null reg 96,116
model null reg 206,106

;========================
;  Assign Material Number
;========================
Def AssignEX1
   np=table_size(20)
   xmin=xtable(20,1)
   xmax=xtable(20,np)
   loop i (1,izones)
      loop j (1,jzones)
         if model(i,j)>1 then
            xc=(x(i,j)+x(i+1,j)+x(i+1,j+1)+x(i,j+1))/4.0
            yc=(y(i,j)+y(i+1,j)+y(i+1,j+1)+y(i,j+1))/4.0
            if xc >= xmin then
               if xc <= xmax then
                  ytop=table(20,xc)
                  if yc <= ytop then
                     ex_1(i,j)=Ex1Number
                  endif
               endif
            endif
         endif
      endloop
   endloop
end

;=====================================================================
;=== Note: EX1 is set such that material originally numbered Ex
;===       will be numbered as x.
;=====================================================================

;--- EXISTING EMBANKMENT
table 20 delete
table 20 5,1194 53,1214 67,1214 89,1204
set Ex1Number=2
AssignEX1

;--- DS UPPER ARCHITECHTURAL FILL
table 20 delete
table 20 89,1204 130,1218 134,1218 134,1194
set Ex1Number=5
AssignEX1

;--- US EMBANKMENT FILL
table 20 delete
table 20 144,1218 148,1218 200,1192
set Ex1Number=11
AssignEX1

;--- UPPER EMBANKMENT
table 20 delete
table 20 134,1194 134,1218 144,1218 160,1193
set Ex1Number=8
AssignEX1

;--- MIDDLE ARCHITECHTURAL FILL
table 20 delete
table 20 89,1204 121,1194 134,1194 134,1190
set Ex1Number=6
AssignEX1

;--- MIDDLE EMBANKMENT FILL
table 20 delete
table 20 160,1193 188,1192
set Ex1Number=12
AssignEX1

;--- DS MIDDLE ARCHITECHTURAL FILL
table 20 delete
table 20 41,1190 60,1202 80,1202 89,1204 98,1190
set Ex1Number=3
AssignEX1

;--- MIDDLE EMBANKMENT
table 20 delete
table 20 134,1190 134,1194 160,1193 162,1190
set Ex1Number=9
```


1671+PRINT

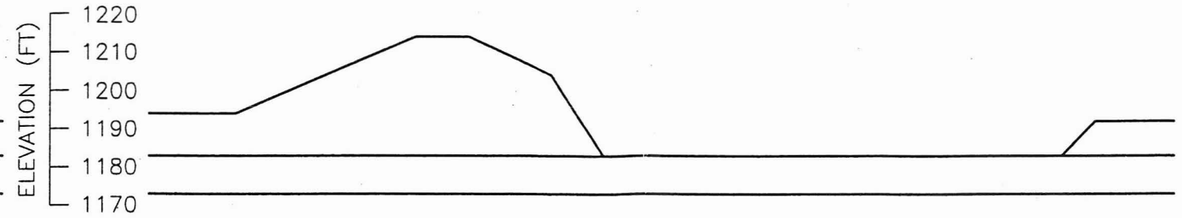
```
AssignEX1

;--- US MIDDLE EMBANKMENT FILL
table 20 delete
table 20 184,1190 188,1192 200,1192 235,1192
set Ex1Number=14
AssignEX1

;--- DS HOLOCENE FM.
table 20 delete
table 20 -35,1194 5,1194 30,1183
set Ex1Number=1
AssignEX1

;--- US HOLOCENE FM.
table 20 delete
table 20 226,1183 235,1192 275,1192
set Ex1Number=1
AssignEX1

;--- LOWER ARCHITECHTURAL FILL
table 20 delete
table 20 98,1190 134,1190 134,1183
set Ex1Number=7
AssignEX1

;--- LOWER EMBANKMENT FILL
table 20 delete
table 20 161,1190 184,1190
set Ex1Number=13
AssignEX1

;--- DS LOWER ARCHITECHTURAL FILL
table 20 delete
table 20 30,1183 41,1190 98,1190 103,1183
set Ex1Number=4
AssignEX1

;--- LOWER EMBANKMENT
table 20 delete
table 20 134,1183 134,1190 162,1190 165,1185 165,1183
set Ex1Number=10
AssignEX1

;--- US LOWER EMBANKMENT FILL
table 20 delete
table 20 165,1183 165,1185 174,1185 184,1190 219,1190 226,1183
set Ex1Number=15
AssignEX1

;--- UPPER PLEISTOCENE
table 20 delete
table 20 -35,1183 30,1183 103,1183 134,1183 165,1183 226,1183
table 20 275,1183
set Ex1Number=16
AssignEX1

;--- LOWER PLEISTOCENE
table 20 delete
table 20 -35,1173 275,1173
set Ex1Number=17
AssignEX1
```

URS

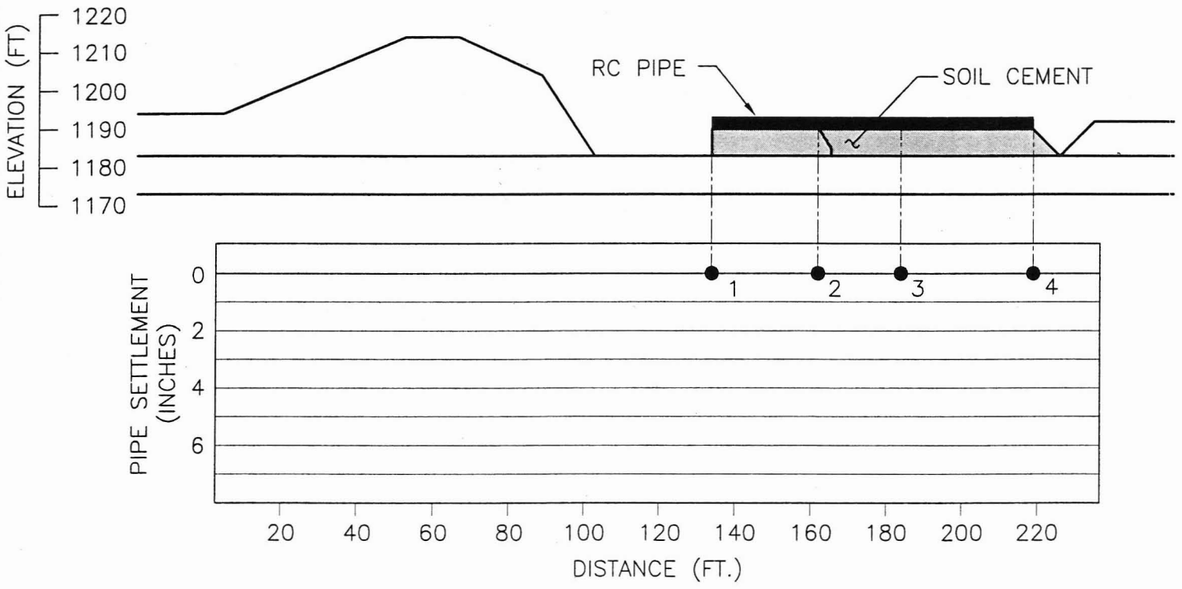
EXISTING CONDITIONS



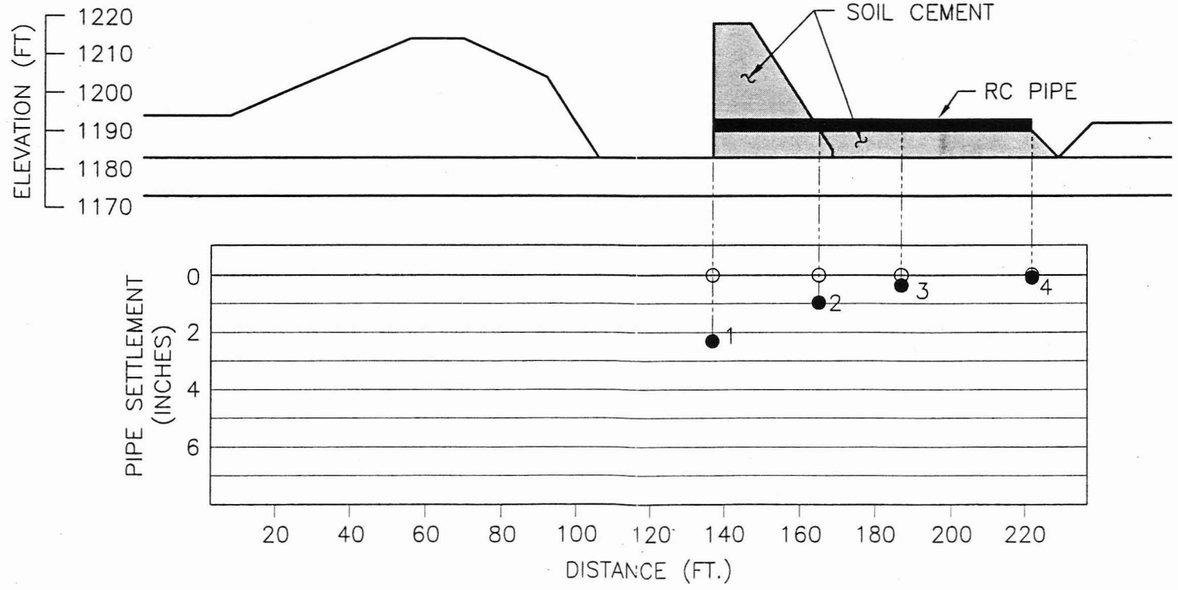
STAGE 1



STAGE 2



STAGE 3

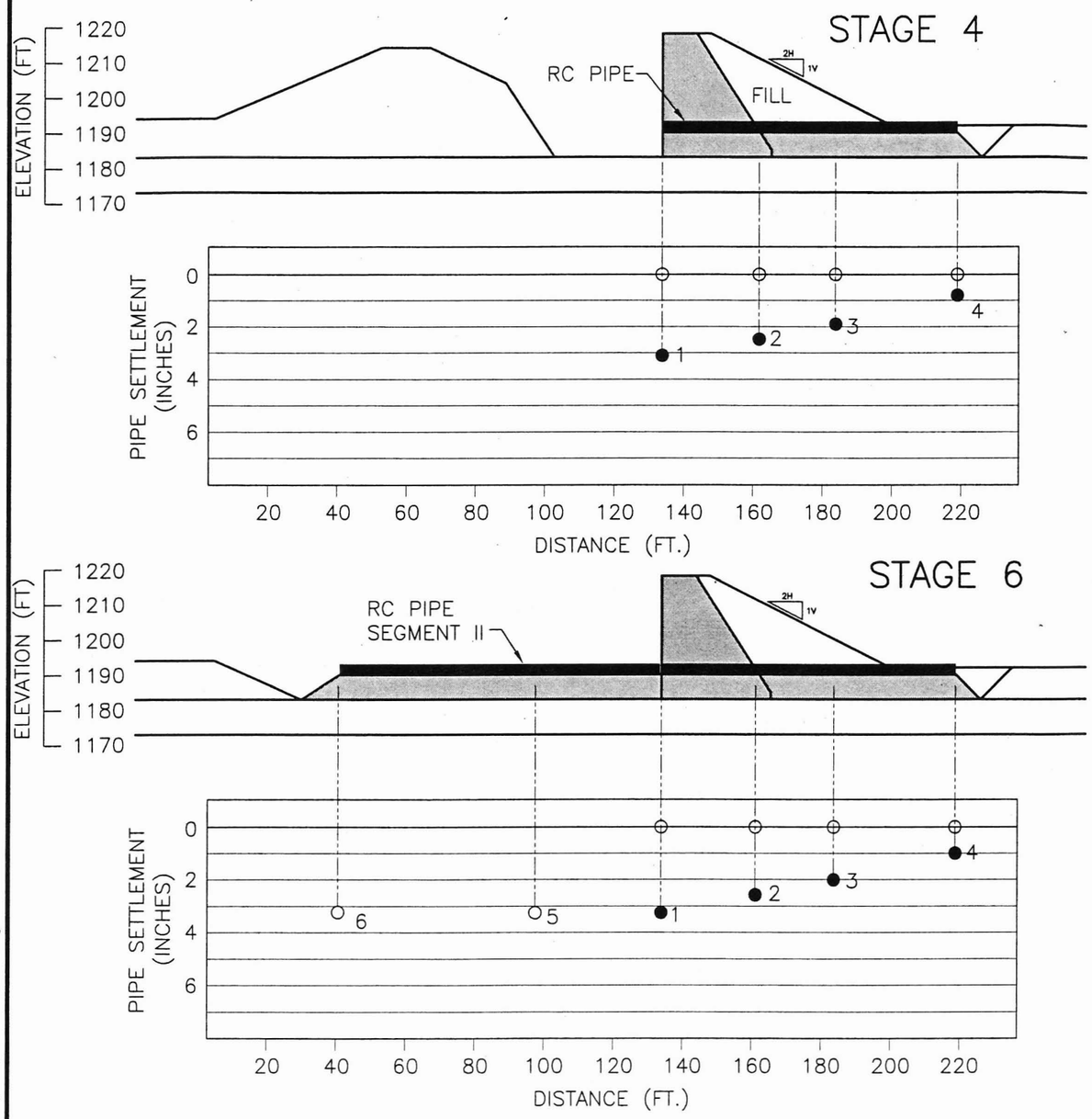


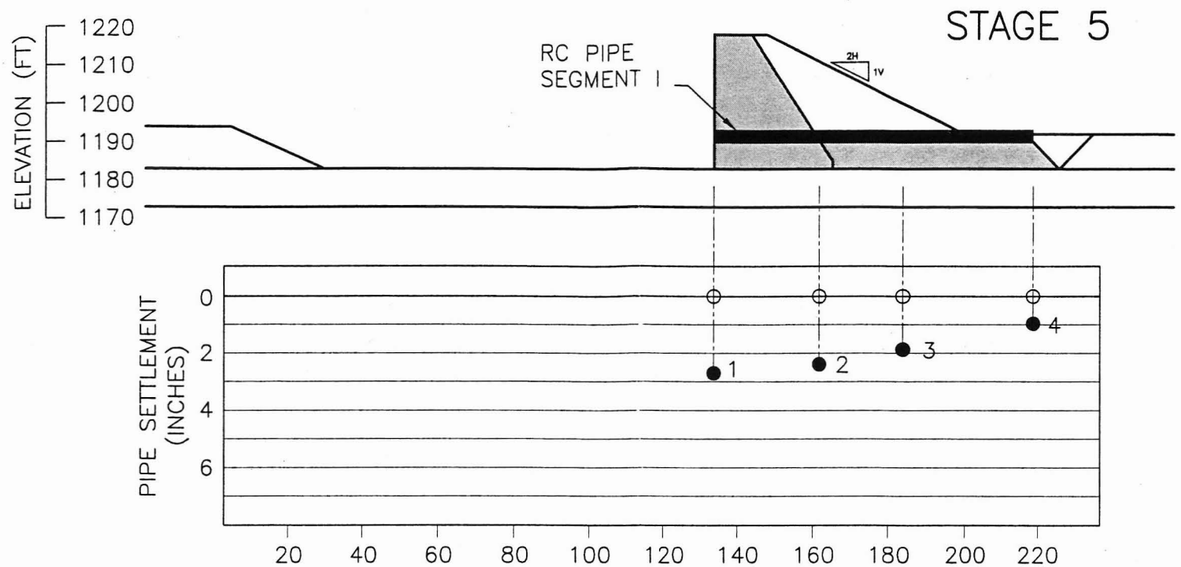
Job No. : 23443748	WHITE TANKS FRS NO. 3
Prepared By : LECB	RC PIPE SETTLEMENT PROFILE
Date : 11/1/04	SHEET 1 OF 2

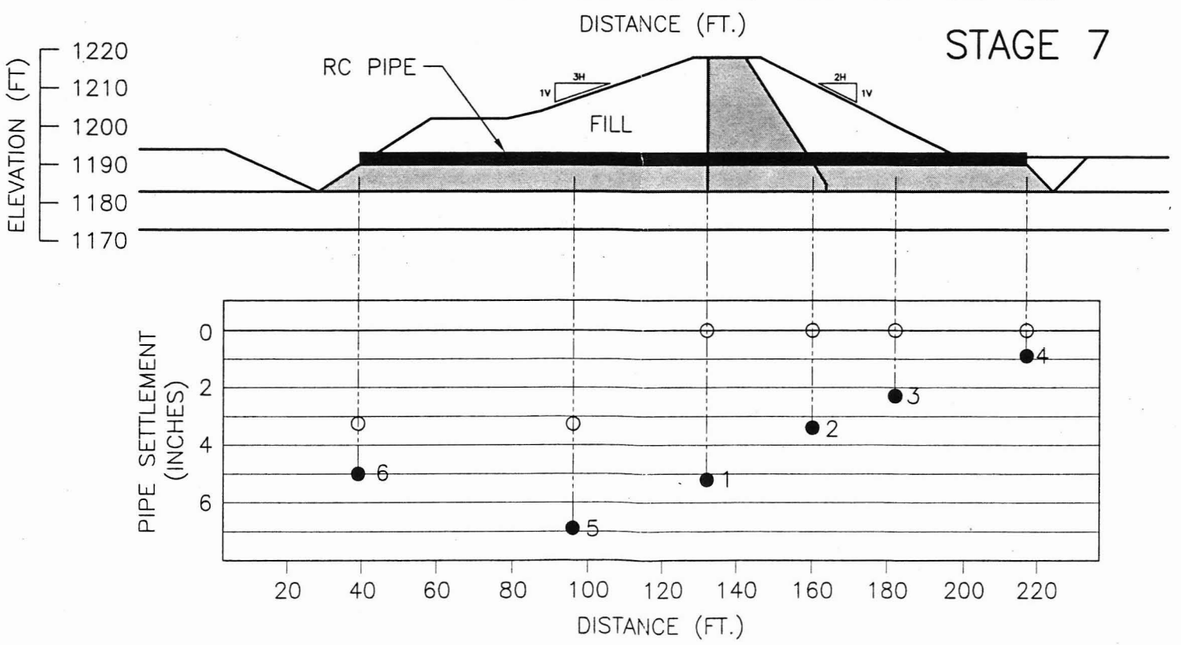
D:\Projects\White Tanks\FLAC\Settlement_rev1.dwg

FIG.

URS







NOTE: RC PIPE SEGMENT II , POINT 5 AND 6 PLACED TO ALIGN WITH SETTLED LOCATION OF RC PIPE SEGMENT I, POINT 1.

Job No. : 23443748	WHITE TANKS FRS NO. 3
Prepared By : LECB	RC PIPE SETTLEMENT PROFILE
Date : 11/1/04	SHEET 2 OF 2

FIG. 3

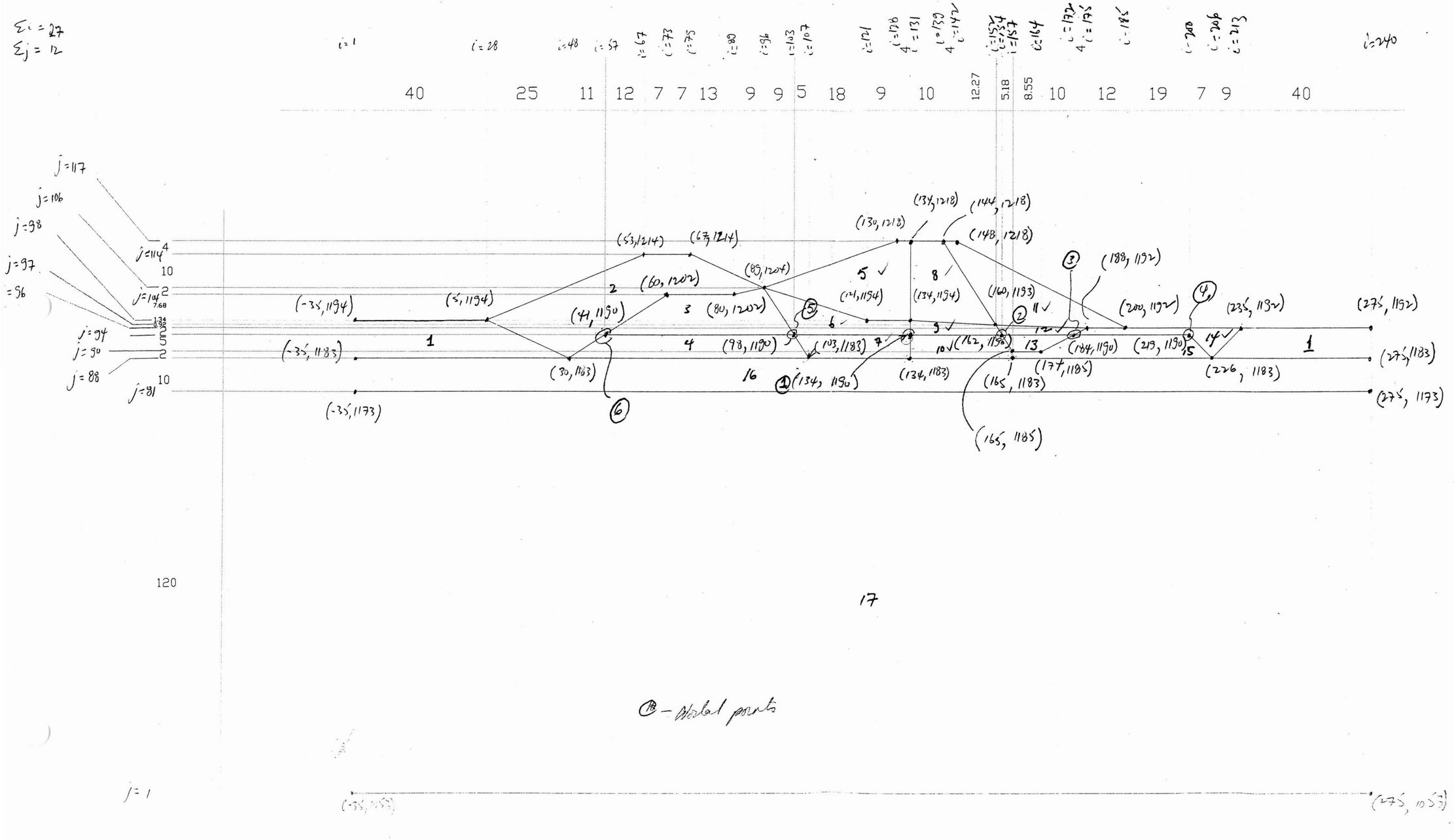
D:\Projects\White Tanks\FLAC\Settlement_rev1.dwg

Old FRS with New FRS geometry

White Tanks FRS #3
Gated Outlet Section

Scale 1inch: 30 feet

$\Sigma i = 27$
$\Sigma j = 12$



17

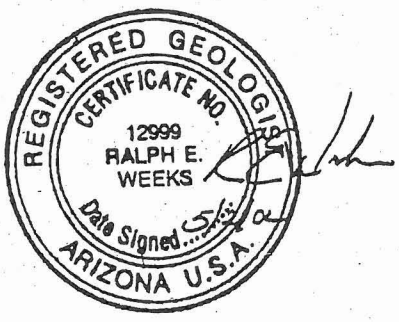
⑥ – Global points

Appendix G.5
Seismic Analysis

Seismic Exposure Evaluation
Dam Safety Program
Flood Control District of Maricopa County

Submitted to:

Flood Control District of Maricopa County
Phoenix, Arizona



Submitted by:

AMEC Earth & Environmental, Inc.
Phoenix, Arizona

May 2, 2002

AMEC Job No. 0-117-001122, Task 2

amec

TABLE 4

Recommended Peak Horizontal Acceleration
Seismic Exposure Evaluation
Dam Safety Program

Map ID	Facility Name	Source	Recommended PGA (%g)
1	Adobe Dam	Background	10
2	Apache Junction FRS	Sugarloaf Fault	**15**
3	Buckeye FRS No. 1	Background	10
4	Buckeye FRS No. 2	Background	10
5	Buckeye FRS No. 3	Background	10
6	Casandro Wash Dam	Background	10
7	Cave Buttes Dam	Horseshoe Fault	**10**
8	Dreamy Draw Dam	Background	10
9	Guadalupe FRS	Background	10
10	Harquahala FRS	Background	10
11	McMicken Dam	Background	10
12	New River Dam	Background	10
13	Powerline FRS	Sugarloaf Fault	**11**
14	Rittenhouse FRS	Background	10
15	Saddleback FRS	Background	10
16	Signal Butte FRS	Sugarloaf Fault	**14**
17	Spook Hill FRS	Sugarloaf Fault	**13**
18	Sunnycove FRS	Background	10
19	Sunset FRS	Background	10
20	Vineyard FRS	Sugarloaf Fault	**10**
21	White Tanks FRS No. 3	Background	10
22	White Tanks FRS No. 4	Background	10

Note:
Deterministically-derived values presented in red.

Appendix G.6
Soil Cement Beam Analysis

URS **EXHIBIT 4.7-2**

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County, AZ Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Simply Supported Beam

Total Number of Pages (including cover sheet): 13 10

Total Number of Computer Runs: 0 Revised 11-1-04

Prepared by: G. Patchen Adams Date: 8-24-04

Checked by: Steve Dominic Stephen J. Dominic Date: 8/25/04
(see attached check-independent spreadsheet) Re-checked 11/3/04 SJD

Description and Purpose:

Design Basis/References/Assumptions See Calculations

Remarks/Conclusions/Results:

Calculation Approved by: Todd Ringsmuth 11-9-04
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

Project Manager/Date

Re-chk. S.A.F. 11/3/04

An analysis was performed to determine the maximum theoretical length that the soil-cement section could span if a depression or hole developed in the foundation, potentially caused by erosion. Conservatively, the soil-cement section was modeled as a simply supported, uniformly loaded beam. Laboratory test results were used to estimate the ~~modulus of elasticity~~, unit weight, and compressive strength as ~~1,000 ksi~~, 125 pcf, and 1,000 psi, respectively. MODULUS OF ELASTICITY WAS ESTIMATED BASED ON LABORATORY TESTING ON SOIL-CEMENT SAMPLES OF SIMILAR MATERIALS (PRINCIPLES OF PAVEMENT DESIGN (YODER, 1975))

The only load considered in the analysis was the dead weight of the soil-cement section. Span lengths varying from 20 feet to ~~80~~ 100 feet were evaluated and the shear stresses, moments, and displacements were determined at 2-foot intervals along each beam. The maximum tensile stress in each span was also determined based on the standard beam flexure relationship. The maximum tensile stress was compared with a typical range of tensile stress for soil-cement materials. This range was based on two publications (Portland Cement Association (PCA, 1988) and the U.S. Bureau of Reclamation (USBR, 1990)), which compared the tensile strength of concrete with the compressive strength of concrete. Based on these publications, the limits for the allowable tensile strength of concrete that was used in the analyses ranged from 10 percent of its compressive strength (100 psi) to 5 times the square root of the its compressive strength (158 psi). Based on these allowable tensile stress limits, the soil-cement section is estimated to span about ~~61~~ 63 to ~~76~~ 81 feet. The actual length that this material could span is most likely somewhat less due to anticipated shrinkage cracking since the above analysis only considers intact soil-cement material. The analyses are included as Appendix G6, which includes plots of shear, moment, and displacement for the various span lengths. Appendix G6 also includes a plot of span length versus tensile strength in which the calculated tensile strength is shown along with the estimated allowable range of tensile strength.

References:

Design Standard No. 13, Embankment Dams, Chapter 13, Soil-Cement Slope Protection, U.S. Bureau of Reclamation, 1990.

Portland Cement Association (PCA, 1988), Design and Control of Concrete Mixtures, Thirteenth Edition.

PRINCIPLES OF PAVEMENT DESIGN (YODER, 1975), YODER AND WITCZAK, 2ND EDITION, 1975.

Independent Calc Check S.J.D.

Revised 11/3/04

Calculation Check - SJD

w	11.3
E	1000
I	1950000000
c	257.42

L	Vmax	Mmax	Dmax	SigmaMax
240	1356	81360	0.00025	10.74035
480	2712	325440	0.004005	42.96142
720	4068	732240	0.020277	96.66319
960	5424	1301760	0.064087	171.8457

Calculation Check - SJD 11/3/04

w	7.8
E	1000
I	1434000000
c	247.2

L	Vmax	Mmax	Dmax	SigmaMax
240	936	56160	0.000235	9.681138
480	1872	224640	0.00376	38.72455
720	2808	505440	0.019033	87.13024
960	3744	898560	0.060155	154.8982

URS

Page 1 of 14

Job WHITE TANKS | Project No. 23443748 | Sheet ____ of ____

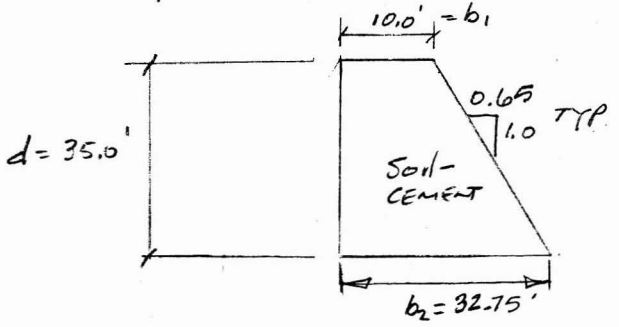
Description SIMPLY SUPPORTED BEAM | Computed by GBA | Date 8-23-04 (REVISED 11-1-04)

Checked by SSD | Date 8/25/04 11/3/04

Reference

PURPOSE: DETERMINE THE MAXIMUM THEORTICAL LENGTH THE SOIL-CEMENT SECTION CAN SPAN OVER AN EXCAVATED HOLE/ CHANNEL AND NOT EXCEED THE ALLOWABLE BENDING STRESS OF THE SOIL-CEMENT SECTION.

GIVEN: ① GEOMETRY OF SOIL-CEMENT X-SECTION



② FROM RECENT LABORATORY TESTING OF SOIL-CEMENT PROPOSED MATERIALS:

- UNIT WEIGHT = γ_T = 125 pcf
- UNCONFINED COMPRESSIVE STRENGTH = f'_{cs} = 1000 psi

FOR THE MODULUS OF ELASTICITY = E

⇒ BORROW MATERIAL GENERALLY CONSISTS OF CLAYEY TO SILTY SAND (~ 40 TO 50% FINES). FROM REF ⑤, TABLE 8.4, (ATTACHED) USE $E = 1 \times 10^5$ psi = 1000 ksi (LOWER BOUND FOR SILTY CLAY W/ 6% CEMENT)

REFERENCES:

① MANUAL OF STEEL CONSTRUCTION, AMERICAN INSTITUTE OF STEEL CONSTRUCTION, EIGHTH EDITION, 1988

② STANDARD HANDBOOK FOR CIVIL ENGINEERS, THIRD EDITION, McGRAW-HILL, 1983.

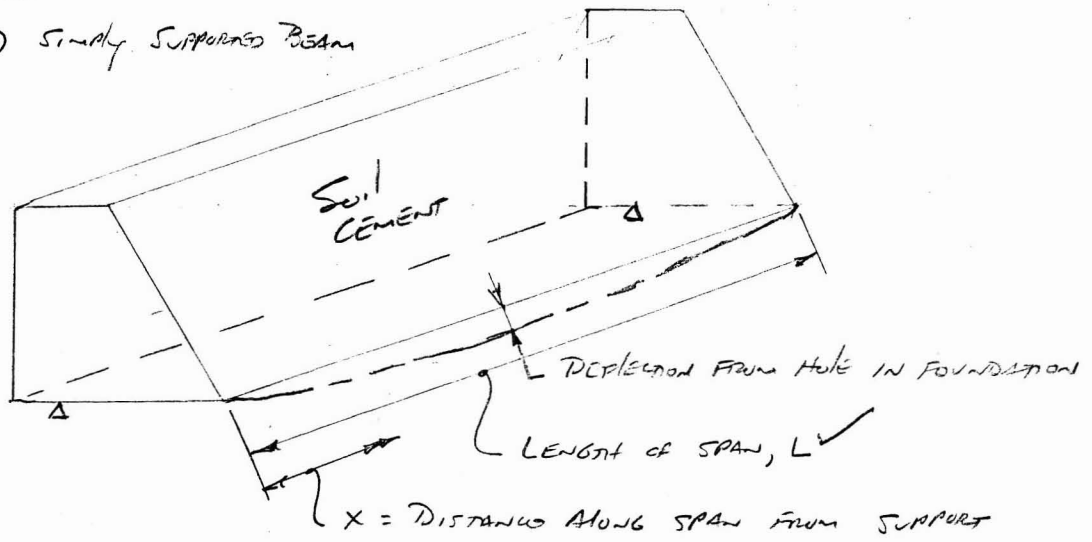
③ DESIGN AND CONTROL OF CONCRETE MIXTURES, PORTLAND CEMENT ASSOCIATION, THIRTEENTH EDITION, 1988

④ DESIGN STANDARD NO. 13, EMBANKMENT DAMS, CHAPTER 11, SOIL-CEMENT SLOPE PROTECTION, U.S. BUREAU OF RECLAMATION, 1990.

⑤ PRINCIPLES OF PAVEMENT DESIGN, YODER & WITCZAK, 2ND EDITION, 1975

Solution:

(A) Simply Supported Beam



(B) Determine Uniform Load For X-Section

⇒ Assume 1' Long Section ✓

⇒ Uniform Load, $W = A \gamma_T$

A = Area of X-Section

$= \frac{1}{2}(32.75' + 10')\ 35' = \frac{1085}{748}$ sf ✓

γ_T = Total Unit Weight = 125 pcf ✓

$W = \left(\frac{1085}{748}\text{ sf} \times 125\ ^{\#}/_{cf} \times 1'\text{ Long}\right)\frac{1^K}{1000^{\#}} = \frac{135.6}{93.5}$ K/FT ✓

$= \frac{11.3}{7.8}$ K/IN ✓

SOLUTION (CONT'D):

(C) DETERMINE MAX SHEAR (@ SUPPORTS), MAX MOMENT (@ MID SPAN) & MAX. DEFLECTION (@ MID SPAN)

FROM REF (1), PAGE 6 (ATTACHED)

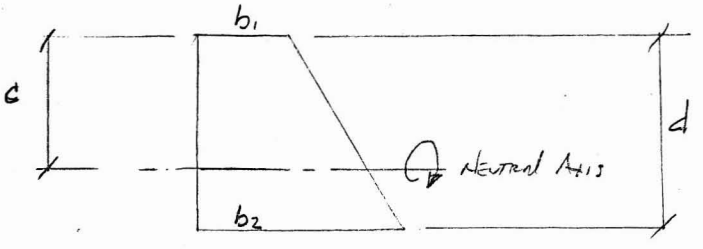
$\Rightarrow$ MAX SHEAR $= w\left(\frac{L}{2} - x\right) \Rightarrow x = 0 \therefore$ MAX SHEAR $= \frac{wL}{2}$ ✓

$\Rightarrow$ MAX MOMENT $= \frac{wL^2}{8}$ ✓

$\Rightarrow$ MAX DISPLACEMENT $= \frac{5wL^4}{384EI}$ ✓

SEE ATTACHED SPREAD SHEET (PAGE 9) FOR DETERMINATION OF ABOVE 3 PARAMETERS FOR VARIOUS LENGTHS OF SPAN. SEE PART D BELOW FOR I.

(D) FIND I ABOUT NEUTRAL AXIS; FIRST NEED TO DETERMINE C, DISTANCE FROM NEUTRAL AXIS TO OUTER MOST FIBER



FROM REF (2), PAGE 6-23 (ATTACHED):

$$C = \frac{(b_1 + 2b_2)\,d}{3(b_1 + b_2)} = \frac{\left(10' + \left(2 \times \frac{32.75}{12}\right)\right) 35'}{3\left(10' + \frac{32.75}{12}\right)} = 20.6' \checkmark$$

~~21.45'~~

$= \frac{247.42''}{247.25''}$ ✓

CHECK $C = \frac{\Sigma(A \times M_{ARM})}{\Sigma A}$ ✓; TAKE MOMENTS ABOUT CREST

$$= \frac{\left[(10 \times 35)\frac{35}{2}\right] + \left[\frac{1}{2}\left(\frac{24}{22.75} \times 35\right)\frac{35 \times 2}{3}\right] 2'}{(10 \times 35) + \frac{1}{2}\left(\frac{24}{22.75} \times 35\right) 2'} = \frac{6125 + 12,150}{350 + 735} = \frac{9289.6}{398.1'}$$

$= 21.45' = 257.42''$ ✓ OK

$20.6' = 247.2''$ ✓ OK

SOLUTION (CONT'D):

(D) CONT'D

FIND $\underset{x-x}{I}$ = MOMENT OF INERTIA

FROM REF (2): $I_{x-x} = \dfrac{(b_1^2 + 4b_1b_2 + b_2^2)}{36(b_1 + b_2)} d^3$

$= \dfrac{\left[10^2 + 4\left(10 \times \frac{32.75}{2}\right) + \frac{32.75^2}{2}\right]}{36\left(10 + \frac{32.75}{2}\right)} (35)^3 = 69,161.7 \text{ FT}^4$

$= 93,811.9 \text{ FT}^4 \times \dfrac{12^4 \text{ IN}^4}{1 \text{ FT}^4} = 1.434 \times 10^9 \text{ IN}^4$

(E) DETERMINE THE SHEAR, MOMENT & DISPLACEMENT ALONG THE BEAM FROM THE SUPPORT. VARY L FROM 20' TO 80'

⇒ FROM REF (1), PAGE 6

- SHEAR

$$V_x = W\left(\frac{L}{2} - x\right)$$

SEE PAGE 9 FOR PLOT OF X VS. SHEAR FORCES

- MOMENT

$$M_x = \frac{Wx}{2}(L - x)$$

SEE PAGE 10 FOR PLOT OF X VS. MOMENTS

- DISPLACEMENT

$$\Delta = \frac{Wx}{24EI}\left(L^3 - 2Lx^2 + x^3\right)$$

SEE PAGE 11 FOR PLOT OF X VS. DISPLACEMENT

SET UP SPREADSHEET TO SOLVE FOR ABOVE, INCREMENTING X IN 2' INCREMENTS (SEE PAGE 10 FOR FORMULAS)

URS

Job WHITE TANK | Project No. 23443748 | Sheet ___ of ___

Description SIMPLY SUPPORTED BEAM | Computed by GBA | Date 8-23-04

Checked by SSD | Date 8/25/04 11/30/04 D.D.

Reference

Solution: (CONT'D)

(F) CALCULATE M_x TENSILE STRESS FOR EACH SPAN LENGTH

⇒ MAX TENSILE STRESS = $\sigma_T = \frac{M_{MAX}\, c}{I}$

⇒ SEE STRESS SHEET FOR σ_T (ATTACHED, PAGE 7)

(G) FIND RANGE OF ALLOWABLE TENSILE STRENGTH, $f_{t_{Allow}}$

⇒ FROM REF (3) (PAGE 5) FOR CONCRETE:

- $f_{t_{Allow}}$ = 8% TO 12% OF f'_c; f'_{cs} = 1000 psi ✓

  USING $f'_c = f'_{cs}$ ⇒ $f_{t_{Allow}} = 0.08(1000\,psi) = 80\,psi$ ✓

  $f_{t_{Allow}} = 0.12(1000\,psi) = 120\,psi$ ✓

- $f_{t_{Allow}} = 5 \text{ TO } 7.5 \times \sqrt{f'_c} = 158 \text{ TO } 237\,psi$ ✓

⇒ FROM REF (4) (ENCLOSURE 5) $f_{t_{Allow}} = 0.05 \text{ TO } 0.10\, f'_c = 50 \text{ TO } 100\,psi$ ✓

⇒ USE $f_{t_{Allow}} = 100\,psi$ TO $158\,psi$ ✓

⇒ PLOT SPAN LENGTH VS. TENSILE STRESS w/ CALCULATED TENSILE STRESS & ALLOWABLE TENSILE STRESS LIMITS (SEE PAGE 14) ✓

FROM THIS PLOT, INTACT SOIL-CEMENT SECTION IS ESTIMATED TO SPAN ABOUT ~~60'~~ TO ~~76'~~. 63' TO 81' ✓

From Ref ①

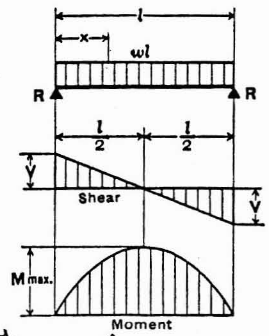
chk. 8.J.D.
re-chk 11/3 by D.J.D. 6/xc

BEAM DIAGRAMS AND FORMULAS

For various static loading conditions

For meaning of symbols, see page 2-111.

1. SIMPLE BEAM—UNIFORMLY DISTRIBUTED LOAD



Total Equiv. Uniform Load . . . . $= wl$

R = V . . . . $= \frac{wl}{2}$

V_x . . . . $= w\left(\frac{l}{2} - x\right)$

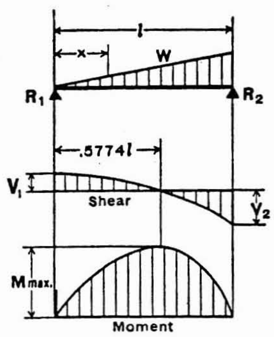
M max. (at center) . . . . $= \frac{wl^2}{8}$

M_x . . . . $= \frac{wx}{2}(l - x)$

Δmax. (at center) . . . . $= \frac{5\,wl^4}{384\,EI}$

Δx . . . . $= \frac{wx}{24EI}(l^3 - 2lx^2 + x^3)$

2. SIMPLE BEAM—LOAD INCREASING UNIFORMLY TO ONE END



Total Equiv. Uniform Load . . . . $= \frac{16W}{9\sqrt{3}} = 1.0264W$

$R_1 = V_1$ . . . . $= \frac{W}{3}$

$R_2 = V_2$ max. . . . . $= \frac{2W}{3}$

V_x . . . . $= \frac{W}{3} - \frac{Wx^2}{l^2}$

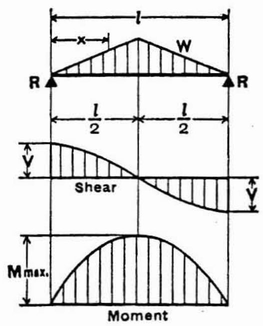
M max. $\left(\text{at } x = \frac{l}{\sqrt{3}} = .5774l\right)$ . . $= \frac{2Wl}{9\sqrt{3}} = .1283\,Wl$

M_x . . . . $= \frac{Wx}{3l^2}(l^2 - x^2)$

Δmax. $\left(\text{at } x = l\sqrt{1 - \sqrt{\frac{8}{15}}} = .5193l\right)$ = $.01304\,\frac{Wl^3}{EI}$

Δx . . . . $= \frac{Wx}{180EI\,l^2}(3x^4 - 10l^2x^2 + 7l^4)$

3. SIMPLE BEAM—LOAD INCREASING UNIFORMLY TO CENTER



Total Equiv. Uniform Load . . . . $= \frac{4W}{3}$

R = V . . . . $= \frac{W}{2}$

V_x $\left(\text{when } x < \frac{l}{2}\right)$ . . . . $= \frac{W}{2l^2}(l^2 - 4x^2)$

M max. (at center) . . . . $= \frac{Wl}{6}$

M_x $\left(\text{when } x < \frac{l}{2}\right)$ . . . . $= Wx\left(\frac{1}{2} - \frac{2x^2}{3l^2}\right)$

Δmax. (at center) . . . . $= \frac{Wl^3}{60EI}$

Δx $\left(\text{when } x < \frac{l}{2}\right)$ . . . . $= \frac{Wx}{480\,EI\,l^2}(5l^2 - 4x^2)^2$

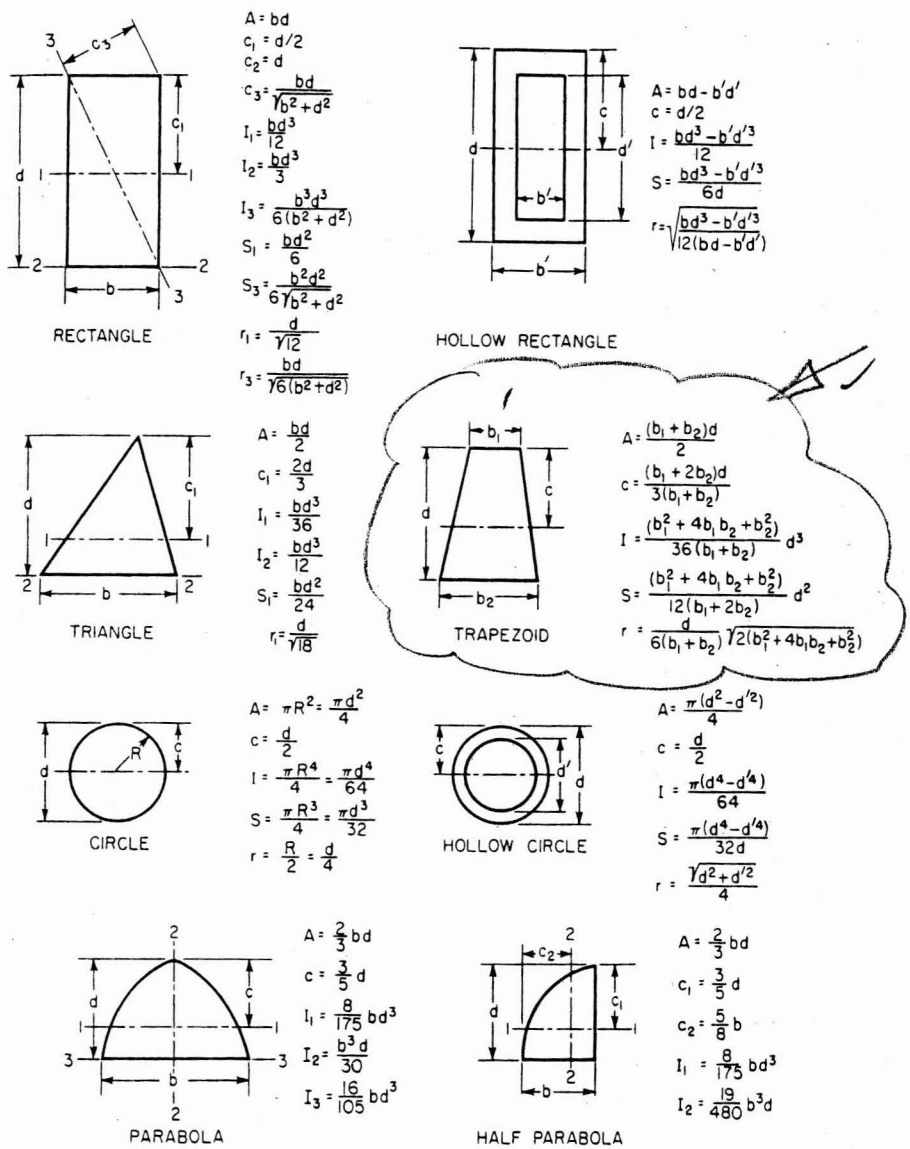


Fig. 6-29. Geometric properties of sections.

cross section about the neutral axis and c the distance from the neutral axis to the outermost fiber. Values of S for common types of sections are in Fig. 6-29. Values for standard structural-steel sections are listed in the American Institute of Steel Construction "Steel Construction Manual."

6-30. Shearing Stresses in a Beam

Vertical shear at any section in a beam is resisted by nonuniformly distributed, vertical unit stresses (Fig. 6-30). At every point in the section, there also is a horizontal unit stress, which is equal in magnitude to the vertical unit shearing stress there [see Eq. (6-24)].

TABLE 8.4. Summary of Cement-Stabilized Material Moduli

Material	Cement Content	Modulus (10^5 psi)	Remarks	Reference
1. Silty Clay	3%	0.4–1.5	Res. Mod. (Lab-Comp)	Wang/Mitchell
	6%	1.6–3.2	Res. Mod. (Lab-Comp)	Wang/Mitchell
	3%	0.1–1.0	Res. Mod. (Undist-Comp)	Wang/Mitchell
	6%	0.2–1.7	Res. Mod. (Undist-Comp)	Wang/Mitchell
	3%	0.6–1.8	Res. Mod. (Lab Tensile)	Wang/Mitchell
	6%	1.3–4.4	Res. Mod. (Lab-Tensile)	Wang/Mitchell
	3%	—	Res. Mod. (Undist-Tensile)	Wang/Mitchell
	6%	2.5	Res. Mod. (Undist-Tensile)	Wang/Mitchell
2. Silty Clay	13%	2.0–9.0	Res. Mod. (Comp)	Mitchell/Shen
		3.4–4.4	Res. Mod. (Flex)	Mitchell/Shen
3. Sand	7%	15.0–27.0	Res. Mod. (Flex)	Mitchell/Shen
4. Sand	—	0.5–2.0	Dynamic Mod.	Huekelom/Klomp
Sand/Slag	—	1.5–3.0	Dynamic Mod.	Huekelom/Klomp
Lean Cement	3 pcf	21.0	Dynamic Mod.	Huekelom/Klomp
	4.7 pcf	28.0	Dynamic Mod.	Huekelom/Klomp
	6.2 pcf	35.0	Dynamic Mod.	Huekelom/Klomp
	7.8 pcf	43.0	Dynamic Mod.	Huekelom/Klomp
5. Well-Graded Gravel ($\frac{3}{4}$-in. max)	5.5%	10.0–30.0	Res. Mod.	Fossberg
6. Granular Base	1%	1.2–1.9	Res. Mod. (σ_3 = 10 psi and	
	3%	8.0–28.5	σ_d = 30 psi) 1- to 7-day cure	
7. Granular Base	—	5.0–60.0	Dynamic Mod.	Whiffin

In general, the modulus increases as the degree of particle angularity increases, density increases, and degree of saturation decreases. Because of the rather pronounced effect of stress upon moduli, elastic layered analysis is normally conducted in one of two ways to account for this condition. One approach is a direct stress iterative solution to the M_R equation by multilayered (or finite element) techniques. The alternate approach is to use a constant multiplier of the subgrade modulus to determine the modulus of the entire granular layer. The granular modulus E_g is then equivalent to:

$$E_g = KE_{sg} \tag{8.56}$$

TABLE 8.5. Typical Granular Moduli

$$M_R = K_1\sigma_3^{K_2}$$

	K_1	K_2	$M_R(\sigma_3 = 5$ psi)	$M_R(\sigma_3 = 50$ psi)
Average	9600	0.55	22,500 psi	80,000 psi
Range	5000–15,000	0.45–0.60	15,000–35,000	60,000–110,000

9/4

WHITE TANKS
SIMPLY SUPPORTED BEAM - TENSILE STRESS EVALUATION

Constants		
* Uniform Load = w	7.8	k/in
* Modulus = E	1000	ksi
* Moment of Intertia = I	1.43E+09	in4
* Distance from neutral axis to outer most fiber = c	247.25	in
X-Section Dimensions		
* Width at crest = b1	10.0	Ft
* Width at base = b2	32.75	Ft
* Height = d	35.0	Ft

Simply supported beam reactions, max shear, max moment, max displacement

Span length, Ft	Span length, in	Max. Shear at supports, kips	Max Moment, kip-in	Max displacement, in	Max tensile stress, psi
20	240	936	56,160	0.00023	9.7
40	480	1872	224,640	0.00376	38.7
60	720	2808	505,440	0.01903	87.1
80	960	3744	898,560	0.06015	154.9
100	1200	4680	1,404,000	0.14685	242.1

Allowable Tensile Stress	
Span Length, ft	**Tensile Stress, psi**
0	158
100	158
0	100
100	100

10/14

WHITE TANKS
SIMPLY SUPPORTED BEAM - TENSILE STRESS EVALUATIO

Determine shear, moment, and displacement at varying locations along the bear

Constants		
* Uniform Load = w	7.8	k/in
* Modulus = E	1000	ksi
* Moment of Intertia = I	1.43E+09	in4

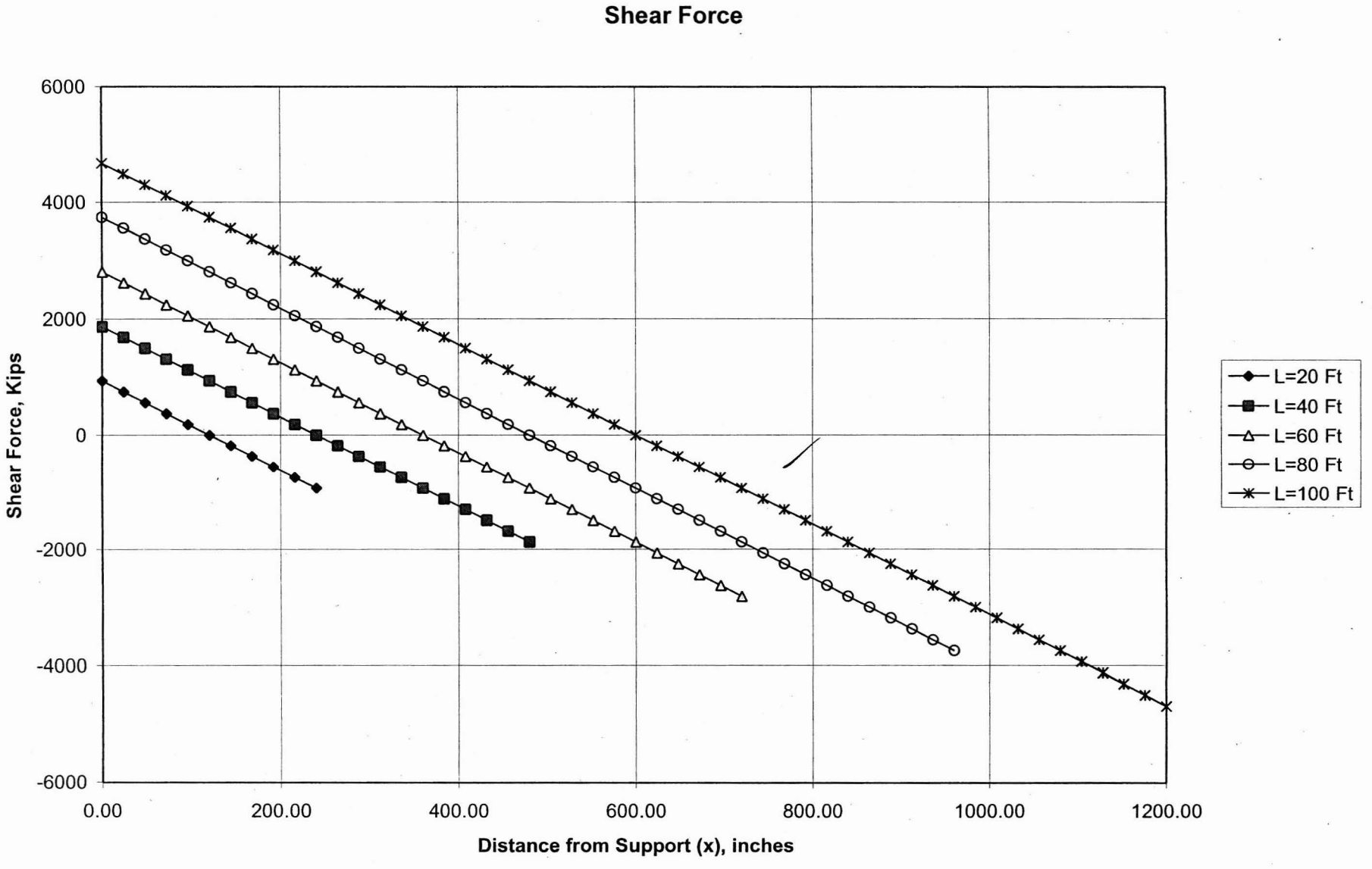
Span Length	240	inches		
x, feet	x, inches	Shear, kips	Moment, in-kips	Displacement, inch
0	0.00	936	0	0
2	24.00	749	20,218	-0.00007
4	48.00	562	35,942	-0.00014
6	72.00	374	47,174	-0.00019
8	96.00	187	53,914	-0.00022
10	120.00	0	56,160	-0.00023
12	144.00	-187	53,914	-0.00022
14	168.00	-374	47,174	-0.00019
16	192.00	-562	35,942	-0.00014
18	216.00	-749	20,218	-0.00007
20	240.00	-936	0	0

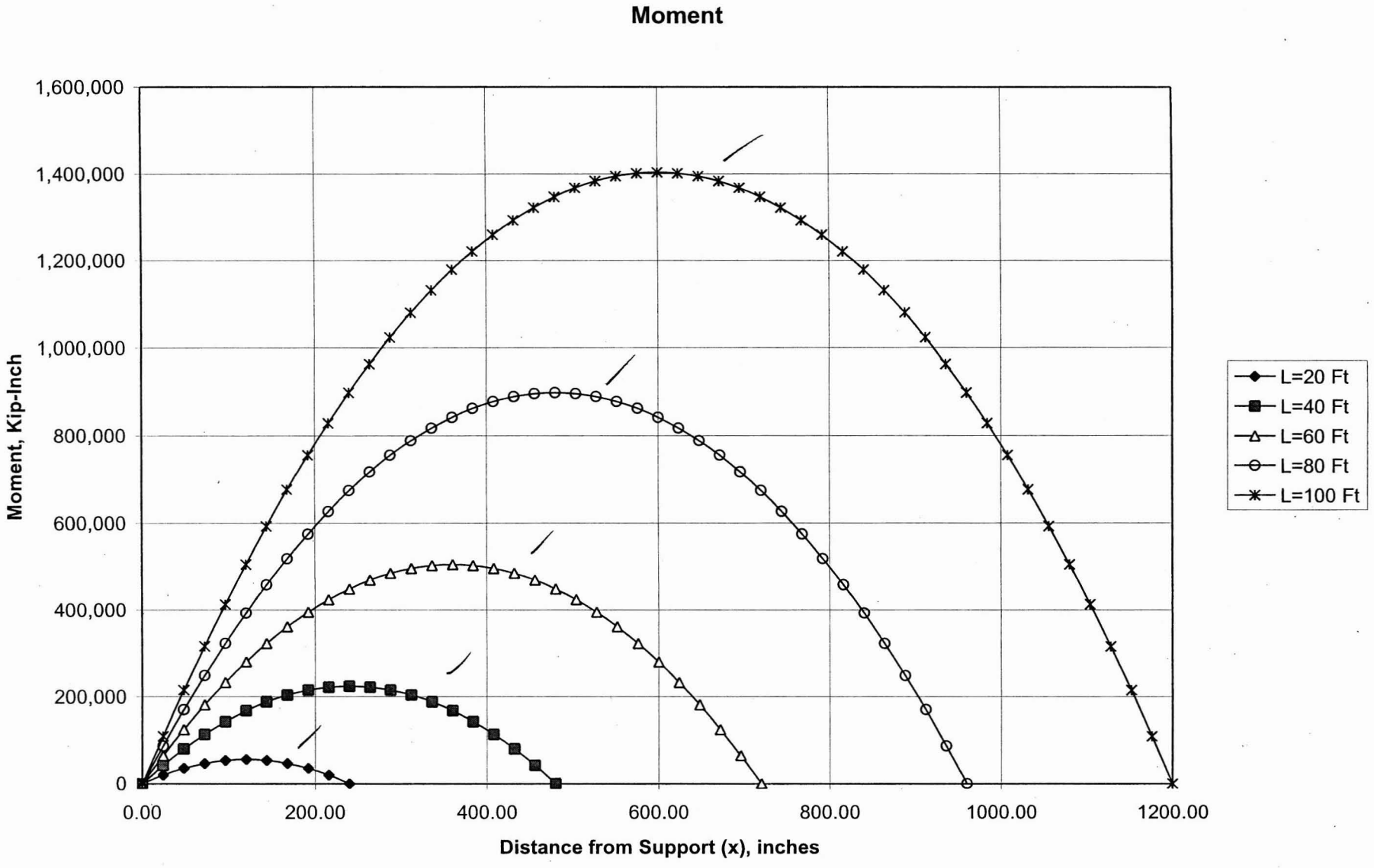
Span Length	480	inches		
x, feet	x, inches	Shear, kips	Moment, in-kips	Displacement, inch
0	0.00	1872	0	0
2	24.00	1685	42,682	-0.00060
4	48.00	1498	80,870	-0.00118
6	72.00	1310	114,566	-0.00173
8	96.00	1123	143,770	-0.00223
10	120.00	936	168,480	-0.00268
12	144.00	749	188,698	-0.00306
14	168.00	562	204,422	-0.00336
16	192.00	374	215,654	-0.00358
18	216.00	187	222,394	-0.00371
20	240.00	0	224,640	-0.00376
22	264.00	-187	222,394	-0.00371
24	288.00	-374	215,654	-0.00358
26	312.00	-562	204,422	-0.00336
28	336.00	-749	188,698	-0.00306
30	360.00	-936	168,480	-0.00268
32	384.00	-1123	143,770	-0.00223
34	408.00	-1310	114,566	-0.00173
36	432.00	-1498	80,870	-0.00118
38	456.00	-1685	42,682	-0.00060
40	480.00	-1872	0	0.00000

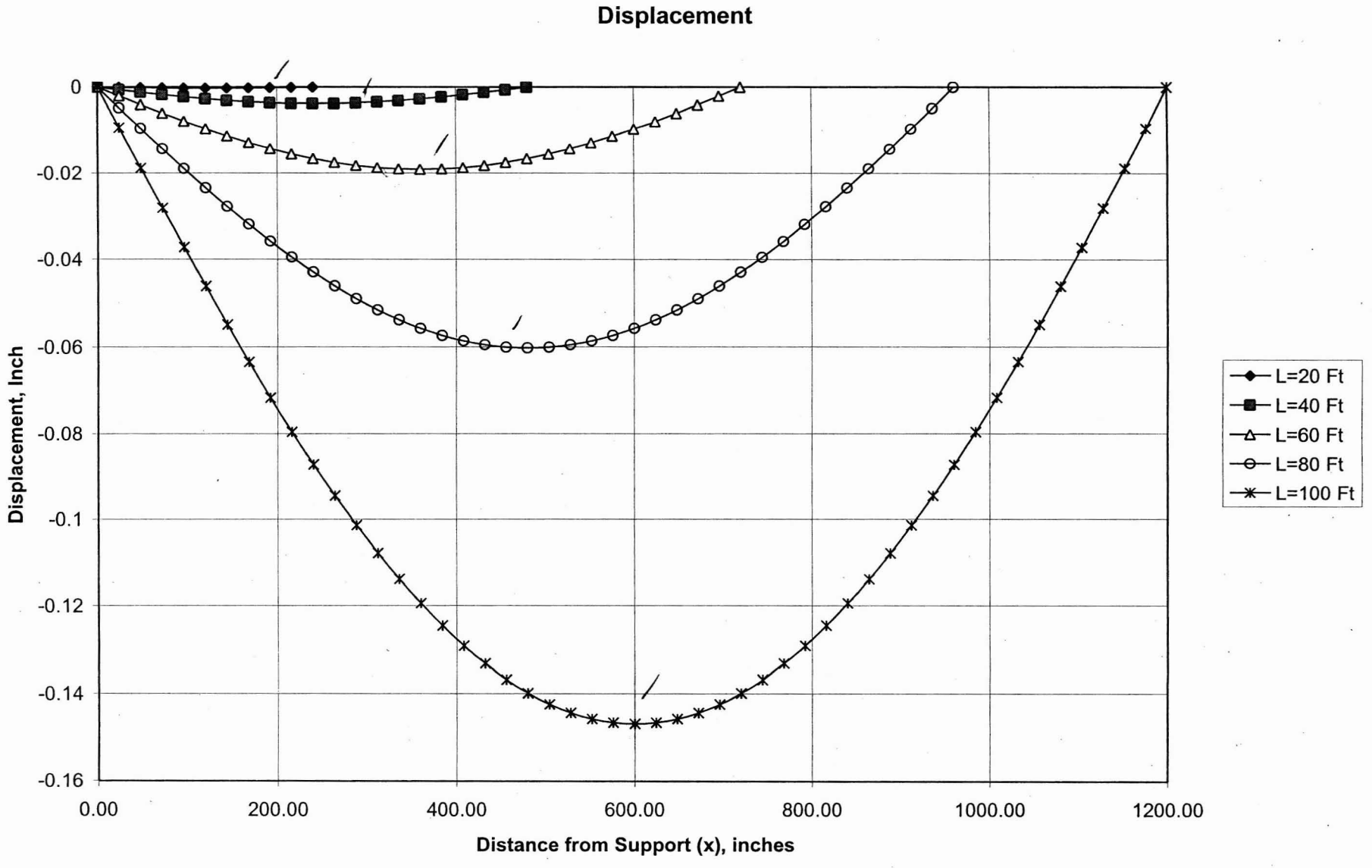
Span Length	720	inches		
x, feet	x, inches	Shear, kips	Moment, in-kips	Displacement, inch
0	0.00	2808	0	0
2	24.00	2621	65,146	-0.00203
4	48.00	2434	125,798	-0.00403
6	72.00	2246	181,958	-0.00597
8	96.00	2059	233,626	-0.00785
10	120.00	1872	280,800	-0.00963
12	144.00	1685	323,482	-0.01130
14	168.00	1498	361,670	-0.01284
16	192.00	1310	395,366	-0.01424
18	216.00	1123	424,570	-0.01547
20	240.00	936	449,280	-0.01654
22	264.00	749	469,498	-0.01743
24	288.00	562	485,222	-0.01812
26	312.00	374	496,454	-0.01863
28	336.00	187	503,194	-0.01893
30	360.00	0	505,440	-0.01903
32	384.00	-187	503,194	-0.01893
34	408.00	-374	496,454	-0.01863
36	432.00	-562	485,222	-0.01812
38	456.00	-749	469,498	-0.01743
40	480.00	-936	449,280	-0.01654
42	504.00	-1123	424,570	-0.01547
44	528.00	-1310	395,366	-0.01424
46	552.00	-1498	361,670	-0.01284
48	576.00	-1685	323,482	-0.01130
50	600.00	-1872	280,800	-0.00963
52	624.00	-2059	233,626	-0.00785
54	648.00	-2246	181,958	-0.00597
56	672.00	-2434	125,798	-0.00403
58	696.00	-2621	65,146	-0.00203
60	720.00	-2808	0	0

Span Length	960	inches		
x, feet	x, inches	Shear, kips	Moment, in-kips	Displacement, inch
0	0.00	3744	0	0
2	24.00	3557	87,610	-0.00481
4	48.00	3370	170,726	-0.00958
6	72.00	3182	249,350	-0.01428
8	96.00	2995	323,482	-0.01888
10	120.00	2808	393,120	-0.02335
12	144.00	2621	458,266	-0.02767
14	168.00	2434	518,918	-0.03180
16	192.00	2246	575,078	-0.03572
18	216.00	2059	626,746	-0.03942
20	240.00	1872	673,920	-0.04286
22	264.00	1685	716,602	-0.04603
24	288.00	1498	754,790	-0.04891
26	312.00	1310	788,486	-0.05149
28	336.00	1123	817,690	-0.05375
30	360.00	936	842,400	-0.05568
32	384.00	749	862,618	-0.05728
34	408.00	562	878,342	-0.05853
36	432.00	374	889,574	-0.05943
38	456.00	187	896,314	-0.05997
40	480.00	0	898,560	-0.06015
42	504.00	-187	896,314	-0.05997
44	528.00	-374	889,574	-0.05943
46	552.00	-562	878,342	-0.05853
48	576.00	-749	862,618	-0.05728
50	600.00	-936	842,400	-0.05568
52	624.00	-1123	817,690	-0.05375
54	648.00	-1310	788,486	-0.05149
56	672.00	-1498	754,790	-0.04891
58	696.00	-1685	716,602	-0.04603
60	720.00	-1872	673,920	-0.04286
62	744.00	-2059	626,746	-0.03942
64	768.00	-2246	575,078	-0.03572
66	792.00	-2434	518,918	-0.03180
68	816.00	-2621	458,266	-0.02767
70	840.00	-2808	393,120	-0.02335
72	864.00	-2995	323,482	-0.01888
74	888.00	-3182	249,350	-0.01428
76	912.00	-3370	170,726	-0.00958
78	936.00	-3557	87,610	-0.00481
80	960.00	-3744	0	0

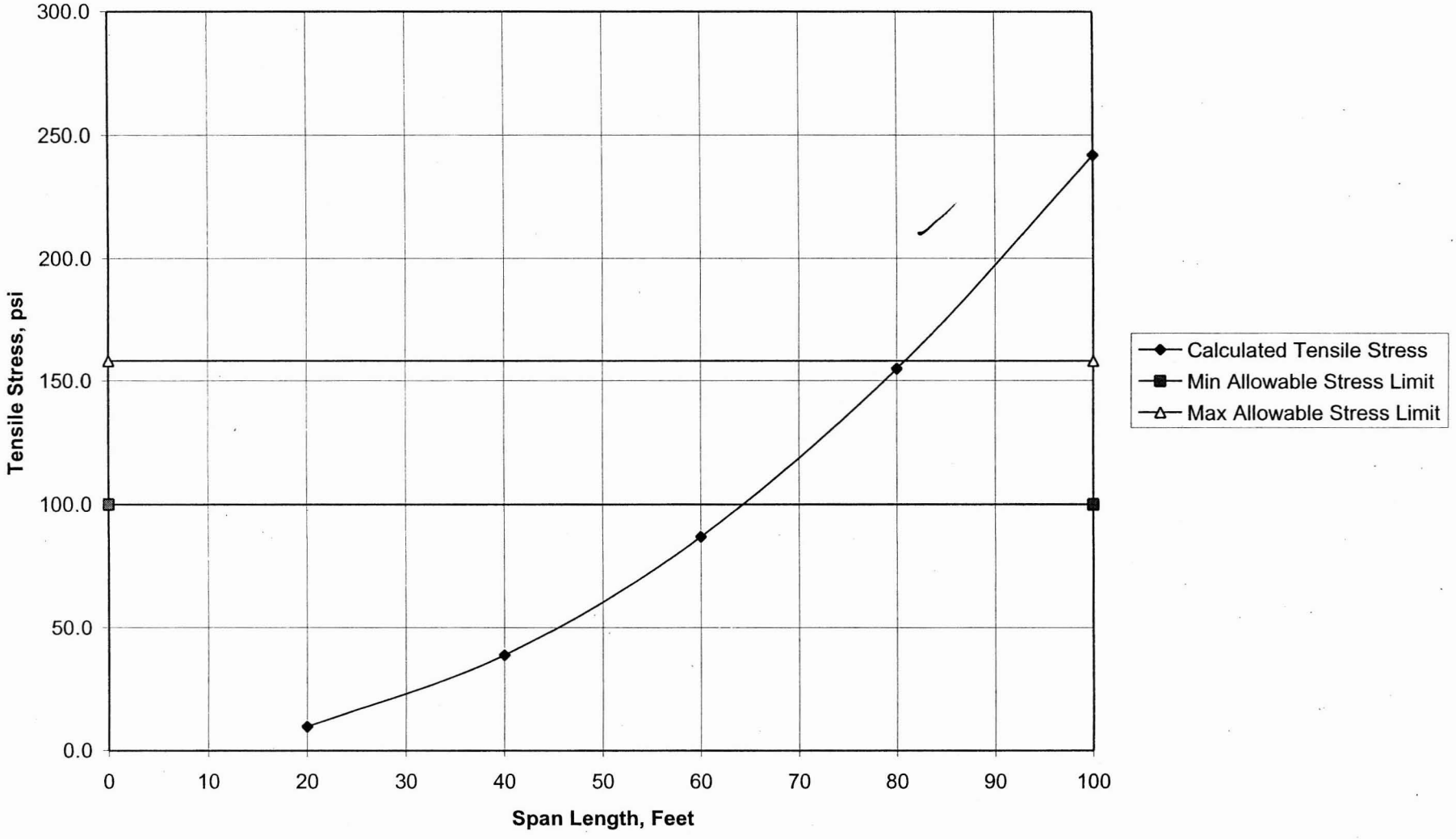
Span Length	1200	inches		
x, feet	x, inches	Shear, kips	Moment, in-kips	Displacement, inch
0	0.00	4680	0	0
2	24.00	4493	110,074	-0.009390821
4	48.00	4306	215,654	-0.018737583
6	72.00	4118	316,742	-0.02799788
8	96.00	3931	413,338	-0.037131114
10	120.00	3744	505,440	-0.046098486
12	144.00	3557	593,050	-0.054863007
14	168.00	3370	676,166	-0.063389488
16	192.00	3182	754,790	-0.071644547
18	216.00	2995	828,922	-0.079596607
20	240.00	2808	898,560	-0.087215892
22	264.00	2621	963,706	-0.094474435
24	288.00	2434	1,024,358	-0.10134607
26	312.00	2246	1,080,518	-0.107806437
28	336.00	2059	1,132,186	-0.11383298
30	360.00	1872	1,179,360	-0.119404947
32	384.00	1685	1,222,042	-0.124503393
34	408.00	1498	1,260,230	-0.129111174
36	432.00	1310	1,293,926	-0.133212953
38	456.00	1123	1,323,130	-0.136795195
40	480.00	936	1,347,840	-0.139846172
42	504.00	749	1,368,058	-0.14235596
44	528.00	562	1,383,782	-0.144316438
46	552.00	374	1,395,014	-0.14572129
48	576.00	187	1,401,754	-0.146566006
50	600.00	0	1,404,000	-0.146847879
52	624.00	-187	1,401,754	-0.146566006
54	648.00	-374	1,395,014	-0.14572129
56	672.00	-562	1,383,782	-0.144316438
58	696.00	-749	1,368,058	-0.14235596
60	720.00	-936	1,347,840	-0.139846172
62	744.00	-1123	1,323,130	-0.136795195
64	768.00	-1310	1,293,926	-0.133212953
66	792.00	-1498	1,260,230	-0.129111174
68	816.00	-1685	1,222,042	-0.124503393
70	840.00	-1872	1,179,360	-0.119404947
72	864.00	-2059	1,132,186	-0.11383298
74	888.00	-2246	1,080,518	-0.107806437
76	912.00	-2434	1,024,358	-0.10134607
78	936.00	-2621	963,706	-0.094474435
80	960.00	-2808	898,560	-0.087215892
82	984.00	-2995	828,922	-0.079596607
84	1008.00	-3182	754,790	-0.071644547
86	1032.00	-3370	676,166	-0.063389488
88	1056.00	-3557	593,050	-0.054863007
90	1080.00	-3744	505,440	-0.046098486
92	1104.00	-3931	413,338	-0.037131114
94	1128.00	-4118	316,742	-0.02799788
96	1152.00	-4306	215,654	-0.018737583
98	1176.00	-4493	110,074	-0.009390821
100	1200.00	-4680	0	0


Shear Force
6000
4000
2000
0
-2000
-4000
-6000
Shear Force, Kips
0.00
200.00
400.00
600.00
800.00
1000.00
1200.00
Distance from Support (x), inches
L=20 Ft
L=40 Ft
L=60 Ft
L=80 Ft
L=100 Ft


Moment
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Moment, Kip-Inch
0.00
200.00
400.00
600.00
800.00
1000.00
1200.00
Distance from Support (x), inches
L=20 Ft
L=40 Ft
L=60 Ft
L=80 Ft
L=100 Ft


Displacement
0
-0.02
-0.04
-0.06
-0.08
-0.1
-0.12
-0.14
-0.16
Displacement, Inch
0.00
200.00
400.00
600.00
800.00
1000.00
1200.00
Distance from Support (x), inches
L=20 Ft
L=40 Ft
L=60 Ft
L=80 Ft
L=100 Ft

TENSILE STRESS FOR SIMPLY SUPPORTED BEAM



4/14/

APPENDIX H

CALCULATION PACKAGES – STRUCTURAL DESIGN

INDEX OF STRUCTURE CALCULATION PACKAGES

(WHITE TANK FLOOD RETARDING STRUCTURE NO. 3 REMEDIATION DESIGN STUDY)

Index Number	Title
H-1	PRINCIPAL SPILLWAY STRUCTURE SEISMIC STABILITY
H-2	PRINCIPAL SPILLWAY STRUCTURE WALL STRENGTH DESIGN
H-3	PRINCIPAL SPILLWAY STRUCTURE TRASHRACK SIDEWALL STRENGTH DESIGN
H-4	PRINCIPAL SPILLWAY STRUCTURE COVER SLAB DESIGN
H-5	PRINCIPAL SPILLWAY STRUCTURE TRASHRACK DESIGN
H-6	PRINCIPAL SPILLWAY STRUCTURE FOOTING STRENGTH DESIGN
H-7	IMPACT BASIN, HYDRAULIC DESIGN
H-8	IMPACT BASIN, BACK WALL THICKNESS AND REINFORCEMENT
H-9	IMPACT BASIN, DESIGN BASE SLAB
H-10	TRASHRACK SIZING
H-11	COMPUTATIONS FOR FLEXURAL CRACKING

CALCULATION PACKAGE NO. H-1

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County

Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Principal Spillway Structure Seismic Stability Analysis

Total Number of Pages (including cover sheet): 17

Total Number of Computer Runs: NA

Prepared By: Harold Blair **Date:** 7/28/2004

Checked By: Steve Dominic SD. **Date:** 8/20/2004

Description and Purpose

Verify structural stability of proposed principal spillway configuration under seismic loading conditions.

Design Basis/References/Assumptions

Structure component breakdown for determination of seismic loads generally consistent with approach presented in NRCS TR 68. Added mass for water load developed based on Westergaard methodology. Peak acceleration based on attached report from AMEC Earth & Environmental dated May 2, 2004.

Remarks/Conclusions/Results

Resultant peak base tension of 205 psi is judged to be minor and not significant enough to incorporate foundation anchors into design. Factor of safety for buoyancy computed as 2.5 under normal pool conditions.

Calculation Approved By: Todd Ringsmuth 9/9/04
Project Manager/Date

Revision No.:	Revision Description:	Approved By:
1	COMPUTATIONS FOR SLIDING STABILITY OF TOWER	CHRIS WIGGINTON 3-15-05

Project Manager/Date

URS

Job White Tanks FRS No. 3 | Project No. | Page 2 of ____
Description Principal Spillway | Computed by HKB | Sheet ____ of ____
Checked by SJD | Date 12-28-04
Date 1/5/2005
Reference

Base shear from Calculation Package H-1

	horizontal E.Q. (lb)
top slab	2327 ✓
support walls	1898 ✓
U/S end wall	689 ✓
D/S end wall	512 ✓
side walls	2543 ✓
channels	131 ✓
	8100 ✓ - horizontal force of elements with E.Q. applied

Westergaard water P_{ew} = 38581b ✓

Static water P_w = 59,000 lb ✓

$\Sigma_{horizontal}$ = 70,958 lb ✓

∴ Use as base shear

URS

Job White Tanks FRS No. 3 Project No. _____ Page 3 of _____

Description Principal Spillway Computed by HKB Date 12-28-04

Checked by SJD Date 1/5/2004

Reference

F.S. sliding = $\frac{W(\text{friction factor})}{\text{driving}}$

driving force = 70,958 lb ✓ from pg 2

friction factor = 0.8 – concrete on soil cement is larger than this but factor is conservative ✓

W = 123,994 lb ✓

from page 7 dated 8-1-04 calcs by HKB - Calc Package H-1

F.S. = $\frac{123,994 (.8)}{70,958}$

F.S. = 1.40 ✓ allowable = 1.125 ✓

F.S. is adequate for earthquake loadings according to paragraph 3 Page 31 – TR68 ✓

URS

Page 1 of ____

Job White tanks | Project No. 23443748.0012 | Sheet ____ of ____

Description Principal Spillway riser | Computed by HKB | Date 7-28-04

Checked by T.E.M SDD | Date 8/31/04 8/29/04 Reference

Silt load? → Would not control stability Added to strength design - Not req'd by TRGB for stability

Is P.S. crest established based on silt load? ^

Problem; Analyze principal ✓ spillway riser for earthquake loading. Compute stability of riser -

Assumptions:

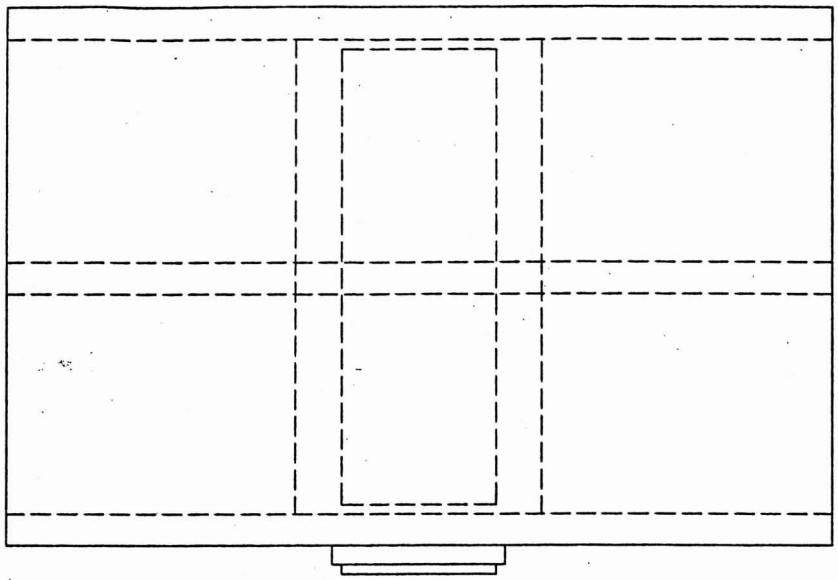
Consistent with TRGB criteria? ok

Case 1 -

- Assume Westelgaard water loading outside of structure up to the spillway crest (Elev 1200)
- ✓ Apply horizontal acceleration of → 0.06 at the centroid of the selected masses as shown on the attached sketch per attached Amec document
- ✓ $P_{ew} = \frac{2}{3} C_e \gamma_h H^2$ width from USBR "Design for concrete Retaining walls" (sheet attached) ok

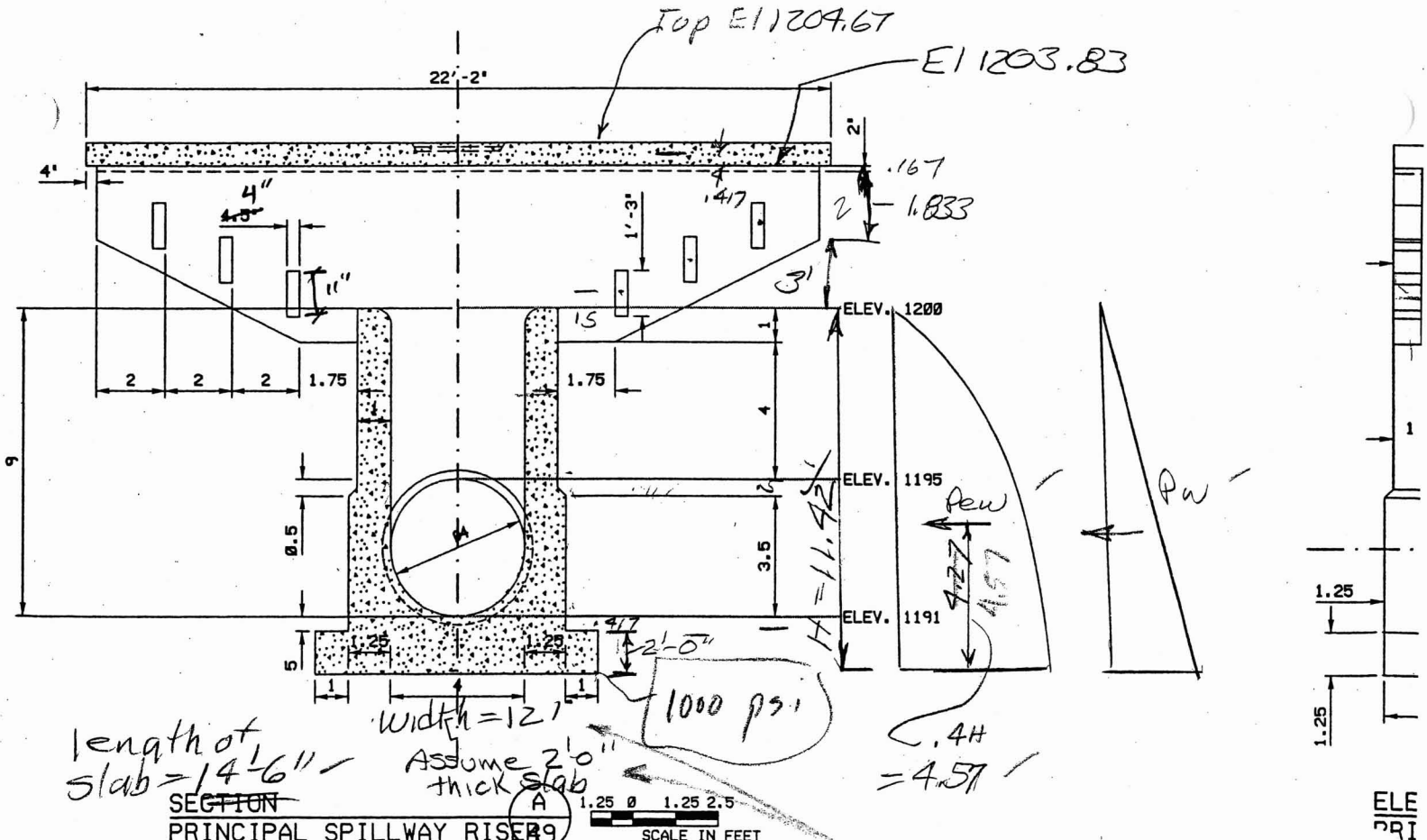
✓ The Recommended Peak Acceleration submitted to Flood Control District of Maricopa County is 0.1g. The State of Arizona recommends using 60% of the peak acceleration

∴ $K_h = 0.06$ Documents attached



PLAN
PRINCIPAL SPILLWAY RISER

1.25 0 1.25 2.5
SCALE IN FEET



Solution:

- Compute earthquake load due to water outside of tower

$$Pew = \frac{2}{3} Ce \, \alpha_h \, H^2 \, Width$$

Assume Ce = 51

H = 11.42

W = 14.5'

$$Pew = \frac{2}{3}(51)(.06)(11.42)^2 14.5$$

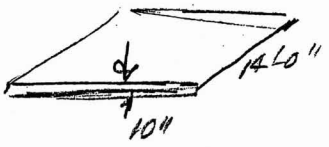
$$= 3857.7 \text{ lb} \qquad arm = 11.42(.4) = 4.56'$$

$$Mom = 3857.7(4.56) = 17,591 \text{ ft-lb}$$ Seismic water

- Compute loads of each concrete element assuming the force due to earthquake is hor. accel times the mass of the element. These forces are assumed to act at the centroid of the element

Note: The uplift load based on a water load up to the spwy crest will be computed to account for the bouyant weight of the structure -- No water inside, but water load down on the heels will be computed.

1.) Top slab



assume $\gamma_{conc} = 150$ lb/ft3

$F_1 = 22.167(14) \cdot .833(150)(0.08)$

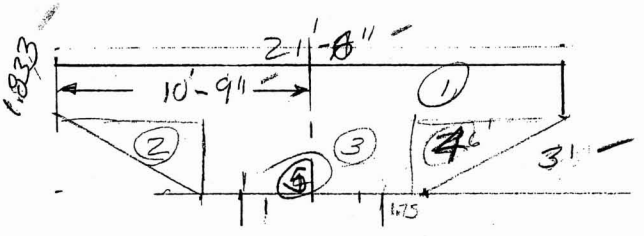
$= 2327$ lb

arm to the top of the base slab

$a_{1m} = 14.67$

$M_{f1} = 2327 (14.67) = 34,137$ ft-lb

2. Support walls for top slab and trash racks



Compute centroid of wall

Part of area	A	A	y from bottom	Ay
1	1.833(21.5) = 39.41		3.917	154.4
3	6(3.0) = 18.0		2.0	18.0
3	$\frac{3.00^2}{2}$(9.5) = 28.5		1.5	42.75
4	6.00(3.0) = 9.0		2.0	18.0
5		-9.51 ← 1.833		
		84.4		233.15
		85.91		

minus void holes

can't neglect for centroid ok

OK $y = \frac{233.15}{85.91}$ 2.71' 2.46' from bottom

distance from top of slab = 8.417 + 2.46 = 10.88 ft

2.71 11.13

URS

Job White Tanks | Project No. | Page 4 of
Description Principal Spillway Riser | Computed by | Sheet of
Checked by TEH SJD 8/20/04 | Date 8/13/04
Reference

Weight of each wall -

1.833 (21.5) = 39.41 ✓
6 (3.00/2) 2 = + 18.00 ✓
9.5 (3.00) = 28.5 ✓
minus holes .33 (.917) .833 (1.833) 6 = − 4.51
conservative ok
~~84.4~~ 84.1

wt = (1.833) 150 (84.4) = 10,546 lb ✓

3 walls - EQ load = 10,546 (.06) 3 =
= 1898 lb ✓
Mom = 1898 (10.88 = 11.13) arm is 10.88 = 20,653 ft-lb
21,125 lbs

3.) 1'-3" thick end walls

U/S end
wt = 8.5 (1.25) 9.417 (150) = 15,008 lb ✓
CONSERV; 6.5
arm = 9.417/2 = 4.71 (to top of stub) ✓
Mom = 15,008 (4.71) .06 = 4241 ft-lb ✓
U/S

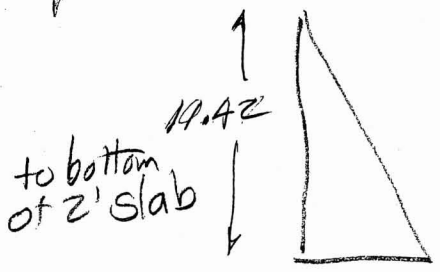
D/S end
Approximate - take height to ℄ of 48" Dia pipe
wt = 8.5 (1.25) 7.0 (150) = 11,156 ✓
arm = 1/2 t 2.417 = 5.917 ✓
Mom D/S = 11,156 (5.917) .06 = 3961 ft-lb ✓

4.) 1'-3" thick side walls

ht of wall = 9.417'-

wt of wall (2) 12 (1.25) 9.417 (150) = 42,376 lb-
arm = 4.71 ft to top slab
Mom = 42,376 (4.71) .06 = 11,975 ft-lb-

Compute moment of static water



$P_w = \frac{(11.42)^2 (62.4)}{2} = 4069.1$ lb-

$M_w = \frac{(11.42)}{3} 4069.1 \left(\frac{11.42}{3}\right) = 224,595$ ft-lb-

Compute wt. of water on slab:
12 wide × 14.5 long = 174 ft²

Uplift = 11.42 (62.4) 174 = 123,994 lb-
(h+w)

load down on heels = 5.5 (14.5) 62.4 (11.42) = 56,830 lb
(width, length)

67,164 lb Net ↑

URS

Job White Tanks Project No. 23443748.0012 Page 6 of ____

Description Principal Spillway Riser Computed by ____ Date ____

Checked by TGA Date 8/13/04

SJD 8/20/04 Reference

Compute loads of trash rack members assuming MC10X25 channels

Channel A (lowest)

Weight ~~Area~~ = 25(14.5) = 362.5 lb ✓

arm from ℄ slab

arm = 11.92 ft ✓

f_A = 362.5(.06)2 = 43.5 lb ✓

Mom_A = 43.5 (11.92) = 518.5 ft-lb ✓

Channel B (Middle)

arm = 12.92 ✓

f_B = 362.5(.06)2 = 43.50 ✓

Mom_B = 43.50(12.92) = 562 ft-lb ✓

Channel C (Top)

arm = 13.92 ✓

M_C = 43.5 (13.92) = 605.5 ft-lb ✓

URS

Job White Tanks | Project No. | Page 7 of
Description Principal Spillway Riser | Computed by | Sheet of
Checked by TLM SSD 8/20/04 | Date 8/13/04 | Reference

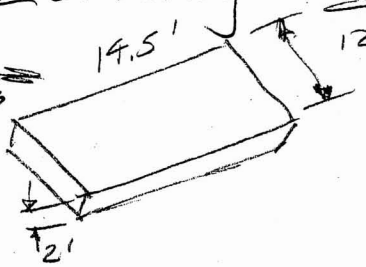
Compute vertical loads from sheets 4, 5 & 6

top slab	wt =	38,780 lb ✓
support walls	wt =	31,638 lb ✓
1'-3" Thick end walls	wt =	26,164 lb ✓
1'-3" thick walls	wt =	42,376 lb ✓
assume 12' × 14.5 × 2' thick slab		138,958 ✓
wt = 12(14.5)2(150)	=	52,200 lb
uplift load on slab pg 5		191,158 ✓
		67,164 lb
	Σ =	~~129,994~~ ✓ 123,994

Seismic water	=	17,597 ft-lb ✓
M overturning:		
top slab	=	34,137 ft-lb ✓
		21,125
Support walls	=	~~20,653~~ ft-lb
w/ sendwall		4,241 ft-lb ✓
w/o end wall	=	3,961 ft-lb ✓
side walls		11,975 ft-lb ✓
static water		224,595 ft-lb ✓
Channel A		519 ft-lb ✓ approx numbers
Channel B		562 ft-lb ✓
Channel C		606 ft-lb ✓
Σ overturning		318,846 ft-lb
		121
		319,312

Bouyancy
$w_{riser} = 191^k$
$w_{displaced\ water} = (6.5' \times 14.5' \times 9.42') \times 62.4$ + (12' × 2' × 14.5') slab
$= ~~65,401~~$ 77,116 lbs checks ok

$F.S._{bouy} = \frac{191^k}{77^k} = 2.5 > 1.5 \therefore$ ok



P over 1 ft strip
M for 1 ft strip
I for 1 ft strip

A for 1 ft strip
c = 6'

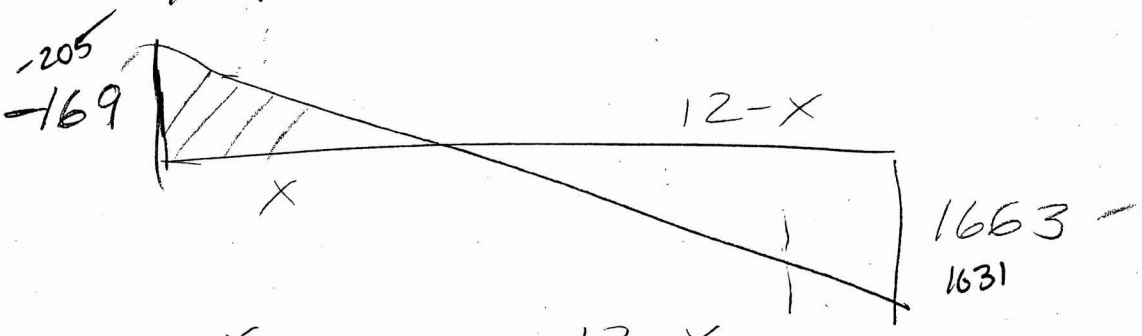
$$\frac{P}{A} = \frac{Mc}{I}$$

$$\frac{8551}{12} \pm \frac{22{,}022}{144}$$

$$\frac{8965}{12} \pm \frac{21{,}989(6)}{144}$$

$$747 \pm 916.2$$

$$\frac{713}{} \quad \frac{918}{}$$



$$\frac{X}{169} = \frac{12-X}{1663\ 1631}$$

$$\frac{205}{} \quad \frac{1631}{} \quad \frac{2460}{} \quad \frac{205}{}$$

$$1663X = 2028 - 169X$$

$$\frac{1836X}{}$$

$$1832X = 2028$$

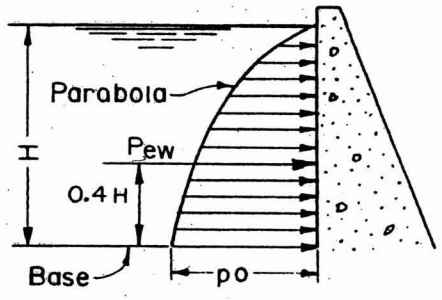
$$X = 1.1 \text{ ft.} \quad 1.3'$$

$$\text{load/ft} = \frac{169(1.1)^{1.3}}{2} = \frac{205}{} \quad \frac{133}{} \quad 93\ 16$$

$$\text{over 4 ft} = 4(93) = 372$$

$$14(133) = 1{,}862 \text{ lbs} \quad 1.9^k$$

This ? 14' is not significant enough to require addition of anchor bars



$$p_o = C_e \alpha_h H$$

$$P_{ew} = \frac{2}{3} C_e \alpha_h H^2$$

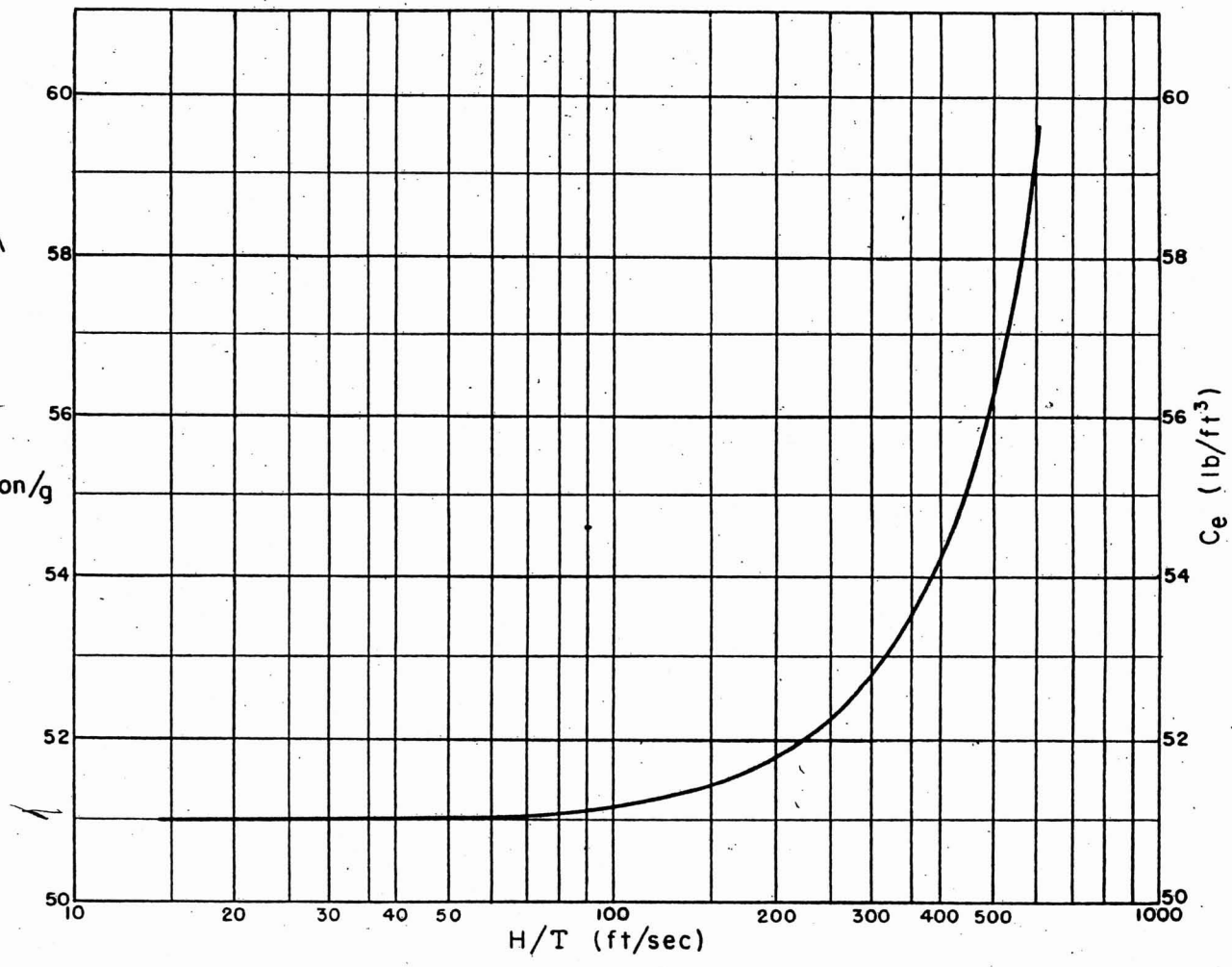
$$M = \frac{4}{15} C_e \alpha_h H^3$$

α_h = horizontal ground acceleration/g

T = earthquake period (sec)

$$C_e = \frac{51}{\sqrt{1 - 0.72 \left(\frac{H}{1000T}\right)^2}}$$

See Reference 22.



SEISMIC WATER PRESSURE FACTOR

Figure 10

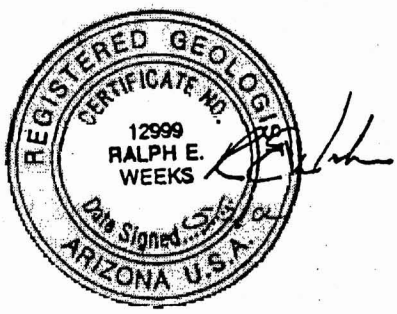
TRR

amec

Seismic Exposure Evaluation
Dam Safety Program
Flood Control District of Maricopa County

Submitted to:

Flood Control District of Maricopa County
Phoenix, Arizona



Submitted by:

AMEC Earth & Environmental, Inc.
Phoenix, Arizona

May 2, 2002

AMEC Job No. 0-117-001122, Task 2

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
2.0	APPLIED TERMINOLOGY AND DEFINITIONS	3
2.1	DEFINITION OF ACTIVE FAULT	3
2.2	SELECTION OF THE DESIGN EARTHQUAKE	5
2.3	CHARACTERISTICS OF GROUND MOTION	6
2.4	BACKGROUND EARTHQUAKE	6
3.0	SEISMOTECTONIC SETTING	7
3.1	SOUTHERN BASIN AND RANGE (SBR) SOURCE ZONE	7
3.2	ARIZONA MOUNTAIN (AM) SOURCE ZONE	8
3.3	OTHER REMOTE SOURCE ZONES	9
4.0	ACTIVE FAULTS	9
4.1	SAND TANK FAULT	9
4.2	AUBREY FAULT	10
4.3	BIG CHINO FAULT	10
4.4	SELIGMAN FAULT	11
4.5	VERDE FAULT ZONE	11
4.6	HORSESHOE FAULT ZONE	12
4.7	SUGARLOAF FAULT	12
5.0	HISTORICAL EARTHQUAKE RECORD	
6.0	ANALYSIS OF SEISMIC HAZARD	13
6.1	DETERMINISTIC EVALUATION OF GROUND MOTION	13
6.2	BACKGROUND EARTHQUAKE AND PEAK GROUND ACCELERATION	16
6.3	SEISMIC HAZARD MAPPING	17
7.0	RECOMMENDATIONS	18
REFERENCES		19

TABLE OF CONTENTS (CONT.)

LIST OF FIGURES

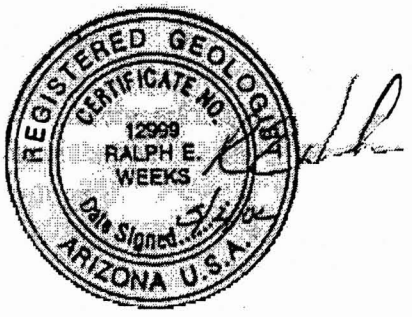
Figure 1 - Seismic Source Zones
Figure 2 - Study Area
Figure 3 - Earthquake Epicenters and Quaternary Faults
Figure 4 - Recurrence Relationship
Figure 5 - USGS Seismic Hazard Mapping

LIST OF TABLES

Table 1 - Description of Flood Control Dams
Table 2 - Active Fault Characteristics & Maximum Magnitude
Table 3 - Deterministic Peak Horizontal Acceleration
Table 4 - Recommended Peak Horizontal Acceleration

LIST OF APPENDICES

Appendix A - Summary of Geologic Literature Regarding the Definition of Active Fault
Appendix B - Historical Earthquake Record



amec

Table 3

Map ID[1]	Facility Name			Sugarloaf Fault				Verde Fault			
		Distance	[illegible]	Distance	A&S	Campbell	SEA99	Distance	A&S	Campbell	SEA99
1	Adobe Dam	199		56	6	6	2	92	5	4	2
2	Apache Junction FRS	248		27.5	12	15	4	120	4	3	1
3	Buckeye FRS No. 1	210		106	3	2	1	136	3	3	1
4	Buckeye FRS No. 2	214.5		102	3	3	1	133	4	3	1
5	Buckeye FRS No. 3	212		97	4	3	1	129	4	3	1
6	Casandro Wash Dam	155		116	3	2	1	100	5	4	2
7	Cave Buttes Dam	199.4		48.4	7	7	2	88	5	4	2
8	Dreamy Draw Dam	216		50.7	7	7	2	104.4	4	4	2
9	Guadalupe FRS	237.4		57	6	6	2	125	4	3	1
10	Harquahala FRS	200.4		147.7	2	2	1	155	3	2	1
11	McMicken Dam	190.5		83	4	3	2	103	4	4	2
12	New River Dam	191		65	5	5	2	90.6	5	4	2
13	Powerline FRS	254		35.2	9	11	3	127.3	4	3	1
14	Rittenhouse FRS	264.7		43.6	8	8	3	137.8	3	2	1
15	Saddleback FRS	203.4		146	2	2	1	157.5	3	2	1
16	Signal Butte FRS	245.6		28.5	12	14	4	119	4	3	1
17	Spook Hill FRS	239		30.3	11	13	4	114.6	4	3	1
18	Sunnycove FRS	156		115	3	2	1	100.3	5	4	2
19	Sunset FRS	155		115.6	3	2	1	100	5	4	2
20	Vineyard FRS	257		37.2	9	10	3	130.3	4	3	1
21	White Tanks FRS No. 3	205.6		90.6	4	3	1	119.7	4	3	1
22	White Tanks FRS No. 4	214.7		94	4	3	1	128.6	4	3	1

NOTES

All attenuated peak ground acceleral
Values in red are the maximum calculered.

[1]See Figure 3.

Attenuation Relationships

[2]Abrahamson and Silva (1997).

[3]Campbell (2000).

[4]Spudich and others (1999).

TABLE 4

Recommended Peak Horizontal Acceleration
Seismic Exposure Evaluation
Dam Safety Program

Map ID	Facility Name	Source	Recommended PGA (%g)
1	Adobe Dam	Background	10
	Apache Junction FRS	Sugarloaf Fault	15
3	Buckeye FRS No. 1	Background	10
4	Buckeye FRS No. 2	Background	10
5	Buckeye FRS No. 3	Background	10
6	Casandro Wash Dam	Background	10
7	Cave Buttes Dam	Horseshoe Fault	10
8	Dreamy Draw Dam	Background	10
	Guadalupe FRS	Background	10
	Harquahala FRS	Background	10
11	McMicken Dam	Background	10
12	New River Dam	Background	10
	Powerline FRS	Sugarloaf Fault	11
	Rittenhouse FRS	Background	10
15	Saddleback FRS	Background	10
16	Signal Butte FRS	Sugarloaf Fault	14
17	Spook Hill FRS	Sugarloaf Fault	13
18	Sunnycove FRS	Background	10
19	Sunset FRS	Background	10
20	Vineyard FRS	Sugarloaf Fault	10
21	White Tanks FRS No. 3	Background	10
22	White Tanks FRS No. 4	Background	10

Note:

Deterministically-derived values presented in red.

The stability analysis shall use undrained strengths or strength parameters for all saturated materials.

c. The applicant shall perform an analysis of the upstream slope stability for a partial pool with steady seepage considering the reservoir level that provides the lowest factor of safety.

d. A stability analysis is not required for low hazard potential dams if the owner or the owner's engineer demonstrates that conservative slopes and competent materials are included in the design.

2. Seismic Requirements

a. The applicant shall determine the seismic characteristics of the site as prescribed in subsection (A)(6).

b. The applicant shall determine the liquefaction susceptibility of the embankment, foundation, and abutments. The applicant shall use standard penetration testing, cone penetration testing, shear wave velocity measurements, or a combination of these methods to make this determination. The applicant shall compute the minimum factor of safety against liquefaction at specific points and make a determination of whether the overall site is subject to liquefaction.

c. The applicant shall determine the safety of the dam under seismic loading using a pseudo static stability analysis, computing the minimum factor of safety if the embankment, foundation or abutment is not subject to liquefaction and has a maximum peak acceleration of 0.2g or less, or a maximum peak acceleration of 0.35g or less, and consists of clay on a clay or bedrock foundation. The applicant shall use in the pseudo static stability analysis a pseudo static coefficient that is at least 60% of the maximum peak bedrock acceleration at the site.

d. The applicant shall compute a minimum factor of safety against overtopping due to deformation and settlement in each of the following cases. The minimum factor of safety against overtopping can be no less than 2.5, determined by dividing the total pre-earthquake freeboard by the estimated vertical settlement in feet. The applicant shall determine the total vertical settlement by adding the settlement values of the upstream and downstream slopes.

i. The minimum factor of safety in a pseudo static analysis is less than 1.0;

ii. An embankment, foundation, or abutment is not subject to liquefaction, has a maximum peak acceleration of more than 0.2g or a maximum peak acceleration of more than 0.35g and consists of clay on a clay or bedrock foundation; or

iii. The embankment, foundation or abutment is subject to liquefaction.

e. The applicant shall perform a liquefaction analysis to establish approximate boundaries of liquefiable zones and physical characteristics of the soil following liquefaction for an embankment, foundation, or abutment subject to liquefaction. The applicant shall perform an analysis of the potential for flow liquefaction.

f. Other, more sophisticated analytical procedures may be required by the Director for sites with high seismicity or low strength embankment or foundation soils.

3. Miscellaneous Design Requirements

a. The design of any significant or high hazard potential dam shall provide seepage collection and prevent internal erosion or piping due to embankment cracking or other causes.

b. The Director shall review the filter and permeability design for a chimney drain, drain blanket, toe drain, or outlet conduit filter diaphragms on the basis of unique site characteristics.

i. The minimum thickness of an internal drain is 3 feet.

ii. The minimum width of a chimney drain is 6 feet.

iii. The applicant shall filter match an internal drain to its adjacent material.

iv. The applicant shall design internal drains with sufficient capacity for the expected drainage without the use of drainpipes using only natural granular materials.

c. The use of a geosynthetic is not permitted in a design if it serves as the sole defense against dam failure. The use of geotextiles and geonets as a filter or drain material or a geomembrane liner is permitted only in a location that is easily accessible for repair or if its excavation cannot create an unsafe condition at the dam. A geosynthetic liner is allowed under special conditions and in specific situations if it is subject to monitoring and redundant safety controls. The Director may impose conditions, including monitoring appropriate to the hazard classification, inspection, and necessary repairs, each performed every 5 years.

d. The applicant shall use armoring on any upstream slope of an embankment dam that impounds water for more than 30 days at a time. If the applicant uses rock riprap, it shall be well-graded, durable, sized to withstand wave action, and placed on a well-graded pervious sand and gravel bedding or geotextile with filtering capacity appropriate for the site.

e. The applicant shall protect the downstream slopes and groins of an embankment dam from erosion.

f. The minimum width of the top of an embankment dam is equal to the structural height of the dam divided by 5 plus an additional 5 feet. The required minimum width for any embankment dam is 12 feet. The maximum width for any embankment dam is 25 feet.

Historical Note

New Section adopted by final rulemaking at 6 A.A.R. 2558, effective June 12, 2000 (Supp. 00-2).

ATTACHMENT TO CALCULATION PACKAGE NO. H-1

- **Computations for sliding stability of tower**

URS

Job White Tanks FRS No. 3 Project No. 23443748.00312 Page 1 of ____

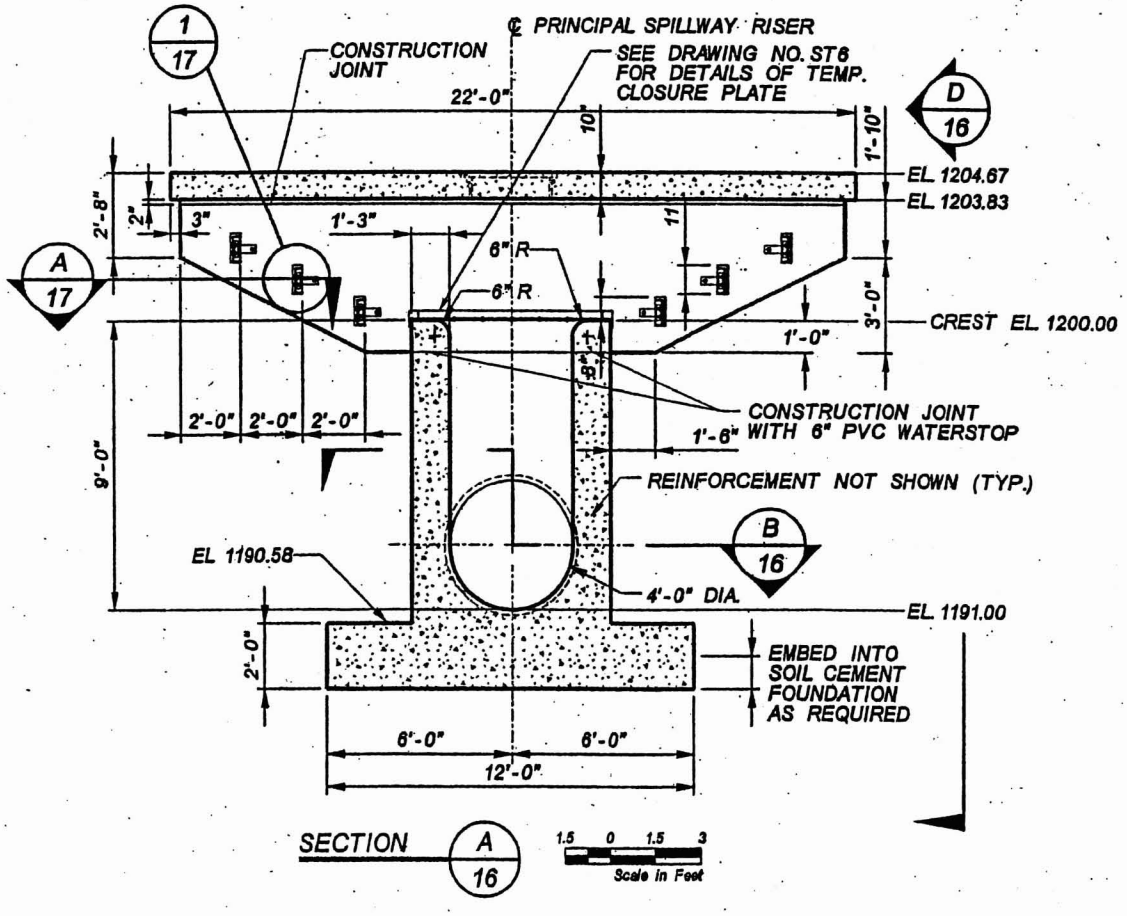
Description Principal Spillway Computed by HKB Sheet ____ of ____

Checked by SJD Date 12-28-04

Date 1/5/2005

Reference

Problem: Compute sliding stability ✓ of tower with earthquake loading



Structure section

URS

Job White Tanks FRS No. 3 | Project No. | Page 2 of ____
Description Principal Spillway | Computed by HKB | Date 12-28-04
Checked by SJD | Date 1/5/2005
Reference

Base shear from Calculation Package H-1

	horizontal E.Q. (lb)
top slab	2327 ✓
support walls	1898 ✓
U/S end wall	689 ✓
D/S end wall	512 ✓
side walls	2543 ✓
channels	131 ✓
	8100 ✓ - horizontal force of elements with E.Q. applied

Westergaard water P_{ew} = 3858 lb ✓

Static water P_w = 59,000 lb ✓

$\Sigma_{horizontal}$ = 70,958 lb ✓

∴ Use as base shear

URS

Job White Tanks FRS No. 3 Project No. _____ Page 3 of _____

Description Principal Spillway Computed by HKB Date 12-28-04

Checked by SJD Date 1/5/2004

Reference

$$F.S._{sliding} = \frac{W\,(\text{friction factor})}{\text{driving}}$$

driving force = 70,958 lb ✓ from pg 2

friction factor = 0.8 – concrete on soil cement ✓ is larger than this but factor is conservative

$W = 123{,}994$ lb ✓

from page 7 dated 8-1-04 calcs by HKB - Calc Package H-1

$$F.S. = \frac{123{,}994\,(.8)}{70{,}958}$$

F.S. = 1.40 ✓ allowable = 1.125 ✓

F.S. is adequate for earthquake ✓ loadings according to paragraph 3 Page 31 – TR68

CALCULATION PACKAGE NO. H-2

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County

Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Principal Spillway Structure Wall Strength Design

Total Number of Pages (including cover sheet): 29

Total Number of Computer Runs: NA

Prepared By: Harold Blair **Date:** 7/28/2004

Checked By: Steve Dominic S.D. **Date:** 8/20/2004

Description and Purpose

Determine strength requirements for the principal spillway riser walls.

Design Basis/References/Assumptions

Working stress design utilized for determining reinforcement requirements consistent with approach presented in NRCS Engineering Handbook, Section 6.

Remarks/Conclusions/Results

Review included the following recommendations:

1. Add check for horizontal bending across 4-foot span of riser structure. Completed ok S.D.
2. Add silt load, as appropriate, for computing reinforcement requirements. completed ok S.D.
3. Add shear check calculation or state okay by inspection for completeness of calculations. completed ok S.D.

Design results in #6 O.C. EW, EF in riser wall neglecting sediment load.

Calculation Approved By: Todd Ringsmuth 9-9-04
Project Manager/Date

Revision No.:	Revision Description:	Approved By:
1	VERTICAL REINFORCEMENT & SHEAR IN SIDEWALLS	CHRIS WIGGINTON 3-15-05

Project Manager/Date

URS

Job White Tanks | Project No. | Page ___ of ___

Description Principal Spwy Riser | Computed by HKB | Date 7-27-04

Checked by SSD | Date 8/20/04 | Reference

① check for horizontal reinf. ? short span 4' check

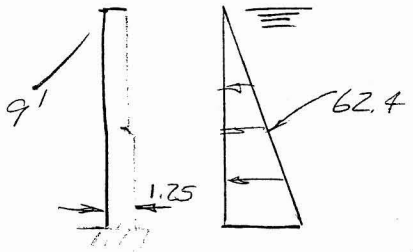
② silt load ? to be added

③ shear check for completeness or state ok by inspect.

Compute vertical reinf. in riser walls

Assumptions:

- Water load outside to crest El ✓
- + no water inside of wall (Conservative) ✓
- Use 1' slip
- assume bottom of wall @ El 1191
  wall ht = 9.0 ft
- Apply E.Q. load



$M = \frac{wl^3}{6} = \frac{62.4(q^3)}{6} = 7581.6$ ft-lb ✓

$P_{ew} = \frac{2}{3}(51)(.06)\,9^2 = 165.2$ ✓

$M_{ew} = 165.2(9).4 = 595$ ✓

$\Sigma M = 7581.6 + 595 = 8176.6$ ✓

$A_s = \frac{M}{f_s j d} = \frac{8176.6(12)}{20{,}000(.870)12.5}$

$A_s = .45$ ✓

$f_s = 20{,}000$ psi ✓

$d = 12.5$ ✓

$j = .870$ ✓

Use #6@1'-0" ✓

Temp reinf = $.002(12)15$ or $.002(12)12$

$= .36$ in² ✓ $.29$ in² ✓

Wall is 11'-3" for full height

Use #6@1'-0" in both faces and both directions in riser walls ✓

UJRS

Job White Tanks — Project No. 23443748 — Page 1 of ____

Description Principal Spillway Riser — Computed by HKB — Date 8-24-04

Checked by SJD — Date 8/25/04

.0031Z

Reference

Compute vertical reinf. in riser walls

Assumptions:

- Saturated sediment load outside to crest elevation and no water inside
- Assume bottom of wall @ El 1191
  wall ht. = 9.0'
- Assume the unit soil weight for saturated soil is 140 pcf — see pg 1-6 TR30 (attached)
- Assume $\phi = 30^\circ$
- Assume at rest pressure of sediment on wall

$$K = 1 - \sin\phi$$
$$= 1 - \sin 30$$
$$K = .50$$

- Assume 1-ft wide strip for vertical reinforcement.

URS

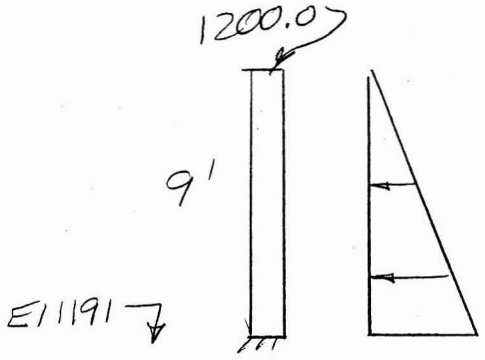
Page 2 of ____

Job White Tanks Project No. 23443748.00313 Sheet ____ of ____

Description Principal Spillway Riser Computed by HKB Date 8-24-04

Checked by SJD Date 8/25/04

Reference



Sediment load on wall

compute psuedo static sediment load:

140 pcf − 62.4 pcf = 77.6 pcf ✓

hor. load/ft3 of soil = .5(77.6) = 38.8 pcf ✓

add water w = 62.4 + 38.8 = 101.2 pcf ✓

$$M = \frac{wl^3}{6} = \frac{101.2(9^3)}{6} = 12,295.8 \text{ ft-lb}$$ ✓

$f_s = 20,000$ psi ✓

$d = 12.5$ in ✓

$J = .870$ ✓

$$A_s = \frac{M}{f_s j d}$$

$$= \frac{12,296\,(12)}{20,000(.87)\,12.5}$$

$$A_s = .68 \text{ in}^2$$ ✓

Check requirement assuming a plate supported on three sides and free at the top.

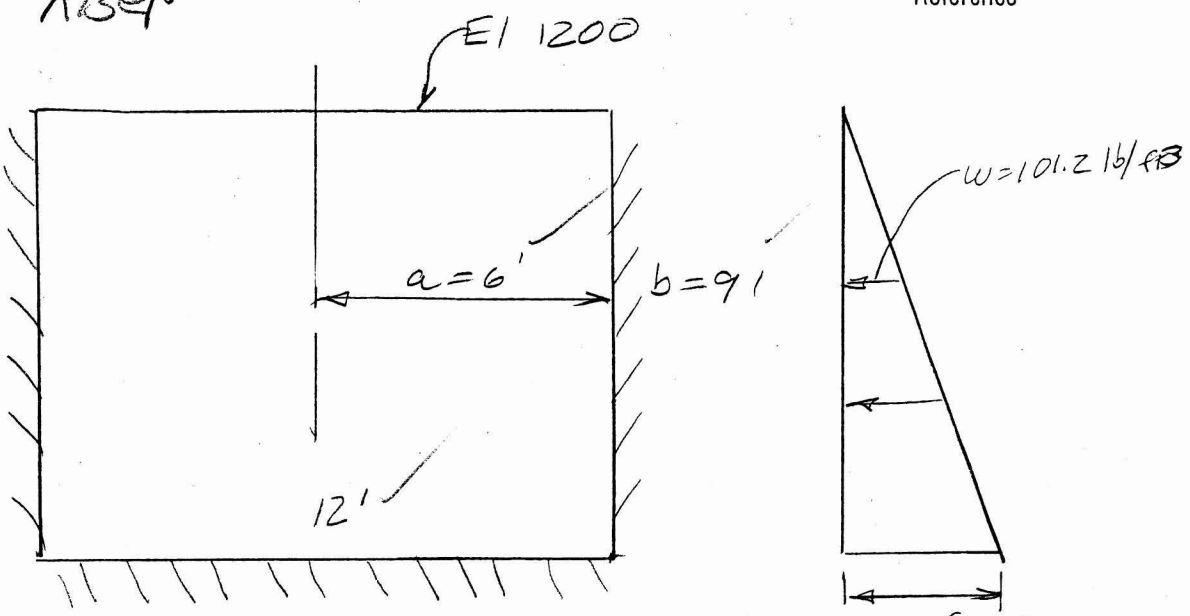
URS

Job White Tanks Project No. 23443748.00312 Page 3 of ____

Description Principal Spillway Riser Computed by HKB Date 8-24-04 Sheet ____ of ____

Checked by SSD Date 8/25/04

Reference



use fig 4 Monograph No 27

$a/b = \frac{6}{9} = .67$ Use $a/b = \frac{3}{4}$

find max. coef for My

this is at $y/b = 0$ + $x/a = 1.0$

coef = .0584 worst case

$Mom = coef(pb^2)$

$= .0584(910.8)9^2$

$Mom = 4308.4$ ft-lb

d = 12.5"

$A_s = \frac{M}{f_s j d} = \frac{4308.4(12)}{20{,}000(.87)12.5}$

$= .24 in^2$ ✓

∴ Cantilever approach is conservative

The requirement for the 1-ft strip analysis is $.69 in^2$. Use #6@10" vertical, both faces

A_s provided $= .44 in^2$

> plate analysis

< cantilever analysis

ok

URS

Job White Tanks Project No. 23443748 Page 4 of ____

Description Principal Spillway Riser Computed by HKB Date 8-24-04 Sheet ____ of ____

Checked by SSD Date 8/25/04 Reference

Compute horizontal reinf. in wall for plate fixed on three sides

Max M_x is at $y/b = 1.0$ & x/a @ 0

coef = .0406 ✓

M_x = coef pb^2

= .0406 (910.8) 9^2

M_x = 2995 ft-lb ✓

$A_s = \frac{M}{f_s j d} = \frac{2995(12)}{20{,}000(.87)12.5}$

$= .17 \text{ in}^2$ ✓

temp reinf = .002 bd

= .002 (12) 12.5

= .31 in^2 ✓

use #5 @ 1'-0" horizontal

A_s provided = 0.31 in^2 ok

URS

Job White Tanks Project No. Page of

Description Principal Spillway Riser Computed by Sheet of

Checked by SSD Date 9/25/04 Date

Reference

P = 910.816

Check max. shear

Rx max @ y/b = .4 coef = .2542

R_x = coef(pb)

= .2542(910.8) 9

= 2084 lb

Ry max x/a = 1.0 coef = .4055

R_y = coef(pb)

= .4055(910.816) 9

= 3324 lb

allowable $V_c = 1.1\sqrt{f'_c}$

$= 1.1\sqrt{4000}$

V_c = 70 psi

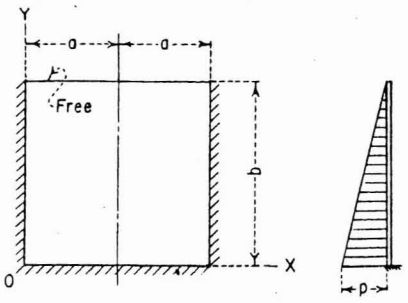
shear = $\frac{V}{bd} = \frac{3324}{12(12.5)}$

= 22.2 psi

70 psi > 22.2 O.K

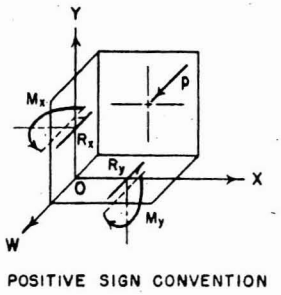
shear

			M_x						M_y					
	y/b	R_x \ x/a	0	0.2	0.4	0.6	0.8	1.0	0	0.2	0.4	0.6	0.8	1.0
a/b = 1/8	1.0	+.0082	+.0004	+.0002	+.0000	−.0001	−.0002	−.0002	0	0	0	0	0	0
	0.8	+.0251	+.0011	+.0005	+.0000	−.0003	−.0005	−.0005	+.0002	+.0001	+.0000	−.0000	−.0001	−.0001
	0.6	+.0496	+.0021	+.0009	+.0001	−.0006	−.0009	−.0011	+.0004	+.0002	+.0000	−.0001	−.0002	−.0002
	0.4	+.0751	+.0031	+.0014	+.0001	−.0008	−.0014	−.0016	+.0006	+.0003	+.0000	−.0002	−.0003	−.0003
	0.2	+.0942	+.0038	+.0016	+.0000	−.0010	−.0017	−.0019	+.0008	+.0003	−.0000	−.0003	−.0005	−.0005
	0	+.0460	0	+.0001	+.0003	+.0005	+.0006	+.0006	0	+.0005	+.0014	+.0023	+.0028	+.0030
		R_x \ R_y	+.0460	+.0136	+.0543	+.0839	+.1004	+.1056						
a/b = 1/4	1.0	+.0147	+.0022	+.0012	+.0002	−.0006	−.0012	−.0014	0	0	0	0	0	0
	0.8	+.0523	+.0046	+.0022	+.0002	−.0012	−.0021	−.0024	+.0009	+.0005	+.0002	−.0000	−.0002	−.0002
	0.6	+.1015	+.0083	+.0037	+.0002	−.0023	−.0038	−.0042	+.0017	+.0007	−.0000	−.0005	−.0009	−.0010
	0.4	+.1514	+.0114	+.0049	+.0001	−.0032	−.0051	−.0057	+.0023	+.0008	−.0004	−.0013	−.0019	−.0021
	0.2	+.1494	+.0102	+.0037	−.0004	−.0030	−.0043	−.0047	+.0020	+.0004	−.0011	−.0022	−.0029	−.0031
	0	+.0304	0	+.0004	+.0010	+.0016	+.0020	+.0021	0	+.0020	+.0052	+.0081	+.0100	+.0107
		R_x \ R_y	+.0304	+.0309	+.1052	+.1563	+.1856	+.1950						
a/b = 3/8	1.0	+.0189	+.0066	+.0040	+.0008	−.0020	−.0039	−.0045	0	0	0	0	0	0
	0.8	+.0885	+.0117	+.0056	+.0006	−.0031	−.0054	−.0062	+.0023	+.0012	+.0004	−.0002	−.0005	−.0007
	0.6	+.1541	+.0176	+.0075	+.0001	−.0049	−.0079	−.0088	+.0035	+.0013	−.0006	−.0020	−.0029	−.0032
	0.4	+.2107	+.0208	+.0079	−.0007	−.0061	−.0090	−.0099	+.0042	+.0009	−.0019	−.0042	−.0056	−.0061
	0.2	+.1691	+.0145	+.0045	−.0012	−.0042	−.0057	−.0061	+.0029	+.0001	−.0022	−.0039	−.0048	−.0051
	0	+.0102	0	+.0008	+.0020	+.0030	+.0038	+.0040	0	+.0039	+.0099	+.0152	+.0188	+.0200
		R_x \ R_y	+.0102	+.0474	+.1488	+.2154	+.2526	+.2645						
a/b = 1/2	1.0	+.0326	+.0151	+.0088	+.0015	−.0046	−.0084	−.0097	0	0	0	0	0	0
	0.8	+.1315	+.0216	+.0099	+.0007	−.0059	−.0099	−.0112	+.0043	+.0020	+.0002	−.0011	−.0019	−.0022
	0.6	+.1972	+.0273	+.0108	−.0005	−.0079	−.0119	−.0132	+.0055	+.0015	−.0020	−.0047	−.0064	−.0070
	0.4	+.2421	+.0277	+.0092	−.0019	−.0082	−.0115	−.0125	+.0055	+.0004	−.0042	−.0076	−.0097	−.0104
	0.2	+.1607	+.0160	+.0041	−.0017	−.0044	−.0055	−.0058	+.0032	−.0002	−.0026	−.0039	−.0044	−.0046
	0	−.0045	0	+.0014	+.0033	+.0050	+.0061	+.0065	0	+.0068	+.0167	+.0252	+.0307	+.0325
		R_x \ R_y	−.0045	+.0744	+.1942	+.2699	+.3108	+.3236						
a/b = 3/4	1.0	+.1061	+.0406	+.0196	+.0013	−.0115	−.0190	−.0214	0	0	0	0	0	0
	0.8	+.2077	+.0433	+.0177	−.0003	−.0119	−.0184	−.0205	+.0087	+.0031	−.0012	−.0042	−.0061	−.0067
	0.6	+.2408	+.0426	+.0145	−.0026	−.0124	−.0174	−.0189	+.0085	+.0010	−.0055	−.0102	−.0130	−.0139
	0.4	+.2542	+.0349	+.0091	−.0039	−.0102	−.0130	−.0138	+.0070	−.0011	−.0075	−.0115	−.0137	−.0143
	0.2	+.1337	+.0163	+.0031	−.0017	−.0031	−.0033	−.0033	+.0033	+.0001	−.0000	+.0014	+.0029	+.0035
	0	−.0196	0	+.0028	+.0064	+.0093	+.0111	+.0117	0	+.0139	+.0320	+.0465	+.0554	+.0584
		R_x \ R_y	−.0196	+.1256	+.2666	+.3496	+.3923	+.4055						
a/b = 1	1.0	+.1985	+.0644	+.0253	−.0013	−.0172	−.0252	−.0276	0	0	0	0	0	0
	0.8	+.2564	+.0601	+.0210	−.0028	−.0161	−.0226	−.0245	+.0120	+.0034	−.0026	−.0065	−.0088	−.0095
	0.6	+.2485	+.0515	+.0149	−.0047	−.0145	−.0189	−.0201	+.0103	+.0003	−.0075	−.0125	−.0151	−.0159
	0.4	+.2411	+.0372	+.0078	−.0049	−.0100	−.0118	−.0122	+.0074	−.0021	−.0076	−.0099	−.0106	−.0107
	0.2	+.1108	+.0154	+.0025	−.0006	−.0006	−.0000	+.0003	+.0031	+.0018	+.0060	+.0116	+.0160	+.0175
	0	−.0241	0	+.0044	+.0096	+.0137	+.0161	+.0169	0	+.0220	+.0482	+.0683	+.0804	+.0845
		R_x \ R_y	−.0241	+.1691	+.3199	+.4038	+.4457	+.4584						
a/b = 3/2	1.0	+.3127	+.0857	+.0207	−.0087	−.0199	−.0232	−.0238	0	0	0	0	0	0
	0.8	+.2929	+.0730	+.0158	−.0086	−.0172	−.0194	−.0198	+.0146	+.0023	−.0042	−.0072	−.0082	−.0085
	0.6	+.2352	+.0560	+.0094	−.0083	−.0134	−.0142	−.0141	+.0112	−.0013	−.0077	−.0096	−.0096	−.0094
	0.4	+.2148	+.0359	+.0038	−.0053	−.0065	−.0057	−.0053	+.0072	−.0021	−.0023	+.0012	+.0046	+.0059
	0.2	+.0897	+.0132	+.0021	+.0025	+.0050	+.0069	+.0076	+.0026	+.0077	+.0220	+.0356	+.0444	+.0474
	0	−.0204	0	+.0079	+.0158	+.0212	+.0243	+.0252	0	+.0396	+.0791	+.1062	+.1214	+.1262
		R_y	−.0204	+.2452	+.3964	+.4668	+.4966	+.5047						



Moment = (Coefficient)(pb^2)

Reaction = (Coefficient)(pb)



POSITIVE SIGN CONVENTION

FIGURE 4.—*Plate fixed along three edges, moment and reaction coefficients, Load IV, uniformly varying load.*

URS

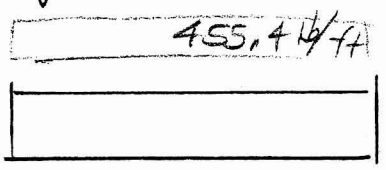
Job White Tanks Project No. _____ Page _____ of _____

Description _____ Computed by _____ Sheet _____ of _____

Principal Spillway Riser Checked by SSD Date 8/25/04

Reference

Compute moment and shear on end walls - assume 1 ft strip at top of conduit. El 1195.5



Avg. Height of soil for horiz. steel check

load/ft = (1200 − 1195.5) 101.2 = 455.4 lb/ft

assume beam is simply supported

$M = \frac{wL^2}{8} = 455.4(4.5)^2 = 4858 \text{ ft-lb}$

d = 12.5"

fs = 20,000

J = .87

$A_s = \frac{M}{f_s j d} = \frac{4858(12)}{20{,}000(.87)12.5} = .27 \text{ in}^2$

use # 5 @ 10" A_s provided = 0.31 in²

Check shear

Check shear @ support

$R = 455.4(2) = 910.8 \text{ lb}$

$v = \frac{R}{bd} \quad \frac{910.8}{12(12.5)} = 6.1 \text{ psi}$

$v_{all.} = 1.1\sqrt{f'_c}$

$= 70 \text{ psi}$

$70 > 6.1$ psi Shear OK

ATTACHMENT TO CALCULATION PACKAGE NO. H-2

- **Computations for vertical reinforcement in sidewalls**
- **Computations for shear in sidewalls**

Compute reinf. required in side walls -

Use equation (55) from page 31 TR68

$$As = \frac{M_x}{fs(B-t)}$$

M_x = Earthquake bending moment
fs = allowable steel stresses
B = Width of riser parallel to direction of motion
t = wall thickness of walls normal to direction of motion

M_x = 319,312 ft-lb ✓ from pg 7 Calcs. Checked by SJD dated 8/20/04 Package H-1

fs = 20,000 psi ✓ from NRCS NEH Sec 6

B = 6.5 ft ✓

t = 1.25 ft ✓

$$As = \frac{M_x}{fs(B-t)} = \frac{319,312 \text{ ft-lb}}{20,000(6.5-1.25)}$$ ✓

$= 3.04 \text{ in}^2$ ✓ use #6 @ 1'-0" ✓
$14(.44) = 6.16 \text{ in}^2$ in one face of wall - OK! ✓

Temp = .002 Ag = .002(12)(5) = .36 in² ✓ O.K.
from 6.4.2.2 Other Design Criteria ✓
NRCS NEH Sec 6

URS

Job White Tanks FRS No3 Project No. _____ Page 6 of _____

Description _____ Computed by HKB Sheet _____ of _____

Checked by SJD Date 12-28-04 Date 1/5/2005

Reference

Check shear at base of tower -

use Equation (65) page 37 TR68

and Equation for allowable

shear $V_c = \frac{4}{3}(70) = 93$ psi ✓

on page 30 - TR68

$$v = \frac{V_x}{2t_w\left(B - \frac{t}{2}\right)}$$ ✓

t_w = wall thickness, walls parallel to E.Q direction

V_x = E.Q. shear force at bottom of tower

t = wall thickness, walls normal to direction of motion

B = width of riser parallel to direction of motion

V_x = 20,958 ✓ 16 - from pg 2 calcs dated 12-28-04 by HKB - attachment to H-1

t_w = 1'-3" t = 1'-3" B = 6.5 ft

$$v = \frac{20{,}958}{2(1.25)\left(6.5 - \frac{1.25}{2}\right)} = \frac{20{,}958}{14.688}$$ ✓

$= 4831$ psf $= 33.5$ psi ✓

allowable = 93 psi ✓

93 psi > 33.5 psi ∴ Shear O.K. ✓

CALCULATION PACKAGE NO. H-3

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County

Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Principal Spillway Structure Trashrack Sidewall Strength Design

Total Number of Pages (including cover sheet): 2

Total Number of Computer Runs: NA

Prepared By: Harold Blair **Date:** 7/28/2004

Checked By: Steve Dominic **Date:** 8/20/2004

Description and Purpose

Determine strength requirements for the principal spillway trashrack sidewalls.

Design Basis/References/Assumptions

Working stress design utilized for determining concrete shear and reinforcement requirements consistent with approach presented in NRCS Engineering Handbook, Section 6.

Remarks/Conclusions/Results

Shear is adequate at trashrack sidewall connection to supporting riser walls. Minimum steel requirement result in #5 bars and 12" O.C.

Calculation Approved By: Todd Ringsmuth 9-9-04

Project Manager/Date

Revision No.:	Revision Description:	Approved By:

Project Manager/Date

URS

Job White Tanks | Project No. | Page ___ of ___
Description Principal Spillway Riser | Computed by | Sheet ___ of ___
Checked by SJD | Date 8/25/04 | Date
Reference

top slab middle support wall
check shear through top slab
support wall at El 1200 due
to earthquake load

force due to top slab – E.Q.
$F_1 = 22.167(14) \cdot .833(150) \cdot .06$
$= 2327$ lb ✓

force due to support wall – top 1'-10" (E.Q.)
$f_2 = 1.833(21.33) \cdot .833(150) \cdot .06 = 293$ lb ✓
force due to support wall from El 1200 up 21
$17.4(2) \cdot .833(150) \cdot .06 = 2601$ lb ✓

Σ force $= 2880$ lb ✓

allowable shear $= 1.1\sqrt{f'_c} = 70$ psi ✓
assume area resisting shear $= 3.5(2) \cdot .833 = 5.83$ ft²
shear $= \frac{2880}{839.5} = 3.43$ psi ✓ (839.5 in² ✓)

70 psi > 3.43 psi
∴ shear is O.K. ✓

Check temp reinf. Thickness = 10"
$A_s = .002(10)12 = .24$ in²

Use #5@14" each way ✓ each face
A_s provided = .31 in²/ft

CALCULATION PACKAGE NO. H-4

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County

Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Principal Spillway Structure Cover Slab Strength Design

Total Number of Pages (including cover sheet): 45

Total Number of Computer Runs: NA

Prepared By: Harold Blair **Date:** 7/28/2004

Checked By: Steve Dominic S.D.D. **Date:** 8/20/2004

Description and Purpose

Determine strength requirements for the principal spillway cover slab.

Design Basis/References/Assumptions

Working stress design utilized for determining reinforcement requirements consistent with approach presented in NRCS Engineering Handbook, Section 6. Live load of 100 psf utilized in accordance with NRCS TR30.

Remarks/Conclusions/Results

Review included the following recommendations:

1. Add shear check calculation or state okay by inspection for completeness of calculations. completed ok S.D.D.

Design results in #5 bars at 12" O.C. EW, EF.

Calculation Approved By: Tom Ringsmuth 9/9/04
Project Manager/Date

Revision No.:	Revision Description:	Approved By:

Project Manager/Date

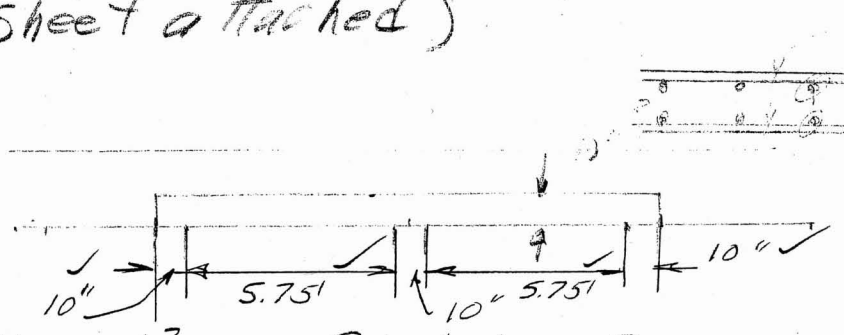
URS

Job White Tanks | Project No. | Page ___ of ___
Description Principal Spillway Riser | Computed by HKB | Date 7-27-04
Checked by SJD | Date 8/20/04 | Reference

① shear check ok by inspection — Compute reinf. in top slab ✓

Reference:

USDA - Soil Conservation Service
Technical Release No. 30 ✓
"Structural Design of Standard Covered Risers"
(sheet attached)



$M = \frac{qL^2}{8}$ for bottom face moments ✓

$M = \frac{qL^2}{12}$ for top face moments

use 100 psf live load ✓

Dead load = 150(.833) = 125 psf ✓

$M_{bottom} = \frac{qL^2}{8} = \frac{225(6.58^2)}{8} = 1217.7$ ft-lb ✓

$A_s = \frac{M}{fsjd} = \frac{1217.7(12)}{20{,}000(.870)7.5}$

$= .11 in^2$ ✓

j = .870
fs = 20,000
d = 7.5 in

Min reinf = .002(12)10
$= .24 in^2$

Use #5 @ 1'-0" both directions ✓ in top and bottom layers

CHAPTER 2. METHODS OF ANALYSIS AND DESIGN PROCEDURES

Cover Slab Walls

cover slab walls support the cover slab, acting as variable depth
ilever beams. In the top portion of the riser, the riser walls
be 10 in. thick (the minimum thickness). Thus, to avoid steel
cement difficulties, the cover slab walls will also be made 10 in.
ick. With 10 in. walls, #5 @ 15" c.c. are required in each face to
ire

$$p_t = \frac{0.25}{120} = 0.0021 \geq 0.002.$$

h this wall thickness and amount of steel, rough computations will
ow that further analysis is unnecessary.

Cover Slab

e minimum thickness of the cover slab is 8 in., this is an adequate
ickness for all D values. The total loading is 200 psf (100 psf live
100 psf dead). Cover slab span is 3D + 10 in. c.c. of supports with
in. walls. Thus, the cover slab need be designed only once for each
nduit size D. (The only exception to this might occur in the case of
hort risers which require additional wall thickness to satisfy the flo-
ation criteria – in which event the procedures given below can be suit-
ly modified.)

oments in the cover slab are highly indeterminate. Therefore, the posi-
ive center moments shall be conservatively taken as $1/8\ qL^2$. Negative
oments shall not be computed, but negative steel in the amounts required
or T & S (temperature and shrinkage) shall be provided and shall be
apped with the outside T & S cover slab wall steel. A construction
oint shall be provided in the cover slab walls at the elevation of the
igh stage crest.

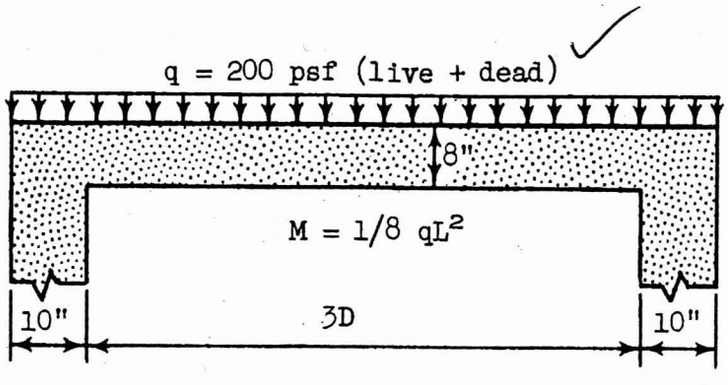
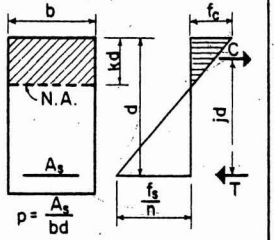


Figure 2-1. Definition sketch of cover slab.

Table 1. Coefficients *(K, k, j, p)* for Rectangular Sections

f'_c and n	f_c	K	k	j	p	K	k	j	p
		f_s = 16,000		a = 1.13		f_s = 18,000		a = 1.29	
2500	875.	137.	.356	.881	.0097	128.	.329	.890	.0080
	1000.	169.	.387	.871	.0121	158.	.359	.880	.0100
	1125.	201.	.415	.862	.0146	190.	.387	.871	.0121
10.1	1250.	235.	.441	.853	.0172	222.	.412	.863	.0143
	1500.	306.	.486	.838	.0228	291.	.457	.848	.0190
	1050.	173.	.376	.875	.0124	162.	.349	.884	.0102
3000	1200.	212.	.408	.864	.0153	199.	.380	.873	.0127
	1350.	252.	.437	.854	.0184	238.	.408	.864	.0153
9.2	1500.	294.	.463	.846	.0217	278.	.434	.855	.0181
	1800.	380.	.509	.830	.0286	362.	.479	.840	.0240
	1400.	249.	.412	.863	.0180	234.	.384	.872	.0149
4000	1600.	303.	.444	.852	.0222	286.	.416	.861	.0185
	1800.	359.	.474	.842	.0266	341.	.444	.852	.0222
8.0	2000.	417.	.500	.833	.0313	397.	.471	.843	.0261
	2400.	536.	.545	.818	.0409	513.	.516	.828	.0344
	1750.	327.	.437	.854	.0239	309.	.408	.864	.0199
5000	2000.	397.	.470	.843	.0294	376.	.441	.853	.0245
	2250.	468.	.500	.833	.0351	446.	.470	.843	.0294
7.1	2500.	542.	.526	.825	.0411	518.	.497	.835	.0345
	3000.	694.	.571	.810	.0535	666.	.542	.819	.0452
		f_s = 20,000		a = 1.44		f_s = 22,000		a = 1.60	
2500	875.	120.	.306	.898	.0067	113.	.287	.904	.0057
	1000.	149.	.336	.888	.0084	141.	.315	.895	.0072
	1125.	179.	.362	.879	.0102	170.	.341	.886	.0087
10.1	1250.	211.	.387	.871	.0121	200.	.365	.878	.0104
	1500.	277.	.431	.856	.0162	264.	.408	.864	.0139
	1050.	152.	.326	.891	.0085	144.	.305	.898	.0073
3000	1200.	188.	.356	.881	.0107	178.	.334	.889	.0091
	1350.	226.	.383	.872	.0129	214.	.361	.880	.0111
9.2	1500.	265.	.408	.864	.0153	252.	.385	.872	.0131
	1800.	346.	.453	.849	.0204	331.	.429	.857	.0176
	1400.	221.	.359	.880	.0126	210.	.337	.888	.0107
4000	1600.	272.	.390	.870	.0156	258.	.368	.877	.0134
	1800.	324.	.419	.860	.0188	309.	.396	.868	.0162
8.0	2000.	379.	.444	.852	.0222	362.	.421	.860	.0191
	2400.	492.	.490	.837	.0294	472.	.466	.845	.0254
	1750.	292.	.383	.872	.0168	278.	.361	.880	.0144
5000	2000.	358.	.415	.862	.0208	341.	.392	.869	.0178
	2250.	426.	.444	.852	.0250	407.	.421	.860	.0215
7.1	2500.	496.	.470	.843	.0294	475.	.447	.851	.0254
	3000.	641.	.516	.828	.0387	617.	.492	.836	.0335
		f_s = 27,000		a = 2.00		f_s = 30,000		a = 2.24	
2500	875.	99.	.247	.918	.0040	92.	.228	.924	.0033
	1000.	124.	.272	.909	.0050	115.	.252	.916	.0042
	1125.	150.	.296	.901	.0062	140.	.275	.908	.0052
10.1	1250.	178.	.319	.894	.0074	167.	.296	.901	.0062
	1500.	237.	.359	.880	.0100	224.	.336	.888	.0084
	1050.	126.	.264	.912	.0051	117.	.244	.919	.0043
3000	1200.	157.	.290	.903	.0064	147.	.269	.910	.0054
	1350.	190.	.315	.895	.0079	178.	.293	.902	.0066
9.2	1500.	225.	.338	.887	.0094	211.	.315	.895	.0079
	1800.	299.	.380	.873	.0127	282.	.356	.881	.0107
	1400.	185.	.293	.902	.0076	173.	.272	.909	.0063
4000	1600.	230.	.322	.893	.0095	215.	.299	.900	.0080
	1800.	277.	.348	.884	.0116	260.	.324	.892	.0097
8.0	2000.	326.	.372	.876	.0138	308.	.348	.884	.0116
	2400.	430.	.416	.861	.0185	407.	.390	.870	.0156
	1750.	247.	.315	.895	.0102	231.	.293	.902	.0085
5000	2000.	305.	.345	.885	.0128	287.	.321	.893	.0107
	2250.	366.	.372	.876	.0155	346.	.347	.884	.0130
7.1	2500.	430.	.397	.868	.0184	407.	.372	.876	.0155
	3000.	564.	.441	.853	.0245	537.	.415	.862	.0208



$p = \frac{A_s}{bd}$

$k = \frac{1}{1 + f_s / n f_c}$ | $j = 1 - \frac{1}{3}k$

$p^* = \frac{f_c}{2 f_s} \times k$ | $K = \frac{f_c}{2} kj$

$a = \frac{f_s}{12{,}000} \times$ (aver. j-value)

for use in $A_s = \frac{M}{ad}$ or $A_s = \frac{NE}{adi}$

K	k	j	p
f_s = 24,000		a = 1.76	
107.	.269	.910	.0049
133.	.296	.901	.0062
161.	.321	.893	.0075
191.	.345	.885	.0090
253.	.387	.871	.0121
136.	.287	.904	.0063
169.	.315	.895	.0079
204.	.341	.886	.0096
240.	.365	.878	.0114
317.	.408	.864	.0153
199.	.318	.894	.0093
246.	.348	.884	.0116
295.	.375	.875	.0141
347.	.400	.867	.0167
454.	.444	.852	.0222
265.	.341	.886	.0124
326.	.372	.876	.0155
390.	.400	.867	.0187
456.	.425	.858	.0221
595.	.470	.843	.0294
f_s = 33,000		a = 2.48	
86.	.211	.930	.0028
108.	.234	.922	.0036
132.	.256	.915	.0044
157.	.277	.908	.0052
211.	.315	.895	.0072
110.	.226	.925	.0036
138.	.251	.916	.0046
168.	.273	.909	.0056
199.	.295	.902	.0067
267.	.334	.889	.0091
162.	.253	.916	.0054
203.	.279	.907	.0068
246.	.304	.899	.0083
291.	.327	.891	.0099
387.	.368	.877	.0134
218.	.274	.909	.0073
271.	.301	.900	.0091
327.	.326	.891	.0111
386.	.350	.883	.0132
511.	.392	.869	.0178

*"Balanced steel ratio" applies to problems involving bending only.

URS

Job White Tanks | Project No. 23443748.00312 | Page ____ of ____ | Sheet ____ of ____

Description Principal Spillway Riser | Computed by HKB | Date 8-24-04 | Checked by SSD | Date 8/25/04 | Reference

check shear at support ✓

$R = \frac{5.75}{2}(225) = 647^{16}$ ✓

d = 7.5"

$v = \frac{R}{bd} = \frac{647}{12(7.5")}$

$v = 7.2$ psi ✓

allowable = 70 psi

70 psi > 7.2 psi ✓

shear O.K.

CALCULATION PACKAGE NO. H-5

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County

Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Principal Spillway Structure Trashrack Design

Total Number of Pages (including cover sheet): 4

Total Number of Computer Runs: NA

Prepared By: Harold Blair **Date:** 7/28/2004

Checked By: Steve Dominic SJD **Date:** 8/20/2004

Description and Purpose

Design structural steel members for the trashrack and verify open area configuration against maximum allowable flow velocities.

Design Basis/References/Assumptions

Working stress design utilized for determining channel section for trashrack members. Flow rate through trashrack of 250 cfs provided by URS Phoenix design team.

Remarks/Conclusions/Results

C10X25 channel utilized for trashrack bars. Peak velocities through bars computed as 2.13 fps less than 2.5 fps allowable velocity.

Calculation Approved By: _____

Project Manager/Date

Revision No.:	Revision Description:	Approved By:

Project Manager/Date

URS

Job White Tanks | Project No. | Page 1 of
Description Principal Spwy Trashrack | Computed by HKB | Date
Checked by SJD | Date 08/20/04
Reference

Compute size for trash rack members

Reference:
- AISC Steel Construction Manual

Assumptions:
- Beams are simply supported
- lateral load is 100 lb/ft² — consistent with slab live load ok

  check with 1000 lb point load

- Assume length of simple support is 5.75 + .833 = 6.58 ft

Assume for starter a C10x25?
$b_f = 2\frac{7}{8}$ $d = 10''$ $S_y = 1.48\ in^3$
allowable = 20,000 psi

$$M = \frac{wl^2}{8} = \frac{100(6.58^2)}{8} = 541.2\ ft\text{-}lb$$

$$f = \frac{M}{S} = \frac{541.2(12)}{1.48} = 4388\ psi$$

Check 1000 lb point load

$$M = \frac{1000(6.58)}{4} = 1645\ ft\text{-}lb$$

$$f = \frac{M}{S} = \frac{1645(12)}{1.48} = 13{,}338\ psi$$

allowable is 20,000 psi

So C10x25 is O.K.

URS

Job White Tanks | Project No. | Page 2 of ____
Description Principal Spwy Trashrack | Computed by HKB | Date 7-28-04
Checked by SJD | Date 8/20/04
Reference

Based on the use of the C10x25 channel, the openings for the trashracks can be reduced in size from the openings on the standard NRCS drawing. The change in height of the openings will allow some adjustment in the height of the walls supporting the trash racks. The distance between the openings will be maintained.

The openings can be 11" high and 4" wide, to accommodate the C10x25 channel. The bottom of the top slab can be lowered 4". This allows 1'-1" between the highest trashrack blockout and the bottom of the slab. The bottom of the slab will be at El 1203.83 3'-10" above the crest

URS

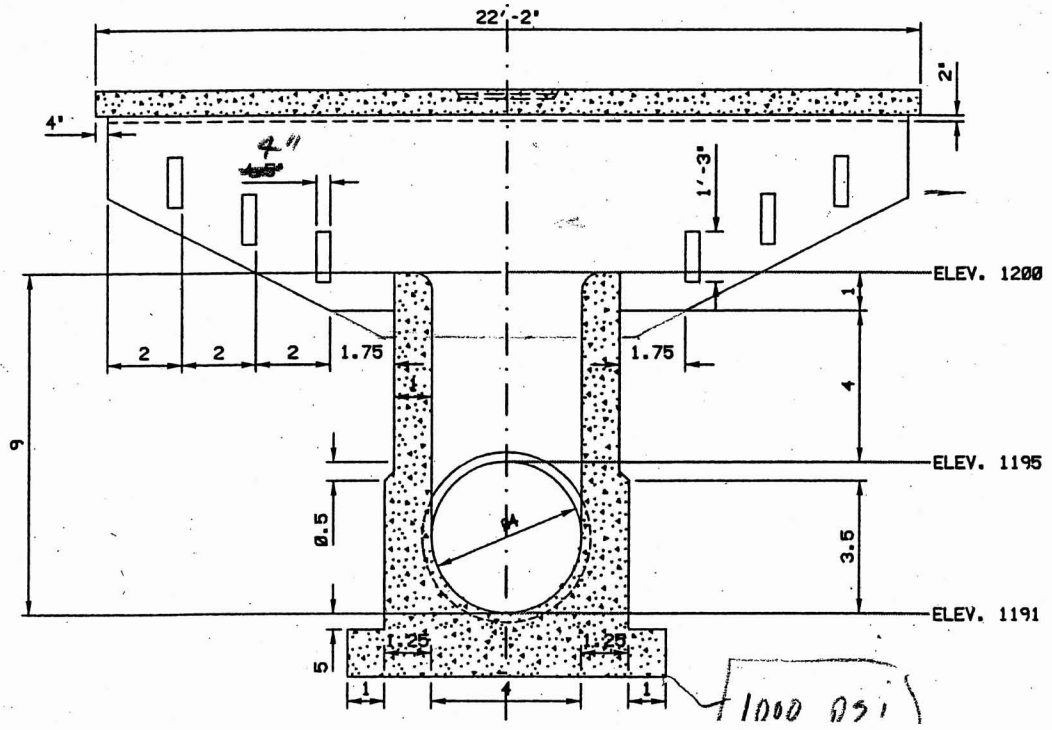
Job White Tanks Project No. Page ____ of ____

Description Principal Spwy trashrack Computed by Sheet ____ of ____

Checked by SJD Date 8/20/04 Date

Reference

Compute velocity through trash rack for 250 cfs ← Based on? Provided by Phoenix URS ∴ ok SJD



The width between the 3 trashrack walls is 5'-9" ✓

width between trashrack openings is

$(4.0" - .833) + 1.75' = 4.92'$ ✓ ok SJD

Total clear opening $= 4.92(5.95)4$ (3.167)

$= 117.1\ ft^2$

Velocity $= \frac{250\ ft^3/s}{117.1\ ft^2} = 2.13\ ft/sec.$ ✓

This is O.K allowable is 2.5 ft/sec

CALCULATION PACKAGE NO. H-6

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County

Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Principal Spillway Structure Footing Strength Design

Total Number of Pages (including cover sheet): 35

Total Number of Computer Runs: NA

Prepared By: Harold Blair **Date:** 7/28/2004

Checked By: Steve Dominic S.D. **Date:** 8/20/2004

Description and Purpose

Determine strength requirements for the principal spillway footing.

Design Basis/References/Assumptions

Working stress design utilized for determining reinforcement requirements consistent with approach presented in NRCS Engineering Handbook, Section 6.

Remarks/Conclusions/Results

Review included the following recommendations:

1. Add shear check calculation or state okay by inspection for completeness of calculations. completed - okay S.D.

Design results in #8 bars @ 12" O.C. EW, EF

Calculation Approved By: Todd Ringsmuth 9/9/04
Project Manager/Date

Revision No.:	Revision Description:	Approved By:
1	REF. SHEET FOR MOMENT	CHRIS WIGGINTON 3-15-05

Project Manager/Date

URS

Job White Tanks | Project No. | Page ___ of ___

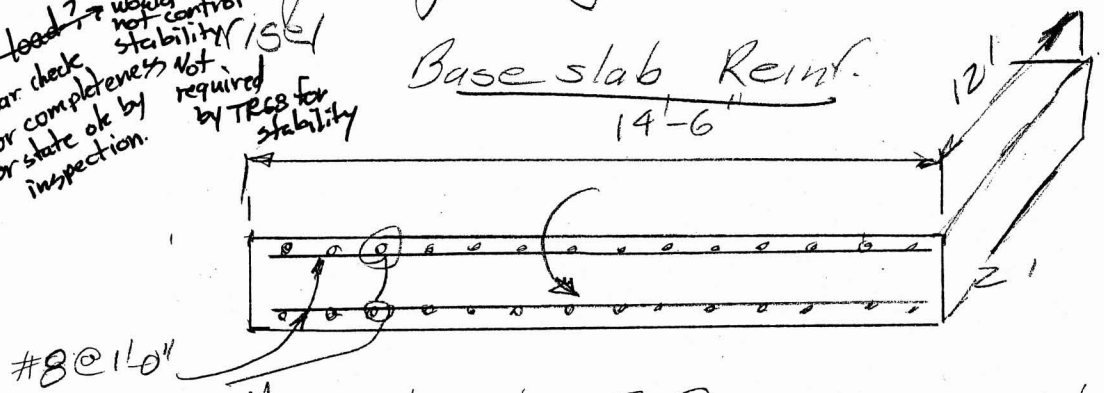
Description Principal Spillway | Computed by HKB | Date 7-27-04

Checked by SJD | Date 8/20/04 | Reference

① Sliding load? → would not control stability 1564

② Shear check for completeness or state ok by inspection. Not required by TR68 for stability

Base slab Reinf.



Mom due to E.Q. is assumed to act on x-sect of base slab

$M = 318,846$ ft-lb from Page 7 Comps by HKB 8-1-04 ✓

M/f $\frac{318,846}{14.5} = 21,989$ ft-lb ✓

$A_s = \frac{M}{f_s j d}$

$= \frac{21,989(12)}{20,000(.870)21}$

$A_s = .72 in^2$ ✓

$f_s = 20,000$ ✓

$j = .870$ ✓

$d = 21''$ ✓

The minimum steel according to ENG EM 6 - USDA Soil Conservation Service is

$A_s = P_t b t$

$= .002(12)18$

$= .43 in^2$

0.72 controls

$P_t = .002$

$b = 12''$

$t = 18''$ this is maximum thickness assumed to apply in this case.

Per USBR - influence zone for this steel ok 8.9.04

∴ for the base slab use #8 @ 12" in both directions for the top + bottom layers of reinf. ✓

NEH-6

ENGINEERING HANDBOOK

structural design

section 6

U.S. DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

4.2 Design Codes and Criteria:

4.2.1 General Code to be Used. The American Concrete Insti- tute Standard "Building Code Requirements for Reinforced Concrete" (AC 318-77), Appendix B - Alternate Design Method is used as the design co for working stress design except as modified in 4.2.2.

4.2.2 Other Design Criteria

(a) The allowable extreme fiber unit stress in pression in flexural members is: $f_c = 0.40\ f'_c$.

(b) The allowable tensile unit stress in rein ment is: $f_s = 20000$ psi. The design yield strength is: $f_y = 40000$ p

(c) Members subjected to bending and direct co sive force, in which the eccentricity (e = M/N) is not less than that ing balanced working stresses, are designed on the basis of recognize of cracked sections. The tensile steel may be stressed to its allowa the concrete stress may not exceed its allowable value.

(d) In doubly reinforced flexural members, th lar ratio, E_s/E_c is used to transform compression reinforcement for s computations.

(e) The minimum clear concrete cover over rei is two inches, except when concrete is deposited on or against earth, mum clear concrete cover is three inches. However, in structural des slabs or beams without web reinforcement, the distance from the surfa concrete to the centerline of the nearest reinforcing steel may be ta 2-1/2 or 3-1/2 inches, as the case may be, to simplify the determinat effective depth, for all bars one inch or less in diameter.

Consideration should be given to increasing the cover when a concrete is exposed to high velocities and the water carries abrasive materia

(f) Reinforcing steel is required in both fa both (orthogonal) directions in all concrete slabs and walls, except one grid of reinforcing is required in concrete linings of trapezoid This steel serves either as principal reinforcement or as temperatur age reinforcement. The minimum steel areas for slabs and walls havi equal to or less than 32 inches, in each face and in each direction, as the ratio, ρ_t, of reinforcement area, A_s, to gross concrete area, follows:

1. The steel in the direction in which tance between expansion or contract does not exceed thirty feet,

   $\rho_t = 0.002$ in an exposed face

   $\rho_t = 0.001$ in an unexposed fac

URS

Job White Tanks | Project No. | Page ___ of ___

Description Principal Spillway Riser | Computed by | Sheet ___ of ___

Checked by SJD | Date 8/25/04 | Date

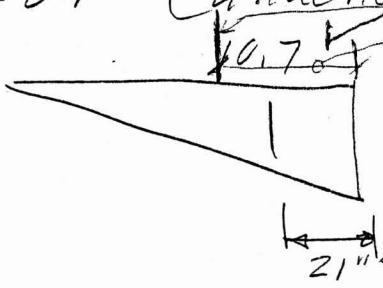
Reference

Compute shear in base slab

use shear at d- distance

from calcs by HKB dated

8-2-04 (attached)



ok - conserv. 33-21 = 12" ∴ ok

Shear d-dist = $\frac{s}{8.95} = \frac{163/16}{10.7}$

$s = 1364/16 \cdot ft^2$ per ft

$\therefore V = \frac{s}{bd} = \frac{1364 \to 2,621}{12(21)}$ $\left(\frac{1364 + 1631}{2}\right)\left(\overset{1.75}{\cancel{12}}\right) = 2,621$

$V = 5.4 \to 10.4$ psc

All = 70 psi ✓

70 psi > 5.4 → 10.4 psc

Shear is O.K. ✓

ATTACHMENT TO CALCULATION PACKAGE NO. H-6

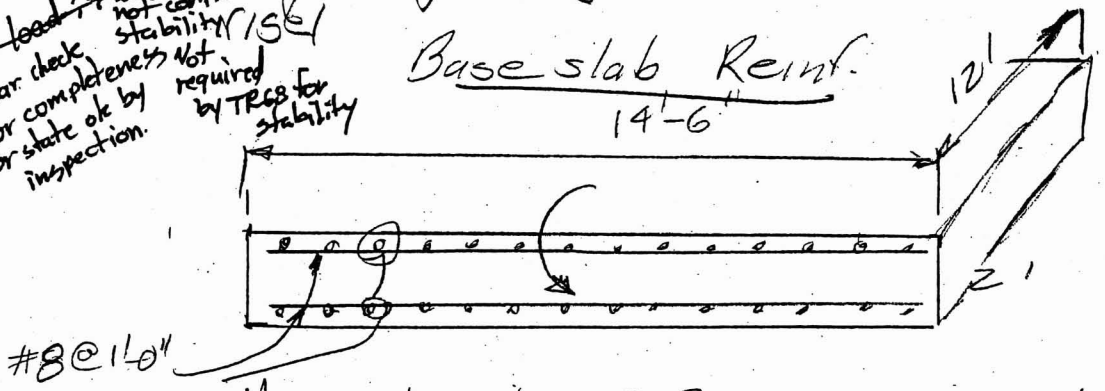
- **Reference sheet for moment**

URS

Job White Tanks | Project No. | Page 1 of 5
Description Principal Spillway | Computed by HKB | Date 7-27-04
Checked by SJD | Date 8/20/04 | Reference

① Stitt load? would not control stability 1564
② Shear check for completeness or state ok by inspection. Not required by TR68 for stability

Base slab Reinf.



Mom due to E.Q. is assumed to act on x-sect of base slab

M = 318,846 ft-lb ✓ (from page 7 Comps by HKB 8-1-04)

from page 5 computations by SJD dated 8/20/2004

M/ft $\frac{318,846}{14.5}$ = 21,989 ft-lb

$A_s = \frac{M}{f_s j d}$

$= \frac{21,989(12)}{20,000(.870)21}$

$A_s = .72 in^2$ ✓

$f_s = 20,000$ ✓
$j = .870$ ✓
$d = 21''$ ✓

The minimum steel according to EM 1110-2-2104 - USDA Soil Conservation Service is

$A_s = P_t b t$
$= .002(12)18$
$= .43 in^2$

0.72 controls

$P_t = .002$
$b = 12''$
$t = 18''$ this is maximum thickness assumed to apply in this case.

Per USBR - influence zone for this steel ok by SJD

∴ for the base slab ✓ use #8 @ 12" in both directions for the top + bottom layers of reinf.

2015

ENGINEERING HANDBOOK

structural design

section 6

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

4.2 Design Codes and Criteria:

4.2.1 General Code to be Used. The American Concrete Institute Standard "Building Code Requirements for Reinforced Concrete" (ACI 318-77), Appendix B - Alternate Design Method is used as the design code for working stress design except as modified in 4.2.2.

4.2.2 Other Design Criteria

(a) The allowable extreme fiber unit stress in compression in flexural members is: $f_c = 0.40\ f'_c$.

(b) The allowable tensile unit stress in reinforcement is: $f_s = 20000$ psi. The design yield strength is: $f_y = 40000$ psi.

(c) Members subjected to bending and direct compressive force, in which the eccentricity ($e = M/N$) is not less than that producing balanced working stresses, are designed on the basis of recognized properties of cracked sections. The tensile steel may be stressed to its allowable value, but the concrete stress may not exceed its allowable value.

(d) In doubly reinforced flexural members, the modular ratio, E_s/E_c is used to transform compression reinforcement for stress computations.

(e) The minimum clear concrete cover over reinforcement is two inches, except when concrete is deposited on or against earth, the minimum clear concrete cover is three inches. However, in structural design slabs or beams without web reinforcement, the distance from the surface of concrete to the centerline of the nearest reinforcing steel may be taken as 2-1/2 or 3-1/2 inches, as the case may be, to simplify the determination of effective depth, for all bars one inch or less in diameter.

Consideration should be given to increasing the cover when a concrete surface is exposed to high velocities and the water carries abrasive material.

(f) Reinforcing steel is required in both faces in both (orthogonal) directions in all concrete slabs and walls, except that one grid of reinforcing is required in concrete linings of trapezoidal canals. This steel serves either as principal reinforcement or as temperature and shrinkage reinforcement. The minimum steel areas for slabs and walls having thickness equal to or less than 32 inches, in each face and in each direction, are specified as the ratio, ρ_t, of reinforcement area, A_s, to gross concrete area, as follows:

1. The steel in the direction in which the distance between expansion or contraction joints does not exceed thirty feet,

   $\rho_t = 0.002$ in an exposed face

   $\rho_t = 0.001$ in an unexposed face

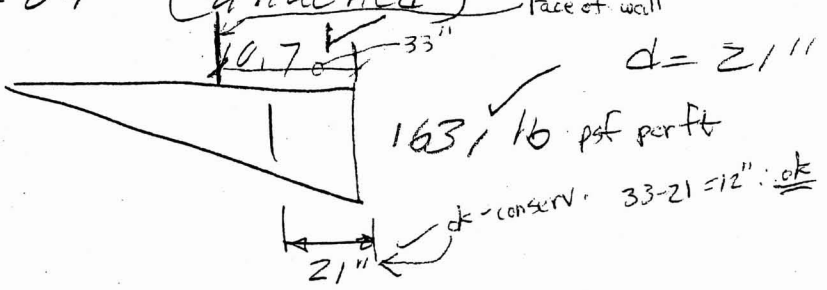
URS

Job White Tanks | Project No. | Page 4 of 5

Description Principal Spillway Riser | Computed by | Sheet ___ of ___

Checked by SJD | Date 8/25/04 | Reference

Compute shear in base slab use shear at d- distance from calcs by HKB dated 8-2-04 (attached)



Shear d-dist = $\frac{S}{8.85} = \frac{163.16}{10.7}$

$S = 1364.16 \cdot ft^2$ per ft

$\therefore V = \frac{S}{bd} = \frac{1364}{12(21)} \rightarrow 2,621$ $\left(\frac{1364+1631}{2}\right)\left(\frac{1.75}{2}\right) = 2,621$

$V = 5.4 \rightarrow 10.4$ psi

All = 70 psi ✓

70 psi > 5.4 → 10.4 psi

Shear is O.K. ✓

URS

Page 5 of 5

Job White Tanks | Project No. | Sheet ___ of ___

Description Principal Spillway Riser | Computed by KKB | Date 7/27/04

Checked by TEM (SSD 8/20/04) | Date 8/13/04 | Reference

Compute vertical loads from sheets 4, 5 + 6

top slab	wt =	38,780 lb ✓
support walls	wt =	31,638 lb ✓
1'-3" thick end walls	wt =	26,164 lb ✓
1'-3" thick walls	wt =	42,376 lb ✓
assume 12' × 14.5 × 2' thick slab wt = 12(145)2(150)		~~126,958~~ ✓
uplift load on slab		~~52,200 lb~~ ✓
		~~197,158~~ ✓
		~~67,164~~ lb ✓
	Σ =	~~129,994~~ ✓ 123,994

Seismic water	M overturning:	
top slab	=	17,597 ft-lb ✓
		34,137 ft-lb ✓
		21,125
Support Walls	=	~~20,653~~ ft-lb
w/ send wall		4,241 ft-lb ✓
w/o end wall	=	396 ft-lb ✓
side walls		4,975 ft-lb ✓
		224,595 ft-lb ✓
Static water		
Channel A		519 ft-lb ✓ approx numbers
Channel B		562 ft-lb ✓
Channel C		606 ft-lb ✓
		318,846 ft-lb ✓ 8/20/04
		121 319,312

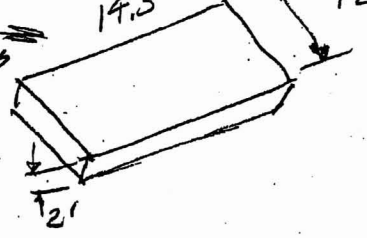
Buoyancy

$w_{riser} = 191^k$

$w_{displaced\ water} = (6.5' \times 14.5' \times 9.42' + (12' \times 2' \times 14.5')) \times 62.4$

$= \sim\sim 65,407 \sim\sim$ 77,116 lbs checks ok

$F.S._{buoy} = \frac{191^k}{77^k} = 2.5 > 1.5 \therefore$ ok



CALCULATION PACKAGE NO. H-7

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County

Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Impact Basin—Hydraulic Design

Total Number of Pages (including cover sheet): 19

Total Number of Computer Runs: NA

Prepared By: Michael Johnson **Date:** 7/25/2004

Checked By: Harold Blair **Date:** 8/13/2004

Description and Purpose

Determine the size of the impact basin based on hydraulic requirements.

Design Basis/References/Assumptions

The impact basin hydraulic sizing is based on requirements of NRCS Technical Release No. 49.

Remarks/Conclusions/Results

- The basin is adequate to handle the design flows of 250 cfs
- Sheets by HKB are enclosed as an independent check on the elements of the impact basin.
- Please note the following related to the attached reference—The quantities of steel and concrete shown do not apply. A cover between the pipe outlet and baffle is not provided as required in the statement, paragraph 5, page 3, TR 49. Wing walls are not included on the basin as shown on NRCS standard dwg. , ES-187. Drains should be placed in the walls of the impact basin.

Calculation Approved By: Todd Ringsmuth 9/9/04

Project Manager/Date

Revision No.:	Revision Description:	Approved By:

Project Manager/Date

URS

Job White tenks FRS#3 Project No. 23443798 Page 1 of ____
Description Outlet works Pipe. Computed by M. Johnson Sheet ____ of ____
Checked by HKB Date 7/25/04
Date 8-13-04
Reference

IMPACT BASIN SIZING CALC

Reference: USDA Technical Release No. 49
Criteria for the hydraulic design of Impact Basins
Associated w/ full flow in pipe conduits

PAGE 7 – VARIABLE definitions

Page 11 – Rip-Rap required on channel bottom for a distance of one basin width downstream from end sill .... etc. see drawing ES-189 ⇒ y

Given(s)
D = pipe dia. 4' = 48"
Q = 250 cfs – confirm with Hammad.
y = Vertical distance from top of end sill to Rip Rap (6")

Determine

I. BASIN WIDTH
II. RIPRAP MINIMUM SIZE (LARGE 8-12" angular on site)

I. BASIN WIDTH (see graph/table. ES-188)
From ES-188
D = 4ft & Q = 250cfs W = 14.5ft round to next ½ft = W = 15ft

II. Rip-Rap.

$$\frac{Q}{D^{5/2}} = \frac{250\text{cfs}}{(4.0)^{5/2}} = \frac{250}{32} = 7.8125''$$

$$\frac{y}{D} = \frac{0.5}{4} = .125 \text{ or } \frac{y}{D} = 0$$

USING ES189. READ 7.8125 & .125 ⇒ C = 4.2 (APROX.)
S ⇒ 16 inches

or C=3, D=4.0, then S⇒ 9"

$S_{avg} = \left(\frac{16+9}{2}\right) = 12.5"$

Rip-Rap sizing to be confirmed based on H&H.

⇒ DRAWING ES-187

Symbols

W= BASIN Width - controled by Dia. Pipe & Q-flow. =15ft

L= BASIN Length - 4/3W = 20ft

H= BASIN depth - 3/4W = 11.25ft

d= Height of endsill and height of pipe inlet above apron slab.
↳ d= 1/6 W = 2.5ft

f= Height of baffle wall = 3/8 W = 5.5/8ft [illegible]" or 5'-7½"

a= distance to upstream face of baffle wall = ½W = 7.5ft

c= Height of sidewall & wingwall @ junction = ½W = 7.5ft

e= width of splash brim - 1/12W = 1.25ft (thickness = 8" min.?)

wingwall slope ≤ 3:1

⇒ Our outlet works will have "2" Two 4' DIA. PIPES IDENTICAL IMPACT BASINS WILL BE USED IN CONJUNCTION with center wingwall Removed/deleted. center wall width = 1ft
see attached drawing detail

PER ES-186 standard detail drawing ES-4150
ES-4WWW = WWW = WIDTH OF BASIN (15.0)
Approx. concrete and steel. 110 cy. & 15,000 lbs.

U. S. Department of Agriculture
Soil Conservation Service
Engineering Division

Technical Release No. 49
Design Unit
March 29, 1971

CRITERIA FOR THE HYDRAULIC DESIGN OF IMPACT BASINS ASSOCIATED WITH FULL FLOW IN PIPE CONDUITS

PREFACE

This technical release presents the recommendations on impact basins taken from the Bureau of Reclamation publication Hyd-572 - "Progress Report No. XIII - Research Study on Stilling Basins, Energy Dissipators, and Associated Appurtenances - Section 14, Modification of Section 6 (Stilling Basin for Pipe or Open Channel Outlets - Basin VI)"- dated June, 1969, by G. L. Beichley. These recommendations are presented here as criteria for impact basins associated with full pipe flow and pipe diameters from 1.5 to 5.5 feet, inclusive.

Using the ES-drawings included in this technical release, the proportioning of the impact basin and the riprap size may be obtained.

This technical release was prepared by John A. Brevard of the Design Unit, Design Branch at Hyattsville, Maryland.

TECHNICAL RELEASE
NUMBER 49

CRITERIA FOR THE HYDRAULIC DESIGN OF IMPACT BASINS ASSOCIATED WITH FULL FLOW IN PIPE CONDUITS

Contents

	Page
PREFACE	
NOMENCLATURE	
Introduction	1
Pipe Flow Velocity	2
Design Discharge	2
Basin Width	2
Pipe Slope	2
Riprap	3
Tailwater	3
Debris Protection	3
General Layout	3
Example I	5
Example II	5

Engineering Standard Drawings

Drawing No.	Title
ES-186	STANDARD PLANS: Standard Impact Basins Schedule Showing Drawing Numbers, Volumes of Concrete, and Weights of Steel
ES-187	IMPACT BASINS: General Layout and Hydraulic Design
ES-188	IMPACT BASINS: Recommended Basin Widths for Various Pipe Diameters and Design Discharges
ES-189	IMPACT BASINS: Recommended Riprap Sizes

NOMENCLATURE

$A \equiv$ cross-sectional area of pipe, ft^2

$C = \frac{v_1}{D^{1/2}}$

$D \equiv$ pipe diameter, ft

$F \equiv$ Froude number $= \frac{v}{(g\sqrt{A})^{1/2}}$

$g \equiv$ acceleration of gravity, ft/sec^2

$Q \equiv$ design discharge, cfs

$S \equiv$ minimum recommended D_{50} riprap size, inches

$v \equiv$ pipe flow velocity, ft/sec

$v_1 \equiv$ flow velocity over the end sill, ft/sec

$W \equiv$ basin width, ft

$y \equiv$ vertical distance from top of end sill to top of riprap in channel bottom at end sill, ft

NOTE: See ES-187 for additional symbols and the terminology associated with various components of the impact basin.

TECHNICAL RELEASE
NUMBER 49

CRITERIA FOR THE HYDRAULIC DESIGN OF IMPACT BASINS ASSOCIATED WITH FULL FLOW IN PIPE CONDUITS

Introduction

The Bureau of Reclamation has published three reports containing information on the hydraulic design of impact basins. The first was Hyd-399- "Progress Report No. II - Research Study on Stilling Basins, Energy Dissipators, and Associated Appurtenances" - dated June 1, 1955, by J. N. Bradley and A. J. Peterka. The second was Engineering Monograph No. 25 - "Hydraulic Design of Stilling Basins and Energy Dissipators" - dated September, 1958, by A. J. Peterka. This report was revised in July, 1963.

At the meeting of the SCS Committee for Standardization of Impact Basins in Denver, Colorado on March 7-9, 1966, the decision was made to accept the impact basin recommendations of Engineering Monograph No. 25 as the basis for formulating criteria for the hydraulic design of the Standard Impact Basins. The Standard Impact Basins were designed in accordance with this criteria.

The third Bureau of Reclamation publication concerning this subject is Hyd-572 - "Progress Report No. XIII - Research Study on Stilling Basins, Energy Dissipators, and Associated Appurtenances - Section 14, Modification of Section 6 (Stilling Basin for Pipe or Open Channel Outlets - Basin VI)" - dated June, 1969, by G. L. Beichley. This report gives the results of model studies of impact basins and recommendations for the hydraulic design of such basins. The study was deemed advisable because the operation of various prototype structures revealed a need for revision of the design standards of Engineering Monograph No. 25.

The recommendations in Hyd-572 differ somewhat from those given in Engineering Monograph No. 25; therefore, the layout for the SCS Standard Impact Basins does not agree completely with the latest recommended general layout as shown in ES-187. These differences are discussed below under General Layout.

The following are recommendations taken from Report No. Hyd-572. These recommendations are presented in this technical release as criteria for the hydraulic design of impact basins. The criteria given below is for impact basins associated with full pipe flow and pipe diameters from 1.5 to 5.5 feet, inclusive.

Pipe Flow Velocity

The maximum pipe flow velocity, v, is 50 ft/sec. This limitation is imposed, because cavitation or impact damage to the basin may occur if this velocity is exceeded.

Design Discharge

The design discharge used in selecting the impact basin width is determined using the minimum entrance loss coefficient for the inlet structure to the pipe. Use of the minimum entrance loss coefficient results in the highest discharges for the site conditions. The design discharge is the maximum discharge through the structure for the routing of the principal spillway hydrograph.

The maximum hydraulic grade line in the basin is assumed at d + f + t (see ES-187) above the basin apron. When determining the head for pipe flow computations, consideration of the location of the hydraulic grade line in the basin is necessary.

Basin Width

The minimum impact basin width, W, is 8/3 of the pipe diameter, D. If W were made less than 8 D/3, a portion of the flow jet for the design discharge would miss the baffle (see ES-187).

Drawing ES-188 which gives the relation of basin width, W, design discharge, Q, and pipe diameter, D, may be used to obtain the required basin width. This drawing is based on Figure 8 of Report No. Hyd-572. The equation of the line of Figure 8 was taken as

$$\frac{W}{\sqrt{A}} = 2.86F^{0.575}$$

where

$A \equiv$ Cross-sectional area of the pipe $= \frac{\pi D^2}{4}$, ft^2

$D =$ Pipe diameter, ft

$F \equiv$ Froude number $= \frac{v}{(g\sqrt{A})^{1/2}}$

$g \equiv$ Acceleration of gravity $= 32.16$ ft/sec^2

For particular values of D and Q, the proper basin width is that found from ES-188. When the point determined by the pipe diameter, D, and the design discharge, Q, lies between two Standard Impact Basin widths, select the larger basin width. If the basin is too large, the basin's effectiveness is reduced due to the jet passing under the baffle. Report No. Hyd-572 notes that "Since the basin will be larger than need be for less than design flows, the basin should not be oversized for the design flow."

Pipe Slope

A horizontal length of pipe at least one pipe diameter long is required at the entrance to the basin. If the grade of the pipe near the basin exceeds 15 percent, the horizontal length must extend upstream from the basin at least three diameters. The horizontal length of pipe ensures that the jet for the design discharge fully impinges on the baffle.

Riprap

Riprap is required on the channel bottom and side slopes for a distance of one basin width downstream from the end sill. The riprap on the side slopes of the channel must extend to the elevation of the top of the basin walls at the end sill. The minimum thickness of placed riprap is 1/6 of the basin width. A blanket of filter material or bedding, as required, is necessary beneath the rock riprap.

Drawing ES-189 is included to facilitate the determination of the required riprap size. At least half of the riprap by weight must equal or exceed the required riprap size.

Tailwater

Tailwater is not required; however, tailwater depths up to a maximum depth of d + f/2 (see ES-187) above the basin apron do reduce water surface roughness and bed erosion. Depths of tailwater greater than d + f/2 above the basin apron should be avoided since these depths cause flow over the top of the baffle.

Debris Protection

Report No. Hyd-572 states that "At some prototype installations, weeds and debris such as Russian thistles have been trapped in the basin between the pipe portal and the baffle. This debris has compacted to the extent of blocking the portal, thus reducing the capacity of the structure. The compacted weeds will not wash out and are very difficult to remove." Obviously, debris which is long and relatively rigid could also become lodged in the impact basin. Therefore, a Standard Covered Riser or an inlet which is equally effective in preventing entrance of debris is required when using an impact basin. Thus, an open top riser is not satisfactory in association with an impact basin.

For safety purposes and to prevent debris from entering the impact basin upstream of the baffle, a cover is required over the top of the basin between the pipe outlet and the baffle. The cover might be floor grating or precast concrete slabs placed with space between slabs to provide adequate basin ventilation. Secure fastening of the cover to the basin is necessary.

General Layout

Drawing ES-187 shows the general layout of the impact basin as given in Figure 1 of Report No. Hyd-572. As mentioned previously, this layout differs somewhat from that used for the design of the Standard Impact Basins, ES-4000 series. These differences are:

1. The notches in the baffle are reduced in width and are moved a short distance from the sidewall to improve the flow conditions in the basin.
2. The height of the basin sidewall is increased to provide additional freeboard.
3. The distance, a, from the headwall to the baffle wall is W/2.

When a Standard Impact Basin is desired, the user has the option of using the drawings without change or of revising the drawings to conform with the general layout as given in ES-187. When an impact basin is desired which is not one of the Standard Impact Basins, the layout should conform to that of ES-187.

EXAMPLE I

Given:
D = 3.0 ft
Q = 150 cfs
y = 0.6 ft

Determine:
I. The impact basin width.
II. The recommended riprap size.

Solution:
I. Determine the impact basin width.
Using ES-188 and for D = 3.0 ft and Q = 150 cfs, read W = 12.25 ft. Use a Standard Impact Basin with W = 13.0 ft.
II. Determine the recommended riprap size.
A. Compute

$$\frac{Q}{D^{5/2}} = \frac{150}{(3.0)^{5/2}} = \frac{150}{15.588} = 9.623$$

$$\frac{y}{D} = \frac{0.6}{3.0} = 0.2$$

B. Using ES-189 and for $Q/D^{5/2} = 9.623$ and $\frac{y}{D} = 0.2$, read C = 4.79.
Then for D = 3.0 ft and C = 4.79, read S = 16.0 inches.

EXAMPLE II

Given:
D = 4.0 ft
Q = 550 cfs
y = 0

Determine:
I. The impact basin width.
II. The recommended riprap size.

Solution:
I. Determine the impact basin width.
Using ES-188 and for D = 4.0 ft and Q = 550 cfs, read W = 22.85 ft. Use W = 23.0 ft.
II. Determine the recommended riprap size.
A. Compute

$$\frac{Q}{D^{5/2}} = \frac{550}{(4.0)^{5/2}} = \frac{550}{32.000} = 17.19$$

$$\frac{y}{D} = \frac{0}{4.0} = 0$$

B. Using ES-189 and for $\frac{Q}{D^{5/2}} = 17.19$ and $\frac{y}{D} = 0$, read C = 3.80.

Then for D = 4.0 ft and C = 3.80, read S = 13.85 inches.
Use S = 14.0 inches.

STANDARD PLANS: STANDARD IMPACT BASINS SCHEDULE SHOWING DRAWING NUMBERS, VOLUMES OF CONCRETE, AND WEIGHTS OF STEEL.

STANDARD DETAIL DRAWINGS ES-4WWW	QUANTITIES*	
	STEEL - lbs.	CONCRETE - cu. yds.
ES-4050	1500	10
-4060	1900	12.5
-4070	2200	15
-4080	2800	20
-4090	3300	23
-4100	3900	28
-4110	4800	33
-4120	5700	38
-4130	6700	43.5
-4135	7300	46.5
-4140	7900	50.5
-4145	8800	55
-4150	10,000	58.5
-4155	10,600	62
-4160	11,000	65
-4165	12,400	70
-4170	13,300	73.5
-4175	14,100	77

Key to Drawing Numbers

The drawing numbers of the Standard Detail Drawings for Standard Impact Basins are given by:

ES-4WWW

where

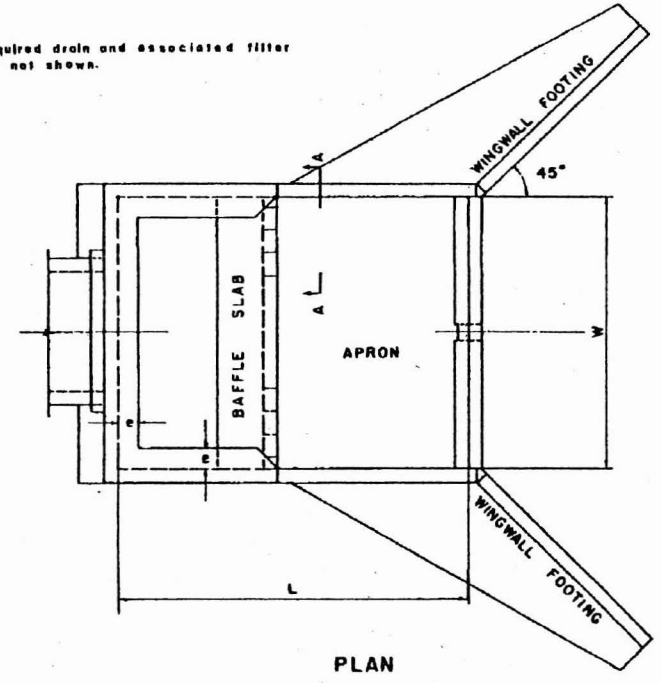
WWW ≡ width of basin, WW.W ft

*Quantities of steel and concrete tabulated were obtained from sheet 1 of each ES-drawing. These quantities are approximate since quantities vary with pipe diameter.

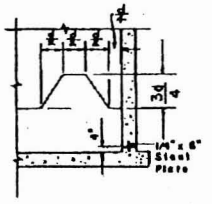
REFERENCE	U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE ENGINEERING DIVISION - DESIGN UNIT	STANDARD DWG. NO. ES- 186 SHEET 1 OF 1 DATE 5 - 70

USDA-SCS-HYATTSVILLE, MD. 1971

IMPACT BASINS: General Layout and Hydraulic Design



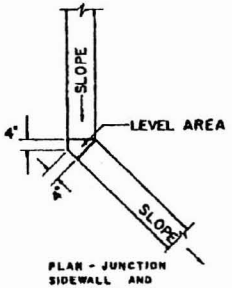
PLAN



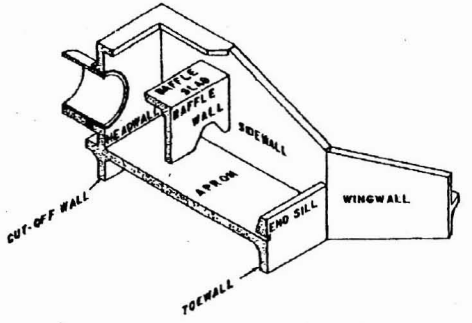
SECTION "A-A"

SYMBOLS

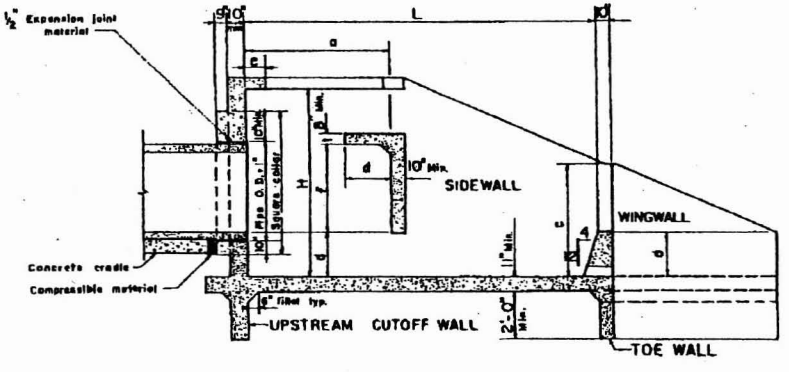
W	=	Width of basin	
L	=	Length of basin	= 4/3 W
H	=	Depth of basin	= 3/4 W
d	=	Height of end sill and height of pipe invert above apron slab	= 1/6 W
f	=	Height of baffle wall	= 3/8 W
p	=	Distance to upstream face of baffle wall	= 1/2 W
c	=	Height of sidewall and wingwall at junction	= 1/2 W
a	=	Width of splash brim	= 1/12 W



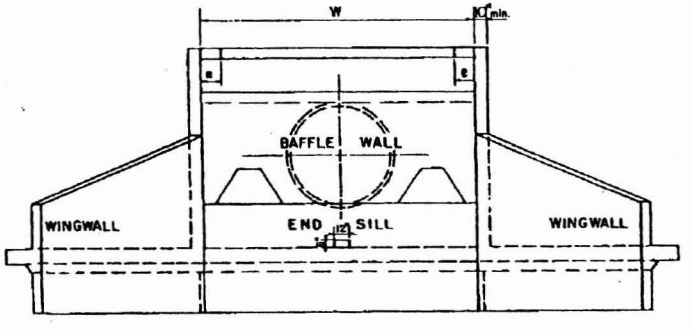
PLAN - JUNCTION SIDEWALL AND WINGWALL



ISOMETRIC VIEW



SECTION ON CENTER LINE



DOWNSTREAM ELEVATION

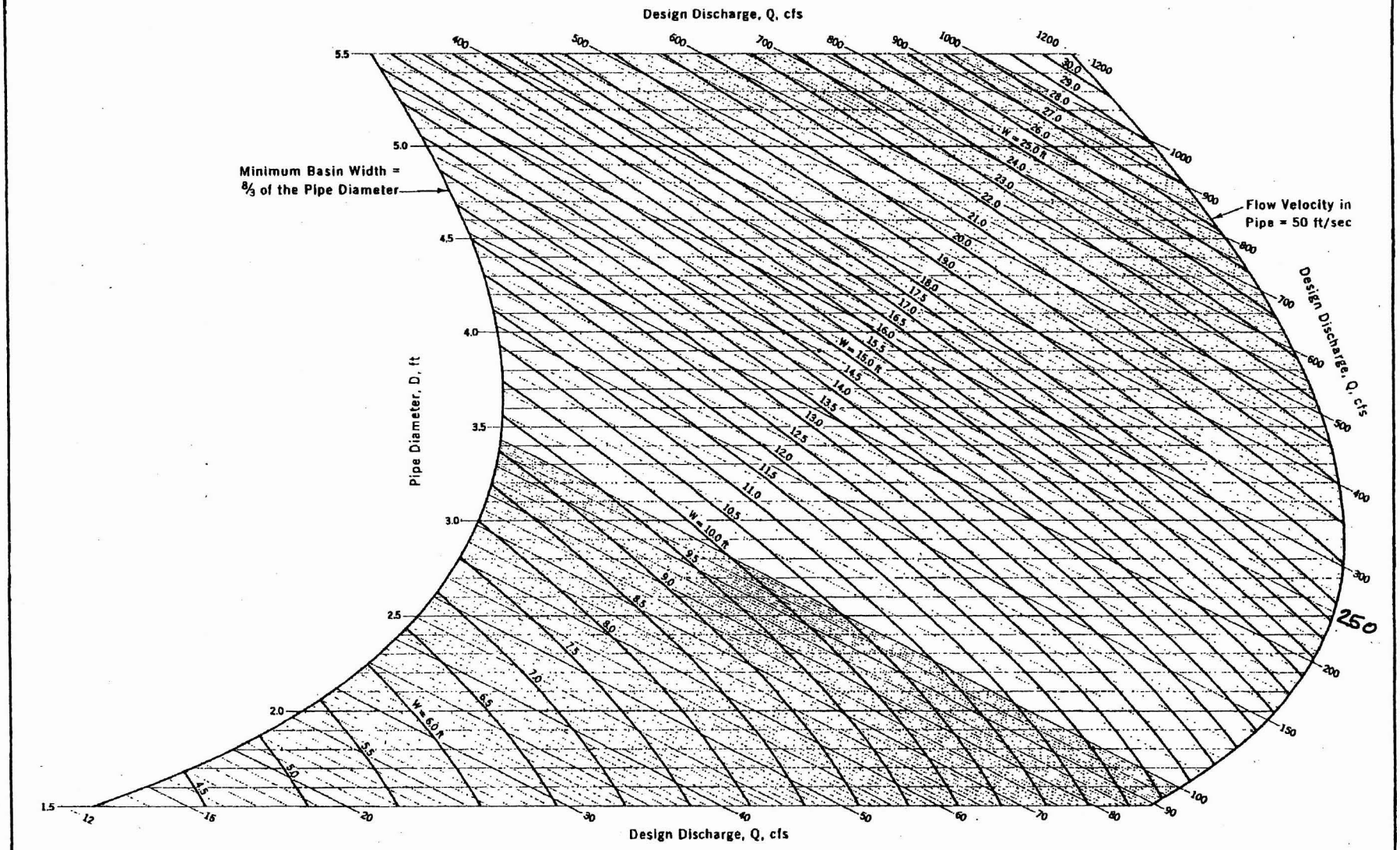
REFERENCE

Bureau of Reclamation, Report No. HYD-572, Progress Report No. XIII--Research Study on Stilling Basins, Energy Dissipaters, and Associated Appurtenances--Section 14, Modification of Section 6 (Stilling Basin for Pipe or Open Channel Outlets--Basin VI)
by G. L. Beichley

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ENGINEERING DIVISION - DESIGN UNIT

STANDARD DWG. NO.
ES-187
SHEET 1 OF 1
DATE 12-70

IMPACT BASINS: Recommended Basin Widths for Various Pipe Diameters and Design Discharges



REFERENCE

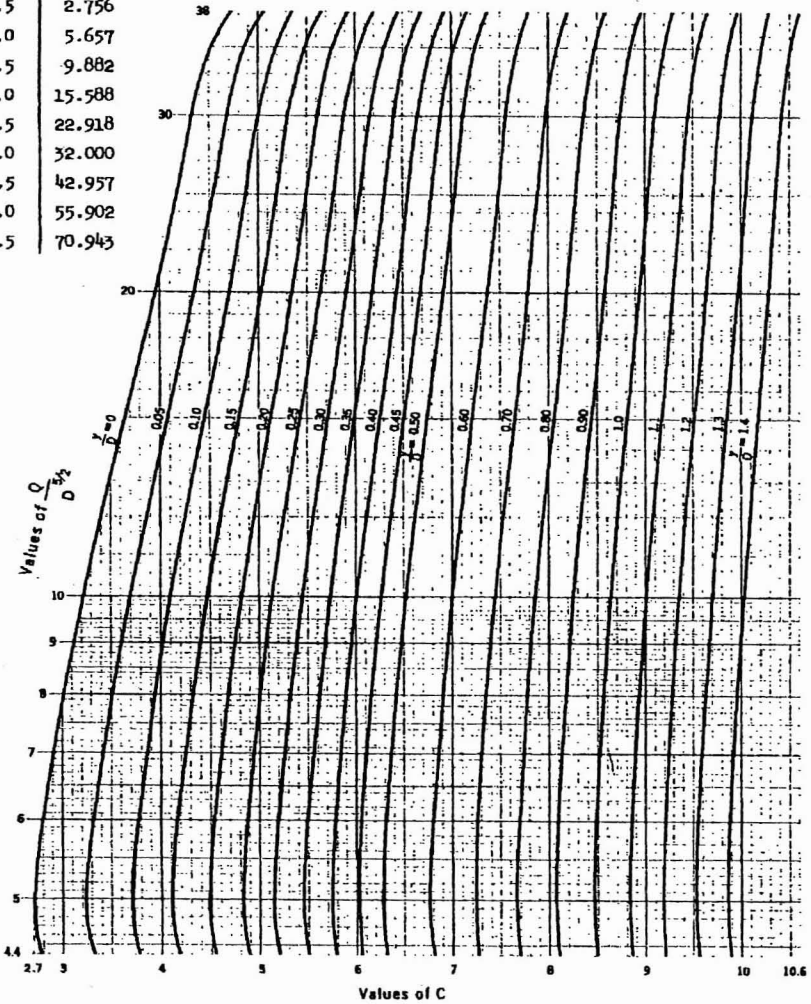
Bureau of Reclamation, Report No. HYD-572, Progress Report No. XIII--Research Study on Stilling Basins, Energy Dissipators, and Associated Appurtenances--Section 14, Modification of Section 6 (Stilling Basin for Pipe or Open Channel Outlets--Basin XI)
by G. L. Beichley

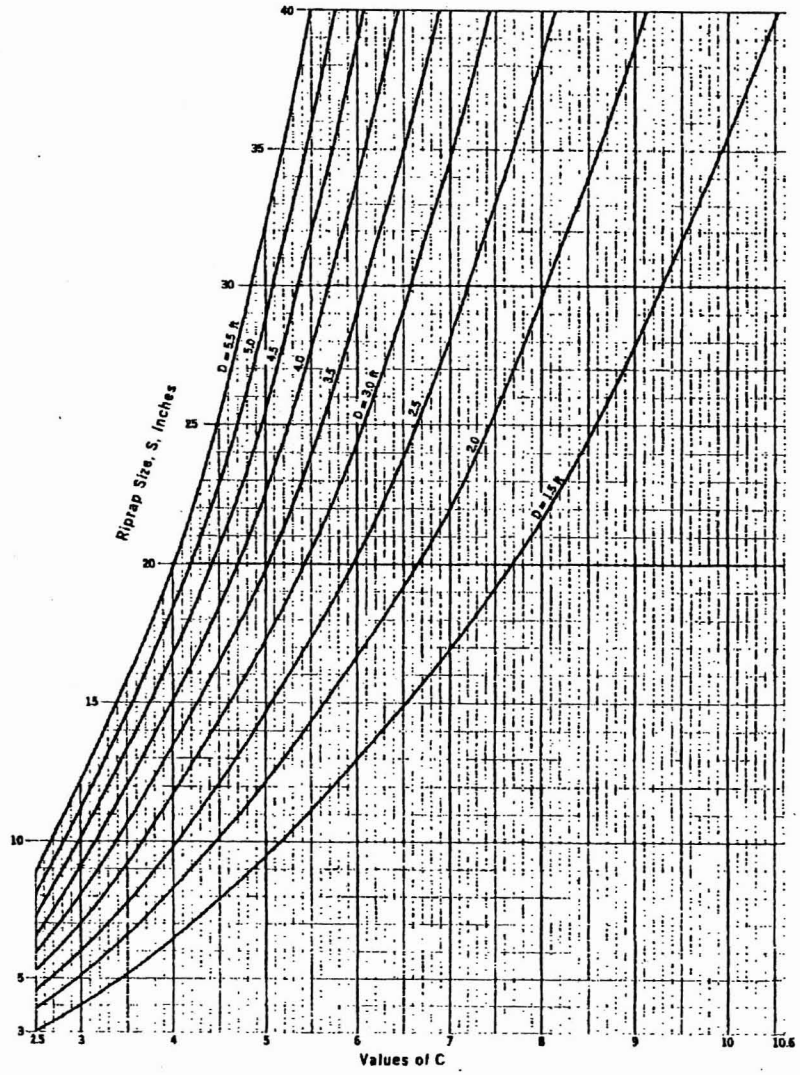
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ENGINEERING DIVISION - DESIGN UNIT

STANDARD DWG. NO.
ES-188
SHEET 1 OF 1
DATE 11-70

IMPACT BASINS: Recommended Riprap Sizes

D, Ft	$D^{5/2}$
1.5	2.756
2.0	5.657
2.5	9.882
3.0	15.588
3.5	22.918
4.0	32.000
4.5	42.957
5.0	55.902
5.5	70.943



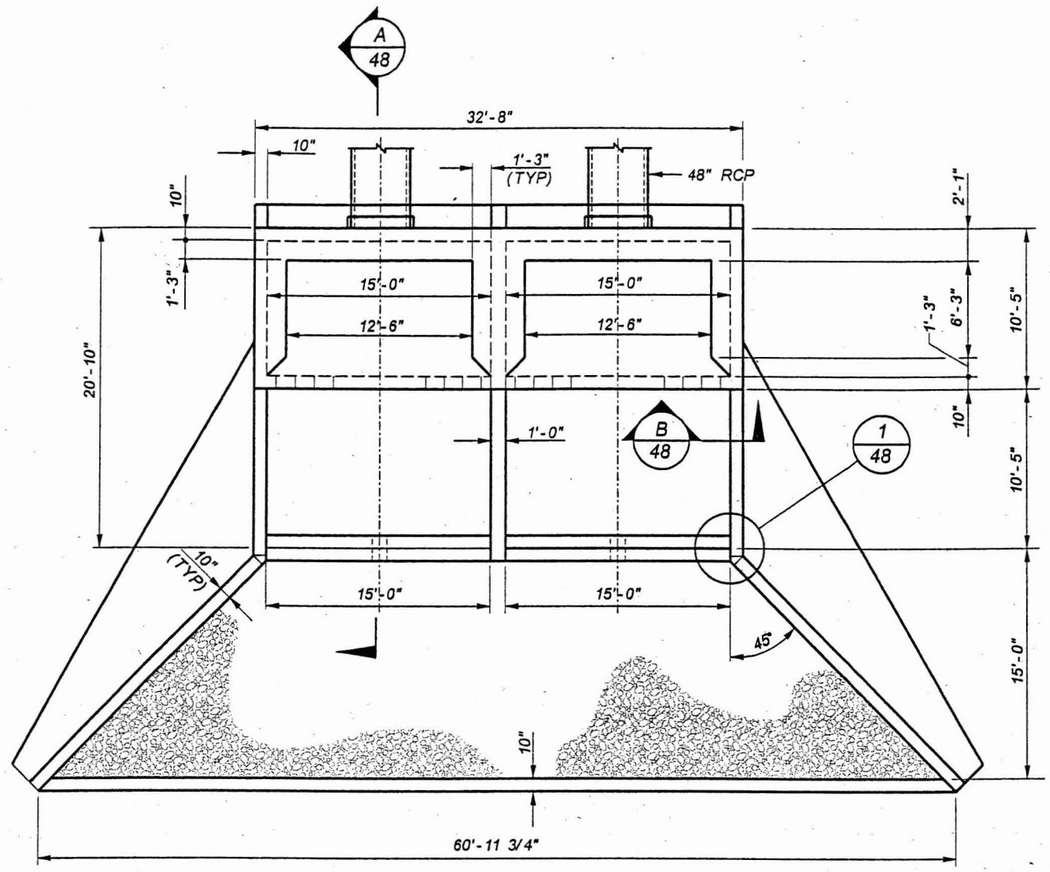


REFERENCE

Bureau of Reclamation, Report No. HYD-572, Progress Report No. XIII—Research Study on Stilling Basins, Energy Dissipators, and Associated Appurtenances—Section 14, Modification of Section 6 (Stilling Basin for Pipe or Open Channel Outlets—Basin VI) by G. L. Beichley

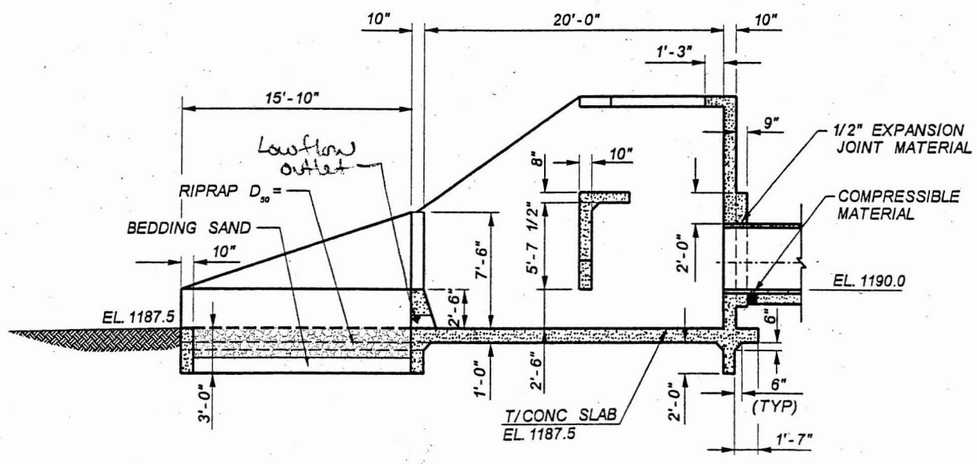
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ENGINEERING DIVISION - DESIGN UNIT

STANDARD DWG. NO. ES-189
SHEET 1 OF 1
DATE 11-70



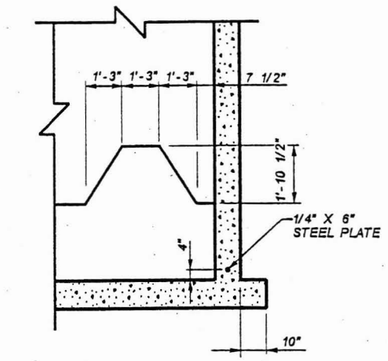
PLAN
STILLING BASIN

2.5 0 2.5 5
Scale in Feet



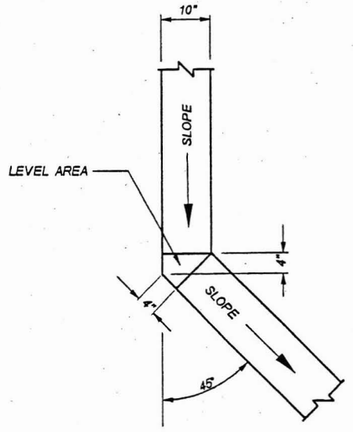
SECTION
STILLING BASIN
A
50

2.5 0 2.5 5
Scale in Feet



SECTION
STILLING BASIN
B
48

2.5 0 2.5 5
Scale in Feet



DETAIL
JUNCTION SIDEWALL AND WINGWALL
NOT TO SCALE
1
48

X520

ITEM NO.	ITEM DESCRIPTION	QUANTITY

TWO WORKING DAYS
BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

ADWR APPROVAL

NO.	REVISION	BY	DATE
A	60% DESIGN SUBMITTAL	TER	6-04

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO 3
REMEDIATION DESIGN PHASE 1
PCN 470.04.30 CONTRACT NO. 2004CO17

	BY	DATE
DESIGNED	TER	6-04
DRAWN	MSJ	6-04
CHECKED	RM	6-04

PRELIMINARY
NOT FOR
CONSTRUCTION

URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO. ~~X823~~

STILLING BASIN
SECTIONS AND DETAILS

SHEET O
50 55

$FILE$
XREFS: PRIMARY_OUTLET_RISER.DGN 3L_SCD.DGN

URS

Job White Tanks | Project No. | Page ___ of ___

Description Impact Basin | Computed by HKB | Date 8-13-04

Checked by | Date | Reference

These comps are independent chk of M. Johnson calcs dated 7/25/04

Assume full pipe flow

$Q = 250$ cfs

$A = 12.57$ (48)

$V = \frac{Q}{A} = \frac{250}{12.57} = 19.89$ fps

$D = \sqrt{A} = \sqrt{12.57}$

$D = 3.55$ ft

$F = \frac{V}{\sqrt{gD}}$

$= \frac{19.89}{\sqrt{32.2(3.55)}}$

$F = 1.86$

From Fig 277 "Design of Small Dams"

$W/D = 4.2$

$W = 4.2(3.55) = 14.9$

Use $W = 15'$

$L = \frac{4}{3}(15) = 20'$

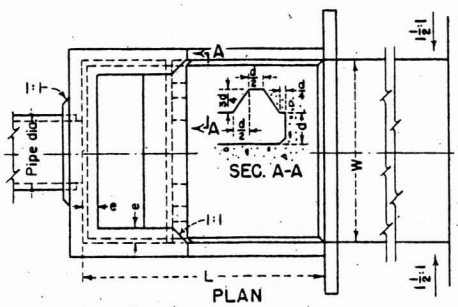
$H = \frac{3}{4}(15) = 11.25'$

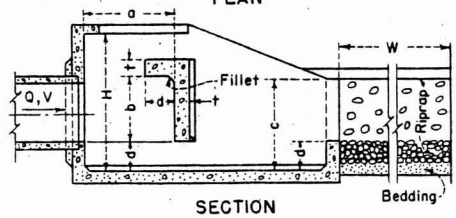
$d = \frac{15}{6} = 2.5'$

$f = \frac{3}{8}(15) = 5.62'$

$a = \frac{15}{2} = 7.5'$

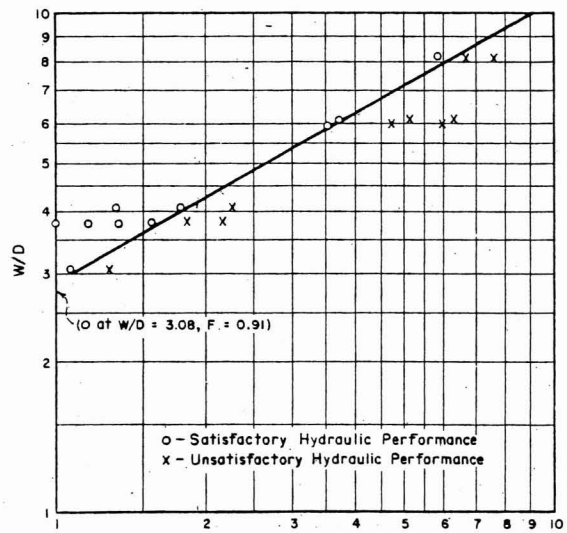
$e = \frac{15}{12} = 1.25'$





H = ¾ (W) d = ⅛ (W)
L = ⅔ (W) e = ½ (W)
a = ½ (W) t = ½₂ (W), suggested minimum
b = ⅜ (W) Riprap stone size diameter = ½₀ (W).
c = ½ (W)

STILLING BASIN DESIGN



DESIGN WIDTH OF BASIN

"W" is the inside width of the basin.
"D" represents the depth of flow entering the basin and is the square root of the flow area.
"V" is the velocity of the incoming flow.

Figure 277. Dimensional criteria for impact type stilling basin. 288–D–2436.

CALCULATION PACKAGE NO. H-8

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County

Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Impact Basin—Back wall Thickness and Reinf.(other walls based on this)

Total Number of Pages (including cover sheet): 15

Total Number of Computer Runs: NA

Prepared By: Harold Blair **Date:** 8/23/2004

Checked By: Steve Dominic S.J.D. **Date:** 8/26/04

Description and Purpose
Determine thickness and reinforcement for impact basin walls

Design Basis/References/Assumptions
Working stress design was utilized for determining reinforcement requirements consistent with approach presented in NRCS Engineering Handbook, Section 6.

Remarks/Conclusions/Results

1. The design results in #6 @12" vertical in each face of the back walls, and two side walls. The horizontal reinforcement was determined to be #5 @ 12" in all of the walls. This was based on NRCS temperature requirements. #5 @ 12 vertical bars were used in the middle wall. This was based on temperature requirements, since the middle wall is not significantly loaded.
2. Consideration should be given to adding drains along the outside walls of the Impact basin to mitigate potential for saturated loads outside of the basin. S.J.D.

Calculation Approved By: OK S.J.D. Todd Ringsmuth 9/9/04
Project Manager/Date

Revision No.:	Revision Description:	Approved By:
1	UPLIFT AND SLIDING STABILITY CALCS	CHRIS WOOLINTON 3-15-05

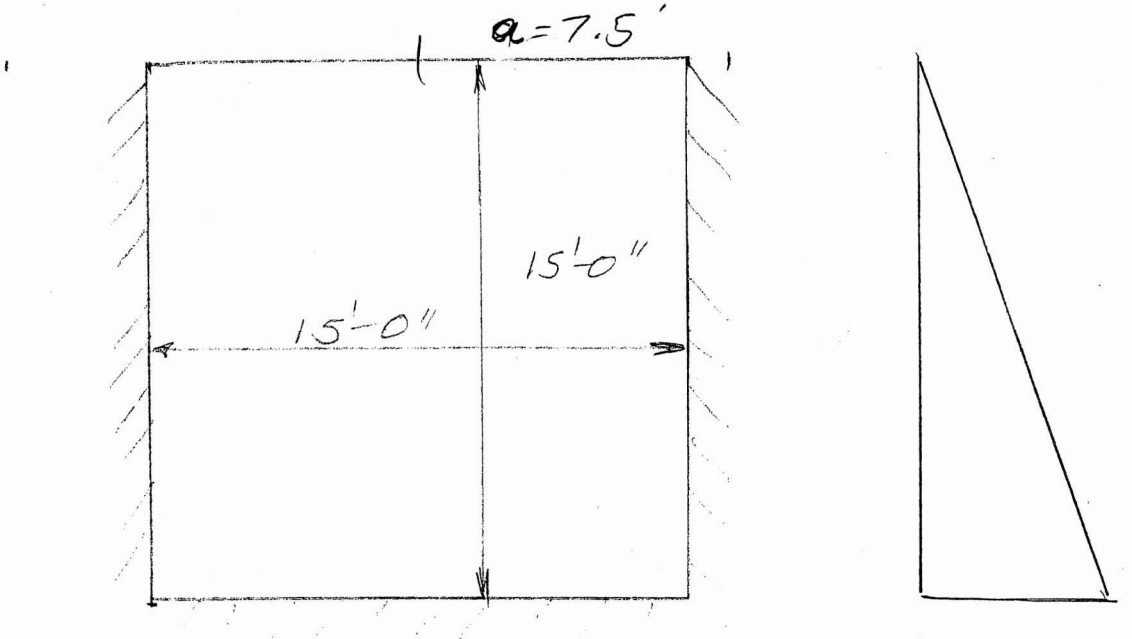
Project Manager/Date

URS

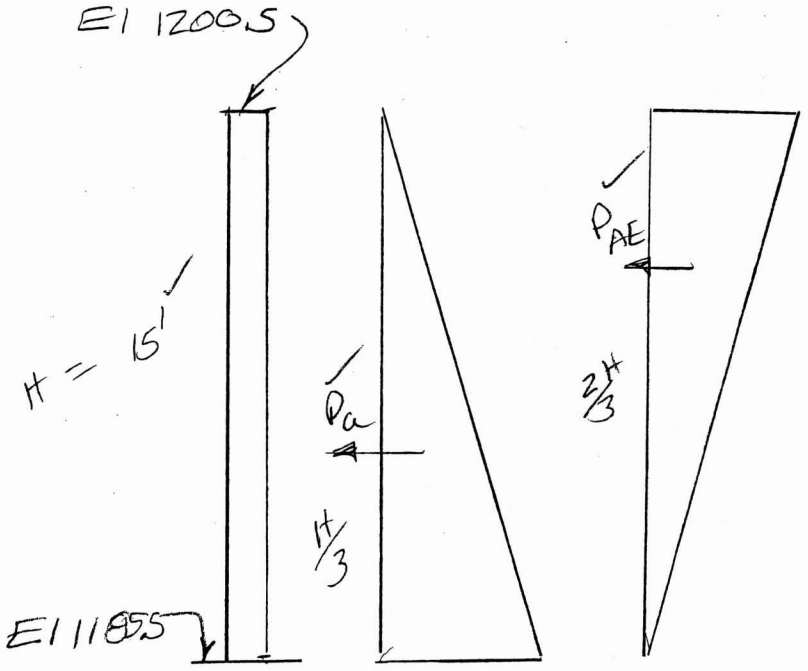
Job White Tanks | Project No. | Page 1 of ____
Description Impact basin | Computed by HKB | Date 8-3-04
Checked by SJD | Date 8/25/04
Reference

Problem: Compute thickness of ✓
outside walls
Assume walls are 1'-0" thick ✓
Assume γ_{soil} = 125 lb/ft³ ✓
Assume ϕ = 30° ✓

Analyze back wall as a ✓
plate fixed on three sides
and free at the top
Sediment to top of wall (see attached Tele memo from Phoenix)



Assume active pressure on backwall ✓
along with E.Q. load
since Rectangular Plates Engr Monograph ✓
will not handle inverted triangle
EQ load -- approx with uniform load



$K_a = \tan^2\left(45 - \frac{\phi}{2}\right) = .33$ ✓

ΔK_{AE} - from attached Fig 5 from design criteria for concrete retaining walls

for $\alpha_h = .06$ $+\beta = 0$

$\Delta K_{AE} = .032$ ✓

$P_a = \frac{\gamma H^2}{2} K_a$

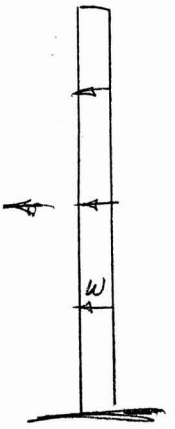
$= \frac{125(.33)15^2}{2} = 4641\,lb$ ✓

$\Delta P_{AE} = \frac{\gamma H^2}{2} \Delta K_{AE}$

$= \frac{125(.032)15^2}{2} = 450\,lb$ ✓

$M = \Delta P_{AE}\left(\frac{2H}{3}\right) = 450\left[\frac{2(15)}{3}\right]$

$= 4500$ ✓ ✓



Compute uniform horizontal load for coef tables to approximate inverted triangle E.Q. load

$M = \frac{w\,ft^2}{2}$ ✓

$4500 = \frac{w(15^2)}{2}$

$w = \frac{9000}{15^2}$

$= 40\ lb/ft^2$ ✓

Static load

$p = 125(.333)\,H = 125(.333)\,15$

$= 624.4\ lb/ft$ ✓

$y/b = \frac{1}{2}$ ✓ use figure 4-attached

for $y/b = 0$ + $x/a = 1.0$ coef = .0325 ✓

$Mom = (c)\,p\,b^2$

$= .0325(624.4)15^2 =$

$Mom = 4566$ ✓

Earthquake load

use fig. 1 (attached) with $\rho = 40$ lb/ft^2 ✓

$M_y = \text{coef} \cdot \rho \cdot b^2$ $b = 15'$

coef for $a/b = \frac{1}{2}$ $y/b = 0$ $x/a = 1.0$ ✓

coef = .0534 ✓

$M_{om} = (.0534)\, 40\, (15^2)$

$= 481$ ft-lb ✓

Static + EQ

$\Sigma M = 4566 + 481$ ✓

5047 ft-lb ✓

$f_s = 20{,}000$

$j = .87$

$d = 12''$

$A_s = \frac{M}{f_s j d} = \frac{5047(12)}{20{,}000(.87)12}$

$= .29$ in^2

Use #6 @12" vertical in back wall and side walls A_s provided $= 0.44$ in^2

Use #5@12" vertical in middle walls

temp reinf $= .002(12)12$ A_s provided $= 0.31$ in^2

$= .29$ in^2 ✓

101.2 pcf (15) = 1518

$M_{om} = .0325(1518)(15)^2 = 11{,}100$?

.64 in^2

URS

Job White Tanks | Project No. | Page 5 of ____

Description Impact Basin | Computed by HKB | Date 8-3-04

Checked by SID | Date 8/25/04

Reference

Check Horizontal reinf.

Static load

$y/b = 1$ $\quad x/a = 1$ $\quad P = 624.4$ $\quad b = 15$

Coef = .0097 ✓ $\quad$ .0277 @ $y/b = 0.4$ $\quad x/a = 0$

$M = \text{coef}\ p b^2$

$.0097(624.4)\,15^2$ ✓

$= 1363$ ft-lb ✓

$.0277(624.4)(15)^2 = 3892$

Eq load use fig 1

$x/b = 1$ $\quad x/a = 1$

Coef = .0432

$M_x = .0432(90)\,15^2$

$= 389$

$\Sigma M = 1752$ ft-lb

$y/b = 0.4$ & $x/a = 0$

$.0545(40)(15)^2 = 491$

$\Sigma M = 3892 + 491 = 4383$

$A_s = \dfrac{M}{f_s j d} = \dfrac{1752(12)}{29{,}000(.87)9} = .13\ \text{in}^2$

$A_s = \dfrac{4383(12)}{20{,}000(.87)9} = .33$

ok for conserv. analysis

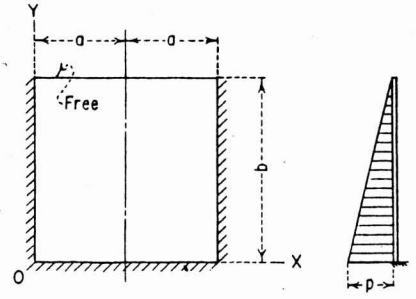
(temp) Min reinf $= .002(12)12$

$= .29$

A_s provided $= 0.31\ \text{in}^2$

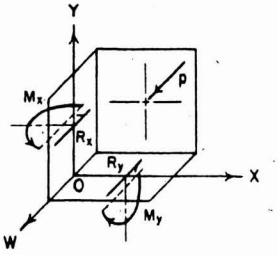
Use #5 @ 12" horizontal in back wall, side walls and middle wall

			M_x						M_y					
	y/b	R_x \ x/a	0	0.2	0.4	0.6	0.8	1.0	0	0.2	0.4	0.6	0.8	1.0
a/b = 1/8	1.0	+.0082	+.0004	+.0002	+.0000	−.0001	−.0002	−.0002	0	0	0	0	0	0
	0.8	+.0251	+.0011	+.0005	+.0000	−.0003	−.0005	−.0005	+.0002	+.0001	+.0000	−.0000	−.0001	−.0001
	0.6	+.0496	+.0021	+.0009	+.0001	−.0006	−.0009	−.0011	+.0004	+.0002	+.0000	−.0001	−.0002	−.0002
	0.4	+.0751	+.0031	+.0014	+.0001	−.0008	−.0014	−.0016	+.0006	+.0003	+.0000	−.0002	−.0003	−.0003
	0.2	+.0942	+.0038	+.0016	+.0000	−.0010	−.0017	−.0019	+.0008	+.0003	−.0000	−.0003	−.0005	−.0005
	0	+.0460	0	+.0001	+.0003	+.0005	+.0006	+.0006	0	+.0005	+.0014	+.0023	+.0028	+.0030
		R_x \ R_y	+.0460	+.0136	+.0543	+.0839	+.1004	+.1056						
a/b = 1/4	1.0	+.0147	+.0022	+.0012	+.0002	−.0006	−.0012	−.0014	0	0	0	0	0	0
	0.8	+.0523	+.0046	+.0022	+.0002	−.0012	−.0021	−.0024	+.0009	+.0005	+.0002	−.0000	−.0002	−.0002
	0.6	+.1015	+.0083	+.0037	+.0002	−.0023	−.0038	−.0042	+.0017	+.0007	−.0000	−.0005	−.0009	−.0010
	0.4	+.1514	+.0114	+.0049	+.0001	−.0032	−.0051	−.0057	+.0023	+.0008	−.0004	−.0013	−.0019	−.0021
	0.2	+.1494	+.0102	+.0037	−.0004	−.0030	−.0043	−.0047	+.0020	+.0004	−.0011	−.0022	−.0029	−.0031
	0	+.0304	0	+.0004	+.0010	+.0016	+.0020	+.0021	0	+.0020	+.0052	+.0081	+.0100	+.0107
		R_x \ R_y	+.0304	+.0309	+.1052	+.1563	+.1856	+.1950						
a/b = 3/8	1.0	+.0189	+.0066	+.0040	+.0008	−.0020	−.0039	−.0045	0	0	0	0	0	0
	0.8	+.0885	+.0117	+.0056	+.0006	−.0031	−.0054	−.0062	+.0023	+.0012	+.0004	−.0002	−.0005	−.0007
	0.6	+.1541	+.0176	+.0075	+.0001	−.0049	−.0079	−.0088	+.0035	+.0013	−.0006	−.0020	−.0029	−.0032
	0.4	+.2107	+.0208	+.0079	−.0007	−.0061	−.0090	−.0099	+.0042	+.0009	−.0019	−.0042	−.0056	−.0061
	0.2	+.1691	+.0145	+.0045	−.0012	−.0042	−.0057	−.0061	+.0029	+.0001	−.0022	−.0039	−.0048	−.0051
	0	+.0102	0	+.0008	+.0020	+.0030	+.0038	+.0040	0	+.0039	+.0099	+.0152	+.0188	+.0200
		R_x \ R_y	+.0102	+.0474	+.1488	+.2154	+.2526	+.2645						
a/b = 1/2	1.0	+.0326	+.0151	+.0088	+.0015	−.0046	−.0084	−.0097	0	0	0	0	0	0
	0.8	+.1315	+.0216	+.0099	+.0007	−.0059	−.0099	−.0112	+.0043	+.0020	+.0002	−.0011	−.0019	−.0022
	0.6	+.1972	+.0273	+.0108	−.0005	−.0079	−.0119	−.0132	+.0055	+.0015	−.0020	−.0047	−.0064	−.0070
	0.4	+.2421	+.0277	+.0092	−.0019	−.0082	−.0115	−.0125	+.0055	+.0004	−.0042	−.0076	−.0097	−.0104
	0.2	+.1607	+.0160	+.0041	−.0017	−.0044	−.0055	−.0058	+.0032	−.0002	−.0026	−.0039	−.0044	−.0046
	0	−.0045	0	+.0014	+.0033	+.0050	+.0061	+.0065	0	+.0068	+.0167	+.0252	+.0307	+.0325
		R_x \ R_y	−.0045	+.0744	+.1942	+.2699	+.3108	+.3236						
a/b = 3/4	1.0	+.1061	+.0406	+.0196	+.0013	−.0115	−.0190	−.0214	0	0	0	0	0	0
	0.8	+.2077	+.0433	+.0177	−.0003	−.0119	−.0184	−.0205	+.0087	+.0031	−.0012	−.0042	−.0061	−.0067
	0.6	+.2408	+.0426	+.0145	−.0026	−.0124	−.0174	−.0189	+.0085	+.0010	−.0055	−.0102	−.0130	−.0139
	0.4	+.2542	+.0349	+.0091	−.0039	−.0102	−.0130	−.0138	+.0070	−.0011	−.0075	−.0115	−.0137	−.0143
	0.2	+.1337	+.0163	+.0031	−.0017	−.0031	−.0033	−.0033	+.0033	+.0001	−.0000	+.0014	+.0029	+.0035
	0	−.0196	0	+.0028	+.0064	+.0093	+.0111	+.0117	0	+.0139	+.0320	+.0465	+.0554	+.0584
		R_x \ R_y	−.0196	+.1256	+.2666	+.3496	+.3923	+.4055						
a/b = 1	1.0	+.1985	+.0644	+.0253	−.0013	−.0172	−.0252	−.0276	0	0	0	0	0	0
	0.8	+.2564	+.0601	+.0210	−.0028	−.0161	−.0226	−.0245	+.0120	+.0034	−.0026	−.0065	−.0088	−.0095
	0.6	+.2485	+.0515	+.0149	−.0047	−.0145	−.0189	−.0201	+.0103	+.0003	−.0075	−.0125	−.0151	−.0159
	0.4	+.2411	+.0372	+.0078	−.0049	−.0100	−.0118	−.0122	+.0074	−.0021	−.0076	−.0099	−.0106	−.0107
	0.2	+.1108	+.0154	+.0025	−.0006	−.0006	−.0000	+.0003	+.0031	+.0018	+.0060	+.0116	+.0160	+.0175
	0	−.0241	0	+.0044	+.0096	+.0137	+.0161	+.0169	0	+.0220	+.0482	+.0683	+.0804	+.0845
		R_x \ R_y	−.0241	+.1691	+.3199	+.4038	+.4457	+.4584						
a/b = 3/2	1.0	+.3127	+.0857	+.0207	−.0087	−.0199	−.0232	−.0238	0	0	0	0	0	0
	0.8	+.2929	+.0730	+.0158	−.0086	−.0172	−.0194	−.0198	+.0146	+.0023	−.0042	−.0072	−.0082	−.0085
	0.6	+.2352	+.0560	+.0094	−.0083	−.0134	−.0142	−.0141	+.0112	−.0013	−.0077	−.0096	−.0096	−.0094
	0.4	+.2148	+.0359	+.0038	−.0053	−.0065	−.0057	−.0053	+.0072	−.0021	−.0023	+.0012	+.0046	+.0059
	0.2	+.0897	+.0132	+.0021	+.0025	+.0050	+.0069	+.0076	+.0026	+.0077	+.0220	+.0356	+.0444	+.0474
	0	−.0204	0	+.0079	+.0158	+.0212	+.0243	+.0252	0	+.0396	+.0791	+.1062	+.1214	+.1262
		\ R_y	−.0204	+.2452	+.3964	+.4668	+.4966	+.5047						



Moment = (Coefficient)(pb^2)

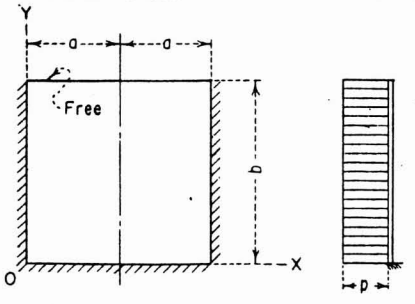
Reaction = (Coefficient)(pb)



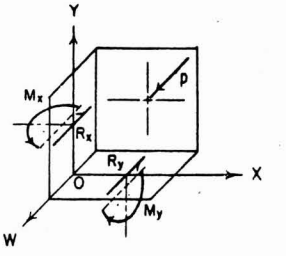
POSITIVE SIGN CONVENTION

FIGURE 4.—*Plate fixed along three edges, moment and reaction coefficients, Load IV, uniformly varying load.*

			M_x						M_y					
	y/b	R_x \ x/a	0	0.2	0.4	0.6	0.8	1.0	0	0.2	0.4	0.6	0.8	1.0
$a/b = 1/8$	1.0	+.1249	+.0052	+.0024	+.0002	−.0014	−.0024	−.0027	0	0	0	0	0	0
	0.8	+.1248	+.0051	+.0023	+.0002	−.0014	−.0023	−.0026	+.0010	+.0005	+.0000	−.0003	−.0005	−.0005
	0.6	+.1247	+.0052	+.0023	+.0002	−.0014	−.0023	−.0027	+.0010	+.0005	+.0000	−.0003	−.0005	−.0005
	0.4	+.1250	+.0051	+.0023	+.0001	−.0014	−.0023	−.0027	+.0010	+.0005	+.0000	−.0003	−.0005	−.0006
	0.2	+.1185	+.0048	+.0021	+.0001	−.0013	−.0021	−.0024	+.0010	+.0004	−.0001	−.0004	−.0006	−.0007
	0	+.0504	0	+.0001	+.0003	+.0005	+.0006	+.0007	0	+.0006	+.0016	+.0025	+.0031	+.0033
		R_x \ R_y	+.0504	+.0116	+.0568	+.0893	+.1084	+.1141						
$a/b = 1/4$	1.0	+.2483	+.0209	+.0096	+.0007	−.0057	−.0096	−.0109	0	0	0	0	0	0
	0.8	+.2523	+.0206	+.0093	+.0006	−.0056	−.0093	−.0105	+.0041	+.0019	+.0002	−.0009	−.0016	−.0019
	0.6	+.2513	+.0205	+.0093	+.0006	−.0056	−.0093	−.0105	+.0041	+.0018	+.0000	−.0013	−.0021	−.0023
	0.4	+.2512	+.0196	+.0085	+.0003	−.0054	−.0088	−.0099	+.0039	+.0016	−.0004	−.0018	−.0027	−.0030
	0.2	+.1905	+.0137	+.0053	−.0003	−.0039	−.0059	−.0065	+.0027	+.0007	−.0011	−.0024	−.0032	−.0034
	0	+.0295	0	+.0005	+.0013	+.0020	+.0025	+.0027	0	+.0023	+.0063	+.0101	+.0126	+.0135
		R_x \ R_y	+.0295	+.0236	+.1131	+.1786	+.2174	+.2301						
$a/b = 3/8$	1.0	+.3711	+.0476	+.0219	+.0016	−.0130	−.0218	−.0247	0	0	0	0	0	0
	0.8	+.3896	+.0466	+.0208	+.0012	−.0126	−.0208	−.0235	+.0093	+.0042	+.0004	−.0022	−.0038	−.0043
	0.6	+.3757	+.0442	+.0193	+.0007	−.0122	−.0198	−.0223	+.0088	+.0036	−.0007	−.0039	−.0059	−.0065
	0.4	+.3541	+.0379	+.0155	−.0003	−.0107	−.0167	−.0186	+.0076	+.0024	−.0021	−.0054	−.0075	−.0082
	0.2	+.2133	+.0210	+.0075	−.0009	−.0059	−.0085	−.0093	+.0042	+.0009	−.0017	−.0034	−.0044	−.0047
	0	−.0015	0	+.0010	+.0027	+.0043	+.0054	+.0058	0	+.0050	+.0135	+.0215	+.0269	+.0288
		R_x \ R_y	−.0015	+.0303	+.1666	+.2644	+.3220	+.3410						
$a/b = 1/2$	1.0	+.5101	+.0852	+.0384	+.0022	−.0233	−.0383	−.0432	0	0	0	0	0	0
	0.8	+.5331	+.0807	+.0349	+.0013	−.0218	−.0353	−.0397	+.0161	+.0068	−.0001	−.0049	−.0077	−.0086
	0.6	+.4805	+.0712	+.0298	−.0000	−.0199	−.0313	−.0350	+.0142	+.0051	−.0026	−.0084	−.0120	−.0132
	0.4	+.4148	+.0545	+.0209	−.0014	−.0156	−.0233	−.0258	+.0109	+.0026	−.0043	−.0094	−.0125	−.0135
	0.2	+.1928	+.0250	+.0087	−.0009	−.0063	−.0089	−.0096	+.0050	+.0015	−.0003	−.0008	−.0008	−.0007
	0	−.0294	0	+.0019	+.0050	+.0080	+.0100	+.0107	0	+.0094	+.0252	+.0399	+.0499	+.0534
		R_x \ R_y	−.0294	+.0482	+.2263	+.3559	+.4322	+.4572						
$a/b = 3/4$	1.0	+.8592	+.1788	+.0716	−.0010	−.0471	−.0726	−.0807	0	0	0	0	0	0
	0.8	+.7864	+.1552	+.0607	−.0020	−.0414	−.0630	−.0698	+.0310	+.0112	−.0027	−.0119	−.0172	−.0190
	0.6	+.5989	+.1207	+.0460	−.0033	−.0336	−.0498	−.0549	+.0241	+.0071	−.0067	−.0166	−.0225	−.0245
	0.4	+.4378	+.0786	+.0280	−.0033	−.0214	−.0306	−.0333	+.0157	+.0036	−.0049	−.0100	−.0127	−.0135
	0.2	+.1185	+.0289	+.0109	+.0009	−.0034	−.0049	−.0053	+.0058	+.0060	+.0115	+.0186	+.0241	+.0262
	0	−.0694	0	+.0042	+.0115	+.0182	+.0227	+.0242	0	+.0212	+.0576	+.0911	+.1135	+.1212
		R_x \ R_y	−.0694	+.0806	+.3383	+.5271	+.6368	+.6725						
$a/b = 1$	1.0	+1.2115	+.2613	+.0883	−.0105	−.0654	−.0927	−.1008	0	0	0	0	0	0
	0.8	+.9558	+.2146	+.0727	−.0097	−.0551	−.0774	−.0840	+.0429	+.0134	−.0051	−.0164	−.0224	−.0243
	0.6	+.6250	+.1547	+.0525	−.0083	−.0411	−.0566	−.0611	+.0309	+.0090	−.0069	−.0169	−.0222	−.0238
	0.4	+.3984	+.0916	+.0305	−.0043	−.0216	−.0290	−.0310	+.0183	+.0069	+.0029	+.0030	+.0045	+.0053
	0.2	+.0434	+.0303	+.0127	+.0047	+.0033	+.0042	+.0048	+.0061	+.0149	+.0339	+.0542	+.0689	+.0742
	0	−.0939	0	+.0074	+.0199	+.0311	+.0384	+.0409	0	+.0369	+.0996	+.1556	+.1919	+.2043
		R_x \ R_y	−.0939	+.1167	+.4453	+.6760	+.8043	+.8450						
$a/b = 3/2$	1.0	+1.6267	+.3304	+.0700	−.0345	−.0730	−.0844	−.0865	0	0	0	0	0	0
	0.8	+1.0875	+.2609	+.0565	−.0286	−.0589	−.0670	−.0683	+.0522	+.0116	−.0069	−.0143	−.0165	−.0169
	0.6	+.5876	+.1778	+.0399	−.0195	−.0385	−.0422	−.0422	+.0356	+.0115	+.0017	+.0011	+.0035	+.0049
	0.4	+.3166	+.0981	+.0239	−.0056	−.0116	−.0101	−.0090	+.0196	+.0177	+.0315	+.0495	+.0634	+.0685
	0.2	−.0540	+.0302	+.0140	+.0140	+.0211	+.0273	+.0296	+.0060	+.0389	+.0912	+.1388	+.1699	+.1805
	0	−.1168	0	+.0159	+.0388	+.0565	+.0668	+.0702	0	+.0796	+.1939	+.2823	+.3340	+.3508
		R_y	−.1168	+.2429	+.6510	+.8793	+.9832	+1.0123						



Moment = (Coefficient)(pb^2).
Reaction = (Coefficient)(pb)



POSITIVE SIGN CONVENTION

FIGURE 1.—*Plate fixed along three edges, moment and reaction coefficients, Load I, uniform load.*

amec

TABLE 4

Recommended Peak Horizontal Acceleration
Seismic Exposure Evaluation
Dam Safety Program

Map ID	Facility Name	Source	Recommended PGA (%g)
1	Adobe Dam	Background	10
	Apache Junction FRS	Sugarloaf Fault	15
3	Buckeye FRS No. 1	Background	10
4	Buckeye FRS No. 2	Background	10
5	Buckeye FRS No. 3	Background	10
6	Casandro Wash Dam	Background	10
7	Cave Buttes Dam	Horseshoe Fault	10
8	Dreamy Draw Dam	Background	10
9	Guadalupe FRS	Background	10
10	Harquahala FRS	Background	10
11	McMicken Dam	Background	10
12	New River Dam	Background	10
	Powerline FRS	Sugarloaf Fault	11
	Rittenhouse FRS	Background	10
15	Saddleback FRS	Background	10
16	Signal Butte FRS	Sugarloaf Fault	14
17	Spook Hill FRS	Sugarloaf Fault	13
18	Sunnycove FRS	Background	10
19	Sunset FRS	Background	10
20	Vineyard FRS	Sugarloaf Fault	10
21	White Tanks FRS No. 3	Background	10
22	White Tanks FRS No. 4	Background	10

Note:

Deterministically-derived values presented in red.

The stability analysis shall use undrained strengths or strength parameters for all saturated materials.

c. The applicant shall perform an analysis of the upstream slope stability for a partial pool with steady seepage considering the reservoir level that provides the lowest factor of safety.

d. A stability analysis is not required for low hazard potential dams if the owner or the owner's engineer demonstrates that conservative slopes and competent materials are included in the design.

2. Seismic Requirements

a. The applicant shall determine the seismic characteristics of the site as prescribed in subsection (A)(6).

b. The applicant shall determine the liquefaction susceptibility of the embankment, foundation, and abutments. The applicant shall use standard penetration testing, cone penetration testing, shear wave velocity measurements, or a combination of these methods to make this determination. The applicant shall compute the minimum factor of safety against liquefaction at specific points and make a determination of whether the overall site is subject to liquefaction.

c. The applicant shall determine the safety of the dam under seismic loading using a pseudo static stability analysis, computing the minimum factor of safety if the embankment, foundation or abutment is not subject to liquefaction and has a maximum peak acceleration of 0.2g or less, or a maximum peak acceleration of 0.35g or less, and consists of clay on a clay or bedrock foundation. The applicant shall use in the pseudo static stability analysis a pseudo static coefficient that is at least 60% of the maximum peak bedrock acceleration at the site.

d. The applicant shall compute a minimum factor of safety against overtopping due to deformation and settlement in each of the following cases. The minimum factor of safety against overtopping can be no less than 2.5, determined by dividing the total pre-earthquake freeboard by the estimated vertical settlement in feet. The applicant shall determine the total vertical settlement by adding the settlement values of the upstream and downstream slopes.

i. The minimum factor of safety in a pseudo static analysis is less than 1.0;

ii. An embankment, foundation, or abutment is not subject to liquefaction, has a maximum peak acceleration of more than 0.2g or a maximum peak acceleration of more than 0.35g and consists of clay on a clay or bedrock foundation; or

iii. The embankment, foundation or abutment is subject to liquefaction.

e. The applicant shall perform a liquefaction analysis to establish approximate boundaries of liquefiable zones and physical characteristics of the soil following liquefaction for an embankment, foundation, or abutment subject to liquefaction. The applicant shall perform an analysis of the potential for flow liquefaction.

f. Other, more sophisticated analytical procedures may be required by the Director for sites with high seismicity or low strength embankment or foundation soils.

3. Miscellaneous Design Requirements

a. The design of any significant or high hazard potential dam shall provide seepage collection and prevent internal erosion or piping due to embankment cracking or other causes.

b. The Director shall review the filter and permeability design for a chimney drain, drain blanket, toe drain, or outlet conduit filter diaphragms on the basis of unique site characteristics.

i. The minimum thickness of an internal drain is 3 feet.

ii. The minimum width of a chimney drain is 6 feet.

iii. The applicant shall filter match an internal drain to its adjacent material.

iv. The applicant shall design internal drains with sufficient capacity for the expected drainage without the use of drainpipes using only natural granular materials.

c. The use of a geosynthetic is not permitted in a design if it serves as the sole defense against dam failure. The use of geotextiles and geonets as a filter or drain material or a geomembrane liner is permitted only in a location that is easily accessible for repair or if its excavation cannot create an unsafe condition at the dam. A geosynthetic liner is allowed under special conditions and in specific situations if it is subject to monitoring and redundant safety controls. The Director may impose conditions, including monitoring appropriate to the hazard classification, inspection, and necessary repairs, each performed every 5 years.

d. The applicant shall use armoring on any upstream slope of an embankment dam that impounds water for more than 30 days at a time. If the applicant uses rock riprap, it shall be well-graded, durable, sized to withstand wave action, and placed on a well-graded pervious sand and gravel bedding or geotextile with filtering capacity appropriate for the site.

e. The applicant shall protect the downstream slopes and groins of an embankment dam from erosion.

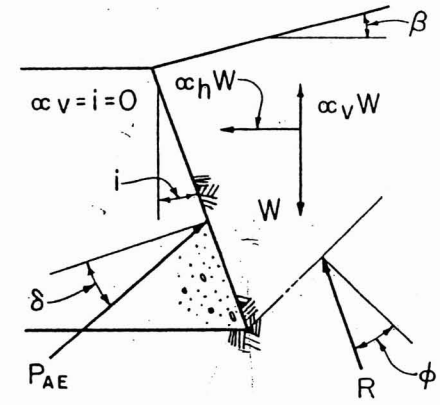
f. The minimum width of the top of an embankment dam is equal to the structural height of the dam divided by 5 plus an additional 5 feet. The required minimum width for any embankment dam is 12 feet. The maximum width for any embankment dam is 25 feet.

Historical Note

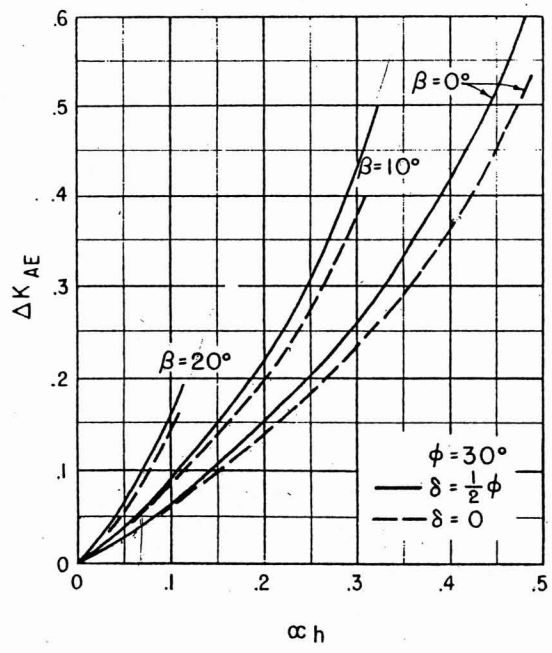
New Section adopted by final rulemaking at 6 A.A.R. 2558, effective June 12, 2000 (Supp. 00-2).

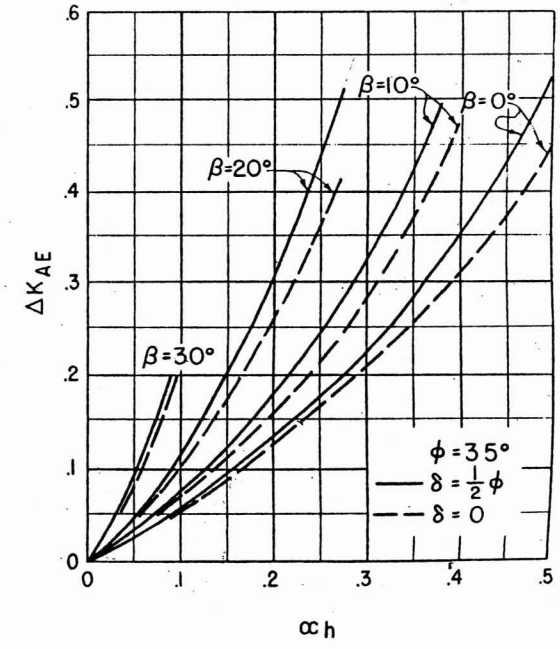
β	$\delta = 0$		$\delta = \frac{1}{2}\phi$	
	$\phi = 30°$	$\phi = 35°$	$\phi = 30°$	$\phi = 35°$
0°	.33	.27	.30	.25
10°	.37	.30	.34	.28
20°	.44	.34	.42	.32
30°	—	.44	—	.42

TABULATION OF ACTIVE EARTH PRESSURE COEFFICIENT (K_a)



$K_{AE} = \Delta K_{AE} + K_a$ [15]





DYNAMIC INCREMENT IN ACTIVE EARTH PRESSURE COEFFICIENT, ΔK_{AE}

Figure 5

600
C=.125
600(.25) T = 6[illegible]
.0155

URS

Page ____ of ____

Job ____ Project No. ____ Sheet ____ of ____

Description ____ Computed by ____ Date ____

____ Checked by ____ Date ____

Reference

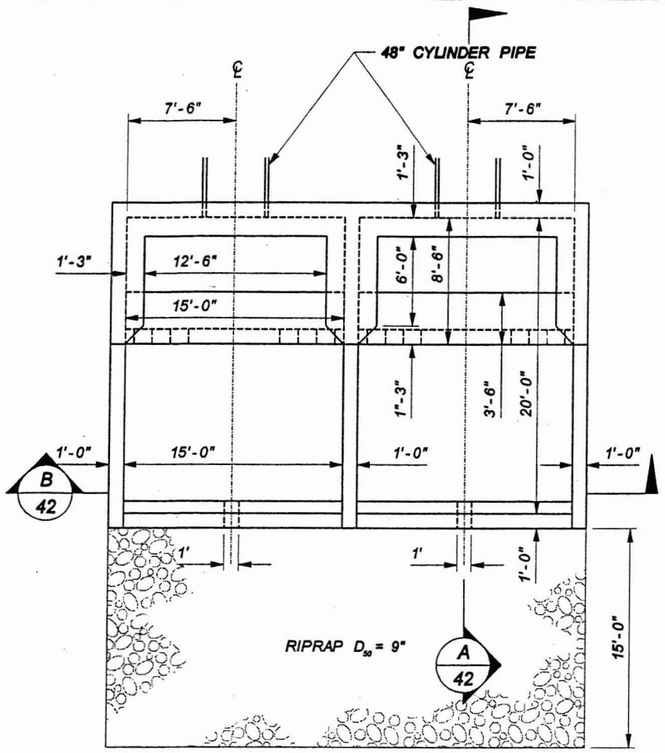
Telephone Memo 5:21 PM

From: Chris Wigginton - Phoenix 8-23-04

to: Harold Blair

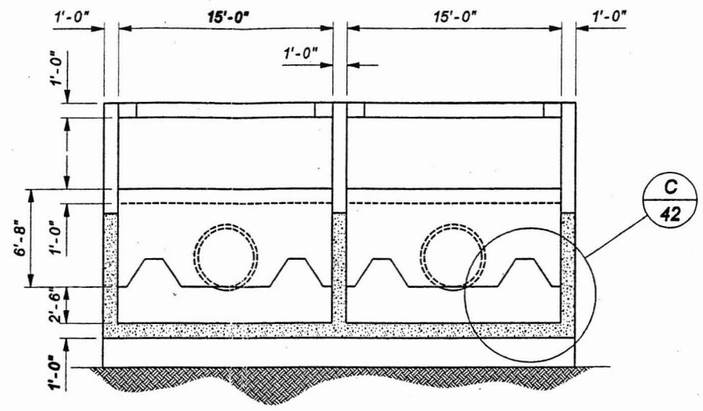
Subject: White tanks sediment level

The projected sediment level is El 1199.2. This is 0.8' below the principal spillway crest elevation. The walls of the riser structure should be designed for this load



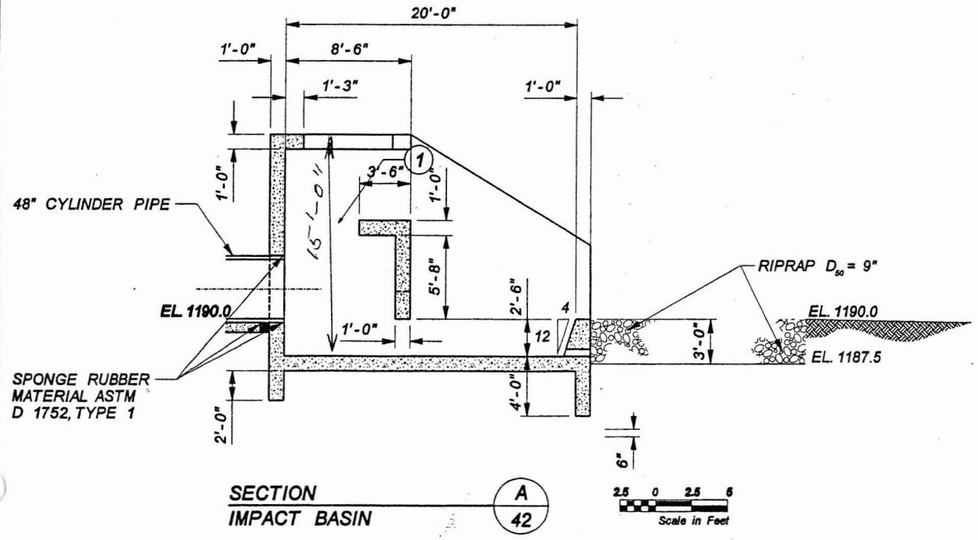
PLAN
IMPACT BASIN

2.5 0 2.5 5
Scale in Feet



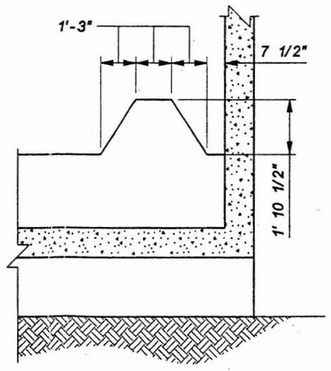
SECTION
DOWNSTREAM ELEVATION (B 42)

2.5 0 2.5 5
Scale in Feet



SECTION
IMPACT BASIN (A 42)

2.5 0 2.5 5
Scale in Feet



TYPICAL BAFFLE NOTCH
IMPACT BASIN (C 42)

1.25 0 1.25 2.5
Scale in Feet

ITEM NO.	ITEM DESCRIPTION	QUANTITY

KEY NOTE:
1. 6-INCH THICK VIRGIN SPONGE RUBBER FILLER AS PER ASTM D 1752, TYPE 1. SEVERAL LAYERS LAMINATED TO MAKE A GOOD, TIGHT 6-INCH COMPRESSIBLE LAYER.

TWO WORKING DAYS
BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE
B	90% DESIGN SUBMITTAL	TER	8-04
A	60% DESIGN SUBMITTAL	TER	6-04

ADWR APPROVAL

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO 3
REMEDIATION DESIGN - PHASE 1
PCN 470.04.30, CONTRACT NO. 2004CO17

	BY	DATE
DESIGNED	TER	8-04
DRAWN	MSJ	8-04
CHECKED	RM	8-04

PRELIMINARY
NOT FOR
CONSTRUCTION

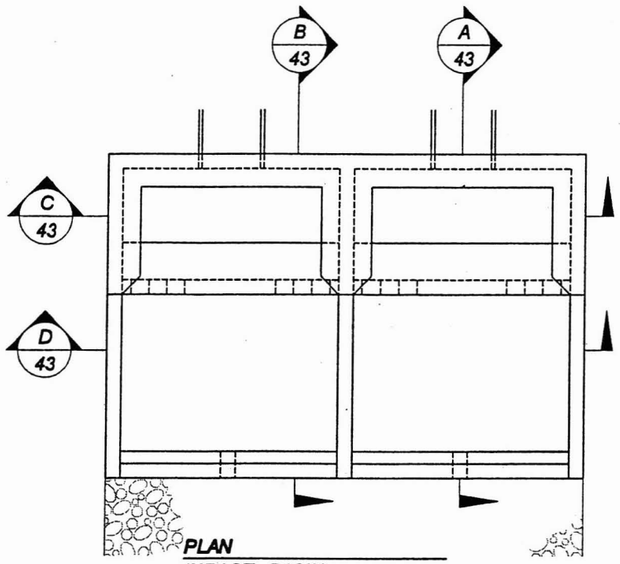
URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO. XS20

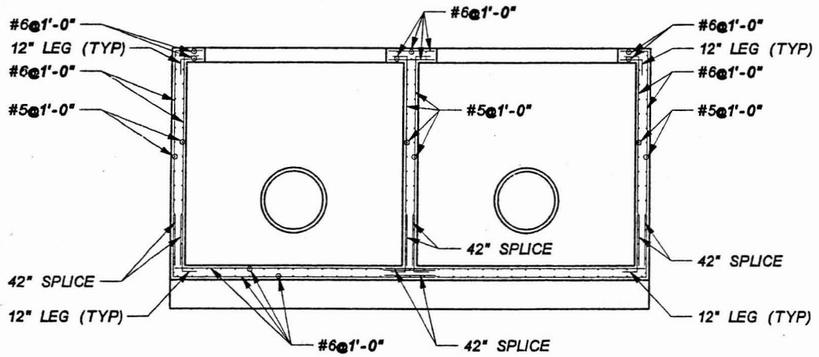
STILLING BASIN
SECTIONS AND DETAILS

SHEET OF 42 48

P:\FCDMC\23443698 White Tanks\CADD\P1\REV B\WT3_XS20-P1-REVB.dgn
XREFS: PRIMARY OUTLET RISER.DGN, PL-FCD.DGN

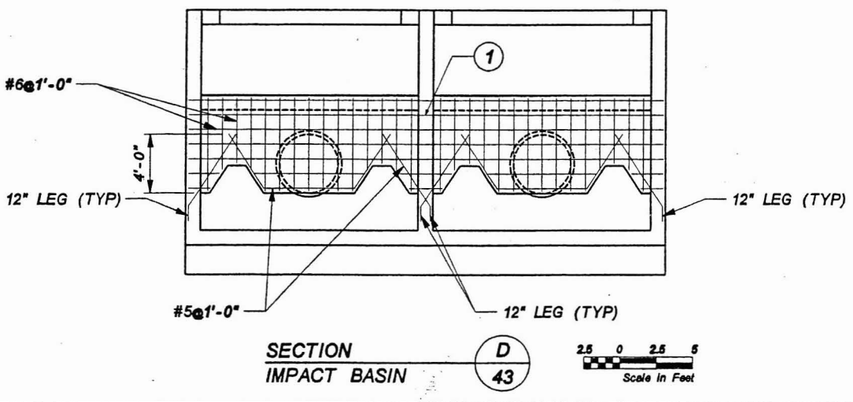


PLAN
IMPACT BASIN



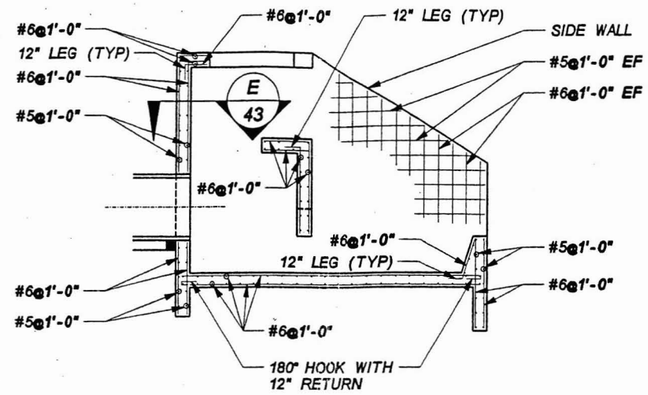
SECTION C 43 IMPACT BASIN

2.5 0 2.5 5 Scale in Feet



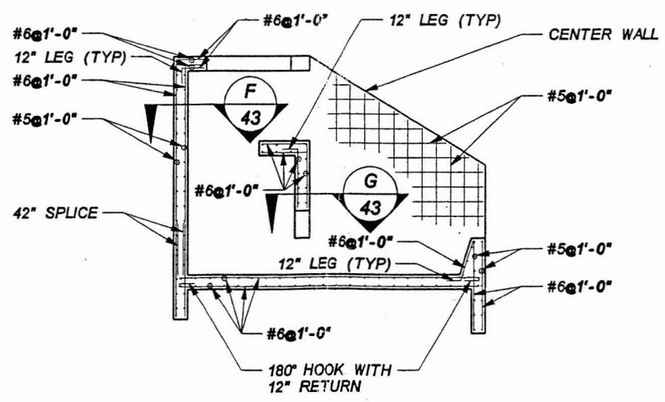
SECTION D 43 IMPACT BASIN

2.5 0 2.5 5 Scale in Feet



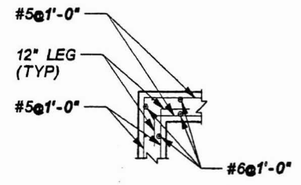
SECTION A 43 IMPACT BASIN

2.5 0 2.5 5 Scale in Feet



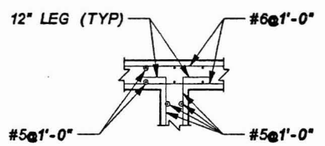
SECTION B 43 IMPACT BASIN

2.5 0 2.5 5 Scale in Feet



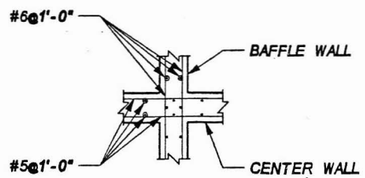
DETAIL E 43 SIDE WALL TO BACK WALL

1.25 0 1.25 2.5 Scale in Feet



DETAIL F 43 CENTER WALL TO BACK WALL

1.25 0 1.25 2.5 Scale in Feet



DETAIL G 43 CENTER WALL TO BAFFLE WALL

1.25 0 1.25 2.5 Scale in Feet

ITEM NO.	ITEM DESCRIPTION	QUANTITY

NOTE:
1. HORIZONTAL REINFORCEMENT EXTENDS THROUGH CENTER WALL.

TWO WORKING DAYS BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE
B	90% DESIGN SUBMITTAL	TER	8-04
A	60% DESIGN SUBMITTAL	TER	6-04

ADWR APPROVAL

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO 3
REMEDIATION DESIGN - PHASE 1
PCN 470.04.30, CONTRACT NO. 2004CO17

	BY	DATE
DESIGNED	TER	8-04
DRAWN	MSJ	8-04
CHECKED	RM	8-04

PRELIMINARY NOT FOR CONSTRUCTION

URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO. XS21

STILLING BASIN SECTIONS AND DETAILS

SHEET OF 43 48

P:\FCDMC\23443698 White Tanks\CADD\P1\REV B\WT3_XS21-P1-REVB.dgn
XREFS: PRIMARY OUTLET RISER.DGN, PL-FCD.DGN

ATTACHMENT TO CALCULATION PACKAGE NO. H-8

- **Uplift stability between concrete and soil cement**
- **Sliding stability – no flow condition between concrete and soil cement**
- **Sliding stability – full flow condition between soil cement and soil foundation**

URS

Job White Tanks FRS-3 Project No. 23443798.00312

Description _____ Computed by HKB

_____ Checked by SSD

Page 1 of 6

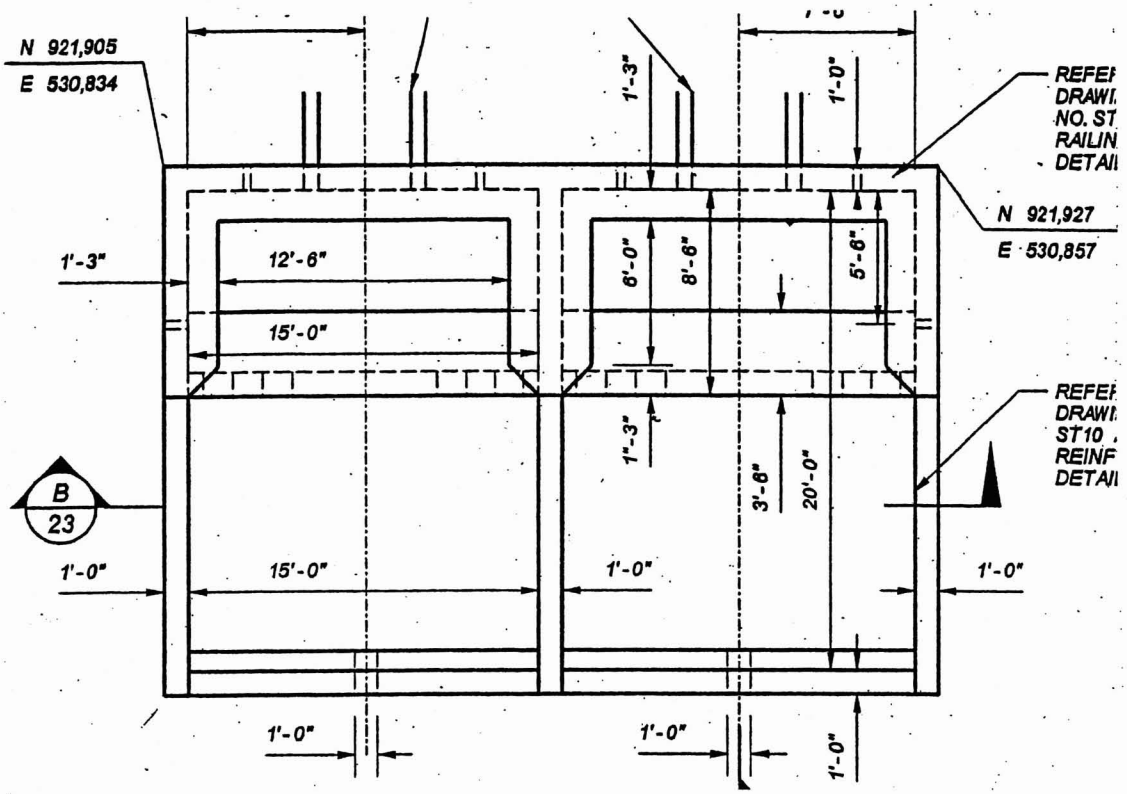
Sheet ____ of ____

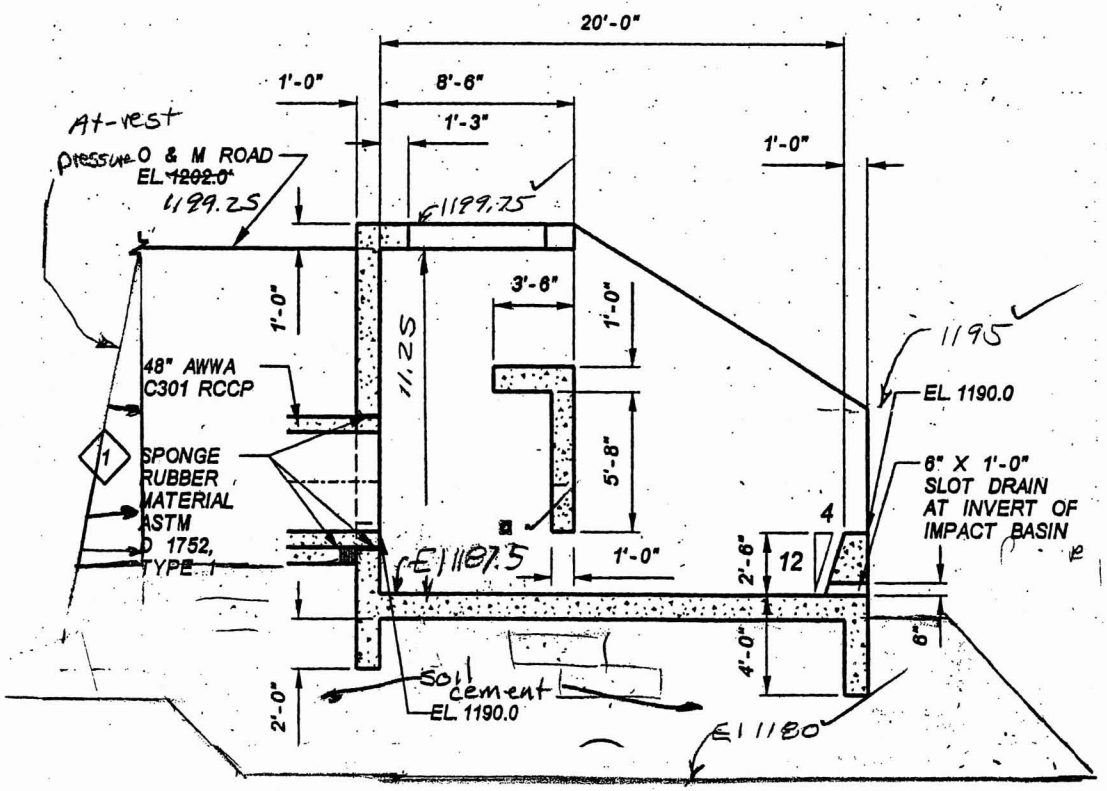
Date 12-29-04

Date 1/5/2005

Reference

Impact Basin Sketches





URS

Job White Tanks FRS-3 Project No. _____ Page 2 of 6

Description _____ Computed by HKB Date 12-29-04

Impact Basin Checked by SJD Date 1/5/2005

UPLIFT STABILITY Reference

Compute uplift stability

Assumptions:
- Assume 5 ft of uplift under structure ✓
- Assume F.S = 1.1 ✓

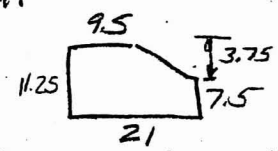
Down load

floor = 22(33)150(1) = 108,900 lb ✓

U/S cutoff = 2(1)33(150) = 9,900 lb ✓

D/S cutoff = 3(1)33(150) = 14,850 lb ✓

longitudinal walls



$7.5(21) + 3.75(9.5) + \frac{11.5(3.75)}{2}\Big]150(3)$ = 96,609 lb ✓

(157.5; 35.625; 21.563)

Backwall = 11.25(33)150 = 55,687 lb ✓

D/S wall $\left(\frac{1+1.833}{2}\right)2.5(50)30$ = 15,937.5 lb ✓

Baffle 3.5+5.67(30)150 = 46,265 lb ✓

333,249 lb ✓

uplift = 33(22)62.4(5) = 226,512

F.S. uplift = $\frac{\text{down}}{\text{up}} = \frac{333,249}{226,512} = 1.47$ ✓

O.K allowable = 1.1

URS

Page 3 of 6

Job _____ Project No. _____ Sheet ____ of ____

Description Sliding Stability NO-FLOW ✓ Computed by HKB Date 12-29-04

Checked by SJD Date 1/5/2005

Reference

Compute sliding stability ✓ of impact basin with no flow condition

Assumptions:

- Apply at-rest pressure on ✓ headwall of basin
- Use 0.8 as friction factor ✓ between concrete and soil cement (less than concrete on concrete ok)
- Assume shear resistance of cutoffs is 70 psf
- Use 5 ft of uplift between base slab and soil cement

Down load of concrete is 333,249 lb from calculations by HKB dated 12-29-04 ~~(illegible)~~

(see page 2

URS

Page 4 of 6

Job White Tanks FRS No.3 Project No. _____ Sheet ___ of ___

Description _____ Computed by HKB Date 12-29-04

SLIDING STABILITY Checked by SSD Date 1/5/2005

NO-FLOW (cont.) Reference

Driving load –

saturated soil down to El. 1189 (top of soil cement)

$\gamma_{soil} = 140$ lb/ft3 $\quad \phi = 30°$ ✓

At-rest press = $1 - \sin\phi$

$K_o = 1 - \sin 30°$ ✓

$= 0.5$ ✓

sat. soil press –

$140 - 62.4 = 77.6$ ✓

Unit soil load $= .5(77.6) = 38.8$ lb/ft2 ✓

sat soil load $= 38.8 + 62.4$ ✓

$w_s = 101.2$ lb/ft3 ✓

P_{sat} = driving load (El 1149.25) $= \frac{w_s \cdot ht^2}{2} =$ width

$= 101.2\frac{(10.25^2)}{2}\,33 = 175,433$ lb ✓

driving load = 175,433 lb ✓

resisting load –

conc. wt – uplift $\cdot .8 = (333,778 - 175,433) \cdot .8 =$ 126,676 lb ✓

shear capacity cutoffs $= 12"(33)12(2)70 =$ 665,280 lb ✓

Σ resisting $= 791,956$ lb ✓

$F.S._{sliding} = \frac{\text{resisting}}{\text{driving}}$

$= \frac{791,956}{175,433} = 4.51$ ✓ O.K

allowable F.S. $= 1.5$ ✓

URS

Job White Tanks FRS No.3 Project No. 23443748.00312 Page 5 of 6
Description SLIDING STABILITY FULL-FLOW Computed by HKB Date 12-29-04
Checked by SJD Date 1/5/2005
Reference

Compute sliding of the impact basin ✓ assuming full flow conditions. analyze sliding along the base of the soil cement

Assumptions

- Apply at-rest pressure on headwall of basin ✓
- Use 0.35 as friction factor between soil cement and soil foundation ✓
- Use uplift under the soil cement to the tailwater elevation for the design flow of 250 cfs ✓

- Tailwater depth is

$$d + \frac{f}{2}$$

$d = 2.5'$

$f = 5.62$ (ht. of baffle wall see Hyd calcs)

T.W el $= 1187.5 + \left[2.5 + \frac{5.62}{2}\right]$

TW. el $= 1192.81$ ✓

- Assume soil cement weighs 150 lb/ft3
- Assume force on baffle is due to impact from flow of 250 cfs, each side of basin. force will be equal to $- Q \rho V$ where

(Density) $\rho = 1.94$ $V = 20$ fps $Q = 250$ cfs ✓

URS

Page 6 of 6

Job White Tanks FRS No.3 Project No. Sheet ___ of ___

Description SLIDING STABILITY (FULL-FLOW) Computed by HKB Date 12-29-04

Checked by SSD Date 1/5/2005

Reference

down load of concrete in basin ✓
is 333,249 lb from calculations
by HKB dated 12-29-04 (~~attached~~) (see page 2)

Compute down load of soil cement;

load under basin -
length width depth
25(33) 6.5 150 = 804,375 lb ↓

compute uplift 580,324 208,747
62.4[1192.81 - 1180] 33(22) - 21(30)(1192.81-1187.5)62.4
Σ U = 371,577 lb ↑

driving force = 175,433 lb from page 4 calcs by HKB dated 12-29-04 (attached) →

force due to water impact
$F_{impact} = Q \rho V$
$= 250(1.94)20$
$= 9,700$
Two baffles = 9700(2) = 19,400 lb

$F.S._{sliding} = \frac{\text{resisting}}{\text{driving}}$ 268,116

$\frac{333,249 + 804,375 - 371,577}{175,433 + 19,400}$ .35

$F.S._{sliding} = 1.38$ O.K ✓

This does not include any tensile resistance in the soil cement or passive soil resistance at the downstream end of the soil cement

CALCULATION PACKAGE NO. H-9

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County

Project Name: White Tanks

Project/Calculation Number: 23443748.00312

Title: Impact Basin—Design Base Slab

Total Number of Pages (including cover sheet): 2

Total Number of Computer Runs: NA

Prepared By: Harold Blair **Date:** 8/23/2004

Checked By: Steve Dominic P.E. **Date:** 8/25/04

Description and Purpose
Determine thickness and reinforcement for impact basin floor slab.

Design Basis/References/Assumptions
Working stress design was utilized for determining reinforcement requirements consistent with approach presented in NRCS Engineering Handbook, Section 6.

Remarks/Conclusions/Results

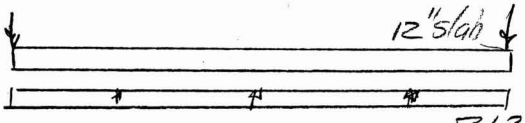
1. The design results in #6 @12" each way, each face, in the floor slab.
2. See calculations on the back wall and sidewall for references and drawings of the impact basin- the cover sheet for these calculations are dated 8/23/2004.

Calculation Approved By: Todd Ringsmuth 9/9/04
Project Manager/Date

Revision No.:	Revision Description:	Approved By:
1	BAFFLE AND TEMP. REINFORCEMENT DESIGN	CHRIS WIGGINTON 3-15-05
		Project Manager/Date

Problem: Design base slab assuming 5 ft of uplift under slab - assume water trapped between cutoffs. conservative! ✓

15'



312 #/ft ✓ − 150 lb/ft slab

162 lb/ft ✓

$Mom = \frac{w l^2}{8}$ ✓

$= \frac{162 (15^2)}{8}$

$= 4556$ ft-lb ✓ 4556

$A_s = \frac{M}{f_s j d} = \frac{4556 (12)}{29{,}000 (.87) 9}$

$= .85 \text{ in}^2$ ✓

min reinf = $.002(12)12 = .29$ ✓

Use #6 @ 12 in each way each face in floor slab. A_s provided = 0.44 in² ok

ATTACHMENT TO CALCULATION PACKAGE NO. H-9

- **Baffle design computations**
- **Temperature reinforcement computations**

URS

Job White Tanks FRS No.3 Project No. 23443748.00312 Page 1 of ____

Description ____ Computed by HKB Date 12-29-04 Sheet ____ of ____

Checked by SJD Date 1/5/2005

Reference

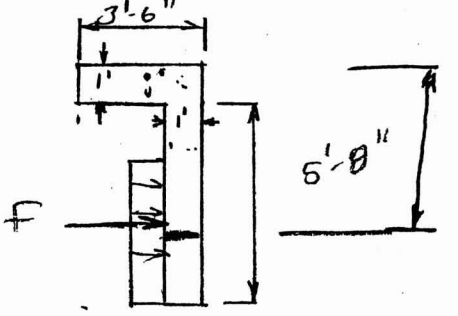
Baffle Design

Assumptions:

- assume load is from impact of 250 cfs flow - each baffle

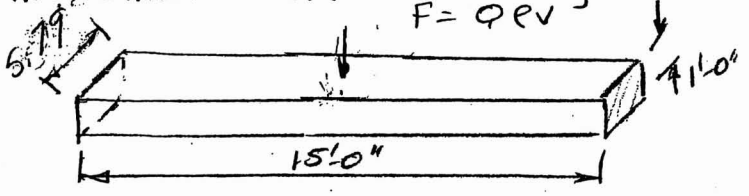
- $f_{impact} = Q \rho V$

$\rho = 1.94$ $Q = 250$ cfs $V = 20$ fps ✓



5.79' – distance from top of notch to top of baffle slab

for horizontal reinf. assume; $F = Q \rho V$



$F = Q \rho V = 250(1.94)\,20 = 9700$ lb ✓

for simply supported beam;

$M_x = \frac{P_x}{2} = \frac{9700(7.5)}{2}$

$M_x = 36{,}375$ ft-lb

spread over 5.29" width:

$\frac{36{,}375}{5.79} = 6282$ ft-lb

$A_s = \frac{M}{f_s j d} = \frac{6282(12)}{20{,}000(.87)9.5}$ ✓

$d = 12 - 2.5 = 9.5$

$f_s = 20{,}000$ psi

$A_s = .46 in^2$ have #6 @ 1'-0" = $.44 in^2$ ✓

OK since $f_s = 20{,}000$ psi is used and stiffness of top slab not considered.

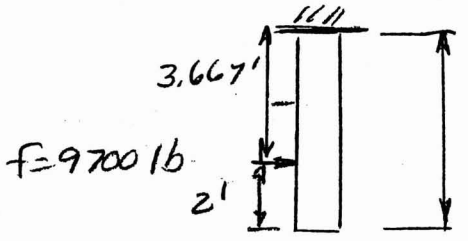
URS

Job White Tanks FRS No. 3 | Project No. | Page 2 of ____
Description | Computed by KKB | Date 12-29-04 | Sheet ____ of ____
Checked by SSD | Date 1/5/2005 | Reference

Compute vertical slab requirement in baffle wall.

assume cantilever from top slab must take Force from $Q = 250$ cfs flow.

$F = 9700$ lb from previous page



Spread load over 6.25' which is the width between baffle notches.

$M = 9700(3.667) = 35,570$ ft-lb ✓

Spread over 6.25'

$\frac{35570}{6.25} = 5691$ ft-lb/ft ✓ $d = 9.5$ in

$f_s = 20,000$ psi

$$A_s = \frac{M}{f_s j d} = \frac{5691(12)}{20,000(.87)9.5}$$ ✓

$A_s = .41 in^2$ ✓

have # 6 @ 1'-0" $= .44 in^2$ O.K. ✓

URS

Job White Tanks FRS No. 3 Project No. _____ Page 1 of 1

Description _____ Computed by HKB Date 12-29-04 Sheet ___ of ___

_____ Checked by SJD Date 1/5/2005

Reference

Compute temperature reinforcement -

ρ_t = temp steel = .002 Ag
From NEH Sec 6

$\rho_t = .002(12)12$ ✓
$= .29 in^2$

#5@18" = .31 in2 ✓

#6@18" = .44 in2 ✓

#6 are shown in baffle each way, each face

∴ O.K

URS

CALCULATION PACKAGE NO. H-10

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: FCDMC Project Name: White Tanks FRS #3

Project/Calculation Number: 23443748

Title: **Trashrack Sizing Calculations**

Total Number of Pages (including cover sheet):

Total Number of Computer Runs:

Prepared by: Chris Wigginton Date: 8/25/04

Checked by: Jurey Kim Date: 8/25/04

Description and Purpose:

See Page 2

Design Basis /Assumptions

See Page 2-5

Remarks/Conclusions/Results:

See Page 5-6

Calculation Approved by: Todd Ringsmuth 9/9/04
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

Project Manager/Date

TRASH RACK SIZING CALCULATION
WHITE TANKS FRS NO. 3
URS JOB #23443748

DESCRIPTION AND PURPOSE:

This calculation package has been prepared for the trashracks associated with the two (2) proposed 48-inch diameter gated outlets for the White Tanks FRS No. 3 Dam Rehabilitation Project.

The purpose of this calculation package is to determine the structural components of the trashrack and minimum trashrack hydraulic area for each outlet. The main objectives of this calculation are the following:

- Minimize the overall area of the trashrack while maintaining a flow through velocity less than or equal to 2.5 feet per second (fps).
- Minimize the gross volume of structural steel while still providing structural support under a loading resulting from a 100 percent clogged condition under full reservoir head.
- Provide a design that allows for trashrack cleaning using backhoe (or similar) equipment.

DESIGN BASIS:

Structural Calculations:

The structural loading condition was developed assuming a 100 percent clogged trashrack under full reservoir head. Various trashrack bar spacings were analyzed to determine the ideal configuration. Initially, transverse support beams were analyzed at different spacings. This calculation resulted in multiple W-flange beams with minimum flange widths of 4-inches. The loss of flow area caused by these beams resulted in a large intake structure requirement (approximately 11-12 feet wide). Because the transverse beams would still require longitudinal bars to facilitate mechanical cleaning, it was determined to perform the calculations based on the longitudinal bars serving the purpose of structural components while facilitating trashrack cleanout.

It was determined that a Factor of Safety of 1 would be incorporated into the calculations due to the conservative loading condition previously stated.

Multiple uniform loads were calculated for various bar spacings in order to determine the optimum spacing of the bars. Using these uniform loads the longitudinal bars were analyzed for various lengths and spacings using the simple beam formula for bending moment.

$$M_u = wL^2 / 8$$

where; M_u = *Ultimate Moment*

w = *uniform load*

L = *unsupported length of the bar*

From the resulting moment, the flexural bending stress was calculated and compared to a rectangular bar section of 50 ksi steel using the following relationship:

$$f_b = M_u/S_x$$

where; f_b = *flexural bending stress*

M_u = *ultimate moment*

S_x = *section modulus of the steel bar*

From this relationship the minimum section modulus for the longitudinal steel bar was determined. For this calculation the following bar thicknesses were analyzed:

- 1/2 - inch
- 5/8 – inch
- 3/4 – inch

The longitudinal trashrack bars were analyzed for various bars spacings up to a maximum spacing of 12-inches. This dimension was selected based on the maximum bar spacing listed for a 30-inch diameter outlet ("J" Classification) per NRCS guidance document TR 46.

Transverse bars were incorporated to provide side to side stability for the longitudinal bars. These bars were sized using the simple beam formula as previously described.

Upon selection of the longitudinal and transverse bars, deflection calculations, weld calculations, and column loading calculations were performed to determine if the selected bar section and minimum weld sections were adequate.

Deflection calculations were performed using the following relationship:

$\delta = 5 \times (wL^4)/384EI_x)$ where,

δ = deflection (inches)

w = uniform load

L = unsupported bar length

E = modulus of elasticity

I_x = moment of inertia in the x-axis ($I_x = bh^3/12$)

Weld calculations were performed using the following relationship:

$R_{tot} > P$ where,

R_{tot} = total strength of the weld ($R_{tot} = L_w R_w$)

L_w = length of the weld

R_w = strength of the lightest weld (1/8" fillet, 60ksi tensile strength)

P = the total load on the span of the ¾" by ¾" transverse bars

Column load calculations were performed using the following relationship:

$P_u > P_{col}$ where,

$P_u = \phi_c A_g F_{cr}$

$\phi_c = 0.85$

A_g = column area

$F_{cr} = (0.658^{\lambda c \wedge 2}) F_y$ when $\lambda_c < 1.5$

$\lambda_c = KL/r\pi \left(\sqrt{\ } F_y/E\right)$

F_y = yield stress (50ksi)

K = column support condition (0.5)

L = column length

r = radius of gyration in the critical direction

E = modulus of elasticity

P_{col} = column load

Hydraulics:

The required bar sections determined from the structural calculations were used to perform hydraulic calculations. A longitudinal bar length of ten (10) feet was set as the minimum required length to facilitate the sluice gate mechanism for the outlet pipes and in order to minimize the required cross-sectional area required for the longitudinal bars. Following the NRCS inlet structure design for outlet works (TR 46), the front of the concrete inlet structure remained open and allowed for additional trashrack bars. The NRCS design incorporated transverse bars formed into the concrete vault structure. For our design, we continued the longitudinal bars vertically until they contacted the concrete structure adjacent to the sluice gate contact point. This allowed additional effective length to be added to the longitudinal length of the trashrack.

From the outlet pipe hydraulic calculations (separate calculation package), it was determined that the maximum full reservoir outlet pipe discharge was 270 cubic feet per second (cfs). According to NRCS criteria (TR 60), the maximum allowable flow velocity through the trashrack is 2.5 fps. A calculation was performed for various trashrack bar sizes, spacings, and gross lengths, to determine the minimum width of the concrete inlet structure.

RESULTS:

From the structural calculations, it was determined that ½-inch thick bars, slightly less than 6 ¼-inch tall, spanning a gross length of 12.5 feet would result in the "lightest" trashrack structure. These bars will be spaced at 12-inches on center. To keep the bars from moving side to side, transverse bars, ¾ - inch by ¾ - inch in section, will be welded to the longitudinal bars at 12-inches on center. At the intersection of the longitudinal bars and the vertical bars and at the mid-span of the 10-foot unsupported length of the bars, steel bars measuring ½-inch thick by 6-inches wide by 11.5 inches long will be welded between the main trashrack bars. Also, 4-inch by 6-inch angles will be welded in the transverse direction along the top end and bottom of the vertical components of the trashrack. Holes will be drilled through the angles and anchor bolts will be incorporated

to secure the trashrack to the concrete. For additional anchoring, similar steel angles can be welded to each side of the outer longitudinal bars. These angles could then be drilled and anchored in a similar manner.

Using the gross length, bar spacing, and bar thickness determined in the structural calculations, it was determined that a width of 9.632 feet was required for the inside dimension of the inlet structure. Based on the bar spacing required, an inlet structure width of 10 feet was selected.

It should be noted that the trashrack was designed to have a 2-foot section within the center of the trashrack that can be opened to facilitate cleaning. Two additional longitudinal bars and a hinge mechanism were added to make this possible. As stated previously, the trashrack gross width was increased by approximately 0.368 feet, therefore accommodating the additional bars required.

REFERNCES:

NRCS, Technical Release (TR) 46, "Gated Outlets Appurtenances Earth Dams," dated June 1969.

NRCS TR 60 Amendment 1, "Earth Dams and Reservoirs," dated October 1985.

Structural Steel Design, LRFD Method, Second Edition, Jack C. McCormac, 1995.

TRASHRACK LOADING FOR VARIOUS SPACING

γ water (pcf)	62.4
Height (ft)	17

Calculate uniform load (w) for various spacings

Spacing	w (plf)
0.50	530.40
0.75	795.60
1.00	1060.80
1.25	1326.00
1.50	1591.20
1.75	1856.40
2.00	2121.60
2.25	2386.80
2.50	2652.00
2.75	2917.20

TRASHRACK CALCULATION FORMULAS

	A	B
1	γ water (pcf)	62.4
2	Height (ft)	17
3	**Calculate uniform load (w) for various spacings**	
4	**Spacing**	**w (plf)**
5	0.5	=$B$1*$B$2*A5
6	0.75	=$B$1*$B$2*A6
7	1	=$B$1*$B$2*A7
8	1.25	=$B$1*$B$2*A8
9	1.5	=$B$1*$B$2*A9
10	1.75	=$B$1*$B$2*A10
11	2	=$B$1*$B$2*A11
12	2.25	=$B$1*$B$2*A12
13	2.5	=$B$1*$B$2*A13
14	2.75	=$B$1*$B$2*A14
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		

LONGITUDINAL BAR TRASHRACK
STRUCTURAL CALCULATIONS

Longitudinal Bar Calculation

6-Inch Spacing	Span (ft)	Ult. Moment (Mu) (lbf-in)	Section Modulus Req. (Sx) (in^3)	Req. Height of 1/2" Thick Bar	Req. Height of 5/8" Thick Bar	Req. Height of 3/4" Thick Bar
	2.00	3182	0.064	0.874	0.782	0.714
	2.25	4028	0.081	0.983	0.879	0.803
	2.50	4973	0.099	1.092	0.977	0.892
	2.75	6017	0.120	1.202	1.075	0.981
	10.00	79560	1.591	4.370	3.908	3.568
	10.50	87715	1.754	4.588	4.104	3.746
	10.75	91942	1.839	4.697	4.202	3.835
	11.00	96268	1.925	4.807	4.299	3.925
	11.50	105218	2.104	5.025	4.495	4.103
	12.00	114566	2.291	5.244	4.690	4.281
	12.50	124313	2.486	5.462	4.885	4.460
	13.00	134456	2.689	5.681	5.081	4.638
	13.50	144998	2.900	5.899	5.276	4.817

9-Inch Spacing	Span (ft)	Ult. Moment (Mu) (lbf-in)	Section Modulus Req. (Sx) (in^3)	Req. Height of 1/2" Thick Bar	Req. Height of 5/8" Thick Bar	Req. Height of 3/4" Thick Bar
	2.00	4774	0.095	1.070	0.957	0.874
	2.25	6042	0.121	1.204	1.077	0.983
	2.50	7459	0.149	1.338	1.197	1.092
	2.75	9025	0.181	1.472	1.316	1.202
	10.00	119340	2.387	5.352	4.787	4.370
	10.50	131572	2.631	5.619	5.026	4.588
	10.75	137912	2.758	5.753	5.146	4.697
	11.00	144401	2.888	5.887	5.265	4.807
	11.50	157827	3.157	6.155	5.505	5.025
	12.00	171850	3.437	6.422	5.744	5.244
	12.50	186469	3.729	6.690	5.983	5.462
	13.00	201685	4.034	6.957	6.223	5.681
	13.50	217497	4.350	7.225	6.462	5.899

12-Inch Spacing	Span (ft)	Ult. Moment (Mu) (lbf-in)	Section Modulus Req. (Sx) (in^3)	Req. Height of 1/2" Thick Bar	Req. Height of 5/8" Thick Bar	Req. Height of 3/4" Thick Bar
	2.00	6365	0.127	1.236	1.105	1.009
	2.25	8055	0.161	1.390	1.244	1.135
	2.50	9945	0.199	1.545	1.382	1.261
	2.75	12033	0.241	1.699	1.520	1.388
	10.00	159120	3.182	6.180	5.527	5.046
	10.50	175430	3.509	6.489	5.804	5.298
	10.75	183883	3.678	6.643	5.942	5.424
	11.00	192535	3.851	6.798	6.080	5.550
	11.50	210436	4.209	7.107	6.356	5.803
	12.00	229133	4.583	7.416	6.633	6.055
	12.50	248625	4.973	7.725	6.909	6.307
	13.00	268913	5.378	8.034	7.185	6.559
	13.50	289996	5.800	8.343	7.462	6.812

15-Inch Spacing	Span (ft)	Ult. Moment (Mu) (lbf-in)	Section Modulus Req. (Sx) (in^3)	Req. Height of 1/2" Thick Bar	Req. Height of 5/8" Thick Bar	Req. Height of 3/4" Thick Bar
	2.00	7956	0.159	1.382	1.236	1.128
	2.25	10069	0.201	1.555	1.390	1.269
	2.50	12431	0.249	1.727	1.545	1.410
	2.75	15042	0.301	1.900	1.699	1.551
	10.00	198900	3.978	6.909	6.180	5.641
	10.50	219287	4.386	7.255	6.489	5.923
	10.75	229854	4.597	7.427	6.643	6.064
	11.00	240669	4.813	7.600	6.798	6.205
	11.50	263045	5.261	7.945	7.107	6.487
	12.00	286416	5.728	8.291	7.416	6.770
	12.50	310781	6.216	8.636	7.725	7.052
	13.00	336141	6.723	8.982	8.034	7.334
	13.50	362495	7.250	9.327	8.343	7.616

TRASHRACK CALCULATION FORMULAS

Longitudin

	Span (ft)	Ult. Moment (Mu) (lbf-in)	Section Modulus Req. (Sx) (in^3)	Req. Height of 1/2" Thick Bar	Req. Height of 5/8" Thick Bar	Req. Height of 3/4" Thick Bar
6-Inch Spacing	2	=$B$5*O4^2/8*12	=P4/50000	=(Q4*6/0.5)^0.5	=(Q4*6/0.625)^0.5	=(Q4*6/0.75)^0.5
	2.25	=$B$5*O5^2/8*12	=P5/50000	=(Q5*6/0.5)^0.5	=(Q5*6/0.625)^0.5	=(Q5*6/0.75)^0.5
	2.5	=$B$5*O6^2/8*12	=P6/50000	=(Q6*6/0.5)^0.5	=(Q6*6/0.625)^0.5	=(Q6*6/0.75)^0.5
	2.75	=$B$5*O7^2/8*12	=P7/50000	=(Q7*6/0.5)^0.5	=(Q7*6/0.625)^0.5	=(Q7*6/0.75)^0.5
	10	=$B$5*O8^2/8*12	=P8/50000	=(Q8*6/0.5)^0.5	=(Q8*6/0.625)^0.5	=(Q8*6/0.75)^0.5
	10.5	=$B$5*O9^2/8*12	=P9/50000	=(Q9*6/0.5)^0.5	=(Q9*6/0.625)^0.5	=(Q9*6/0.75)^0.5
	10.75	=$B$5*O10^2/8*12	=P10/50000	=(Q10*6/0.5)^0.5	=(Q10*6/0.625)^0.5	=(Q10*6/0.75)^0.5
	11	=$B$5*O11^2/8*12	=P11/50000	=(Q11*6/0.5)^0.5	=(Q11*6/0.625)^0.5	=(Q11*6/0.75)^0.5
	11.5	=$B$5*O12^2/8*12	=P12/50000	=(Q12*6/0.5)^0.5	=(Q12*6/0.625)^0.5	=(Q12*6/0.75)^0.5
	12	=$B$5*O13^2/8*12	=P13/50000	=(Q13*6/0.5)^0.5	=(Q13*6/0.625)^0.5	=(Q13*6/0.75)^0.5
	12.5	=$B$5*O14^2/8*12	=P14/50000	=(Q14*6/0.5)^0.5	=(Q14*6/0.625)^0.5	=(Q14*6/0.75)^0.5
	13	=$B$5*O15^2/8*12	=P15/50000	=(Q15*6/0.5)^0.5	=(Q15*6/0.625)^0.5	=(Q15*6/0.75)^0.5
	13.5	=$B$5*O16^2/8*12	=P16/50000	=(Q16*6/0.5)^0.5	=(Q16*6/0.625)^0.5	=(Q16*6/0.75)^0.5

9-Inch Spacing

	Span (ft)	Ult. Moment (Mu) (lbf-in)	Section Modulus Req. (Sx) (in^3)	Req. Height of 1/2" Thick Bar	Req. Height of 5/8" Thick Bar	Req. Height of 3/4" Thick Bar
12-Inch Spacing	2	=$B$7*O19^2/8*12	=P19/50000	=(Q19*6/0.5)^0.5	=(Q19*6/0.625)^0.5	=(Q19*6/0.75)^0.5
	2.25	=$B$7*O20^2/8*12	=P20/50000	=(Q20*6/0.5)^0.5	=(Q20*6/0.625)^0.5	=(Q20*6/0.75)^0.5
	2.5	=$B$7*O21^2/8*12	=P21/50000	=(Q21*6/0.5)^0.5	=(Q21*6/0.625)^0.5	=(Q21*6/0.75)^0.5
	2.75	=$B$7*O22^2/8*12	=P22/50000	=(Q22*6/0.5)^0.5	=(Q22*6/0.625)^0.5	=(Q22*6/0.75)^0.5
	10	=$B$7*O23^2/8*12	=P23/50000	=(Q23*6/0.5)^0.5	=(Q23*6/0.625)^0.5	=(Q23*6/0.75)^0.5
	10.5	=$B$7*O24^2/8*12	=P24/50000	=(Q24*6/0.5)^0.5	=(Q24*6/0.625)^0.5	=(Q24*6/0.75)^0.5
	10.75	=$B$7*O25^2/8*12	=P25/50000	=(Q25*6/0.5)^0.5	=(Q25*6/0.625)^0.5	=(Q25*6/0.75)^0.5
	11	=$B$7*O26^2/8*12	=P26/50000	=(Q26*6/0.5)^0.5	=(Q26*6/0.625)^0.5	=(Q26*6/0.75)^0.5
	11.5	=$B$7*O27^2/8*12	=P27/50000	=(Q27*6/0.5)^0.5	=(Q27*6/0.625)^0.5	=(Q27*6/0.75)^0.5
	12	=$B$7*O28^2/8*12	=P28/50000	=(Q28*6/0.5)^0.5	=(Q28*6/0.625)^0.5	=(Q28*6/0.75)^0.5
	12.5	=$B$7*O29^2/8*12	=P29/50000	=(Q29*6/0.5)^0.5	=(Q29*6/0.625)^0.5	=(Q29*6/0.75)^0.5
	13	=$B$7*O30^2/8*12	=P30/50000	=(Q30*6/0.5)^0.5	=(Q30*6/0.625)^0.5	=(Q30*6/0.75)^0.5
	13.5	=$B$7*O31^2/8*12	=P31/50000	=(Q31*6/0.5)^0.5	=(Q31*6/0.625)^0.5	=(Q31*6/0.75)^0.5

15-Inch Spacing

TRASHRACK CALCULATION FORMULAS

	W	X	Y	Z	AA	AB
1						
2						
3	**Span (ft)**	**Ult. Moment (Mu) (lbf-in)**	**Section Modulus Req. (Sx) (in^3)**	**Req. Height of 1/2" Thick Bar**	**Req. Height of 5/8" Thick Bar**	**Req. Height of 3/4" Thick Bar**
4	2	=$B$6*W4^2/8*12	=X4/50000	=(Y4*6/0.5)^0.5	=(Y4*6/0.625)^0.5	=(Y4*6/0.75)^0.5
5	2.25	=$B$6*W5^2/8*12	=X5/50000	=(Y5*6/0.5)^0.5	=(Y5*6/0.625)^0.5	=(Y5*6/0.75)^0.5
6	2.5	=$B$6*W6^2/8*12	=X6/50000	=(Y6*6/0.5)^0.5	=(Y6*6/0.625)^0.5	=(Y6*6/0.75)^0.5
7	2.75	=$B$6*W7^2/8*12	=X7/50000	=(Y7*6/0.5)^0.5	=(Y7*6/0.625)^0.5	=(Y7*6/0.75)^0.5
8	10	=$B$6*W8^2/8*12	=X8/50000	=(Y8*6/0.5)^0.5	=(Y8*6/0.625)^0.5	=(Y8*6/0.75)^0.5
9	10.5	=$B$6*W9^2/8*12	=X9/50000	=(Y9*6/0.5)^0.5	=(Y9*6/0.625)^0.5	=(Y9*6/0.75)^0.5
10	10.75	=$B$6*W10^2/8*12	=X10/50000	=(Y10*6/0.5)^0.5	=(Y10*6/0.625)^0.5	=(Y10*6/0.75)^0.5
11	11	=$B$6*W11^2/8*12	=X11/50000	=(Y11*6/0.5)^0.5	=(Y11*6/0.625)^0.5	=(Y11*6/0.75)^0.5
12	11.5	=$B$6*W12^2/8*12	=X12/50000	=(Y12*6/0.5)^0.5	=(Y12*6/0.625)^0.5	=(Y12*6/0.75)^0.5
13	12	=$B$6*W13^2/8*12	=X13/50000	=(Y13*6/0.5)^0.5	=(Y13*6/0.625)^0.5	=(Y13*6/0.75)^0.5
14	12.5	=$B$6*W14^2/8*12	=X14/50000	=(Y14*6/0.5)^0.5	=(Y14*6/0.625)^0.5	=(Y14*6/0.75)^0.5
15	13	=$B$6*W15^2/8*12	=X15/50000	=(Y15*6/0.5)^0.5	=(Y15*6/0.625)^0.5	=(Y15*6/0.75)^0.5
16	13.5	=$B$6*W16^2/8*12	=X16/50000	=(Y16*6/0.5)^0.5	=(Y16*6/0.625)^0.5	=(Y16*6/0.75)^0.5
17						
18	**Span (ft)**	**Ult. Moment (Mu) (lbf-in)**	**Section Modulus Req. (Sx) (in^3)**	**Req. Height of 1/2" Thick Bar**	**Req. Height of 5/8" Thick Bar**	**Req. Height of 3/4" Thick Bar**
19	2	=$B$8*W19^2/8*12	=X19/50000	=(Y19*6/0.5)^0.5	=(Y19*6/0.625)^0.5	=(Y19*6/0.75)^0.5
20	2.25	=$B$8*W20^2/8*12	=X20/50000	=(Y20*6/0.5)^0.5	=(Y20*6/0.625)^0.5	=(Y20*6/0.75)^0.5
21	2.5	=$B$8*W21^2/8*12	=X21/50000	=(Y21*6/0.5)^0.5	=(Y21*6/0.625)^0.5	=(Y21*6/0.75)^0.5
22	2.75	=$B$8*W22^2/8*12	=X22/50000	=(Y22*6/0.5)^0.5	=(Y22*6/0.625)^0.5	=(Y22*6/0.75)^0.5
23	10	=$B$8*W23^2/8*12	=X23/50000	=(Y23*6/0.5)^0.5	=(Y23*6/0.625)^0.5	=(Y23*6/0.75)^0.5
24	10.5	=$B$8*W24^2/8*12	=X24/50000	=(Y24*6/0.5)^0.5	=(Y24*6/0.625)^0.5	=(Y24*6/0.75)^0.5
25	10.75	=$B$8*W25^2/8*12	=X25/50000	=(Y25*6/0.5)^0.5	=(Y25*6/0.625)^0.5	=(Y25*6/0.75)^0.5
26	11	=$B$8*W26^2/8*12	=X26/50000	=(Y26*6/0.5)^0.5	=(Y26*6/0.625)^0.5	=(Y26*6/0.75)^0.5
27	11.5	=$B$8*W27^2/8*12	=X27/50000	=(Y27*6/0.5)^0.5	=(Y27*6/0.625)^0.5	=(Y27*6/0.75)^0.5
28	12	=$B$8*W28^2/8*12	=X28/50000	=(Y28*6/0.5)^0.5	=(Y28*6/0.625)^0.5	=(Y28*6/0.75)^0.5
29	12.5	=$B$8*W29^2/8*12	=X29/50000	=(Y29*6/0.5)^0.5	=(Y29*6/0.625)^0.5	=(Y29*6/0.75)^0.5
30	13	=$B$8*W30^2/8*12	=X30/50000	=(Y30*6/0.5)^0.5	=(Y30*6/0.625)^0.5	=(Y30*6/0.75)^0.5
31	13.5	=$B$8*W31^2/8*12	=X31/50000	=(Y31*6/0.5)^0.5	=(Y31*6/0.625)^0.5	=(Y31*6/0.75)^0.5

Steel Quantity Calculation

Steel Quantities

Bar Spacing (in)	Horizontal Span (3:1 Slope) (ft)	Vertical Span (ft)	Gross Length (ft)	Gross Width (1/2" Bar)	Gross Width (5/8" Bar)	Gross Width (3/4" Bar)	Number of 1/2" Bars	Number of 5/8" Bars	Number of 3/4" Bars	1/2" Bar Height (in)	5/8" Bar Height (in)	3/4" Bar Height (in)	Steel Volume (1/2" Bars)	Steel Volume (5/8" Bars)	Steel Volume (3/4" Bars)	Steel Weight (1/2" Bar)	Steel Weight (5/8" Bar)	Steel Weight (3/4" Bar)
6	10	2.5	12.5	10.09	10.30	10.50	21.00	21.00	21.00	4.375	4.000	3.625	3.988	4.557	4.956	1994	2279	2478
6	10	3	13	9.66	9.84	10.16	19.00	19.00	21.00	4.375	4.000	3.625	3.752	4.288	5.154	1876	2144	2577
9	10	2.5	12.5	9.82	10.04	10.19	15.00	16.00	16.00	5.375	4.875	4.375	3.499	4.232	4.557	1750	2116	2279
9	10	3	13	9.47	9.61	9.75	15.00	15.00	15.00	5.375	4.875	4.375	3.639	4.126	4.443	1820	2063	2222
12	10	2.5	12.5	9.63	9.73	9.82	10.00	10.00	10.00	6.250	5.625	5.125	2.713	3.052	3.337	1356	1526	1668
12	10	3	13	9.28	9.37	9.47	10.00	10.00	10.00	6.250	5.625	5.125	2.821	3.174	3.470	1411	1587	1735

TRASHRACK CALCULATION FORMULAS

Steel Quantities

Bar Spacing (in)	Horizontal Span (3:1 Slope) (ft)	Vertical Span (ft)	Gross Length (ft)	Gross Width (1/2" Bar)	Gross Width (5/8" Bar)	Gross Width (3/4" Bar)
6	10	2.5	=AF4+AE4	=Hydraulics!B49	=Hydraulics!C49	=Hydraulics!D49
6	10	3	=AF5+AE5	=Hydraulics!B52	=Hydraulics!C52	=Hydraulics!D52
9	10	2.5	=AF6+AE6	=Hydraulics!B74	=Hydraulics!C74	=Hydraulics!D74
9	10	3	=AF7+AE7	=Hydraulics!B77	=Hydraulics!C77	=Hydraulics!D77
12	10	2.5	=AF8+AE8	=Hydraulics!B24	=Hydraulics!C24	=Hydraulics!D24
12	10	3	=AF9+AE9	=Hydraulics!B27	=Hydraulics!C27	=Hydraulics!D27

TRASHRACK CALCULATION FORMULAS

	AK	AL	AM	AN	AO
1					
2					
3	**Number of 1/2" Bars**	**Number of 5/8" Bars**	**Number of 3/4" Bars**	**1/2" Bar Height (in)**	**5/8" Bar Height (in)**
4	=(2*TRUNC(AH4))+1	=(2*TRUNC(AI4))+1	=(2*TRUNC(AJ4))+1	4.375	4
5	=(2*TRUNC(AH5))+1	=(2*TRUNC(AI5))+1	=(2*TRUNC(AJ5))+1	4.375	4
6	=(ROUND(1.5*TRUNC(AH6),0))+	=(ROUND(1.5*TRUNC(AI6),0))+	=(ROUND(1.5*TRUNC(AJ6),0))+	5.375	4.875
7	=(ROUND(1.5*TRUNC(AH7),0))+	=(ROUND(1.5*TRUNC(AI7),0))+	=(ROUND(1.5*TRUNC(AJ7),0))+	5.375	4.875
8	=(TRUNC(AH8))+1	=(TRUNC(AI8))+1	=(TRUNC(AJ8))+1	6.25	5.625
9	=(TRUNC(AH9))+1	=(TRUNC(AI9))+1	=(TRUNC(AJ9))+1	6.25	5.625
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					

TRASHRACK CALCULATION FORMULAS

	AP	AQ	AR	AS	AT
1					
2					
3	**3/4" Bar Height (in)**	**Steel Volume (1/2" Bars)**	**Steel Volume (5/8" Bars)**	**Steel Volume (3/4" Bars)**	**Steel Weight (1/2" Bar)**
4	3.625	=AK4*((0.5/12)*(AN4/12)*AG4)	=AL4*((0.625/12)*(AO4/12)*AG4)	=AM4*((0.75/12)*(AP4/12)*AG4)	=AQ4*500
5	3.625	=AK5*((0.5/12)*(AN5/12)*AG5)	=AL5*((0.625/12)*(AO5/12)*AG5)	=AM5*((0.75/12)*(AP5/12)*AG5)	=AQ5*500
6	4.375	=AK6*((0.5/12)*(AN6/12)*AG6)	=AL6*((0.625/12)*(AO6/12)*AG6)	=AM6*((0.75/12)*(AP6/12)*AG6)	=AQ6*500
7	4.375	=AK7*((0.5/12)*(AN7/12)*AG7)	=AL7*((0.625/12)*(AO7/12)*AG7)	=AM7*((0.75/12)*(AP7/12)*AG7)	=AQ7*500
8	5.125	=AK8*((0.5/12)*(AN8/12)*AG8)	=AL8*((0.625/12)*(AO8/12)*AG8)	=AM8*((0.75/12)*(AP8/12)*AG8)	=AQ8*500
9	5.125	=AK9*((0.5/12)*(AN9/12)*AG9)	=AL9*((0.625/12)*(AO9/12)*AG9)	=AM9*((0.75/12)*(AP9/12)*AG9)	=AQ9*500
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					

TRASHRACK CALCULATION FORMULAS

	AU	AV
1		
2		
3	**Steel Weight (5/8" Bar)**	**Steel Weight (3/4" Bar)**
4	=AR4*500	=AS4*500
5	=AR5*500	=AS5*500
6	=AR6*500	=AS6*500
7	=AR7*500	=AS7*500
8	=AR8*500	=AS8*500
9	=AR9*500	=AS9*500
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

Trashrack Hydraulic Evaluation

Calculated Flow	270	cfs	Length Spacing	12	inches
Target Velocity	2.5	fps	Width Spacing	12	inches

Width Spacing 12 inches

Gross Length	Gross Width (1/2" Bar)	Gross Width (5/8" Bar)	Gross Width (3/4" Bar)	Net Length	Net Width			Net Area			Flow Velocity		
				1/2" Bar	1/2" Bar	5/8" Bar	3/4" Bar	1/2" Bar	5/8" Bar	3/4" Bar	1/2" Bar	5/8" Bar	3/4" Bar
10	12.000	12.000	12.000	9.25	11.50	11.38	11.25	106.38	105.22	104.07	2.54	2.57	2.59
10	12.175	12.300	12.425	9.25	11.68	11.68	11.67	108.00	108.00	108.00	2.50	2.50	2.50
10	12.500	12.500	12.500	9.25	12.00	11.88	11.75	111.00	109.85	108.69	2.43	2.46	2.48
10.5	11.500	11.500	11.500	9.75	11.04	10.93	10.81	107.66	106.54	105.43	2.51	2.53	2.56
10.5	11.535	11.647	11.761	9.75	11.08	11.07	11.07	108.00	107.98	107.97	2.50	2.50	2.50
10.5	12.000	12.000	12.000	9.75	11.50	11.38	11.25	112.13	110.91	109.69	2.41	2.43	2.46
11	10.500	11.000	11.000	10.21	10.08	10.43	10.31	102.94	106.45	105.28	2.62	2.54	2.56
11	10.996	11.153	11.267	10.21	10.58	10.58	10.58	108.00	108.00	108.00	2.50	2.50	2.50
11	11.000	11.500	11.500	10.21	10.54	10.93	10.81	107.62	111.55	110.38	2.51	2.42	2.45
11.5	10.500	10.500	10.500	10.71	10.08	9.98	9.88	107.98	106.86	105.75	2.50	2.53	2.55
11.5	10.501	10.605	10.708	10.71	10.08	10.08	10.08	107.99	107.98	107.97	2.50	2.50	2.50
11.5	11.000	11.000	11.000	10.71	10.54	10.43	10.31	112.89	111.66	110.43	2.39	2.42	2.44
12	10.000	10.000	10.000	11.17	9.58	9.48	9.38	107.02	105.85	104.69	2.52	2.55	2.58
12	10.088	10.190	10.296	11.17	9.67	9.67	9.67	108.00	107.98	108.00	2.50	2.50	2.50
12	10.500	10.500	10.500	11.17	10.08	9.98	9.88	112.60	111.44	110.27	2.40	2.42	2.45
12.5	9.500	9.500	9.500	11.67	9.13	9.03	8.94	106.46	105.37	104.27	2.54	2.56	2.59
12.5	9.632	9.726	9.821	11.67	9.26	9.26	9.26	108.00	108.00	108.01	2.50	2.50	2.50
12.5	10.000	10.000	10.000	11.67	9.58	9.48	9.38	111.81	110.59	109.38	2.41	2.44	2.47
13	9.000	9.000	9.000	12.13	8.63	8.53	8.44	104.58	103.44	102.31	2.58	2.61	2.64
13	9.280	9.373	9.467	12.13	8.90	8.90	8.90	107.97	107.97	107.97	2.50	2.50	2.50
13	9.500	9.500	9.500	12.13	9.13	9.03	8.94	110.64	109.51	108.37	2.44	2.47	2.49

Width Spacing 6 inches

Gross Length	Gross Width (1/2" Bar)	Gross Width (5/8" Bar)	Gross Width (3/4" Bar)	Net Length	Net Width			Net Area			Flow Velocity		
				1/2" Bar	1/2" Bar	5/8" Bar	3/4" Bar	1/2" Bar	5/8" Bar	3/4" Bar	1/2" Bar	5/8" Bar	3/4" Bar
10	12.500	12.500	13.000	9.25	11.50	11.25	11.38	106.38	104.07	105.22	2.54	2.59	2.57
10	12.676	12.926	13.300	9.25	11.68	11.68	11.68	108.00	108.00	108.00	2.50	2.50	2.50
10	13.000	13.000	13.500	9.25	11.92	11.65	11.88	110.23	107.73	109.85	2.45	2.51	2.46
10.5	12.000	12.000	12.500	9.75	11.00	10.75	11.00	107.25	104.82	107.25	2.52	2.58	2.52
10.5	12.077	12.326	12.573	9.75	11.08	11.08	11.07	108.00	108.00	107.97	2.50	2.50	2.50
10.5	12.500	12.500	13.000	9.75	11.50	11.25	11.38	112.13	109.69	110.91	2.41	2.46	2.43
11	11.000	11.500	11.500	10.21	10.08	10.35	10.13	102.94	105.70	103.36	2.62	2.55	2.61
11	11.496	11.725	11.953	10.21	10.58	10.58	10.58	108.00	108.00	107.99	2.50	2.50	2.50
11	11.500	12.000	12.000	10.21	10.58	10.75	10.50	108.04	109.74	107.19	2.50	2.46	2.52
11.5	10.500	11.000	11.000	10.71	9.67	9.85	9.63	103.52	105.52	103.07	2.61	2.56	2.62
11.5	10.919	11.231	11.457	10.71	10.09	10.09	10.08	108.00	108.00	107.97	2.50	2.50	2.50
11.5	11.000	11.500	11.500	10.71	10.08	10.35	10.13	107.98	110.88	108.43	2.50	2.44	2.49
12	10.500	10.500	10.500	11.17	9.67	9.46	9.25	107.95	105.62	103.29	2.50	2.56	2.61
12	10.505	10.713	10.920	11.17	9.67	9.67	9.67	108.00	108.00	107.99	2.50	2.50	2.50
12	11.000	11.000	11.000	11.17	10.08	9.85	9.63	112.60	110.04	107.48	2.40	2.45	2.51
12.5	10.000	10.000	10.500	11.67	9.17	8.96	9.25	106.95	104.52	107.92	2.52	2.58	2.50
12.5	10.088	10.298	10.504	11.67	9.25	9.26	9.25	107.97	108.00	107.97	2.50	2.50	2.50
12.5	10.500	10.500	11.000	11.67	9.67	9.46	9.63	112.78	110.35	112.29	2.39	2.45	2.40
13	9.500	9.500	10.000	12.13	8.75	8.56	8.75	106.10	103.82	106.10	2.54	2.60	2.54
13	9.657	9.845	10.157	12.13	8.91	8.91	8.91	108.00	108.00	108.00	2.50	2.50	2.50
13	10.000	10.000	10.500	12.13	9.17	8.96	9.25	111.15	108.62	112.16	2.43	2.49	2.41

Width Spacing 9 inches

Gross Length	Gross Width (1/2" Bar)	Gross Width (5/8" Bar)	Gross Width (3/4" Bar)	Net Length	Net Width			Net Area			Flow Velocity		
				1/2" Bar	1/2" Bar	5/8" Bar	3/4" Bar	1/2" Bar	5/8" Bar	3/4" Bar	1/2" Bar	5/8" Bar	3/4" Bar
10	12.000	12.500	12.500	9.25	11.25	11.56	11.38	104.07	106.96	105.22	2.59	2.52	2.57
10	12.426	12.613	12.800	9.25	11.68	11.68	11.68	108.01	108.00	108.00	2.50	2.50	2.50
10	12.500	13.000	13.000	9.25	11.75	11.98	11.78	108.69	110.86	108.98	2.48	2.44	2.48
10.5	11.500	11.500	12.000	9.75	10.81	10.64	10.88	105.43	103.75	106.03	2.56	2.60	2.55
10.5	11.764	11.936	12.202	9.75	11.08	11.08	11.08	108.00	108.00	108.01	2.50	2.50	2.50
10.5	12.000	12.000	12.500	9.75	11.25	11.06	11.38	109.69	107.86	110.91	2.46	2.50	2.43
11	11.000	11.000	11.500	10.21	10.31	10.14	10.47	105.28	103.52	106.87	2.56	2.61	2.53
11	11.267	11.439	11.611	10.21	10.58	10.58	10.58	108.01	108.01	108.00	2.50	2.50	2.50
11	11.500	11.500	12.000	10.21	10.81	10.64	10.88	110.38	108.63	111.02	2.45	2.49	2.43
11.5	10.500	10.500	11.000	10.71	9.88	9.72	9.97	105.75	104.07	106.75	2.55	2.59	2.53
11.5	10.710	10.867	11.117	10.71	10.09	10.09	10.09	108.00	108.00	108.01	2.50	2.50	2.50
11.5	11.000	11.000	11.500	10.71	10.31	10.14	10.47	110.43	108.59	112.11	2.44	2.49	2.41
12	10.000	10.000	10.500	11.17	9.38	9.22	9.56	104.69	102.95	106.78	2.58	2.62	2.53
12	10.297	10.453	10.609	11.17	9.67	9.67	9.67	108.01	108.01	108.00	2.50	2.50	2.50
12	10.500	10.500	11.000	11.17	9.88	9.72	9.97	110.27	108.53	111.32	2.45	2.49	2.43
12.5	9.500	10.000	10.000	11.67	8.94	9.22	9.06	104.27	107.56	105.73	2.59	2.51	2.55
12.5	9.819	10.039	10.195	11.67	9.26	9.26	9.26	108.00	108.01	108.01	2.50	2.50	2.50
12.5	10.000	10.500	10.500	11.67	9.38	9.72	9.56	109.38	113.39	111.57	2.47	2.38	2.42
13	9.000	9.500	9.500	12.13	8.44	8.80	8.66	102.31	106.67	104.96	2.64	2.53	2.57
13	9.470	9.610	9.751	12.13	8.91	8.91	8.91	108.01	108.00	108.00	2.50	2.50	2.50
13	9.500	10.000	10.000	12.13	8.94	9.22	9.06	108.37	111.78	109.89	2.49	2.42	2.46

Trashrack Hydraulic Evaluation - Formulas

	A	B	C	D	E	F
1	Calculated Flow	270	cfs	Length Spacing	12	inches
2	Target Velocity	2.5	fps	Width Spacing	12	inches
3						
4						
5	Width Spacing	12	inches			
6	**Gross Length**	**Gross Width (1/2" Bar)**	**Gross Width (5/8" Bar)**	**Gross Width (3/4" Bar)**	**Net Length**	
7					**1/2" Bar**	**1/2" Bar**
8	10	12	12	12	=A8-(TRUNC(A8)*0.5/12)-0.333	=B8-(TRUNC(B8)*0.5/12)
9	10	12.1752883521598	12.3003213644821	12.424923411702	=A9-(TRUNC(A9)*0.5/12)-0.333	=B9-(TRUNC(B9)*0.5/12)
10	10	12.5	12.5	12.5	=A10-(TRUNC(A10)*0.5/12)-0.333	=B10-(TRUNC(B10)*0.5/12)
11	10.5	11.5	11.5	11.5	=A11-(TRUNC(A11)*0.5/12)-0.333	=B11-(TRUNC(B11)*0.5/12)
12	10.5	11.5346849752113	11.6470715596391	11.7605585903526	=A12-(TRUNC(A12)*0.5/12)-0.333	=B12-(TRUNC(B12)*0.5/12)
13	10.5	12	12	12	=A13-(TRUNC(A13)*0.5/12)-0.333	=B13-(TRUNC(B13)*0.5/12)
14	11	10.5	11	11	=A14-(TRUNC(A14)*0.5/12)-0.333	=B14-(TRUNC(B14)*0.5/12)
15	11	10.9958561180885	11.1526035825413	11.2666015205735	=A15-(TRUNC(A15)*0.5/12)-0.333	=B15-(TRUNC(B15)*0.5/12)
16	11	11	11.5	11.5	=A16-(TRUNC(A16)*0.5/12)-0.333	=B16-(TRUNC(B16)*0.5/12)
17	11.5	10.5	10.5	10.5	=A17-(TRUNC(A17)*0.5/12)-0.333	=B17-(TRUNC(B17)*0.5/12)
18	11.5	10.5011584969889	10.6045960135607	10.707688236974	=A18-(TRUNC(A18)*0.5/12)-0.333	=B18-(TRUNC(B18)*0.5/12)
19	11.5	11	11	11	=A19-(TRUNC(A19)*0.5/12)-0.333	=B19-(TRUNC(B19)*0.5/12)
20	12	10	10	10	=A20-(TRUNC(A20)*0.5/12)-0.333	=B20-(TRUNC(B20)*0.5/12)
21	12	10.0881287937243	10.1903545243377	10.2962309391522	=A21-(TRUNC(A21)*0.5/12)-0.333	=B21-(TRUNC(B21)*0.5/12)
22	12	10.5	10.5	10.5	=A22-(TRUNC(A22)*0.5/12)-0.333	=B22-(TRUNC(B22)*0.5/12)
23	12.5	9.5	9.5	9.5	=A23-(TRUNC(A23)*0.5/12)-0.333	=B23-(TRUNC(B23)*0.5/12)
24	12.5	9.63201338948855	9.72570837190204	9.82057254125977	=A24-(TRUNC(A24)*0.5/12)-0.333	=B24-(TRUNC(B24)*0.5/12)
25	12.5	10	10	10	=A25-(TRUNC(A25)*0.5/12)-0.333	=B25-(TRUNC(B25)*0.5/12)
26	13	9	9	9	=A26-(TRUNC(A26)*0.5/12)-0.333	=B26-(TRUNC(B26)*0.5/12)
27	13	9.27974022544283	9.37322125356125	9.46690844444445	=A27-(TRUNC(A27)*0.5/12)-0.333	=B27-(TRUNC(B27)*0.5/12)
28	13	9.5	9.5	9.5	=A28-(TRUNC(A28)*0.5/12)-0.333	=B28-(TRUNC(B28)*0.5/12)
29						
30	Width Spacing	6	inches			
31	**Gross Length**	**Gross Width (1/2" Bar)**	**Gross Width (5/8" Bar)**	**Gross Width (3/4" Bar)**	**Net Length**	
32					**1/2" Bar**	**1/2" Bar**
33	10	12.5	12.5	13	=A33-(TRUNC(A33)*0.5/12)-0.333	=B33-2*(TRUNC(B33)*0.5/12)
34	10	12.6755858345956	12.9255986855875	13.3002844973717	=A34-(TRUNC(A34)*0.5/12)-0.333	=B34-2*(TRUNC(B34)*0.5/12)
35	10	13	13	13.5	=A35-(TRUNC(A35)*0.5/12)-0.333	=B35-2*(TRUNC(B35)*0.5/12)
36	10.5	12	12	12.5	=A36-(TRUNC(A36)*0.5/12)-0.333	=B36-2*(TRUNC(B36)*0.5/12)
37	10.5	12.0766016211541	12.3264440722632	12.5734950507849	=A37-(TRUNC(A37)*0.5/12)-0.333	=B37-2*(TRUNC(B37)*0.5/12)
38	10.5	12.5	12.5	13	=A38-(TRUNC(A38)*0.5/12)-0.333	=B38-2*(TRUNC(B38)*0.5/12)
39	11	11	11.5	11.5	=A39-(TRUNC(A39)*0.5/12)-0.333	=B39-2*(TRUNC(B39)*0.5/12)
40	11	11.4961937219005	11.7253698474321	11.9529267714878	=A40-(TRUNC(A40)*0.5/12)-0.333	=B40-2*(TRUNC(B40)*0.5/12)
41	11	11.5	12	12	=A41-(TRUNC(A41)*0.5/12)-0.333	=B41-2*(TRUNC(B41)*0.5/12)
42	11.5	10.5	11	11	=A42-(TRUNC(A42)*0.5/12)-0.333	=B42-2*(TRUNC(B42)*0.5/12)

Trashrack Hydraulic Evaluation - Formulas

	A	B	C	D	E	F
43	11.5	10.9188762806629	11.2309918691599	11.4573774823384	=A43-(TRUNC(A43)*0.5/12)-0.333	=B43-2*(TRUNC(B43)*0.5/12)
44	11.5	11	11.5	11.5	=A44-(TRUNC(A44)*0.5/12)-0.333	=B44-2*(TRUNC(B44)*0.5/12)
45	12	10.5	10.5	10.5	=A45-(TRUNC(A45)*0.5/12)-0.333	=B45-2*(TRUNC(B45)*0.5/12)
46	12	10.5049451828119	10.7132899285209	10.9202006311009	=A46-(TRUNC(A46)*0.5/12)-0.333	=B46-2*(TRUNC(B46)*0.5/12)
47	12	11	11	11	=A47-(TRUNC(A47)*0.5/12)-0.333	=B47-2*(TRUNC(B47)*0.5/12)
48	12.5	10	10	10.5	=A48-(TRUNC(A48)*0.5/12)-0.333	=B48-2*(TRUNC(B48)*0.5/12)
49	12.5	10.088057849055	10.2984949668913	10.504436687938	=A49-(TRUNC(A49)*0.5/12)-0.333	=B49-2*(TRUNC(B49)*0.5/12)
50	12.5	10.5	10.5	11	=A50-(TRUNC(A50)*0.5/12)-0.333	=B50-2*(TRUNC(B50)*0.5/12)
51	13	9.5	9.5	10	=A51-(TRUNC(A51)*0.5/12)-0.333	=B51-2*(TRUNC(B51)*0.5/12)
52	13	9.65722929345638	9.84473911656889	10.1570399228774	=A52-(TRUNC(A52)*0.5/12)-0.333	=B52-2*(TRUNC(B52)*0.5/12)
53	13	10	10	10.5	=A53-(TRUNC(A53)*0.5/12)-0.333	=B53-2*(TRUNC(B53)*0.5/12)
54						
55	Width Spacing	9	inches			
56	**Gross Length**	**Gross Width (1/2" Bar)**	**Gross Width (5/8" Bar)**	**Gross Width (3/4" Bar)**	**Net Length**	
57					**1/2" Bar**	**1/2" Bar**
58	10	12	12.5	12.5	=A58-(TRUNC(A58)*0.5/12)-0.333	=B58-1.5*(TRUNC(B58)*0.5/12)
59	10	12.425959046389	12.6128309266918	12.8004052091869	=A59-(TRUNC(A59)*0.5/12)-0.333	=B59-1.5*(TRUNC(B59)*0.5/12)
60	10	12.5	13	13	=A60-(TRUNC(A60)*0.5/12)-0.333	=B60-1.5*(TRUNC(B60)*0.5/12)
61	10.5	11.5	11.5	12	=A61-(TRUNC(A61)*0.5/12)-0.333	=B61-1.5*(TRUNC(B61)*0.5/12)
62	10.5	11.7640892956478	11.9360208423802	12.2020880190288	=A62-(TRUNC(A62)*0.5/12)-0.333	=B62-1.5*(TRUNC(B62)*0.5/12)
63	10.5	12	12	12.5	=A63-(TRUNC(A63)*0.5/12)-0.333	=B63-1.5*(TRUNC(B63)*0.5/12)
64	11	11	11	11.5	=A64-(TRUNC(A64)*0.5/12)-0.333	=B64-1.5*(TRUNC(B64)*0.5/12)
65	11	11.2673759875259	11.4392359402861	11.6106928368258	=A65-(TRUNC(A65)*0.5/12)-0.333	=B65-1.5*(TRUNC(B65)*0.5/12)
66	11	11.5	11.5	12	=A66-(TRUNC(A66)*0.5/12)-0.333	=B66-1.5*(TRUNC(B66)*0.5/12)
67	11.5	10.5	10.5	11	=A67-(TRUNC(A67)*0.5/12)-0.333	=B67-1.5*(TRUNC(B67)*0.5/12)
68	11.5	10.7103448639096	10.8666685976858	11.1170368902651	=A68-(TRUNC(A68)*0.5/12)-0.333	=B68-1.5*(TRUNC(B68)*0.5/12)
69	11.5	11	11	11.5	=A69-(TRUNC(A69)*0.5/12)-0.333	=B69-1.5*(TRUNC(B69)*0.5/12)
70	12	10	10	10.5	=A70-(TRUNC(A70)*0.5/12)-0.333	=B70-1.5*(TRUNC(B70)*0.5/12)
71	12	10.296922996667	10.4531595150718	10.6091036694445	=A71-(TRUNC(A71)*0.5/12)-0.333	=B71-1.5*(TRUNC(B71)*0.5/12)
72	12	10.5	10.5	11	=A72-(TRUNC(A72)*0.5/12)-0.333	=B72-1.5*(TRUNC(B72)*0.5/12)
73	12.5	9.5	10	10	=A73-(TRUNC(A73)*0.5/12)-0.333	=B73-1.5*(TRUNC(B73)*0.5/12)
74	12.5	9.81945055453919	10.0385927634692	10.1948377811196	=A74-(TRUNC(A74)*0.5/12)-0.333	=B74-1.5*(TRUNC(B74)*0.5/12)
75	12.5	10	10.5	10.5	=A75-(TRUNC(A75)*0.5/12)-0.333	=B75-1.5*(TRUNC(B75)*0.5/12)
76	13	9	9.5	9.5	=A76-(TRUNC(A76)*0.5/12)-0.333	=B76-1.5*(TRUNC(B76)*0.5/12)
77	13	9.46999297788243	9.61025635375202	9.75103438202501	=A77-(TRUNC(A77)*0.5/12)-0.333	=B77-1.5*(TRUNC(B77)*0.5/12)
78	13	9.5	10	10	=A78-(TRUNC(A78)*0.5/12)-0.333	=B78-1.5*(TRUNC(B78)*0.5/12)

Trashrack Hydraulic Evaluation - Formulas

	G	H	I	J	K	L	M	N
1								
2								
3								
4								
5								
6	**Net Width**		**Net Area**			**Flow Velocity**		
7	**5/8" Bar**	**3/4" Bar**	**1/2" Bar**	**5/8" Bar**	**3/4" Bar**	**1/2" Bar**	**5/8" Bar**	**3/4" Bar**
8	=C8-(TRUNC(C8)*0.625/12)	=D8-(TRUNC(D8)*0.75/12)	=F8*E8	=G8*E8	=H8*E8	=$B$1/I8	=$B$1/J8	=$B$1/K8
9	=C9-(TRUNC(C9)*0.625/12)	=D9-(TRUNC(D9)*0.75/12)	=F9*E9	=G9*E9	=H9*E9	=$B$1/I9	=$B$1/J9	=$B$1/K9
10	=C10-(TRUNC(C10)*0.625/12)	=D10-(TRUNC(D10)*0.75/12)	=F10*E10	=G10*E10	=H10*E10	=$B$1/I10	=$B$1/J10	=$B$1/K10
11	=C11-(TRUNC(C11)*0.625/12)	=D11-(TRUNC(D11)*0.75/12)	=F11*E11	=G11*E11	=H11*E11	=$B$1/I11	=$B$1/J11	=$B$1/K11
12	=C12-(TRUNC(C12)*0.625/12)	=D12-(TRUNC(D12)*0.75/12)	=F12*E12	=G12*E12	=H12*E12	=$B$1/I12	=$B$1/J12	=$B$1/K12
13	=C13-(TRUNC(C13)*0.625/12)	=D13-(TRUNC(D13)*0.75/12)	=F13*E13	=G13*E13	=H13*E13	=$B$1/I13	=$B$1/J13	=$B$1/K13
14	=C14-(TRUNC(C14)*0.625/12)	=D14-(TRUNC(D14)*0.75/12)	=F14*E14	=G14*E14	=H14*E14	=$B$1/I14	=$B$1/J14	=$B$1/K14
15	=C15-(TRUNC(C15)*0.625/12)	=D15-(TRUNC(D15)*0.75/12)	=F15*E15	=G15*E15	=H15*E15	=$B$1/I15	=$B$1/J15	=$B$1/K15
16	=C16-(TRUNC(C16)*0.625/12)	=D16-(TRUNC(D16)*0.75/12)	=F16*E16	=G16*E16	=H16*E16	=$B$1/I16	=$B$1/J16	=$B$1/K16
17	=C17-(TRUNC(C17)*0.625/12)	=D17-(TRUNC(D17)*0.75/12)	=F17*E17	=G17*E17	=H17*E17	=$B$1/I17	=$B$1/J17	=$B$1/K17
18	=C18-(TRUNC(C18)*0.625/12)	=D18-(TRUNC(D18)*0.75/12)	=F18*E18	=G18*E18	=H18*E18	=$B$1/I18	=$B$1/J18	=$B$1/K18
19	=C19-(TRUNC(C19)*0.625/12)	=D19-(TRUNC(D19)*0.75/12)	=F19*E19	=G19*E19	=H19*E19	=$B$1/I19	=$B$1/J19	=$B$1/K19
20	=C20-(TRUNC(C20)*0.625/12)	=D20-(TRUNC(D20)*0.75/12)	=F20*E20	=G20*E20	=H20*E20	=$B$1/I20	=$B$1/J20	=$B$1/K20
21	=C21-(TRUNC(C21)*0.625/12)	=D21-(TRUNC(D21)*0.75/12)	=F21*E21	=G21*E21	=H21*E21	=$B$1/I21	=$B$1/J21	=$B$1/K21
22	=C22-(TRUNC(C22)*0.625/12)	=D22-(TRUNC(D22)*0.75/12)	=F22*E22	=G22*E22	=H22*E22	=$B$1/I22	=$B$1/J22	=$B$1/K22
23	=C23-(TRUNC(C23)*0.625/12)	=D23-(TRUNC(D23)*0.75/12)	=F23*E23	=G23*E23	=H23*E23	=$B$1/I23	=$B$1/J23	=$B$1/K23
24	=C24-(TRUNC(C24)*0.625/12)	=D24-(TRUNC(D24)*0.75/12)	=F24*E24	=G24*E24	=H24*E24	=$B$1/I24	=$B$1/J24	=$B$1/K24
25	=C25-(TRUNC(C25)*0.625/12)	=D25-(TRUNC(D25)*0.75/12)	=F25*E25	=G25*E25	=H25*E25	=$B$1/I25	=$B$1/J25	=$B$1/K25
26	=C26-(TRUNC(C26)*0.625/12)	=D26-(TRUNC(D26)*0.75/12)	=F26*E26	=G26*E26	=H26*E26	=$B$1/I26	=$B$1/J26	=$B$1/K26
27	=C27-(TRUNC(C27)*0.625/12)	=D27-(TRUNC(D27)*0.75/12)	=F27*E27	=G27*E27	=H27*E27	=$B$1/I27	=$B$1/J27	=$B$1/K27
28	=C28-(TRUNC(C28)*0.625/12)	=D28-(TRUNC(D28)*0.75/12)	=F28*E28	=G28*E28	=H28*E28	=$B$1/I28	=$B$1/J28	=$B$1/K28
29								
30								
31	**Net Width**		**Net Area**			**Flow Velocity**		
32	**5/8" Bar**	**3/4" Bar**	**1/2" Bar**	**5/8" Bar**	**3/4" Bar**	**1/2" Bar**	**5/8" Bar**	**3/4" Bar**
33	=C33-2*(TRUNC(C33)*0.625/12)	=D33-2*(TRUNC(D33)*0.75/12)	=F33*E33	=G33*E33	=H33*E33	=$B$1/I33	=$B$1/J33	=$B$1/K33
34	=C34-2*(TRUNC(C34)*0.625/12)	=D34-2*(TRUNC(D34)*0.75/12)	=F34*E34	=G34*E34	=H34*E34	=$B$1/I34	=$B$1/J34	=$B$1/K34
35	=C35-2*(TRUNC(C35)*0.625/12)	=D35-2*(TRUNC(D35)*0.75/12)	=F35*E35	=G35*E35	=H35*E35	=$B$1/I35	=$B$1/J35	=$B$1/K35
36	=C36-2*(TRUNC(C36)*0.625/12)	=D36-2*(TRUNC(D36)*0.75/12)	=F36*E36	=G36*E36	=H36*E36	=$B$1/I36	=$B$1/J36	=$B$1/K36
37	=C37-2*(TRUNC(C37)*0.625/12)	=D37-2*(TRUNC(D37)*0.75/12)	=F37*E37	=G37*E37	=H37*E37	=$B$1/I37	=$B$1/J37	=$B$1/K37
38	=C38-2*(TRUNC(C38)*0.625/12)	=D38-2*(TRUNC(D38)*0.75/12)	=F38*E38	=G38*E38	=H38*E38	=$B$1/I38	=$B$1/J38	=$B$1/K38
39	=C39-2*(TRUNC(C39)*0.625/12)	=D39-2*(TRUNC(D39)*0.75/12)	=F39*E39	=G39*E39	=H39*E39	=$B$1/I39	=$B$1/J39	=$B$1/K39
40	=C40-2*(TRUNC(C40)*0.625/12)	=D40-2*(TRUNC(D40)*0.75/12)	=F40*E40	=G40*E40	=H40*E40	=$B$1/I40	=$B$1/J40	=$B$1/K40
41	=C41-2*(TRUNC(C41)*0.625/12)	=D41-2*(TRUNC(D41)*0.75/12)	=F41*E41	=G41*E41	=H41*E41	=$B$1/I41	=$B$1/J41	=$B$1/K41
42	=C42-2*(TRUNC(C42)*0.625/12)	=D42-2*(TRUNC(D42)*0.75/12)	=F42*E42	=G42*E42	=H42*E42	=$B$1/I42	=$B$1/J42	=$B$1/K42

Trashrack Hydraulic Evaluation - Formulas

	G	H	I	J	K	L	M	N
43	=C43-2*(TRUNC(C43)*0.625/12)	=D43-2*(TRUNC(D43)*0.75/12)	=F43*E43	=G43*E43	=H43*E43	=$B$1/I43	=$B$1/J43	=$B$1/K43
44	=C44-2*(TRUNC(C44)*0.625/12)	=D44-2*(TRUNC(D44)*0.75/12)	=F44*E44	=G44*E44	=H44*E44	=$B$1/I44	=$B$1/J44	=$B$1/K44
45	=C45-2*(TRUNC(C45)*0.625/12)	=D45-2*(TRUNC(D45)*0.75/12)	=F45*E45	=G45*E45	=H45*E45	=$B$1/I45	=$B$1/J45	=$B$1/K45
46	=C46-2*(TRUNC(C46)*0.625/12)	=D46-2*(TRUNC(D46)*0.75/12)	=F46*E46	=G46*E46	=H46*E46	=$B$1/I46	=$B$1/J46	=$B$1/K46
47	=C47-2*(TRUNC(C47)*0.625/12)	=D47-2*(TRUNC(D47)*0.75/12)	=F47*E47	=G47*E47	=H47*E47	=$B$1/I47	=$B$1/J47	=$B$1/K47
48	=C48-2*(TRUNC(C48)*0.625/12)	=D48-2*(TRUNC(D48)*0.75/12)	=F48*E48	=G48*E48	=H48*E48	=$B$1/I48	=$B$1/J48	=$B$1/K48
49	=C49-2*(TRUNC(C49)*0.625/12)	=D49-2*(TRUNC(D49)*0.75/12)	=F49*E49	=G49*E49	=H49*E49	=$B$1/I49	=$B$1/J49	=$B$1/K49
50	=C50-2*(TRUNC(C50)*0.625/12)	=D50-2*(TRUNC(D50)*0.75/12)	=F50*E50	=G50*E50	=H50*E50	=$B$1/I50	=$B$1/J50	=$B$1/K50
51	=C51-2*(TRUNC(C51)*0.625/12)	=D51-2*(TRUNC(D51)*0.75/12)	=F51*E51	=G51*E51	=H51*E51	=$B$1/I51	=$B$1/J51	=$B$1/K51
52	=C52-2*(TRUNC(C52)*0.625/12)	=D52-2*(TRUNC(D52)*0.75/12)	=F52*E52	=G52*E52	=H52*E52	=$B$1/I52	=$B$1/J52	=$B$1/K52
53	=C53-2*(TRUNC(C53)*0.625/12)	=D53-2*(TRUNC(D53)*0.75/12)	=F53*E53	=G53*E53	=H53*E53	=$B$1/I53	=$B$1/J53	=$B$1/K53
54								
55								
56	**Net Width**		**Net Area**			**Flow Velocity**		
57	**5/8" Bar**	**3/4" Bar**	**1/2" Bar**	**5/8" Bar**	**3/4" Bar**	**1/2" Bar**	**5/8" Bar**	**3/4" Bar**
58	=C58-1.5*(TRUNC(C58)*0.625/12)	=D58-1.5*(TRUNC(D58)*0.75/12)	=F58*E58	=G58*E58	=H58*E58	=$B$1/I58	=$B$1/J58	=$B$1/K58
59	=C59-1.5*(TRUNC(C59)*0.625/12)	=D59-1.5*(TRUNC(D59)*0.75/12)	=F59*E59	=G59*E59	=H59*E59	=$B$1/I59	=$B$1/J59	=$B$1/K59
60	=C60-1.5*(TRUNC(C60)*0.625/12)	=D60-1.5*(TRUNC(D60)*0.75/12)	=F60*E60	=G60*E60	=H60*E60	=$B$1/I60	=$B$1/J60	=$B$1/K60
61	=C61-1.5*(TRUNC(C61)*0.625/12)	=D61-1.5*(TRUNC(D61)*0.75/12)	=F61*E61	=G61*E61	=H61*E61	=$B$1/I61	=$B$1/J61	=$B$1/K61
62	=C62-1.5*(TRUNC(C62)*0.625/12)	=D62-1.5*(TRUNC(D62)*0.75/12)	=F62*E62	=G62*E62	=H62*E62	=$B$1/I62	=$B$1/J62	=$B$1/K62
63	=C63-1.5*(TRUNC(C63)*0.625/12)	=D63-1.5*(TRUNC(D63)*0.75/12)	=F63*E63	=G63*E63	=H63*E63	=$B$1/I63	=$B$1/J63	=$B$1/K63
64	=C64-1.5*(TRUNC(C64)*0.625/12)	=D64-1.5*(TRUNC(D64)*0.75/12)	=F64*E64	=G64*E64	=H64*E64	=$B$1/I64	=$B$1/J64	=$B$1/K64
65	=C65-1.5*(TRUNC(C65)*0.625/12)	=D65-1.5*(TRUNC(D65)*0.75/12)	=F65*E65	=G65*E65	=H65*E65	=$B$1/I65	=$B$1/J65	=$B$1/K65
66	=C66-1.5*(TRUNC(C66)*0.625/12)	=D66-1.5*(TRUNC(D66)*0.75/12)	=F66*E66	=G66*E66	=H66*E66	=$B$1/I66	=$B$1/J66	=$B$1/K66
67	=C67-1.5*(TRUNC(C67)*0.625/12)	=D67-1.5*(TRUNC(D67)*0.75/12)	=F67*E67	=G67*E67	=H67*E67	=$B$1/I67	=$B$1/J67	=$B$1/K67
68	=C68-1.5*(TRUNC(C68)*0.625/12)	=D68-1.5*(TRUNC(D68)*0.75/12)	=F68*E68	=G68*E68	=H68*E68	=$B$1/I68	=$B$1/J68	=$B$1/K68
69	=C69-1.5*(TRUNC(C69)*0.625/12)	=D69-1.5*(TRUNC(D69)*0.75/12)	=F69*E69	=G69*E69	=H69*E69	=$B$1/I69	=$B$1/J69	=$B$1/K69
70	=C70-1.5*(TRUNC(C70)*0.625/12)	=D70-1.5*(TRUNC(D70)*0.75/12)	=F70*E70	=G70*E70	=H70*E70	=$B$1/I70	=$B$1/J70	=$B$1/K70
71	=C71-1.5*(TRUNC(C71)*0.625/12)	=D71-1.5*(TRUNC(D71)*0.75/12)	=F71*E71	=G71*E71	=H71*E71	=$B$1/I71	=$B$1/J71	=$B$1/K71
72	=C72-1.5*(TRUNC(C72)*0.625/12)	=D72-1.5*(TRUNC(D72)*0.75/12)	=F72*E72	=G72*E72	=H72*E72	=$B$1/I72	=$B$1/J72	=$B$1/K72
73	=C73-1.5*(TRUNC(C73)*0.625/12)	=D73-1.5*(TRUNC(D73)*0.75/12)	=F73*E73	=G73*E73	=H73*E73	=$B$1/I73	=$B$1/J73	=$B$1/K73
74	=C74-1.5*(TRUNC(C74)*0.625/12)	=D74-1.5*(TRUNC(D74)*0.75/12)	=F74*E74	=G74*E74	=H74*E74	=$B$1/I74	=$B$1/J74	=$B$1/K74
75	=C75-1.5*(TRUNC(C75)*0.625/12)	=D75-1.5*(TRUNC(D75)*0.75/12)	=F75*E75	=G75*E75	=H75*E75	=$B$1/I75	=$B$1/J75	=$B$1/K75
76	=C76-1.5*(TRUNC(C76)*0.625/12)	=D76-1.5*(TRUNC(D76)*0.75/12)	=F76*E76	=G76*E76	=H76*E76	=$B$1/I76	=$B$1/J76	=$B$1/K76
77	=C77-1.5*(TRUNC(C77)*0.625/12)	=D77-1.5*(TRUNC(D77)*0.75/12)	=F77*E77	=G77*E77	=H77*E77	=$B$1/I77	=$B$1/J77	=$B$1/K77
78	=C78-1.5*(TRUNC(C78)*0.625/12)	=D78-1.5*(TRUNC(D78)*0.75/12)	=F78*E78	=G78*E78	=H78*E78	=$B$1/I78	=$B$1/J78	=$B$1/K78

Longitudinal Bar Deflection

Determine Bar Required

γ water (pcf)	62.4
Height (ft)	17
Bar Length (ft)	10
Bar Length (in)	120
E (ksi)	29000

Bar Dimensions

width (in)	0.5
height (in)	6.25

w = 1060.8 plf
88.4 lb/in

Deflection Check

Ix = 10.17253 in^4
δ = **0.809076** in **Very Small, OK**

Longitudinal Bar Deflection Formulas

	A	B	C	D	E
1	**Determine Bar Re**				
2	γ water (pcf)	62.4		Bar Dimensions	
3	Height (ft)	17		width (in)	0.5
4	Bar Length (ft)	10		height (in)	6.25
5	Bar Length (in)	=12*B4			
6	E (ksi)	29000			
7					
8					
9		w = =B2*B3	plf		
10		=B9/12	lb/in		
11					
12	**Deflection Check**				
13		Ix = =E3*E4^3/12	in^4		
14		δ = **=(5*B10*B5^4)/(384*B6*1000*B13)**	in	**Very Small, OK**	

Transverse Bar Sizing

Determine Bar Required

γ water (pcf)	62.4
Height (ft)	17
Bar Length (spacing) (ft)	1
Bar Length (in)	12
E (ksi)	29000

Bar Dimensions

width (in)	0.75
height (in)	0.75

w =	1060.8	plf	
	88.4	lb/in	
Mu =	132.6	lb-ft	
	1591.2	lb-in	
Sx =	0.070313	in^3	
f_b =	**22630.4**	psi	**<50,000psi - OK**

Deflection Check

Ix =	0.026367	in^4	
δ =	**0.031214**	in	**Very Small, OK**

Weld Check

P = the total load on the longitudinal to transverse welded connection

P =	1060.8	lbs	
Lw =	2.5	inches	-Length of weld

Assume 1/8" fillet weld (smallest weld) and lowest tensile strength of weld (60ksi)

Rw =	1.59	kip/in	
Rtot =	**3975**	lbs	**>1060.8, therefore OK**

Transverse Bar Formulas

	A	B	C	D	E
1	**Determine Bar**				
2	γ water (pcf)	62.4		Bar Dimensions	
3	Height (ft)	17		width (in)	0.75
4	Bar Length (spacing) (ft)	1		height (in)	0.75
5	Bar Length (in)	=12*B4			
6	E (ksi)	29000			
7					
8					
9	w =	=B2*B3	plf		
10		=B9/12	lb/in		
11	Mu =	=B9*B4^2/8	lb-ft		
12		=B11*12	lb-in		
13	Sx =	=E3*E4^2/6	in^3		
14	f_b =	**=B12/B13**	psi	**<50,000psi - OK**	
15					
16	**Deflection Che**				
17	Ix =	=E3*E4^3/12	in^4		
18	δ =	**=(5*B10*B5^4)/(384*B6*1000*B17)**	in	**Very Small, OK**	
19					
20	**Weld Check**				
21	P = the total loa				
22	P =	=B2*B3*B4*B4	lbs		
23	Lw =	=E3*2+0.5*2	inches	-Length of weld	
24	Assume 1/8" fill				
25	Rw =	1.59	kip/in		
26	Rtot =	**=B23*B25*1000**	lbs	**>1060.8, therefore OI**	

Column Loading Check

Column Loading Check

γ water (pcf)	62.4
Height (ft)	17
Bar Length (ft)	10
Bar Length (in)	120
E (ksi)	29000

Column Dimensions

width =	0.5	in
length =	6.25	in
height =	2.167	ft
area =	3.125	in^2
K =	0.5	column with fixed ends

Resultant Point Load

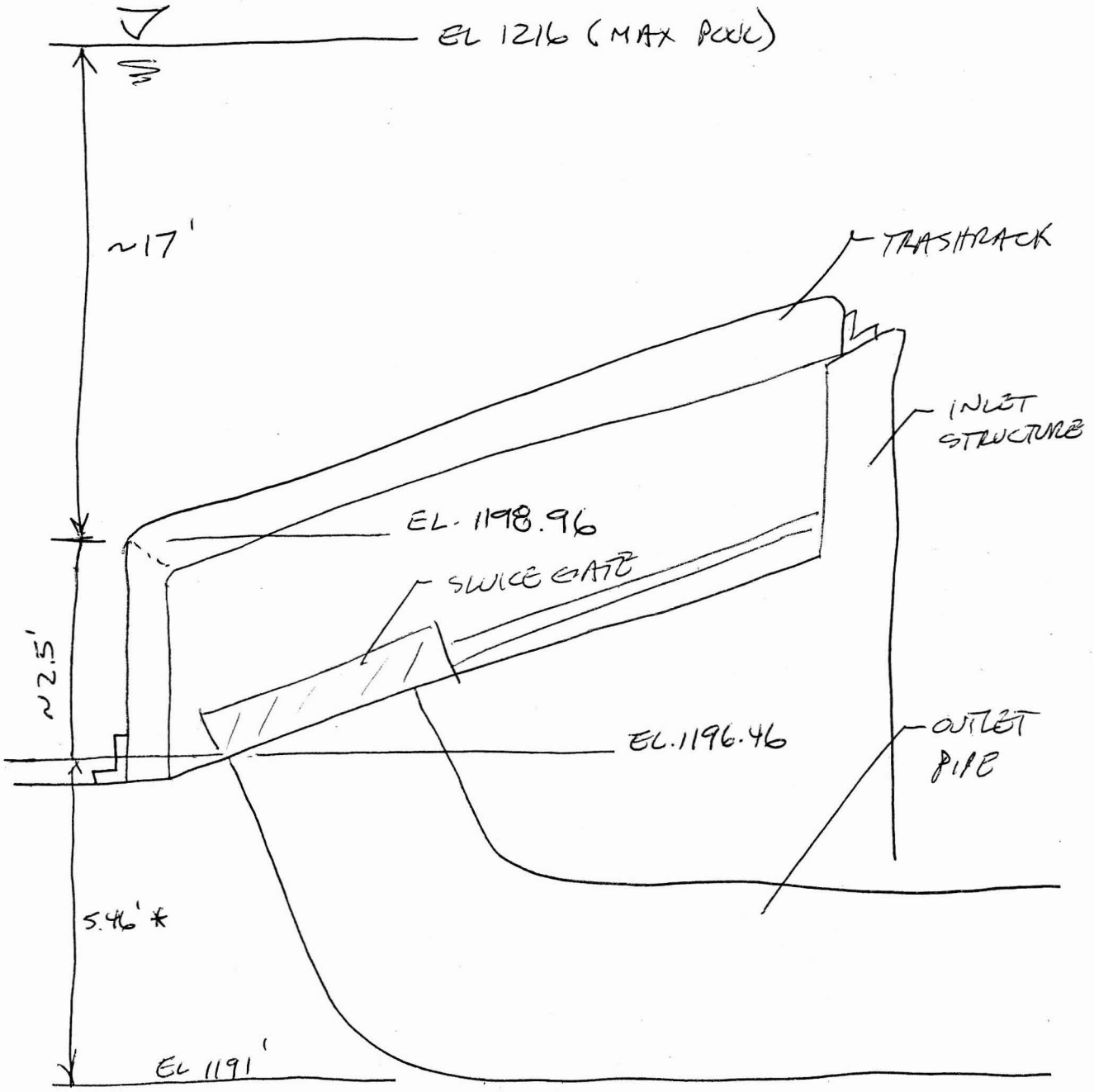
over Beam Span =	10608	lbs
Column Load =	5304	lbs
	5.304	kips
Ix =	10.17253	in^4
Iy =	0.065104	in^4
r_x =	1.80422	in
r_y =	**0.144338**	in
λ_c =	1.191207	
F_{cr} =	27.60815	ksi
Pn =	86.27548	kips
Pu =	**73.33416**	kips

Therefore, r_y controlling

> 5.304 kips, therefore OK

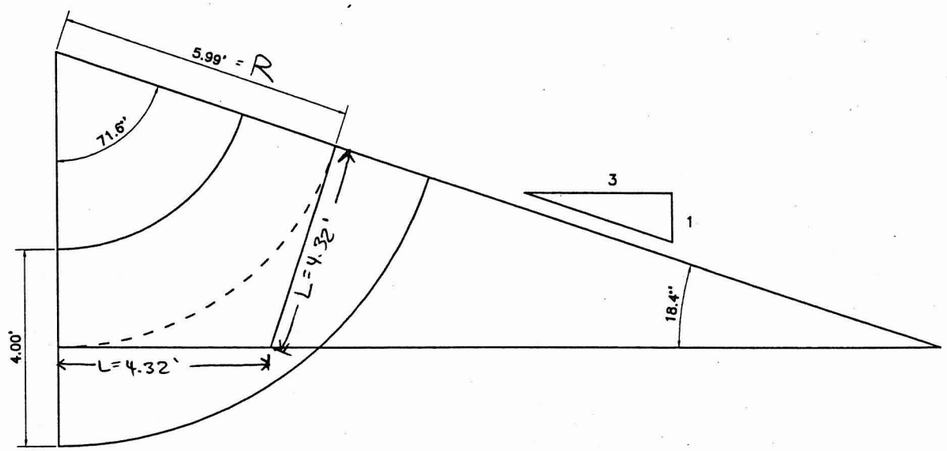
Column Loading Check - Formulas

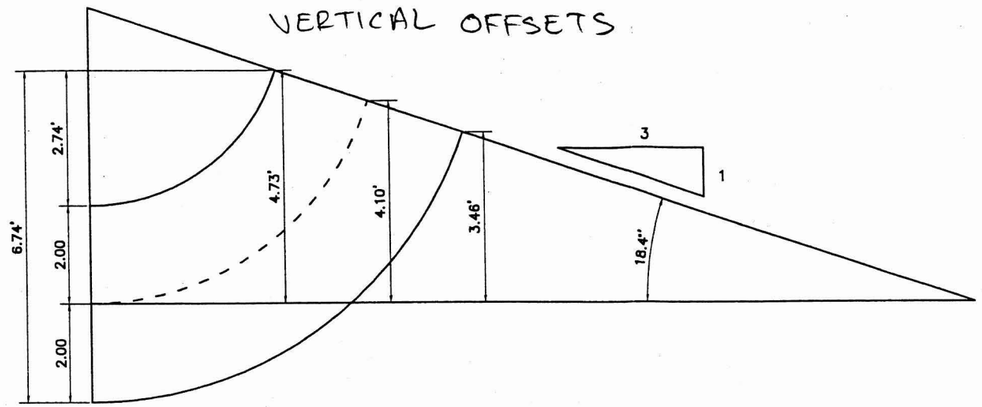
	A	B	C	D	E	F
1	**Column Loading Check**					
2	γ water (pcf)	62.4		Column Dime		
3	Height (ft)	17		width =	0.5	in
4	Bar Length (ft)	10		length =	6.25	in
5	Bar Length (in)	=12*B4		height =	2.167	ft
6	E (ksi)	29000		area =	=+E3*E4	in^2
7				K =	0.5	column with fixed ends
8	Resultant Point Load over Beam Span =	=B2*B3*B4	lbs			
9	Column Load =	=B8/2	lbs			
10		=B9/1000	kips			
11	Ix =	=E3*E4^3/12	in^4			
12	Iy =	=E4*E3^3/12	in^4			
13	r_x =	=SQRT(B11/E6)	in			
14	r_y =	**=SQRT(B12/E6)**	in	**Therefore, r_y**		
15	λ_c =	=((E7*E5*12)/(B14*3.14))*SQRT(50/B6)				
16	F_{cr} =	=0.658^(B15^2)*50	ksi			
17	Pn =	=E6*B16	kips			
18	Pu =	**=0.85*B17**	kips	**> 5.304 kips,**		

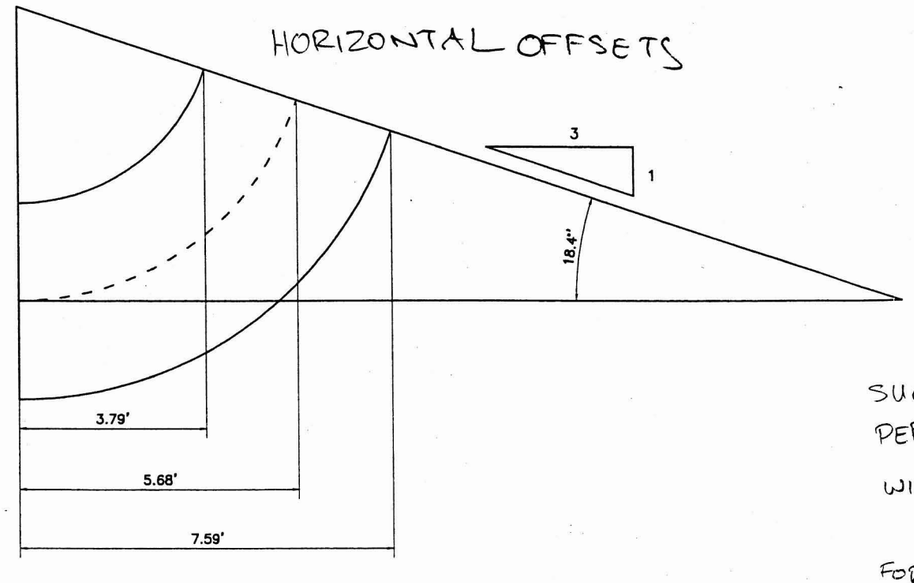


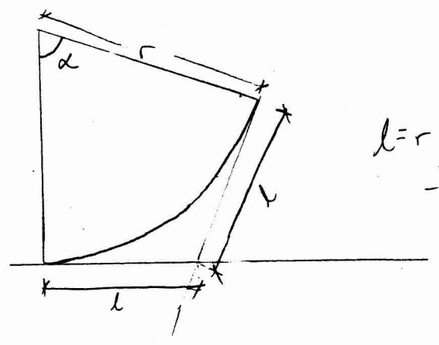
* DIMENSION GIVEN BY AMERON REEP MANUFACTURER
* ELEVATIONS SHOWN DO NOT INCLUDE SLUICE GATE BASE PLATE. THIS PLATE WOULD REDUCE THE 17' HEAD TO APPROXIMATELY 16.5 FEET.

HORIZONTAL AND VERTICAL OFFSETS FOR 48" ϕ RCP - WHITE TANKS









$l = r \tan\left(\frac{\alpha}{2}\right)$

- using $r = 4'$
  $\alpha = 71.6°$

$l = (4') \tan\left(\frac{71.6}{2}\right)$

$l = 2.88'$

With a suggested safety factor of 1.5, $L = 1.5l$

$\therefore L = 4.32'$

$\therefore 4.32 = R \tan\left(\frac{71.6}{2}\right)$

$R = 5.99'$

SUGGESTED SAFETY FACTORS
PER TOM THOMAS, AMERON

WITH SIGNIFICANT, CONTINUED LOADING
DUE TO HYDROSTATIC PRESSURE
S.F. = 2.5

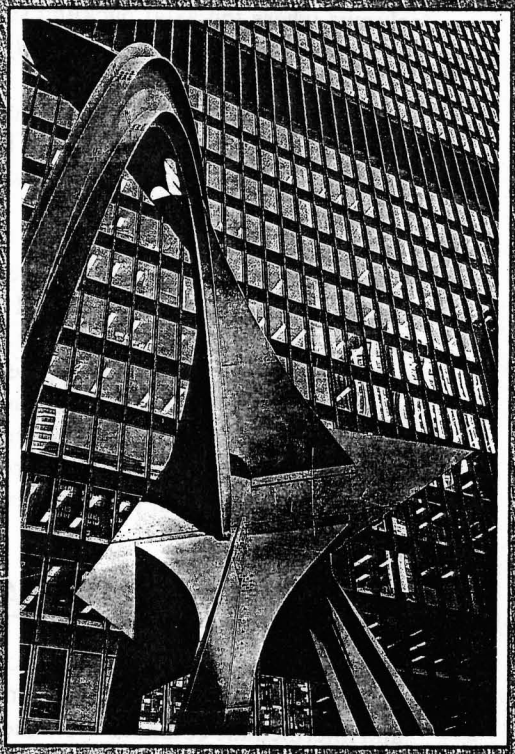
FOR OUR APPLICATION (INTERMITTENT USE)
S.F. = 1.0 - 1.5

30

STRUCTURAL STEEL DESIGN

LRFD Method

SECOND EDITION



Jack C. McCormac

DISK INCLUDED

As the effective length of a column increases, its buckling stress will decrease. If the effective length exceeds a certain value the buckling stress will be less than the proportional limit of the steel. Columns in this range are said to fail *elastically*.

As previously shown in Section 5-5, very long steel columns will fail at loads that are proportional to the bending rigidity of the column (EI) and independent of the strength of the steel. For instance, a long column constructed with a 36 ksi yield stress steel will fail at just about the same load as one constructed with a 100 ksi yield stress steel.

Columns are sometimes classed as being long, short, or intermediate. A brief discussion of each of these classifications is presented in the paragraphs to follow.

Long Columns The Euler formula predicts very well the strength of long columns where the axial buckling stress remains below the proportional limit. Such columns will buckle *elastically*.

Short Columns For very short columns the failure stress will equal the yield stress and no buckling will occur. (For a column to fall into this class it would have to be so short as to have no practical application. Thus no further reference is made to them here.)

Intermediate Columns For intermediate columns some of the fibers will reach the yield stress and some will not. The members will fail by both yielding and buckling and their behavior is said to be *inelastic*. Most columns fall into this range. (For the Euler formula to be applicable for such columns it would have to be modified according to the reduced modulus concept or the tangent modulus concept to account for the presence of residual stresses.)

In Section 5-9 formulas are presented with which the LRFD estimates the strength of columns in these different ranges.

5-9 COLUMN FORMULAS

The LRFD Specification provides one equation (it's the Euler equation) for long columns with inelastic buckling and an empirical parabolic equation for short and intermediate columns. With these equations a critical or buckling stress, F_{cr}, is determined for a compression member. Once this stress is computed for a particular compression member it is multiplied by the cross-sectional area of the member to obtain the member's nominal strength. The design strength of the member can then be determined as follows:

$$P_n = A_g F_{cr} \qquad \text{(LRFD Equation E2-1)}$$

$$P_u = \phi_c A_g F_{cr} \quad \text{with } \phi = 0.85$$

One LRFD equation for F_{cr} is for inelastic buckling and the other is for elastic buckling. In both equations λ_c in easily remembered form is $\sqrt{F_y/F_e}$

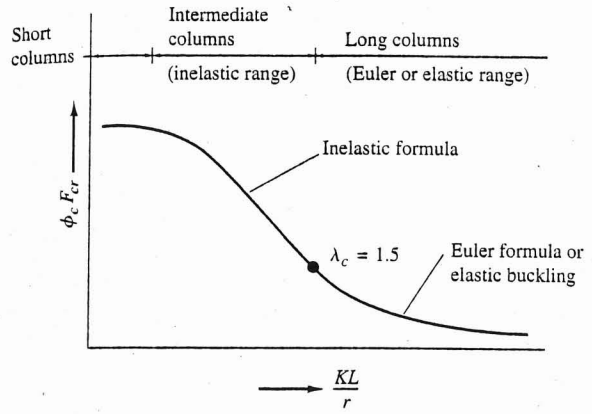


Figure 5-7

where F_e is the Euler stress $\pi^2 E/(KL/r)^2$. Substituting this value for F_e we get the form of λ_c given in the LRFD Specification.

$$\lambda_c = \frac{KL}{r\pi}\sqrt{\frac{F_y}{E}} \qquad \text{(LRFD Equation 2-4)}$$

Both equations for F_{cr} include the estimated effects of residual stresses and initial out-of-straightness of the members. The inelastic formula that follows is an empirical or test result formula.

$$F_{cr} = (0.658^{\lambda_c^2})\, F_y \text{ for } \lambda_c \leq 1.5 \qquad \text{(LRFD Equation E2-2)}$$

The other equation is for elastic or Euler buckling and is the familiar Euler equation multiplied by 0.877 to estimate the effect of out-of-straightness.

$$F_{cr} = \left(\frac{0.877}{\lambda_c^2}\right) F_y \text{ for } \lambda_c > 1.5 \qquad \text{(LRFD Equation E2-3)}$$

These equations are represented graphically in Fig. 5-7.

After looking at these equations the reader might think that their use would be very tedious and time-consuming with a pocket calculator. Such calculations, however, rarely have to be made because the LRFD Manual provides computed $\phi_c F_{cr}$ values for steels with $F_y = 36$ ksi and 50 ksi for KL/r values from 1 to 200 and has shown the results in Tables 3-36 and 3-50 of Part 6 of the LRFD Manual. Furthermore the Manual has another table (Table 4) from which the user may obtain values for steels with any F_y values.

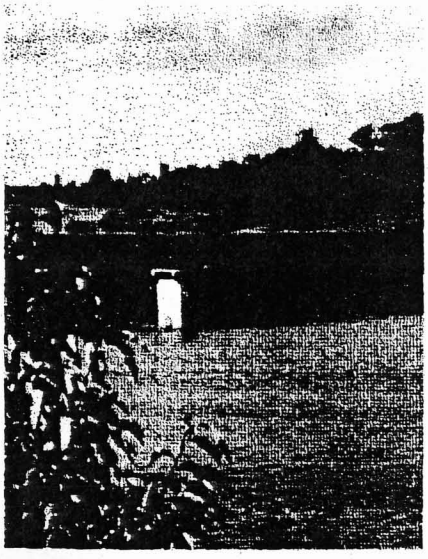
5-10 MAXIMUM SLENDERNESS RATIOS

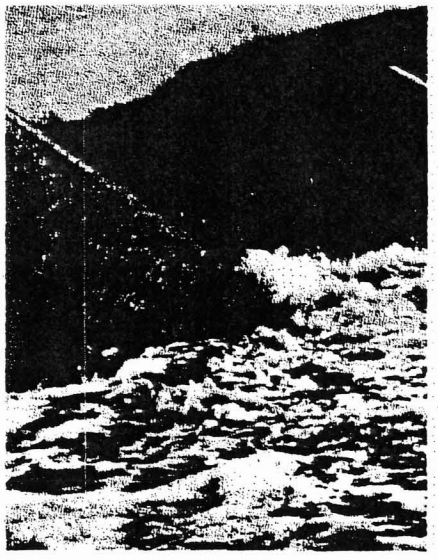
In Part 6, Section B7, the LRFD states that compression members *preferably* should be designed with KL/r ratios not exceeding 200. The reader might note from LRFD Tables 3-36 and 3-50 that design stresses $\phi_c F_{cr}$ for KL/r values of

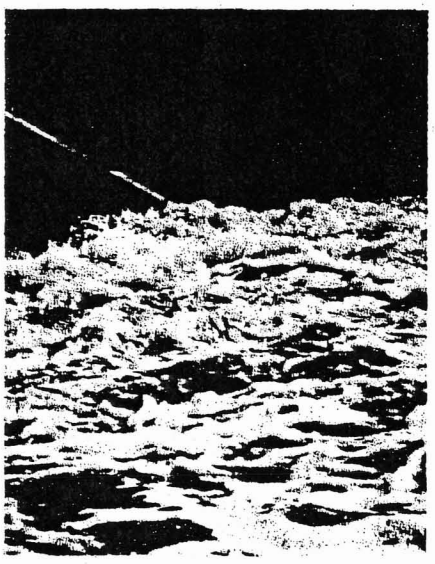
(33)

TR60

Earth Dams and Reservoirs







Technical Release No. 60
210 - VI

Revised Oct. 1985

U.S. Department of Agriculture
Soil Conservation Service
Engineering Division

usually require the use of footings, keywalls and counterforts and drainage is properly located immediately downstream of these features. This drainage when properly designed can control piping and provide significant economies due to the effect on soil loads, uplift pressures, overturning forces and sliding stability.

Outlets

The choice of outlet is to be based on a careful consideration of all site and flow conditions that may affect operation and energy dissipation.

1. Cantilever outlet and plunge pools may be installed where their use:

   a. Does not create a piping hazard in the foundation of the structure.

   b. Is compatible with other conditions at the site.

   Plunge pools are to be designed to dissipate the energy and be stable. Unless the pool is to be in bedrock or very erosion resistant materials, riprap will be necessary to insure stability. Design Note 6, entitled, "Armored Scour Hole for Cantilever Outlet", is to be used for design.

   Cantilever outlets are to be supported on bents or piers and are to extend a minimum of 8 feet beyond the bents or piers. The bents are to be located downstream from the intersection of the downstream slope of the earth embankment with the grade line of the channel below the dam. They are to extend below the lowest elevation anticipated in the plunge pool. The invert of the cantilever outlet is to be at least 1 foot about the tailwater elevation at maximum discharge.

2. SAF basins may be used when there is adequate control of tailwater. Use TR-54 for structural design and NEH-14 for hydraulic design.

3. Impact basins may be used when positive measures are taken to prevent large debris from entering the conduit. TR-49 is to be used for hydraulic design.

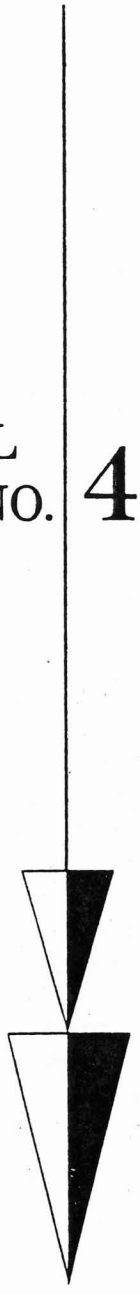
Trash Racks

Trash racks are to be designed to provide positive protection against clogging of the spillway under any operating level. The average velocity of flow through a clean trash rack is not to exceed 2.5 feet per second under the full range of stage and discharge. Velocity is to be computed on the basis of the net area of opening through the rack.

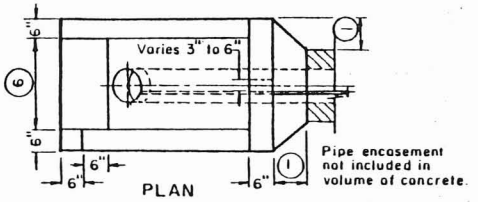
If a reservoir outlet with a trash rack or a ported concrete riser is used to keep the sediment pool drained the trash rack or riser is to extend above the anticipated sediment elevation at the riser to provide

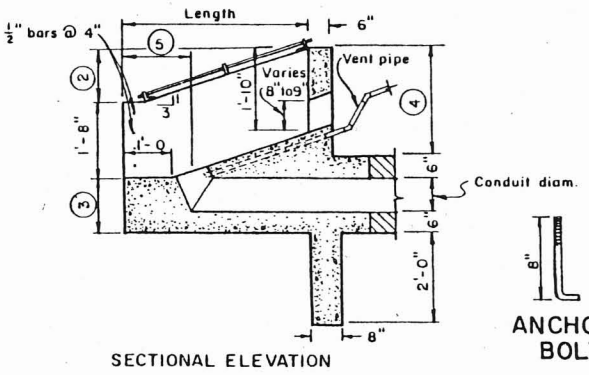
GATED OUTLET APPURTENANCES EARTH DAMS

TECHNICAL RELEASE NO. 46

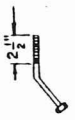


UNITED STATES DEPARTMENT of AGRICULTURE
SOIL CONSERVATION SERVICE
ENGINEERING DIVISION

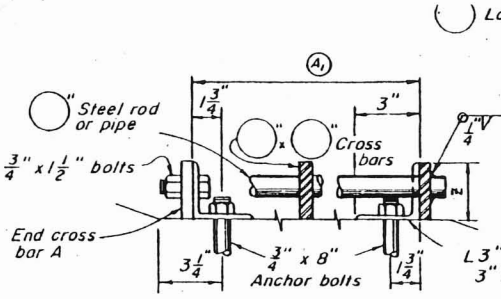




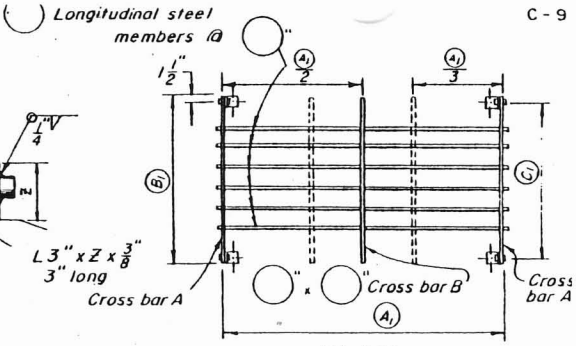
ANCHOR BOLT



ALT. ANCHOR BOLT



DETAILS



TRASH RACK

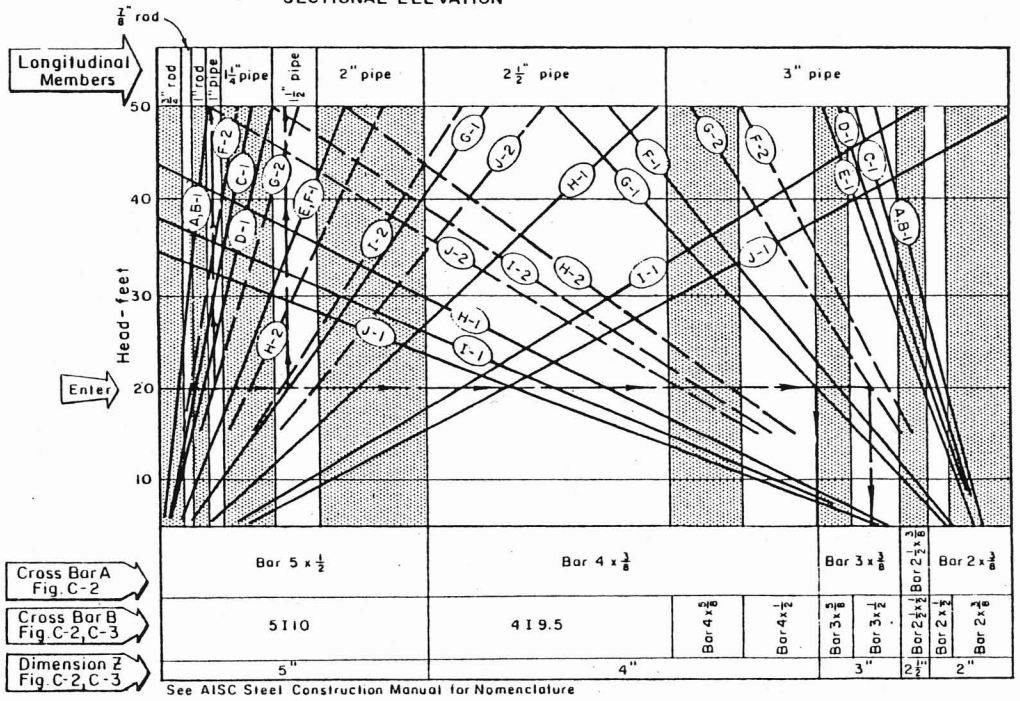
Not to Scale

Note:
When one intermediate bar is used place at center.
When two intermediate bars are used space at $\frac{A_1}{3}$

Structure / Conduit Size / ITEM	INLET STRUCTURE DIMENSIONS									
	A	B	C	D	E	F	G	H	I	J
①	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"
②	1'-2"	1'-2"	1'-4"	1'-6"	1'-8"	1'-8"	2'-0"	2'-6"	2'-10"	3'-0"
③	1'-2"	1'-2"	1'-6"	1'-8"	1'-8"	2'-0"	2'-0"	2'-6"	2'-6"	3'-0"
[1] ④ (Varies)	2'-4"	2'-2"	2'-6"	2'-8"	2'-8"	2'-10"	3'-0"	3'-8"	3'-6"	3'-8"
⑤	1'-6"	1'-7"	1'-9"	1'-10"	2'-0"	2'-0"	2'-2"	2'-2"	2'-4"	2'-10"
⑥	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	3'-0"	3'-0"	4'-0"	4'-0"	4'-0"
LENGTH	4'-0"	4'-0"	4'-6"	5'-0"	5'-6"	5'-6"	6'-6"	8'-0"	9'-0"	9'-6"
TRASH RACK A_1	3'-5¼"	3'-5¼"	3'-11½"	4'-6"	5'-0¼"	5'-0¼"	6'-1"	7'-7¾"	8'-8½"	9'-2¾"
TRASH RACK B_1	2'-9"	2'-9"	2'-9"	2'-9"	2'-9"	3'-9"	3'-9"	4'-9"	4'-9"	4'-9"
TRASH RACK C_1	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"	3'-6"	3'-6"	4'-6"	4'-6"	4'-6"
TRASH RACK BAR SPACING	4"c-c	4"c-c	6"c-c	6"c-c	8"c-c	9"c-c	10"c-c	10"c-c	12"c-c	12"c-c
[M] VOL. CONC. C.Y.	1.33	1.32	1.57	1.84	1.97	2.91	3.40	4.72	6.52	7.00
REIN. STEEL	109#	108#	127#	129#	144#	174#	209#	302#	328#	366#
STD. DWG. NO.	7-N-20465 (Suffixed by size letter) 2 sheets per each structure size									

[M] Volume of concrete using C.M.P. or steel pipe. See Table J-C1 for volumes using other types and sizes of pipe.

[1] If pipe diameter is different from that tabulated adjust dimension ④ to keep the total height of the inlet constant. (See discussion Section C-IV-A)



See AISC Steel Construction Manual for Nomenclature

Example

Given: Structure size G
Head = 20 feet

Find: With one intermediate cross bar use line (G-1)
Longitudinal member = 1½" pipe
Cross bar A = 4" x ⅜", Cross bar B = 4" x ½"
Z = 4"
With two intermediate cross bars use line (G-2)
Longitudinal member = 1" pipe
Cross bar A = 3" x ⅜", Two cross bars B = 3" x ½"
Z = 3"

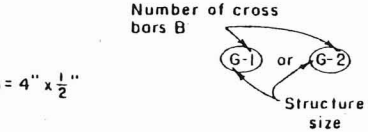
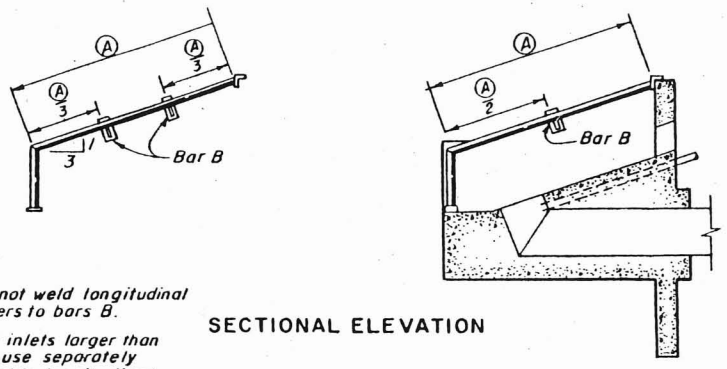


FIGURE C-2
INLET STRUCTURE
EWP Unit Portland, Oregon



Note:

Do not weld longitudinal members to bars B.

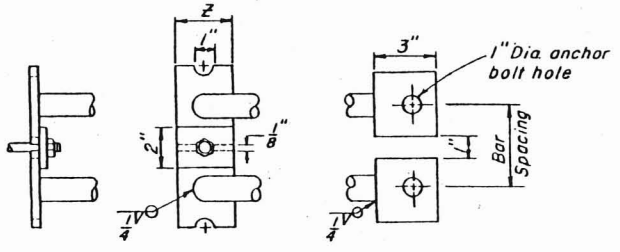
*For inlets larger than size E use seporately removable longitudinal members.

SECTIONAL ELEVATION

PLAN

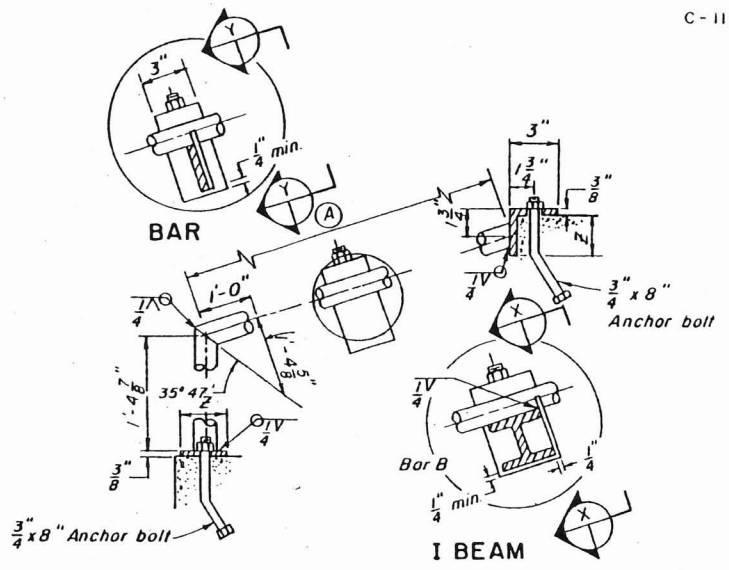
Two Cross Bars

One Cross Bar

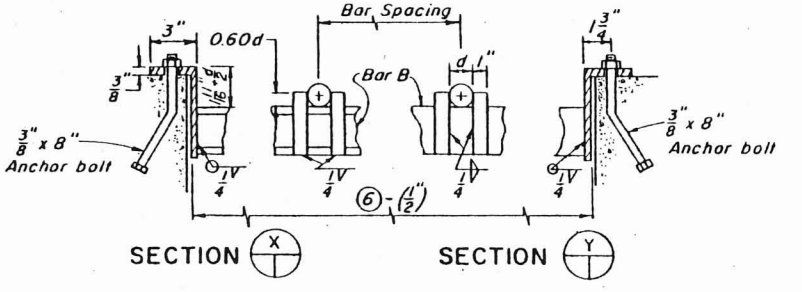


END FASTENING DETAILS FOR "F" SIZE AND ABOVE STRUCTURES

TRASH RACK FASTENING DETAILS



TRASH RACK FASTENING DETAILS



See Figure C-2 for dimensions not given on this figure.

SIZE / ITEM	ALTERNATE TRASH RACK DIMENSIONS									
	A	B	C	D	E	*F	G	H	I	J
Ⓐ	4'-0 3/8"	4'-0 3/8"	4'-6 3/4"	5'-1 1/8"	5'-7 3/8"	5'-7 3/8"	6'-8"	8'-3"	9'-3 5/8"	9'-10"
Ⓑ	1'-10"	1'-10"	1'-10"	1'-10"	1'-10"	2'-10"	2'-10"	3'-10"	3'-10"	3'-10"
Ⓒ	4"c-c	4"c-c	6"c-c	6"c-c	8"c-c	8"c-c	10"c-c	10"c-c	12"c-c	12"c-c

Example

Given: Structure size G, head = 20'
Use one cross bar B

Find: From figure C-2 longitudinal member = 1 1/2" pipe
Cross bar B = 4 x 1/2", length = 3'-0" - [1/2" + 2(3/8")] = 2'-10 3/4"
Z = 4"
From figure C-3, A = 6'-8", B = 2'-10", and bar spacing = 10" c-c
Use separately removable longitudinal members

FIGURE C-3
ALTERNATE TRASH RACK
EWP Unit Portland, Oregon

57

URS

CALCULATION PACKAGE NO. H-11

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: FCDMC

Project Name: White Tanks FRS #3

Project/Calculation Number: 23443748

Title: Computations for Flexural Cracking

Total Number of Pages (including cover sheet): 2

Total Number of Computer Runs: 0

Prepared by: Harold Blair

Date: 12-29-04

Checked by: Steve Dominic

Date: 1-5-05

Description and Purpose:

Compute the flexural cracking factor

Design Basis /Assumptions

Allowable Z = 130 from NEH Sec. 6, page 6.4-3C

Remarks/Conclusions/Results:

Calculated Z = 103 < 130, therefore OK

Calculation Approved by: Chris Wiggerton 3-15-05

Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

Project Manager/Date

URS

Job White Tanks FRS No. 3 Project No. _____ Page ___ of ___

Description _____ Computed by HRB Date 12-29-04 Sheet ___ of ___

_____ Checked by SJD Date 1/5/2005

Reference

Compute the flexural cracking factor for:

- #6 reinforcement bars
- d_c = 2.375 in ✓
- $A = 2d_c$ = 4.75 in / ft ✓
- Allowable Z = 130 ✓
  NEH Sec 6, page 6.4-3C
- f_s = 20. Ksi

$$Z = f_s\sqrt[3]{d_c A}$$ ✓

$$= 20\sqrt[3]{2.375(4.75)12}$$ ✓

$$Z = 103$$ ✓

O.K. - allowable is 130 ✓

APPENDIX I

CALCULATION PACKAGES – HYDRAULICS AND FILTER DESIGN

APPENDIX I

INDEX OF HYDRAULICS AND FILTER CALCULATION PACKAGES

(WHITE TANK FLOOD RETARDING STRUCTURE NO. 3 REMEDIATION DESIGN STUDY)

Index Number	Title
I-1	SITES MODELING FOR EMERGENCY SPILLWAY
I-2	OUTLET CHANNEL DESIGN DOWNSTREAM OF OUTLET STRUCTURES
I-3	RIPRAP SIZING FOR OUTLET CHANNEL
I-4	GRADED FILTER DESIGN

URS

CALCULATION PACKAGE NO. I-1

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: FCDMC Project Name: White Tanks FRS #3

Project/Calculation Number: 2344374 8

Title: SITES Modeling for Emergency Spillway

Total Number of Pages (including cover sheet):

Total Number of Computer Runs: 3

Prepared by: Tom Joseph Date: 9/9/04

Checked by: Todd Ringsmuth Date: 9/10/04

Description and Purpose:

This calculation includes SITES model input and outputs. Refer to design report text for descriptions. A detailed calculation package will be provided with the 100% submittal.

Design Basis/References/Assumptions

Remarks/Conclusions/Results:

Calculation Approved by: Todd Ringsmuth 9-10-04
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

Project Manager/Date

SITES

Holocene Input

SSEA 02/09/2002WT
* White Tanks 72 hr Storm Event
HYD 9 PMF Spillway

.2

32.4	32.4	32.4	32.3	32.3
32.3	32.3	32.3	32.3	32.3
32.3	32.3	32.3	32.3	32.3
32.3	32.3	32.3	32.3	32.3
32.3	32.4	32.4	32.5	32.5
32.6	32.7	32.7	32.8	32.9
33	33.1	33.2	33.4	33.5
33.6	33.8	33.9	34.1	34.2
34.4	34.5	34.7	34.9	35.1
35.3	35.5	35.7	36	36.2
36.4	36.7	36.9	37.1	37.4
37.7	37.9	38.2	38.5	38.8
39.2	39.5	39.8	40.1	40.4
40.8	41.1	41.5	41.9	42.4
42.8	43.3	43.7	44.2	44.7
45.3	45.9	46.5	47.1	47.8
48.4	49.1	49.9	50.6	51.4
52.2	53.1	54	54.9	55.8
57	58.4	60.3	62.3	64
65.7	68	70	73	1255
3171	7311	12583	17897	22347
25135	26045	25467	24348	23297
22268	21179	20055	18980	17995
17036	16036	15085	14232	13431
12634	11797	10953	10180	9509
8928	8412	8001	7662	7354
7067	6793	6537	6309	6109
5925	5749	5582	5435	5306
5186	5067	4949	4842	4747
4653	4550	4440	4338	4239
4108	3920	3690	3462	3259
3078	2910	2754	2640	2570
2499	2428	2356	2287	2222
2158	2097	2037	1981	1928
1877	1828	1782	1738	1698
1661	1627	1594	1564	1537
1514	1494	1474	1456	1439
1424	1412	1402	1393	1385
1375	1363	1349	1334	1322
1311	1301	1290	1279	1269
1260	1253	1247	1240	1233
1225	1216	1205	1193	1182
1171	1162	1152	1143	1135
1127	1120	1113	1107	1102
1096	1092	1088	1084	1080
1075	1067	1058	1047	1037
1028	1019	1011	1004	998
992	986	979	973	967
960	950	939	927	916
906	896	887	879	870
861	850	837	823	809
795	782	770	760	750
739	726	712	698	683

```
                670         657         646         635         624
                613         601         585         569         555
                542         530         517         505         494
                485         475         466         459         453
                445         435         422         409         396
                386         376         368         358         349
                340         331         324         319         314
                310         304         299         294         290
                287         286         285         282         280
                277         275         273         273         273
                273         271         270         268         266
                264         259         253         245         237
                229         221         213         206         198
                190         180         168         155         143
                131         120         109         99          90
                81          73          73          73          73
                72.9        72.9        72.9        72.9        72.9
                72.8        72.8        72.8        72.8        72.8
                72.7        72.7        72.7        72.7        72.7
                72.7        72.6        72.6        72.6        72.6
                72.6        72.5        72.5        72.5        72.5
                72.5        72.4        72.4        72.4        72.4
                72.4        72.3        72.3        72.3        72.3
                72.3        72.3        72.2        72.2        72.2
                72.2        72.2        72.1        72.1        72.1
                72.1        72.1        72          72          72
                72          72          71.9        71.9        71.9
ENDTABLE
POOLDATA    ELEV                                                1168
ASSURFACE   41
            100         4398        .02         .3          1           .5
ENDTABLE
ASDATA      41                                  2
BTMWIDTH    FEET        850
ASMATERIAL
            1           10          0.008       20          110         0.001
ENDTABLE
ASCOORD     1           HOL         Y
            100         1203        109         1203        412.32      1202
            774.68      1201        974.24      1200        1153.2      1199
            1337.39     1197        1709.86     1195        2017.86     1190
            3133        1178        4398        1168
ENDTABLE
GRAPHICS    I
GO,HYD      L                                   1
ENDJOB
ENDRUN
```

Holocene Outputs

```
1*******************************************************************************
 SSEA Xeq 09/09/2004   Spillway Integrity Analysis Program
      Ver 01.0.0                              Time 15:20:08

 ************************** 80-80 List of Input Data ***************************

 SSEA      02/09/2002WT
 *         White Tanks 72 hr Storm Event
 HYD       9                    PMF Spillway
                  .2
                  32.4      32.4      32.4      32.3      32.3
                  32.3      32.3      32.3      32.3      32.3
                  32.3      32.3      32.3      32.3      32.3
                  32.3      32.3      32.3      32.3      32.3
                  32.3      32.4      32.4      32.5      32.5
                  32.6      32.7      32.7      32.8      32.9
                  33        33.1      33.2      33.4      33.5
                  33.6      33.8      33.9      34.1      34.2
                  34.4      34.5      34.7      34.9      35.1
                  35.3      35.5      35.7      36        36.2
                  36.4      36.7      36.9      37.1      37.4
                  37.7      37.9      38.2      38.5      38.8
                  39.2      39.5      39.8      40.1      40.4
                  40.8      41.1      41.5      41.9      42.4
                  42.8      43.3      43.7      44.2      44.7
                  45.3      45.9      46.5      47.1      47.8
                  48.4      49.1      49.9      50.6      51.4
                  52.2      53.1      54        54.9      55.8
                  57        58.4      60.3      62.3      64
                  65.7      68        70        73        1255
                  3171      7311      12583     17897     22347
                  25135     26045     25467     24348     23297
                  22268     21179     20055     18980     17995
                  17036     16036     15085     14232     13431
                  12634     11797     10953     10180     9509
                  8928      8412      8001      7662      7354
                  7067      6793      6537      6309      6109
                  5925      5749      5582      5435      5306
                  5186      5067      4949      4842      4747
                  4653      4550      4440      4338      4239
                  4108      3920      3690      3462      3259
                  3078      2910      2754      2640      2570
                  2499      2428      2356      2287      2222
                  2158      2097      2037      1981      1928
                  1877      1828      1782      1738      1698
                  1661      1627      1594      1564      1537
                  1514      1494      1474      1456      1439
                  1424      1412      1402      1393      1385
                  1375      1363      1349      1334      1322
                  1311      1301      1290      1279      1269
                  1260      1253      1247      1240      1233
                  1225      1216      1205      1193      1182
                  1171      1162      1152      1143      1135
                  1127      1120      1113      1107      1102
                  1096      1092      1088      1084      1080
                  1075      1067      1058      1047      1037
                  1028      1019      1011      1004      998
```

```
                    992         986         979         973         967
                    960         950         939         927         916
                    906         896         887         879         870
                    861         850         837         823         809
                    795         782         770         760         750
                    739         726         712         698         683
                    670         657         646         635         624
                    613         601         585         569         555
                    542         530         517         505         494
                    485         475         466         459         453
                    445         435         422         409         396
                    386         376         368         358         349
                    340         331         324         319         314
                    310         304         299         294         290
                    287         286         285         282         280
                    277         275         273         273         273
                    273         271         270         268         266
                    264         259         253         245         237
                    229         221         213         206         198
                    190         180         168         155         143
                    131         120         109         99          90
                    81          73          73          73          73
                    72.9        72.9        72.9        72.9        72.9
                    72.8        72.8        72.8        72.8        72.8
                    72.7        72.7        72.7        72.7        72.7
                    72.7        72.6        72.6        72.6        72.6
                    72.6        72.5        72.5        72.5        72.5
                    72.5        72.4        72.4        72.4        72.4
                    72.4        72.3        72.3        72.3        72.3
                    72.3        72.3        72.2        72.2        72.2
                    72.2        72.2        72.1        72.1        72.1
                    72.1        72.1        72          72          72
                    72          72          71.9        71.9        71.9
ENDTABLE
POOLDATA  ELEV                                                      1168
ASSURFACE 41
          100       4398        .02         .3          1           .5
ENDTABLE
ASDATA    41                                2
BTMWIDTH  FEET      850
ASMATERIAL
          1         10          0.008       20          110         0.001
ENDTABLE
ASCOORD   1         HOL         Y
          100       1203        109         1203        412.32      1202
          774.68    1201        974.24      1200        1153.2      1199
          1337.39   1197        1709.86     1195        2017.86     1190
          3133      1178        4398        1168
ENDTABLE
GRAPHICS  I
GO,HYD    L                                 1
ENDJOB
ENDRUN

***** MESSAGE - ACTUAL MAINTENANCE CODES ALLOWED FOR STORM SIMULATION.

***** MESSAGE - AUXILIARY SPILLWAY CREST ELEVATION IS SET TO  1203.00
```

FROM THE ASCOORD RECORDS.

***** WARNING - Reach 1, ASSURFACE values are not consistent for soil.

INFLOW HYDROGRAPH PROVIDED. PEAK= 26045.00 CFS, AT 21.40 HRS.
TITLE = PMF Spillway

****

SUMMARY OF AUXILIARY SPILLWAY SURFACE CONDITIONS USED IN COMPUTATIONS BY REACH

REACH	FROM STA (ft)	TO STA (ft)	SLOPE (%)	RETARDANCE CURVE INDEX@	VEGETAL COVER FACTOR	MAINT. CODE	ROOTING DEPTH (ft)	REACH LOCATION *
1	100.	109.	0.0	0.020	0.30	1	0.5	CREST
2	109.	412.	0.3	0.020	0.30	1	0.5	exit
3	412.	775.	0.3	0.020	0.30	1	0.5	exit
4	775.	974.	0.5	0.020	0.30	1	0.5	exit
5	974.	1153.	0.6	0.020	0.30	1	0.5	exit
6	1153.	1337.	1.1	0.020	0.30	1	0.5	exit
7	1337.	1710.	0.5	0.020	0.30	1	0.5	exit
8	1710.	2018.	1.6	0.020	0.30	1	0.5	exit
9	2018.	3133.	1.1	0.020	0.30	1	0.5	exit
10	3133.	4398.	0.8	0.020	0.30	1	0.5	exit

@ The program interprets retardance curve index entries of less than 1 as Manning's n values.

****

INTEGRITY ANALYSIS - REACH SURFACE PERFORMANCE SUMMARY

Aux. Spillway Crest - 1203.00, Bottom Width - 850.0

(The auxiliary spillway began flow at time 0.0 hours
and peaked at time 21.4 hours with a discharge of 26045. cfs .)

REACH 2: FROM STATION 109. TO 412. ON 0.3% SLOPE.
Vegetal cover failed and concentrated flow developed
at time = 53.2 hours.

REACH 3: FROM STATION 412. TO 775. ON 0.3% SLOPE.
Vegetal cover failed and concentrated flow developed
at time = 78.0 hours.

REACH 4: FROM STATION 775. TO 974. ON 0.5% SLOPE.
Vegetal cover failed and concentrated flow developed
at time = 20.8 hours.

REACH 5: FROM STATION 974. TO 1153. ON 0.6% SLOPE.
Vegetal cover failed and concentrated flow developed
at time = 20.8 hours.

```
   REACH   6: FROM STATION   1153. TO   1337. ON    1.1% SLOPE.
      Vegetal cover failed and concentrated flow developed
      at time =   20.4 hours.


   REACH   7: FROM STATION   1337. TO   1710. ON    0.5% SLOPE.
      Vegetal cover failed and concentrated flow developed
      at time =   20.4 hours.


   REACH   8: FROM STATION   1710. TO   2018. ON    1.6% SLOPE.
      Vegetal cover failed and concentrated flow developed
      at time =   20.2 hours.


   REACH   9: FROM STATION   2018. TO   3133. ON    1.1% SLOPE.
      Vegetal cover failed and concentrated flow developed
      at time =   20.2 hours.


   REACH  10: FROM STATION   3133. TO   4398. ON    0.8% SLOPE.
      Vegetal cover failed and concentrated flow developed
      at time =   20.4 hours.


 INTEGRITY ANALYSIS - HEADCUT EROSION DAMAGE SUMMARY

   The headcut BREACHED the spillway crest at
   time equal approximately    54.8 hours.
   Computations terminated at that point!

   The most upstream headcut began at station    109.
   and progressed upstream to station    100.
   The final height of the headcut was    0.6 ft.

   The headcut having the maximum final overfall height began
   at station   1153. and progressed upstream to station   100.
   The final height of the headcut was   35.0 ft.

                  DURATION    DIST. FROM MOST U/S
                    FLOW      HEADCUT TO U/S EDGE
 AUXILIARY           HRS      AUX. CREST, FT
 SPILLWAY----      80.2          >>>BREACH<<<
       Depth =     0.6 ft

1SSEA.....Job Complete.
 ------------------------------------------------------------------------------

 WT



 SSEA.....Computations Complete.
```

Pleistocene Input

K_H = [redacted] 0.01

SSEA 02/09/2002WT
* White Tanks 72 hr Storm Event
HYD 9 PMF Spillway

.2

32.4	32.4	32.4	32.3	32.3
32.3	32.3	32.3	32.3	32.3
32.3	32.3	32.3	32.3	32.3
32.3	32.3	32.3	32.3	32.3
32.3	32.4	32.4	32.5	32.5
32.6	32.7	32.7	32.8	32.9
33	33.1	33.2	33.4	33.5
33.6	33.8	33.9	34.1	34.2
34.4	34.5	34.7	34.9	35.1
35.3	35.5	35.7	36	36.2
36.4	36.7	36.9	37.1	37.4
37.7	37.9	38.2	38.5	38.8
39.2	39.5	39.8	40.1	40.4
40.8	41.1	41.5	41.9	42.4
42.8	43.3	43.7	44.2	44.7
45.3	45.9	46.5	47.1	47.8
48.4	49.1	49.9	50.6	51.4
52.2	53.1	54	54.9	55.8
57	58.4	60.3	62.3	64
65.7	68	70	73	1255
3171	7311	12583	17897	22347
25135	26045	25467	24348	23297
22268	21179	20055	18980	17995
17036	16036	15085	14232	13431
12634	11797	10953	10180	9509
8928	8412	8001	7662	7354
7067	6793	6537	6309	6109
5925	5749	5582	5435	5306
5186	5067	4949	4842	4747
4653	4550	4440	4338	4239
4108	3920	3690	3462	3259
3078	2910	2754	2640	2570
2499	2428	2356	2287	2222
2158	2097	2037	1981	1928
1877	1828	1782	1738	1698
1661	1627	1594	1564	1537
1514	1494	1474	1456	1439
1424	1412	1402	1393	1385
1375	1363	1349	1334	1322
1311	1301	1290	1279	1269
1260	1253	1247	1240	1233
1225	1216	1205	1193	1182
1171	1162	1152	1143	1135
1127	1120	1113	1107	1102
1096	1092	1088	1084	1080
1075	1067	1058	1047	1037
1028	1019	1011	1004	998
992	986	979	973	967
960	950	939	927	916
906	896	887	879	870
861	850	837	823	809
795	782	770	760	750
739	726	712	698	683

```
                670         657         646         635         624
                613         601         585         569         555
                542         530         517         505         494
                485         475         466         459         453
                445         435         422         409         396
                386         376         368         358         349
                340         331         324         319         314
                310         304         299         294         290
                287         286         285         282         280
                277         275         273         273         273
                273         271         270         268         266
                264         259         253         245         237
                229         221         213         206         198
                190         180         168         155         143
                131         120         109         99          90
                81          73          73          73          73
                72.9        72.9        72.9        72.9        72.9
                72.8        72.8        72.8        72.8        72.8
                72.7        72.7        72.7        72.7        72.7
                72.7        72.6        72.6        72.6        72.6
                72.6        72.5        72.5        72.5        72.5
                72.5        72.4        72.4        72.4        72.4
                72.4        72.3        72.3        72.3        72.3
                72.3        72.3        72.2        72.2        72.2
                72.2        72.2        72.1        72.1        72.1
                72.1        72.1        72          72          72
                72          72          71.9        71.9        71.9
ENDTABLE
POOLDATA    ELEV                                                1171
ASSURFACE   41
            140         4500        0.02        0           1           0
ENDTABLE
ASDATA      41                      2
BTMWIDTH    FEET        850
ASMATERIAL
            1           13          0.008       35          117         0.01
ENDTABLE
ASCOORD     1           Plei        Y
            100         1203        109         1203        412.32      1202
            774.68      1201        974.24      1200        1153.2      1199
            1337.39     1197        1709.86     1195        2017.86     1190
            3133        1178        4398        1168
ENDTABLE
GRAPHICS    I
GO,HYD      L                       1
ENDJOB
ENDRUN
```

Pleistocene output
K_H = [redacted] 0.01

1**********

SSEA Xeq 09/09/2004 Spillway Integrity Analysis Program
Ver 01.0.0 Time 15:31:55

********** 80-80 List of Input Data **********

SSEA 02/09/2002WT
* White Tanks 72 hr Storm Event
HYD 9 PMF Spillway

.2

32.4	32.4	32.4	32.3	32.3
32.3	32.3	32.3	32.3	32.3
32.3	32.3	32.3	32.3	32.3
32.3	32.3	32.3	32.3	32.3
32.3	32.4	32.4	32.5	32.5
32.6	32.7	32.7	32.8	32.9
33	33.1	33.2	33.4	33.5
33.6	33.8	33.9	34.1	34.2
34.4	34.5	34.7	34.9	35.1
35.3	35.5	35.7	36	36.2
36.4	36.7	36.9	37.1	37.4
37.7	37.9	38.2	38.5	38.8
39.2	39.5	39.8	40.1	40.4
40.8	41.1	41.5	41.9	42.4
42.8	43.3	43.7	44.2	44.7
45.3	45.9	46.5	47.1	47.8
48.4	49.1	49.9	50.6	51.4
52.2	53.1	54	54.9	55.8
57	58.4	60.3	62.3	64
65.7	68	70	73	1255
3171	7311	12583	17897	22347
25135	26045	25467	24348	23297
22268	21179	20055	18980	17995
17036	16036	15085	14232	13431
12634	11797	10953	10180	9509
8928	8412	8001	7662	7354
7067	6793	6537	6309	6109
5925	5749	5582	5435	5306
5186	5067	4949	4842	4747
4653	4550	4440	4338	4239
4108	3920	3690	3462	3259
3078	2910	2754	2640	2570
2499	2428	2356	2287	2222
2158	2097	2037	1981	1928
1877	1828	1782	1738	1698
1661	1627	1594	1564	1537
1514	1494	1474	1456	1439
1424	1412	1402	1393	1385
1375	1363	1349	1334	1322
1311	1301	1290	1279	1269
1260	1253	1247	1240	1233
1225	1216	1205	1193	1182
1171	1162	1152	1143	1135
1127	1120	1113	1107	1102
1096	1092	1088	1084	1080
1075	1067	1058	1047	1037
1028	1019	1011	1004	998

```
                    992         986         979         973         967
                    960         950         939         927         916
                    906         896         887         879         870
                    861         850         837         823         809
                    795         782         770         760         750
                    739         726         712         698         683
                    670         657         646         635         624
                    613         601         585         569         555
                    542         530         517         505         494
                    485         475         466         459         453
                    445         435         422         409         396
                    386         376         368         358         349
                    340         331         324         319         314
                    310         304         299         294         290
                    287         286         285         282         280
                    277         275         273         273         273
                    273         271         270         268         266
                    264         259         253         245         237
                    229         221         213         206         198
                    190         180         168         155         143
                    131         120         109         99          90
                    81          73          73          73          73
                    72.9        72.9        72.9        72.9        72.9
                    72.8        72.8        72.8        72.8        72.8
                    72.7        72.7        72.7        72.7        72.7
                    72.7        72.6        72.6        72.6        72.6
                    72.6        72.5        72.5        72.5        72.5
                    72.5        72.4        72.4        72.4        72.4
                    72.4        72.3        72.3        72.3        72.3
                    72.3        72.3        72.2        72.2        72.2
                    72.2        72.2        72.1        72.1        72.1
                    72.1        72.1        72          72          72
                    72          72          71.9        71.9        71.9
ENDTABLE
POOLDATA  ELEV                                                      1171
ASSURFACE 41
          140       4500        0.02        0           1           0
ENDTABLE
ASDATA    41                                2
BTMWIDTH  FEET      850
ASMATERIAL
          1         13          0.008       35          117         0.01
ENDTABLE
ASCOORD   1         Plei        Y
          100       1203        109         1203        412.32      1202
          774.68    1201        974.24      1200        1153.2      1199
          1337.39   1197        1709.86     1195        2017.86     1190
          3133      1178        4398        1168
ENDTABLE
GRAPHICS  I
GO,HYD    L                                 1
ENDJOB
ENDRUN

***** MESSAGE - ACTUAL MAINTENANCE CODES ALLOWED FOR STORM SIMULATION.

***** MESSAGE - AUXILIARY SPILLWAY CREST ELEVATION IS SET TO  1203.00
```

FROM THE ASCOORD RECORDS.

***** MESSAGE - Values from ASSURFACE, Reach 1 imply a vegetal cover with "n" of 0.020.

INFLOW HYDROGRAPH PROVIDED. PEAK= 26045.00 CFS, AT 21.40 HRS.
TITLE = PMF Spillway

****

SUMMARY OF AUXILIARY SPILLWAY SURFACE CONDITIONS USED IN COMPUTATIONS BY REACH

REACH	FROM STA (ft)	TO STA (ft)	SLOPE (%)	RETARDANCE CURVE INDEX@	VEGETAL COVER FACTOR	MAINT. CODE	ROOTING DEPTH (ft)	REACH LOCATION *
1	100.	109.	0.0	0.020	0.00	1		CREST
2	109.	412.	0.3	0.020	0.00	1		exit
3	412.	775.	0.3	0.020	0.00	1		exit
4	775.	974.	0.5	0.020	0.00	1		exit
5	974.	1153.	0.6	0.020	0.00	1		exit
6	1153.	1337.	1.1	0.020	0.00	1		exit
7	1337.	1710.	0.5	0.020	0.00	1		exit
8	1710.	2018.	1.6	0.020	0.00	1		exit
9	2018.	3133.	1.1	0.020	0.00	1		exit
10	3133.	4018.	0.8	0.020	0.00	1		exit

@ The program interprets retardance curve index entries of less than 1 as Manning's n values.

****

INTEGRITY ANALYSIS - REACH SURFACE PERFORMANCE SUMMARY

Aux. Spillway Crest - 1203.00, Bottom Width - 850.0

(The auxiliary spillway began flow at time 0.0 hours
and peaked at time 21.4 hours with a discharge of 26045. cfs .)

REACH 2: FROM STATION 109. TO 412. ON 0.3% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 41.0 hours.

REACH 3: FROM STATION 412. TO 775. ON 0.3% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 48.8 hours.

REACH 4: FROM STATION 775. TO 974. ON 0.5% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 20.8 hours.

REACH 5: FROM STATION 974. TO 1153. ON 0.6% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 20.6 hours.

```
      REACH   6: FROM STATION   1153. TO   1337. ON    1.1% SLOPE.
         Non-vegetated conditions implied: flow concentration
          assumed with minimal flow: Time =   20.4 hours.


      REACH   7: FROM STATION   1337. TO   1710. ON    0.5% SLOPE.
         Non-vegetated conditions implied: flow concentration
          assumed with minimal flow: Time =   20.4 hours.


      REACH   8: FROM STATION   1710. TO   2018. ON    1.6% SLOPE.
         Non-vegetated conditions implied: flow concentration
          assumed with minimal flow: Time =   20.2 hours.


      REACH   9: FROM STATION   2018. TO   3133. ON    1.1% SLOPE.
         Non-vegetated conditions implied: flow concentration
          assumed with minimal flow: Time =   20.2 hours.


      REACH  10: FROM STATION   3133. TO   4018. ON    0.8% SLOPE.
         Non-vegetated conditions implied: flow concentration
          assumed with minimal flow: Time =   20.4 hours.


    INTEGRITY ANALYSIS - HEADCUT EROSION DAMAGE SUMMARY

      The headcut BREACHED the spillway crest at
      time equal approximately    42.6 hours.
      Computations terminated at that point!

      The most upstream headcut began at station    109.
      and progressed upstream to station    100.
      The final height of the headcut was    0.5 ft.

      The headcut having the maximum final overfall height began
      at station   2018. and progressed upstream to station  1348.
      The final height of the headcut was   14.3 ft.

                      DURATION    DIST. FROM MOST U/S
                        FLOW      HEADCUT TO U/S EDGE
    AUXILIARY            HRS      AUX. CREST, FT
    SPILLWAY----        80.2         >>>BREACH<<<
          Depth =       0.5 ft

1SSEA.....Job Complete.
 ------------------------------------------------------------------------------

 WT



 SSEA.....Computations Complete.
```

Pleistocene Input

$K_H = 0.4$

```
SSEA      02/09/2002WT
*         White Tanks 72 hr Storm Event
HYD       9                    PMF Spillway
                .2
                32.4      32.4      32.4      32.3      32.3
                32.3      32.3      32.3      32.3      32.3
                32.3      32.3      32.3      32.3      32.3
                32.3      32.3      32.3      32.3      32.3
                32.3      32.4      32.4      32.5      32.5
                32.6      32.7      32.7      32.8      32.9
                33        33.1      33.2      33.4      33.5
                33.6      33.8      33.9      34.1      34.2
                34.4      34.5      34.7      34.9      35.1
                35.3      35.5      35.7      36        36.2
                36.4      36.7      36.9      37.1      37.4
                37.7      37.9      38.2      38.5      38.8
                39.2      39.5      39.8      40.1      40.4
                40.8      41.1      41.5      41.9      42.4
                42.8      43.3      43.7      44.2      44.7
                45.3      45.9      46.5      47.1      47.8
                48.4      49.1      49.9      50.6      51.4
                52.2      53.1      54        54.9      55.8
                57        58.4      60.3      62.3      64
                65.7      68        70        73        1255
                3171      7311      12583     17897     22347
                25135     26045     25467     24348     23297
                22268     21179     20055     18980     17995
                17036     16036     15085     14232     13431
                12634     11797     10953     10180     9509
                8928      8412      8001      7662      7354
                7067      6793      6537      6309      6109
                5925      5749      5582      5435      5306
                5186      5067      4949      4842      4747
                4653      4550      4440      4338      4239
                4108      3920      3690      3462      3259
                3078      2910      2754      2640      2570
                2499      2428      2356      2287      2222
                2158      2097      2037      1981      1928
                1877      1828      1782      1738      1698
                1661      1627      1594      1564      1537
                1514      1494      1474      1456      1439
                1424      1412      1402      1393      1385
                1375      1363      1349      1334      1322
                1311      1301      1290      1279      1269
                1260      1253      1247      1240      1233
                1225      1216      1205      1193      1182
                1171      1162      1152      1143      1135
                1127      1120      1113      1107      1102
                1096      1092      1088      1084      1080
                1075      1067      1058      1047      1037
                1028      1019      1011      1004      998
                992       986       979       973       967
                960       950       939       927       916
                906       896       887       879       870
                861       850       837       823       809
                795       782       770       760       750
                739       726       712       698       683
```

```
                    670         657         646         635         624
                    613         601         585         569         555
                    542         530         517         505         494
                    485         475         466         459         453
                    445         435         422         409         396
                    386         376         368         358         349
                    340         331         324         319         314
                    310         304         299         294         290
                    287         286         285         282         280
                    277         275         273         273         273
                    273         271         270         268         266
                    264         259         253         245         237
                    229         221         213         206         198
                    190         180         168         155         143
                    131         120         109         99          90
                    81          73          73          73          73
                    72.9        72.9        72.9        72.9        72.9
                    72.8        72.8        72.8        72.8        72.8
                    72.7        72.7        72.7        72.7        72.7
                    72.7        72.6        72.6        72.6        72.6
                    72.6        72.5        72.5        72.5        72.5
                    72.5        72.4        72.4        72.4        72.4
                    72.4        72.3        72.3        72.3        72.3
                    72.3        72.3        72.2        72.2        72.2
                    72.2        72.2        72.1        72.1        72.1
                    72.1        72.1        72          72          72
                    72          72          71.9        71.9        71.9
ENDTABLE
POOLDATA  ELEV                                                      1171
ASSURFACE 41
          140       4500        0.02        0           1           0
ENDTABLE
ASDATA    41                                2
BTMWIDTH  FEET      850
ASMATERIAL
          1         13          0.008       35          117         0.4
ENDTABLE
ASCOORD   1         Plei        Y
          100       1203        109         1203        412.32      1202
          774.68    1201        974.24      1200        1153.2      1199
          1337.39   1197        1709.86     1195        2017.86     1190
          3133      1178        4398        1168
ENDTABLE
GRAPHICS  I
GO,HYD    L                                 1
ENDJOB
ENDRUN
```

Pleistocene output
$K_H = 0.4$

```
1*******************************************************************************
 SSEA Xeq 09/10/2004   Spillway Integrity Analysis Program
      Ver 01.0.0                              Time 09:27:14

 ************************* 80-80 List of Input Data ***************************

 SSEA       02/09/2002WT
 *          White Tanks 72 hr Storm Event
 HYD        9                    PMF Spillway
                    .2
                    32.4       32.4       32.4       32.3       32.3
                    32.3       32.3       32.3       32.3       32.3
                    32.3       32.3       32.3       32.3       32.3
                    32.3       32.3       32.3       32.3       32.3
                    32.3       32.4       32.4       32.5       32.5
                    32.6       32.7       32.7       32.8       32.9
                    33         33.1       33.2       33.4       33.5
                    33.6       33.8       33.9       34.1       34.2
                    34.4       34.5       34.7       34.9       35.1
                    35.3       35.5       35.7       36         36.2
                    36.4       36.7       36.9       37.1       37.4
                    37.7       37.9       38.2       38.5       38.8
                    39.2       39.5       39.8       40.1       40.4
                    40.8       41.1       41.5       41.9       42.4
                    42.8       43.3       43.7       44.2       44.7
                    45.3       45.9       46.5       47.1       47.8
                    48.4       49.1       49.9       50.6       51.4
                    52.2       53.1       54         54.9       55.8
                    57         58.4       60.3       62.3       64
                    65.7       68         70         73         1255
                    3171       7311       12583      17897      22347
                    25135      26045      25467      24348      23297
                    22268      21179      20055      18980      17995
                    17036      16036      15085      14232      13431
                    12634      11797      10953      10180      9509
                    8928       8412       8001       7662       7354
                    7067       6793       6537       6309       6109
                    5925       5749       5582       5435       5306
                    5186       5067       4949       4842       4747
                    4653       4550       4440       4338       4239
                    4108       3920       3690       3462       3259
                    3078       2910       2754       2640       2570
                    2499       2428       2356       2287       2222
                    2158       2097       2037       1981       1928
                    1877       1828       1782       1738       1698
                    1661       1627       1594       1564       1537
                    1514       1494       1474       1456       1439
                    1424       1412       1402       1393       1385
                    1375       1363       1349       1334       1322
                    1311       1301       1290       1279       1269
                    1260       1253       1247       1240       1233
                    1225       1216       1205       1193       1182
                    1171       1162       1152       1143       1135
                    1127       1120       1113       1107       1102
                    1096       1092       1088       1084       1080
                    1075       1067       1058       1047       1037
                    1028       1019       1011       1004       998
```

```
                    992         986         979         973         967
                    960         950         939         927         916
                    906         896         887         879         870
                    861         850         837         823         809
                    795         782         770         760         750
                    739         726         712         698         683
                    670         657         646         635         624
                    613         601         585         569         555
                    542         530         517         505         494
                    485         475         466         459         453
                    445         435         422         409         396
                    386         376         368         358         349
                    340         331         324         319         314
                    310         304         299         294         290
                    287         286         285         282         280
                    277         275         273         273         273
                    273         271         270         268         266
                    264         259         253         245         237
                    229         221         213         206         198
                    190         180         168         155         143
                    131         120         109         99          90
                    81          73          73          73          73
                    72.9        72.9        72.9        72.9        72.9
                    72.8        72.8        72.8        72.8        72.8
                    72.7        72.7        72.7        72.7        72.7
                    72.7        72.6        72.6        72.6        72.6
                    72.6        72.5        72.5        72.5        72.5
                    72.5        72.4        72.4        72.4        72.4
                    72.4        72.3        72.3        72.3        72.3
                    72.3        72.3        72.2        72.2        72.2
                    72.2        72.2        72.1        72.1        72.1
                    72.1        72.1        72          72          72
                    72          72          71.9        71.9        71.9
ENDTABLE
POOLDATA  ELEV                                                      1171
ASSURFACE 41
          140       4500        0.02        0           1           0
ENDTABLE
ASDATA    41                                2
BTMWIDTH  FEET      850
ASMATERIAL
          1         13          0.008       35          117         0.4
ENDTABLE
ASCOORD   1         Plei        Y
          100       1203        109         1203        412.32      1202
          774.68    1201        974.24      1200        1153.2      1199
          1337.39   1197        1709.86     1195        2017.86     1190
          3133      1178        4398        1168
ENDTABLE
GRAPHICS  I
GO,HYD    L                                 1
ENDJOB
ENDRUN

***** MESSAGE - ACTUAL MAINTENANCE CODES ALLOWED FOR STORM SIMULATION.

***** MESSAGE - AUXILIARY SPILLWAY CREST ELEVATION IS SET TO  1203.00
```

FROM THE ASCOORD RECORDS.

***** MESSAGE - Values from ASSURFACE, Reach 1 imply a vegetal cover with "n" of 0.020.

INFLOW HYDROGRAPH PROVIDED. PEAK= 26045.00 CFS, AT 21.40 HRS.
TITLE = PMF Spillway

****

SUMMARY OF AUXILIARY SPILLWAY SURFACE CONDITIONS USED IN COMPUTATIONS BY REACH

REACH	FROM STA (ft)	TO STA (ft)	SLOPE (%)	RETARDANCE CURVE INDEX@	VEGETAL COVER FACTOR	MAINT. CODE	ROOTING DEPTH (ft)	REACH LOCATION *
1	100.	109.	0.0	0.020	0.00	1		CREST
2	109.	412.	0.3	0.020	0.00	1		exit
3	412.	775.	0.3	0.020	0.00	1		exit
4	775.	974.	0.5	0.020	0.00	1		exit
5	974.	1153.	0.6	0.020	0.00	1		exit
6	1153.	1337.	1.1	0.020	0.00	1		exit
7	1337.	1710.	0.5	0.020	0.00	1		exit
8	1710.	2018.	1.6	0.020	0.00	1		exit
9	2018.	3133.	1.1	0.020	0.00	1		exit
10	3133.	4018.	0.8	0.020	0.00	1		exit

@ The program interprets retardance curve index entries of less than 1 as Manning's n values.

****

INTEGRITY ANALYSIS - REACH SURFACE PERFORMANCE SUMMARY

Aux. Spillway Crest - 1203.00, Bottom Width - 850.0

(The auxiliary spillway began flow at time 0.0 hours
and peaked at time 21.4 hours with a discharge of 26045. cfs .)

REACH 2: FROM STATION 109. TO 412. ON 0.3% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 41.0 hours.

REACH 3: FROM STATION 412. TO 775. ON 0.3% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 48.8 hours.

REACH 4: FROM STATION 775. TO 974. ON 0.5% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 20.8 hours.

REACH 5: FROM STATION 974. TO 1153. ON 0.6% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 20.6 hours.

REACH 6: FROM STATION 1153. TO 1337. ON 1.1% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 20.4 hours.

REACH 7: FROM STATION 1337. TO 1710. ON 0.5% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 20.4 hours.

REACH 8: FROM STATION 1710. TO 2018. ON 1.6% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 20.2 hours.

REACH 9: FROM STATION 2018. TO 3133. ON 1.1% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 20.2 hours.

REACH 10: FROM STATION 3133. TO 4018. ON 0.8% SLOPE.
Non-vegetated conditions implied: flow concentration
assumed with minimal flow: Time = 20.4 hours.

INTEGRITY ANALYSIS - HEADCUT EROSION DAMAGE SUMMARY

The most upstream headcut began at station 109.
and progressed upstream to station 109.
The final height of the headcut was 1.5 ft.

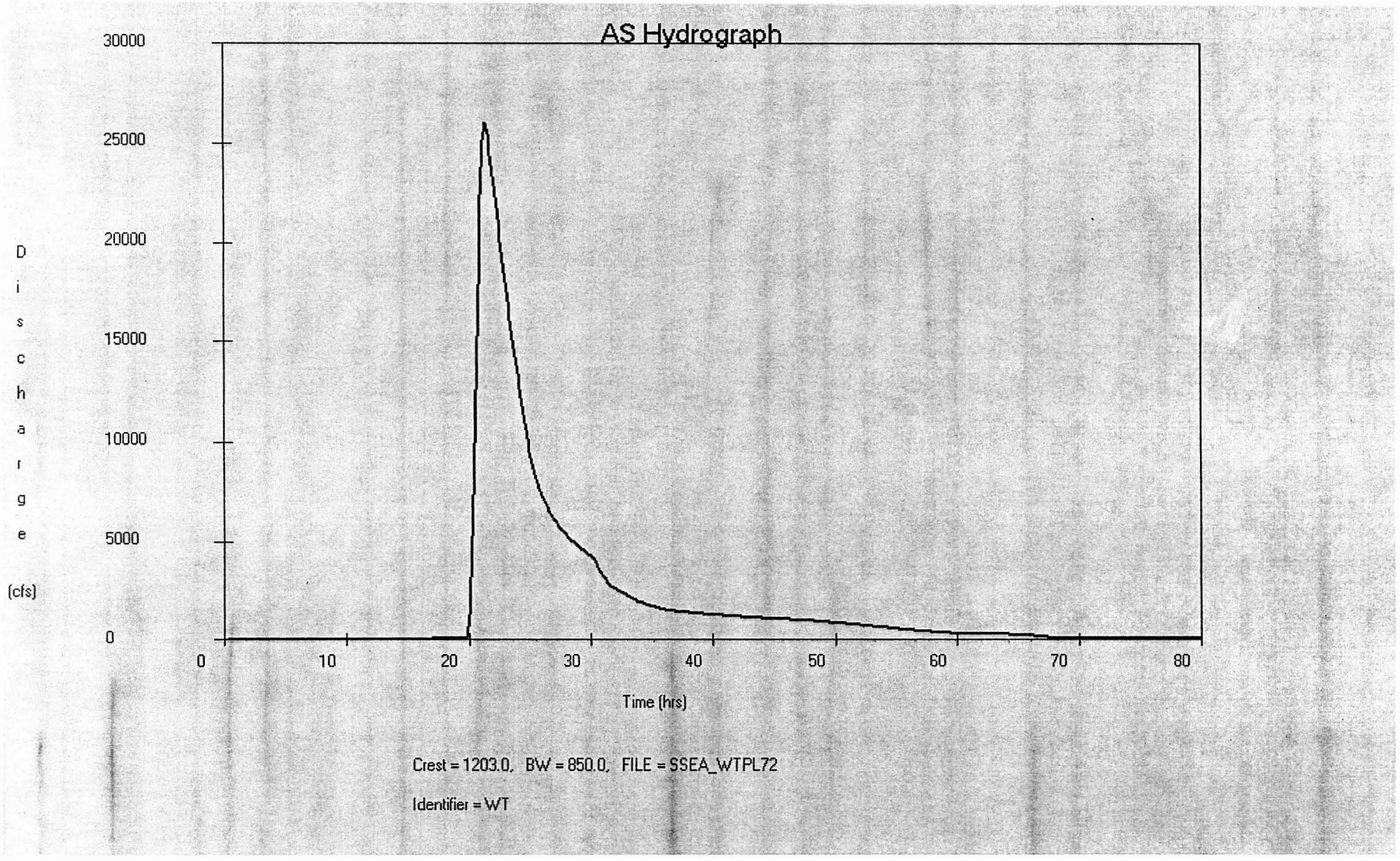
The headcut having the maximum final overfall height began
at station 1710. and progressed upstream to station 1710.
The final height of the headcut was 4.9 ft.

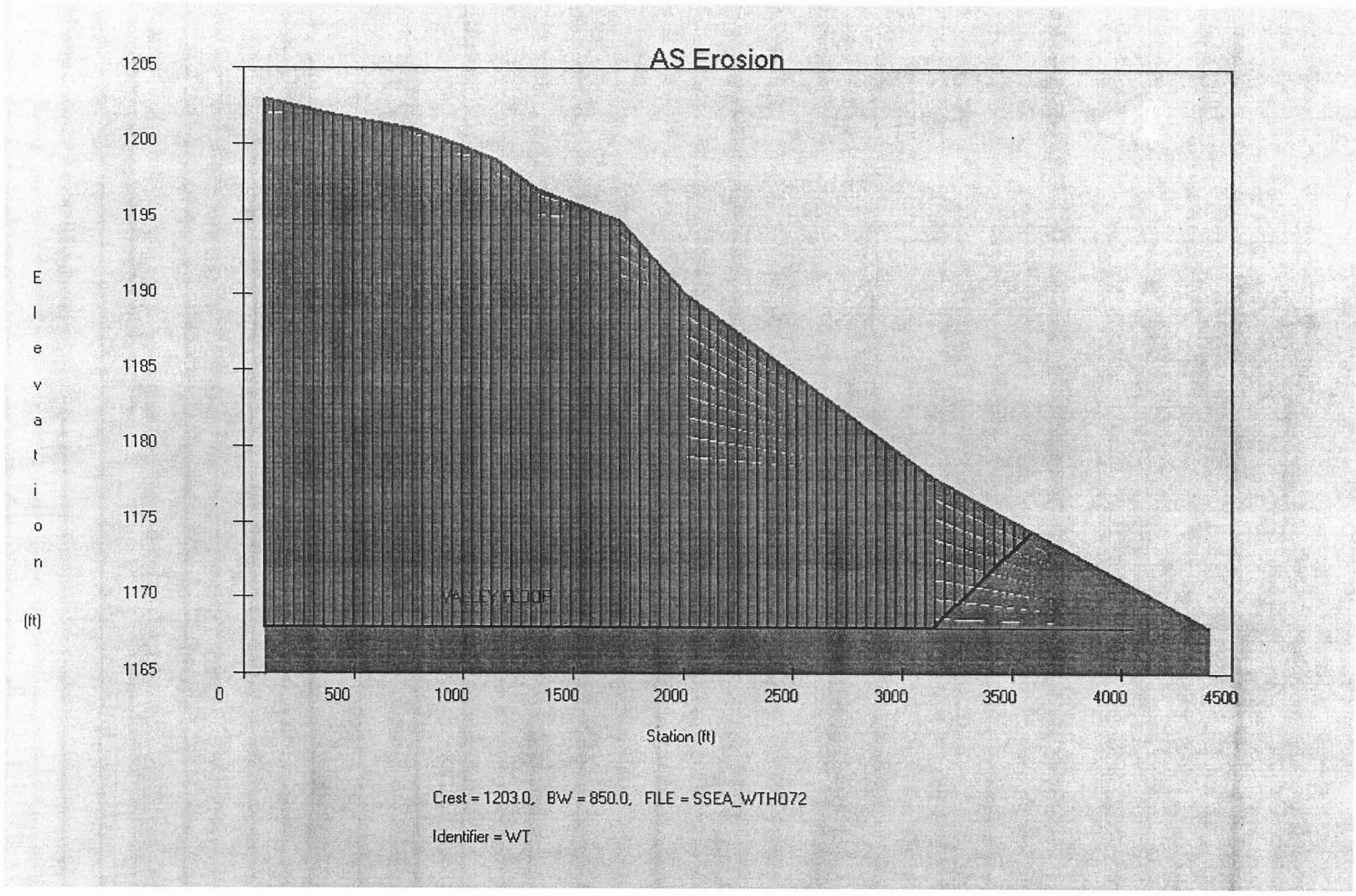
	DURATION FLOW	DIST. FROM MOST U/S HEADCUT TO U/S EDGE
AUXILIARY	HRS	AUX. CREST, FT
SPILLWAY ---	80.2	9.

1SSEA.....Job Complete.

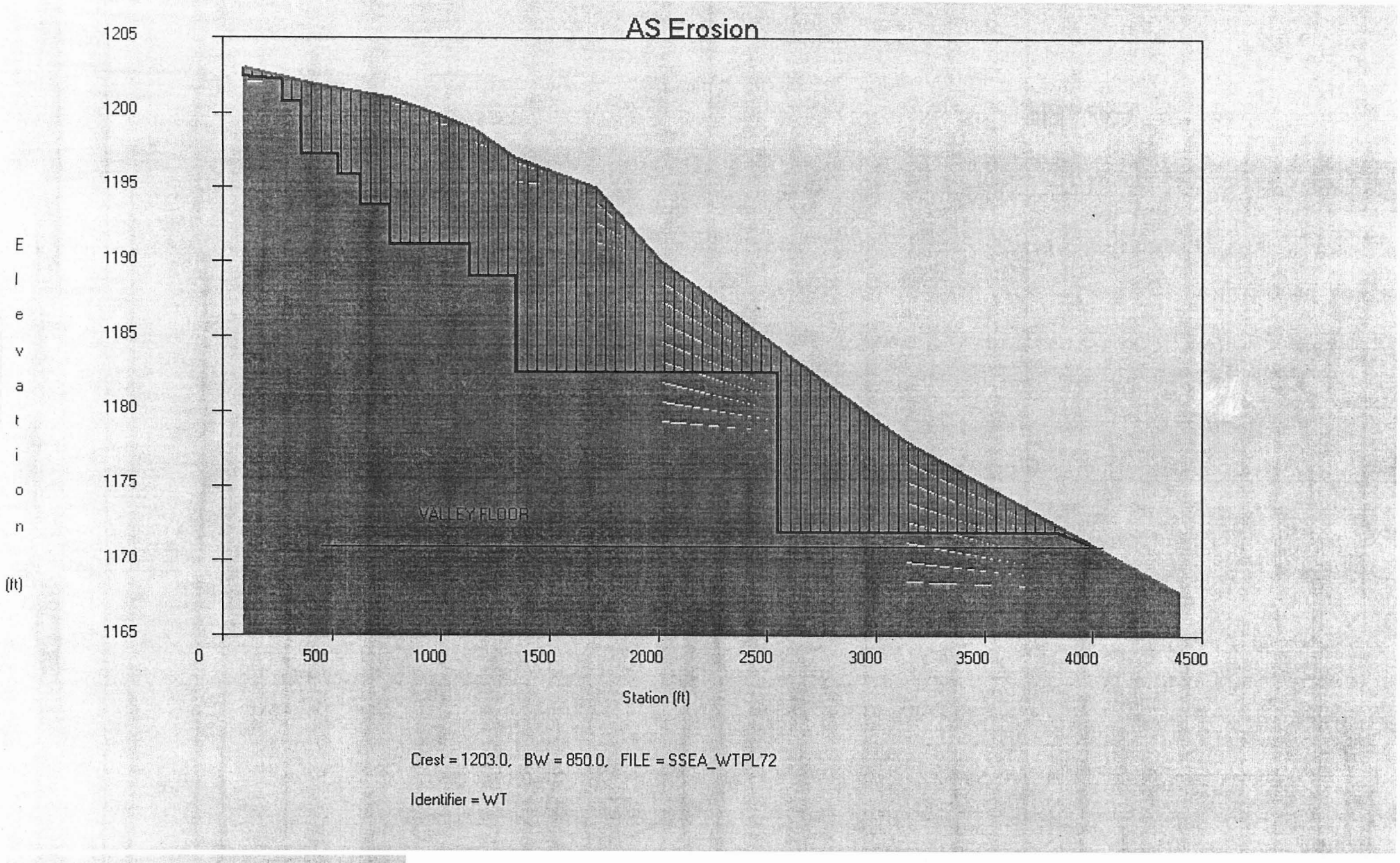
WT

SSEA.....Computations Complete.


AS Hydrograph
30000
25000
20000
15000
10000
5000
0
Discharge (cfs)
0
10
20
30
40
50
60
70
80
Time (hrs)
Crest = 1203.0, BW = 850.0, FILE = SSEA_WTPL72
Identifier = WT


AS Erosion
1205
1200
1195
1190
1185
1180
1175
1170
1165
Elevation (ft)
0
500
1000
1500
2000
2500
3000
3500
4000
4500
Station (ft)
VALLEY FLOOR
Crest = 1203.0, BW = 850.0, FILE = SSEA_WTH072
Identifier = WT

Holocene

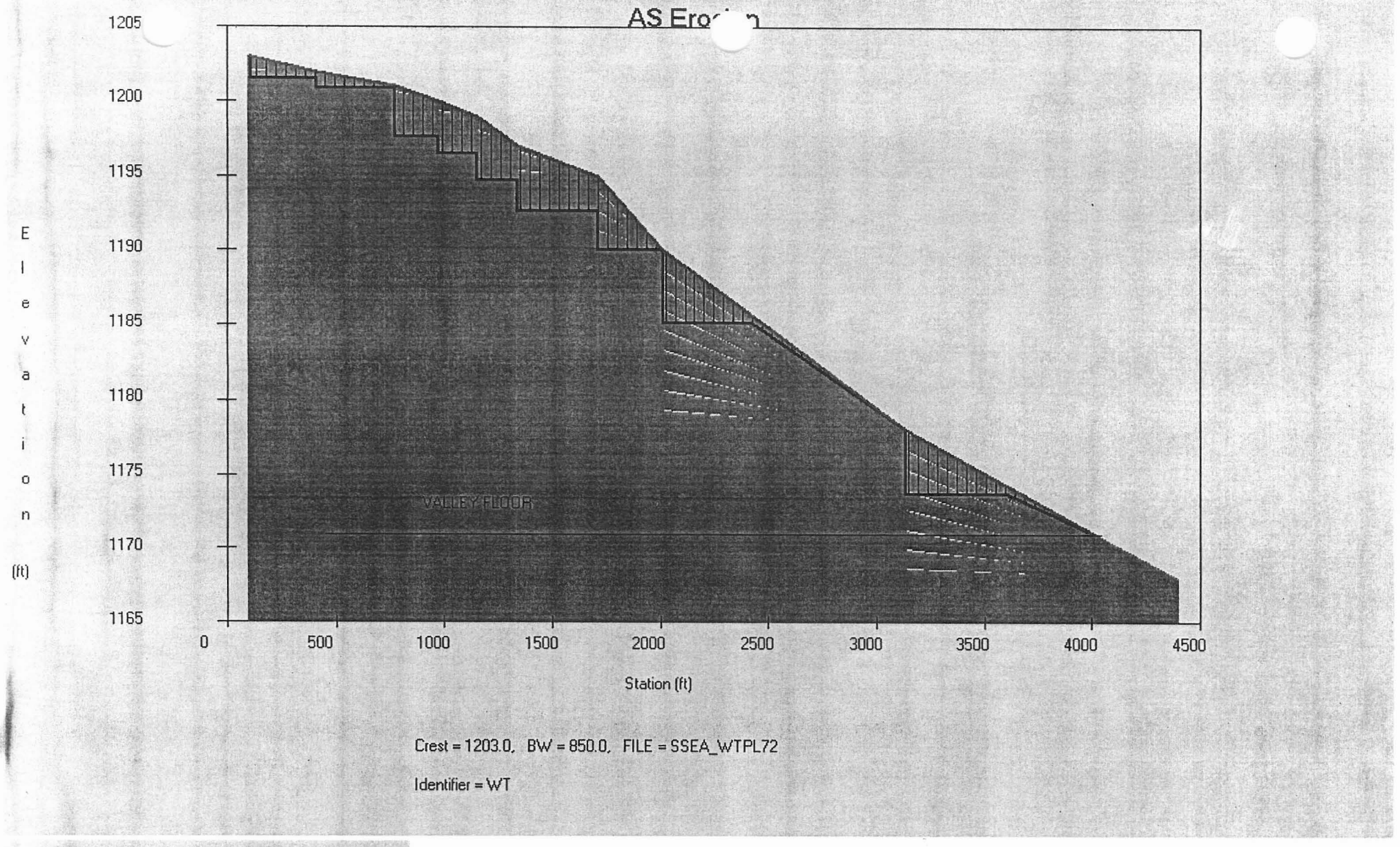


Legend

Plei (0.01)

Pleistocene

$K_H = 0.01$

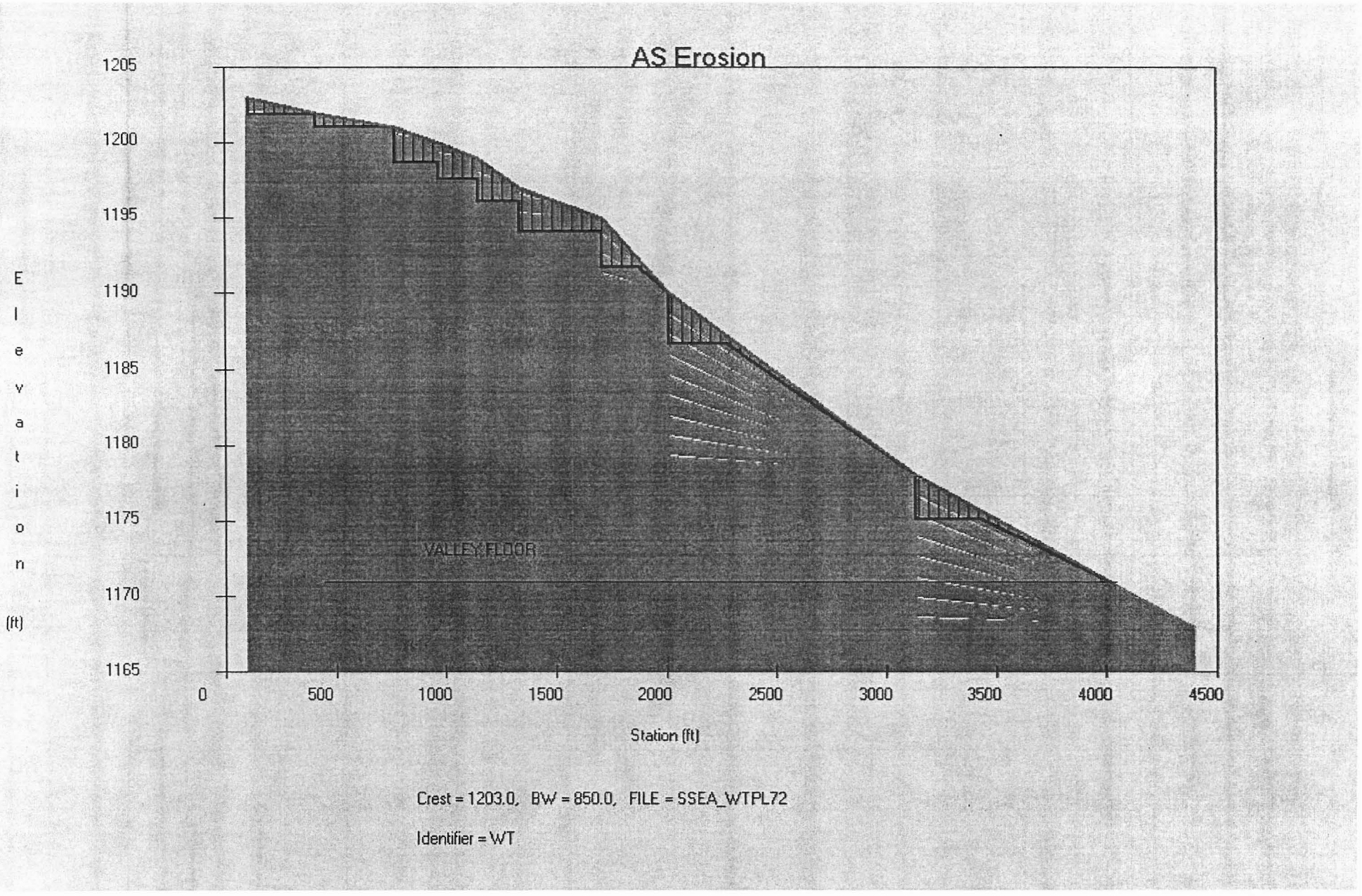


Legend

Plei (0.4)

Pleistocene

$K_H = 0.4$



Pleistocene

$K_H = 2$

(1)

URS

CALCULATION PACKAGE NO. I-2

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County (FCDMC)

Project Name: White Tank FRS No. 3 Design

Project/Calculation Number: 23443748

Title: **OUTLET CHANNEL DESIGN DOWNSTREAM OF OUTLET STRUCTURES WHITE TANK FLOOD RETARDING STRUCTURE (FRS) NO. 3**

Total Number of Pages (including cover sheet): _____

Total Number of Computer Runs: _____

Prepared by: Hammad Hussain Date: 08/16/04

Checked by: Michael Johnson Date: 8/18/04

Description and Purpose:

See Page 2

Design Basis /Assumptions

See Page 2

Remarks/Conclusions/Results:

See Pages 2-4.

Calculation Approved by: Todd Ringsmuth 8-20-04
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

Project Manager/Date

OUTLET CHANNEL DESIGN DOWNSTREAM OF OUTLET STRUCTURES
WHITE TANK FLOOD RETARDING STRUCTURE (FRS) NO. 3

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC)
23443748

PROBLEM STATEMENT

The aim of this calculation package is to design the outlet channel downstream of outlet structures.

DESIGN BASIS/ASSUMPTIONS/REFERENCES

Introduction

The outlet structures will be a gated outlet and a principal spillway, with each structure connected to a separate conduit through the embankment. The conduits will discharge into a concrete stilling basin designed to dissipate the flow energy prior to entering the outlet channel. The outlet channel will convey the discharges from the outlet works to the existing wash located adjacent to the Beardsley Canal.

Channel Design

The outlet channel of bottom width of approximately 33 ft with side slopes of 3 to 1 (H: V) was designed to convey discharge flows from the stilling basin to a natural wash downstream of the embankment. The outlet channel will be excavated at a 0.5 percent slope through the existing dam to the point where the channel matches the existing ground surface.

The reservoir routing of several PMF hydrographs indicated 6-hr local PMF storm to be the worst case storm resulting in highest water surface elevation of 1216.5 ft. The combined capacity of principal spillway and gated outlet at 1216.5 ft was found to be approximately equal to 550 cfs. Therefore, the outlet channel was designed for a capacity of 550 cfs. The calculations related to the estimation of principal spillway and gated outlet capacities are provided in separate calculation packages. A Manning's Roughness coefficient of 0.045 was used for the outlet channel design keeping in view the future vegetation growth. .

A computer software FLOWMASTER was used to determine the uniform flow depth and mean flow velocity within the outlet channel.

RESULTS

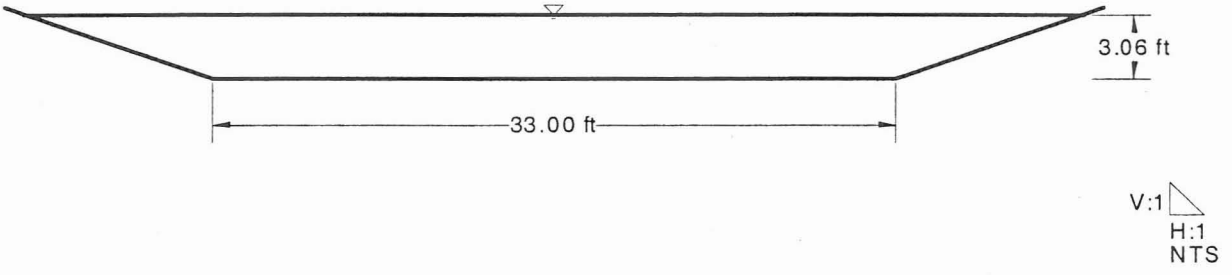
The FLOWMASTER analysis indicated a uniform flow depth of 3.1 ft within the outlet channel with the mean flow velocity equal to 4.25 ft/sec (Please See Pages 4 and 5).

Cross Section
Cross Section for Trapezoidal Channel

(4)

Project Description	
Worksheet	Copy of Trapezoidal Char
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coeffic	0.045	
Slope	0.005000	ft/ft
Depth	3.06	ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	33.00	ft
Discharge	550.00	cfs



Channel Sizing Downstream of Outlets
Worksheet for Trapezoidal Channel

(5)

Project Description	
Worksheet	Copy of Trapezoidal Char
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coeffic	0.045	
Slope	0.005000	ft/ft
Left Side Slope	3.00	H : V
Right Side Slope	3.00	H : V
Bottom Width	33.00	ft
Discharge	550.00	cfs

Results		
Depth	3.06	ft
Flow Area	129.1	ft²
Wetted Perim	52.35	ft
Top Width	51.36	ft
Critical Depth	1.93	ft
Critical Slope	0.025294	ft/ft
Velocity	4.26	ft/s
Velocity Head	0.28	ft
Specific Ener	3.34	ft
Froude Numb	0.47	
Flow Type	Subcritical	

→ Velocity

URS

CALCULATION PACKAGE NO. I-3

EXHIBIT 4.7-2

CALCULATION COVER SHEET

Client: Flood Control District of Maricopa County (FCDMC)

Project Name: White Tank FRS No. 3 Design

Project/Calculation Number: 23443748

Title:

RIPRAP SIZING FOR OUTLET CHANNEL
WHITE TANK FLOOD RETARDING STRUCTURE (FRS) NO. 3

Total Number of Pages (including cover sheet): _____

Total Number of Computer Runs: _____

Prepared by: Hammad Hussain Date: 08/18/04

Checked by: Todd Ringsmuth Date: 8-20-04

Description and Purpose:

See Page 2

Design Basis /Assumptions

See Page 2

Remarks/Conclusions/Results:

See Pages 3-8.

Calculation Approved by: Todd Ringsmuth 8-20-04
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

Project Manager/Date

RIPRAP SIZING FOR OUTLET CHANNEL
WHITE TANK FLOOD RETARDING STRUCTURE (FRS) NO. 3

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC)
23443748

PROBLEM STATEMENT

The aim of this calculation package is to estimate a riprap size for the outlet channel located at downstream of outlet structures.

DESIGN BASIS/ASSUMPTIONS/REFERENCES

Introduction

The outlet structures will be a gated outlet and a principal spillway, with each structure connected to a separate conduit through the embankment. The conduits will discharge into a concrete stilling basin designed to dissipate the flow energy prior to entering the outlet channel. The outlet channel will convey the discharges from the outlet works to the existing wash located adjacent to the Beardsley Canal.

The design for outlet channel is presented in a separate calculation package. The design analysis for the outlet channel indicated that the outlet channel of bottom width of approximately 33 ft with side slopes of 3 to 1 (H: V) would be able to convey a flow of 550 cfs at a flow dept of 3.1 ft with an average channel velocity equal to 4.25 ft/sec.

Riprap Design

The riprap size for the outlet channel was estimated using a computer software RIPRAP developed by West Consultants. RIPRAP estimates the size of the riprap for the given flow conditions based on several methods available in industry. The input parameters to the RIPRAP were:

a. Flow Depth (3.1 ft)

b. Average Channel Velocity (4.25 ft/sec)

c. Side Slope (3:1 H:V)

d. Unit Weight of Stone (155 lb/ft^3)

Results

The summary of RIRAP results is provided in Table 1 (See Page 4). The output results for RIPRAP model are attached at the end of this calculation package (See Pages 5-8).

Based on the summary of RIPRAP results summarized in Table 1, the required riprap size (D50) for the outlet channel varies between 0.14 ft to 0.40 ft. Form a conservative standpoint; a riprap size of 0.40 ft (approximately 5 inches) was selected for the outlet channel.

TABLE 1
SUMMARY OF RIPRAP RESULTS

METHOD	D50 (ft)
USACOE	0.40
ASCE	0.14
USBR	0.24
USGS	0.34
ISBASH	0.13

(5)

08/17/04 WEST Consultants, Inc. Riprap
2.0

2111 Palomar Airport Rd.
Suite 180
Carlsbad, CA 92009-1419

PROGRAM OUTPUT
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

íííííííííííííííííííííííííííí USCOE Method
íííííííííííííííííííííííííííí

Input Parameters:
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
Run Name: NAME_01 Description: RIPRAP DESIGN FOR OUTLET CHANNEL (WT FRS3)

Velocity	Average
Channel Type	Trapezoidal
Straight Channel	Yes
Bend Angle, ø	N/A
Average Channel Velocity, ft/sec	4.25 ⟸
Bottom Width, ft	N/A
Minimum Centerline Bend Radius, ft	N/A
Water Surface Width, ft	N/A
Unit Weight of Stone, lbs/cu ft	155.00
Riprap Layer Thickness	1.00
Local Flow Depth, ft	3.10 ⟸
Cotangent of Sideslope	3.00 ⟸
Safety Factor	1.20

Output Results:
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ

Computed Local Depth Average Velocity, ft/sec	4.25
Local Velocity / Avg. Channel Velocity	1.00
Correction for Layer Thickness	1.00
Side Slope Correction Factor	1.01
Correction for Secondary Currents	1.00

Method : 1

*** Using Gradation from COE ETL 1110-2-120 ***

Computed D30, ft	0.08
Specific Weight, pcf	155.00
Layer Thickness, ft	0.75
Selected Minimum D30, ft	0.37
Selected Minimum D90, ft	0.53

Percent Lighter by Weight	Stone Weight, lbs Minimum	Maximum
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ	
W100	14	34
W50	7	10

W15 2 5

Method No: 2

ASCE Method

Input Parameters:

Run Name: NAME_01 Description: RIPRAP DESIGN FOR OUTLET CHANNEL (WT FRS3)

Local Depth Averaged Velocity, ft/sec	4.25
Unit Weight of Stone, lbs/cu ft	155.00
Cotangent of Sideslope	3.00

Output Results:

Computed D50, ft	0.14

*** Using Gradation from COE ETL 1110-2-120 ***

Computed D30, ft	0.11
Specific Weight, pcf	155.00
Layer Thickness, ft	0.75
Selected Minimum D30, ft	0.37
Selected Minimum D90, ft	0.53

Percent Lighter by Weight	Stone Weight, lbs Minimum	Maximum
W100	14	34
W50	7	10
W15	2	5

Method: 3

USBR Method

Input Parameters:

Run Name: NAME_01 Description: RIPRAP DESIGN FOR OUTLET CHANNEL (WT FRS3)

Average Channel Velocity, ft/sec	4.25

Output Results:

Computed D50, ft	0.24

*** Using Gradation from COE ETL 1110-2-120 ***

Computed D30, ft	0.20
Specific Weight, pcf	155.00
Layer Thickness, ft	0.75
Selected Minimum D30, ft	0.37
Selected Minimum D90, ft	0.53

Percent Lighter by Weight	Stone Weight, lbs Minimum	Maximum

W100	14 34
W50	7 10
W15	2 5

Method : 4

USGS Method

Input Parameters:

Run Name: NAME_01 Description: RIPRAP DESIGN FOR OUTLET CHANNEL (WT FRS3)

Average Channel Velocity, ft/sec 4.25

Output Results:

Computed D50, ft	0.34

*** Using Gradation from COE ETL 1110-2-120 ***

Computed D30, ft	0.28
Specific Weight, pcf	155.00
Layer Thickness, ft	0.75
Selected Minimum D30, ft	0.37
Selected Minimum D90, ft	0.53

Percent Lighter by Weight	Stone Weight, lbs Minimum	Maximum
W100	14	34
W50	7	10
W15	2	5

Method : 5

Isbash Method

Input Parameters:

Run Name: NAME_01 Description: RIPRAP DESIGN FOR OUTLET CHANNEL (WT FRS3)

Average Channel Velocity, ft/sec	4.25
Unit Weight of Stone, lbs/cu ft	155.00
Turbulence Level	Low

Output Results:

Computed D50, ft	0.13

*** Using Gradation from COE ETL 1110-2-120 ***

Computed D30, ft	0.11
Specific Weight, pcf	155.00
Layer Thickness, ft	0.75
Selected Minimum D30, ft	0.37
Selected Minimum D90, ft	0.53

(8)

Percent Lighter by Weight	Stone Weight, lbs Minimum	Maximum
W100	14	34
W50	7	10
W15	2	5

Method No : 6

Cal B&SP Method

Input Parameters:

Run Name: NAME_01 Description: RIPRAP DESIGN FOR OUTLET CHANNEL (WT FRS3)

Local Depth Averaged Velocity, ft/sec	4.25
Unit Weight of Stone, lbs/cu ft	155.00
Cotangent of Sideslope	3.00

Output Results:

Computed W33, lb 0.19

*** Using CalTrans Gradation - Placement Method B ***

Gradation Class	Facing
Layer Thickness, ft	1.41

Percent Larger Than	Rock Size
0-5	200 Lb.
50-100	75 Lb.
90-100	25 Lb.

CALCULATION PACKAGE NO. I-4

URS **EXHIBIT _____**

CALCULATION COVER SHEET

Client: FCDMC Project Name: WT FRS No.3

Project/Calculation Number: 23443748

Title: Graded Filter – Filter Match Calculation

Total Number of Pages (including cover sheet): 9 + 2 references

Total Number of Computer Runs: 0

Prepared by: Chris Wigginton Date: 11/12/2004

Checked by: Todd Pingsmith Date: 11/12/04

Description and Purpose:
See page 2

Design Basis/References/Assumptions
See pages 2-4

Remarks/Conclusions/Results:
See page 4-6

Calculation Approved by: 3/1/05
Project Manager/Date

Revision No.:	Description of Revision:	Approved by:

Project Manager/Date

Graded Filter

Filter Match Calculation

White Tanks FRS No. 3 Remediation Project

URS Job No. 23443748

Description and Purpose

This filter match calculation has been prepared for the graded filter located at each transition zone between the Fissure Risk Zone (FRZ) soil cement dam core and the Non-Fissure Risk Zone (NFRZ) earthen dam structure. The graded filter has been included in these two areas of the dam structure to prevent internal erosion or piping of soil within the newly constructed embankment.

Design Basis/References/Assumptions

The filter match calculation has been prepare using the following references:

- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Part 633 National Engineering Handbook, Chapter 26: Gradation Design of Sand and Gravel Filters
- NRCS, Appendix VII of the Technical Assistance Report Design Documentation, Florence FWRS, AZ, dated May, 2004

The initial graded filter design was determined using the Chapter 26 criteria. The gradation design bands were then adjusted following the Appendix VII segregation criteria.

The average gradation for the embankment soil materials was taken from a composite of 14 separate bulk samples collected during previous geotechnical investigations. These samples were collected from various areas within the footprint of the new embankment, the proposed borrow area and the existing portion of the dam to be excavated. Details of the various gradations used and the subsequent adjusted gradations required by Chapter 26 are listed in Table 1. Gradation plots for the unadjusted and adjusted gradations are shown on Figure 1 and 2.

Using the criteria outlined in the Chapter 26 reference, the design gradation for the graded filter was determined. These design bands are shown on Figure 3. From this design band, a filter consisting of ASTM C33 Fine Aggregate Sand would be allowed with some portion of the filter being finer than the design band. However, due to concerns about the use of sand as filters in Arizona because of the potential for cementation of the sand leading to their ability to hold open if a crack is formed. The FCDMC has observed this occurring in other dams within Maricopa County. Therefore, the proposed design for the filter incorporates to use of a 60/40 blend of C33 sand and ASTM C33 Coarse Aggregate size number 57. The 60/40 blend is shown superimposed over the calculated design band on Figure 4.

From Figure 4, it is shown that the coarse grained potion of the 60/40 blend falls out of the design band. Therefore, in accordance with the Appendix VII reference, the design

bands determined using the Chapter 26 reference were adjusted to achieve a coarser graded filter. This adjustment resulted in a coefficient of uniformity (C_u) of 10.3, as opposed to the C_u of 6 outlined in the Chapter 26 guidance. The basis for this adjustment is detailed in the Appendix VII reference document. The adjusted graded filter design bands are shown on Figure 5. After this adjustment, a portion of the 60/40 blend remained coarser than the adjusted design band. A control point was added to the minimum adjusted design band to show 70 percent of the material passing the ¾-inch (19mm) sieve. The adjusted design band is shown on Figure 6.

The following outlines the design process following the Chapter 26 guidance and the Appendix VII adjustments:

Chapter 26 Guidance

Step 1: Plot the gradation curves for the base soil. Table 1 list the base gradations used. Figure 1 shows the gradation curves for the minimum, average and maximum gradations of the base soil.

Step 2: The base soil gradations contain gravel, so adjustment is necessary.

Step 3: Prepare adjusted gradations so that 100 percent passes the No. 4 sieve. Table 1 list the adjusted base gradations used. Figure 2 shows the gradation curves for the adjusted minimum, adjusted average and adjusted maximum gradations of the base soil. For this calculation the average gradation was used.

Step 4: Place the base soil gradation in a category according to Table 26-1. From the gradation used, the soil falls into category 2.

Step 5: To satisfy filtration requirement, determine the maximum D_{15} according to Table 26-2. The base soil was classified as category 2, therefore the maximum $D_{15} \leq 0.7$ millimeters (mm).

Step 6: To satisfy permeability requirements, determine the minimum allowable D_{15} in accordance with Table 26-3. All categories, minimum $D_{15} \geq 4 \times d_{15}$ of the base soil before regrading, but not less than 0.1 mm. Because the d_{15} of the base soil before regrading is off the scale (i.e. much smaller than 0.1mm), the minimum D_{15} was determined in accordance with Step 7.

Step 7: Determine the allowable design band width. Adjust the maximum and minimum D_{15} sizes for the filter so that the ratio is 5 or less for any given percentage passing of 60 or less to prevent gap-graded filters. As a result, the minimum D_{15} = maximum $D_{15}/5 = 0.14$mm.

Step 8: As a secondary control to prevent gap-graded filters, adjust the limits of the design filter band so that the coarse and fine sides have a coefficient of uniformity (C_u) of 6 or less. The coefficient of uniformity can be determined using the following relationship: $C_u = D_{60}/D_{10}$. The maximum D_{10} value is determined using the following relationship: $D_{10} = D_{15}/1.2$. The maximum D_{60} is determined using the following relationship: $D_{10} \times 6$. The minimum D_{60} is determined by dividing the maximum D_{60} by 5. The results of this calculation are as follows:

- Maximum D_{10} = 0.7mm/1.2 = 0.58333mm
- Maximum D_{60} = 0.58333mm x 6 = 3.5mm
- Minimum D_{60} = 3.5mm/5 = 0.7mm

Step 9: Determine the minimum D_5 and the maximum D_{100} in accordance with Table 26-5. For all categories, the minimum D_5 = 0.075mm and the maximum $D_{100} \leq$ 3 inches (75mm).

Step 10: To minimize segregation during construction the relationship between D_{90} and D_{10} of the filter is important. The minimum D_{10} is calculated by dividing the minimum D_{15} size by 1.2. Determine the maximum D_{90} using Table 26-6. This results in a minimum D_{10} of 0.11666mm and a maximum D_{90} of 20mm.

Step 11: Draw the design bands using the calculated minimum and maximum sizes determined in steps 1 through 10. Extrapolate the outer limits of the design bands to complete the gradations.

Appendix VII Adjustments

In accordance with the segregation section of the Appendix VII document, the design band was adjusted to a coefficient of uniformity value of 10.3 for the design filter. Appendix VII (attached) provides discussions related to findings related to segregation of broadly graded sand/gravel filters.

From this document, the maximum D_{60} value was increased to 6mm (see step 8 above). Therefore, the minimum D_{60} value was calculated to be 1.2mm.

After this adjustment, a portion of the 60/40 blend remained coarser than the adjusted design band. A control point was added to the minimum adjusted design band to show 70 percent of the material passing the ¾-inch (19mm) sieve. The adjusted design band is shown on Figure 6.

Remarks/Conclusions/Results

Based on the guidance documentation listed above, it was determined that the graded filter consisting of 60 percent ASTM C33 Fine Aggregate Sand and 40 percent ASTM C33 Coarse Aggregate Size Number 57 gravel would be acceptable for the application.

The following tables summarize the control points used to create the various design bands listed in this calculation package and shown on Figures 3 through 6.

TABLE 1 - EMBANKMENT SOIL GRADATIONS (BASE SOIL)

BASE GRADATIONS

SIZE	Sieve #	DMB-18	B1-2.5'	B2-5'	B3-5'	TP16@0.0'	TP19@0.0'	TP20@0.0'	TP24-2@0.0'	TP25-2@0.0'	TP26-2@0.0'	TP27-1@0.0'	TP27-2@0.0'	TP28-1@0.0'	TP28-2@0.0'	MIN	AVG	MAX
75	3"	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0	100.0	100.0
62.5	2.5"	100	100	100	100	100	100	100	97.5	100	98.5	100	100	100	99.5	97.5	99.7	100.0
50	2"	100	100	100	100	100	100	100	95	100	97	100	100	100	99	95.0	99.4	100.0
37.5	1.5"	100	100	100	100	100	100	100	92	100	97	100	100	100	99	92.0	99.1	100.0
25	1"	100	100	100	100	99	99	100	87	99	96	98	100	100	99	87.0	98.4	100.0
19	3/4"	100	100	97	100	97	99	98	83	99	92	98	100	98	98	83.0	97.1	100.0
12.5	1/2"	100	100	87	100	95	98	96	77	99	89	98	100	98	97	77.0	95.3	100.0
9.5	3/8"	100	99	81	99	94	98	95	73	98	86	97	100	97	97	73.0	93.9	100.0
4.75	#4	99.8	99	72	99	91	97	91	64	97	81	96	99	95	95	64.0	91.1	99.8
2.36	#8	98.6	98	60	97	87	94	81	55	94	75	93	96	91	92	55.0	86.5	98.6
2	#10	97.4	97	56	95	85	93	78	53	92	72	92	90	90	91	53.0	84.4	97.4
1.18	#16	94.6	95	46	89	80	90	70	44	88	62	88	93	83	88	44.0	79.3	95.0
0.85	#20	91.8	93	39	83.5	76	88	65	39	84.5	55.5	84.5	90.5	77	84	39.0	75.1	93.0
0.6	#30	89.85	91	32	78	72	86	60	34	81	49	81	88	71	80	32.0	70.9	91.0
0.425	#40	87.9	88	26	72	68	84	55	28	78	41	77	86	62	76	26.0	66.4	88.0
0.3	#50	85.55	85	21	63	64	81	50	23	75	32	73	83	52	71	21.0	61.3	85.6
0.25	#60	83.2	81.5	18	53.5	59.5	77	46	19.5	72	24	68	79.5	45	67	18.0	56.7	83.2
0.15	#100	77.7	78	15	44	55	73	42	16	69	16	63	76	38	63	15.0	51.8	78.0
0.075	#200	67.8	66	11	29	46	60	34	11	59	8	51	62	29	54	8.0	42.0	67.8

ADJUSTED BASE GRADATIONS

SIZE	Sieve #	DMB-18	B1-2.5'	B2-5'	B3-5'	TP16@0.0'	TP19@0.0'	TP20@0.0'	TP24-2@0.0'	TP25-2@0.0'	TP26-2@0.0'	TP27-1@0.0'	TP27-2@0.0'	TP28-1@0.0'	TP28-2@0.0'	MIN	AVG	MAX
4.75	#4	100	100	100	100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2.36	#8	98.8	99.0	83.3	98.0	95.6	96.9	89.0	85.9	96.9	92.6	96.9	97.0	95.8	96.8	83.3	94.5	99.0
2	#10	97.6	98.0	77.8	96.0	93.4	95.9	85.7	82.8	94.8	88.9	95.8	90.9	94.7	95.8	77.8	92.0	98.0
1.18	#16	94.8	96.0	63.9	89.9	87.9	92.8	76.9	68.8	90.7	76.5	91.7	93.9	87.4	92.6	63.9	86.0	96.0
0.85	#20	92.0	93.9	54.2	84.3	83.5	90.7	71.4	60.9	87.1	68.5	88.0	91.4	81.1	88.4	54.2	81.1	93.9
0.6	#30	90.0	91.9	44.4	78.8	79.1	88.7	65.9	53.1	83.5	60.5	84.4	88.9	74.7	84.2	44.4	76.3	91.9
0.425	#40	88.1	88.9	36.1	72.7	74.7	86.6	60.4	43.8	80.4	50.6	80.2	86.9	65.3	80.0	36.1	71.0	88.9
0.3	#50	85.7	85.9	29.2	63.6	70.3	83.5	54.9	35.9	77.3	39.5	76.0	83.8	54.7	74.7	29.2	65.4	85.9
0.25	#60	83.4	82.3	25.0	54.0	65.4	79.4	50.5	30.5	74.2	29.6	70.8	80.3	47.4	70.5	25.0	60.2	83.4
0.15	#100	77.9	78.8	20.8	44.4	60.4	75.3	46.2	25.0	71.1	19.8	65.6	76.8	40.0	66.3	19.8	54.9	78.8
0.075	#200	67.9	66.7	15.3	29.3	50.5	61.9	37.4	17.2	60.8	9.9	53.1	62.6	30.5	56.8	9.9	44.3	67.9
ADJUSTMENT FACTORS		*1.002*	*1.010*	*1.389*	*1.010*	*1.099*	*1.031*	*1.099*	*1.563*	*1.031*	*1.235*	*1.042*	*1.010*	*1.053*	*1.053*			

Data was filled in manually by averaging percent passing above and below the value.

TABLE 1

Chapter 26 Design Band (Figure 3)

Sieve Size (mm)	Minimum Band Percent Passing	Maximum Band Percent Passing
75	-	100
20	-	90
3.55	-	60
0.7	60	15
0.5833	-	10
0.14	15	-
0.1166	10	-
0.075	5	-

TABLE 2

60/40 C33/No. 57 Rock Blend (Figure 4)

Sieve Size (mm)	Minimum Band Percent Passing	Maximum Band Percent Passing
37.5	100	100
25	98	100
12.5	70	84
4.75	57	64
2.36	48	62
1.18	30	51
0.6	15	36
0.15	1.2	6

TABLE 3

Design Band with Cu=10.3 (Figure 5)

Sieve Size (mm)	Minimum Band Percent Passing	Maximum Band Percent Passing
75	-	100
20	-	90
6	-	60
1.2	60	-
0.7	-	15
0.5833	-	10
0.14	15	-
0.1166	10	-
0.075	5	-

TABLE 4

Adjusted Design Band with Cu=10.3 (Figure 6)

Sieve Size (mm)	Minimum Band Percent Passing	Maximum Band Percent Passing
75	-	100
25	-	90
19	-	70
6	-	60
1.2	60	-
0.7	-	15
0.5833	-	10
0.14	15	-
0.1166	10	-
0.075	5	-

FIGURE 1
GRADATION - FOUNDATION & EMBANKMENT (UNADJUSTED)

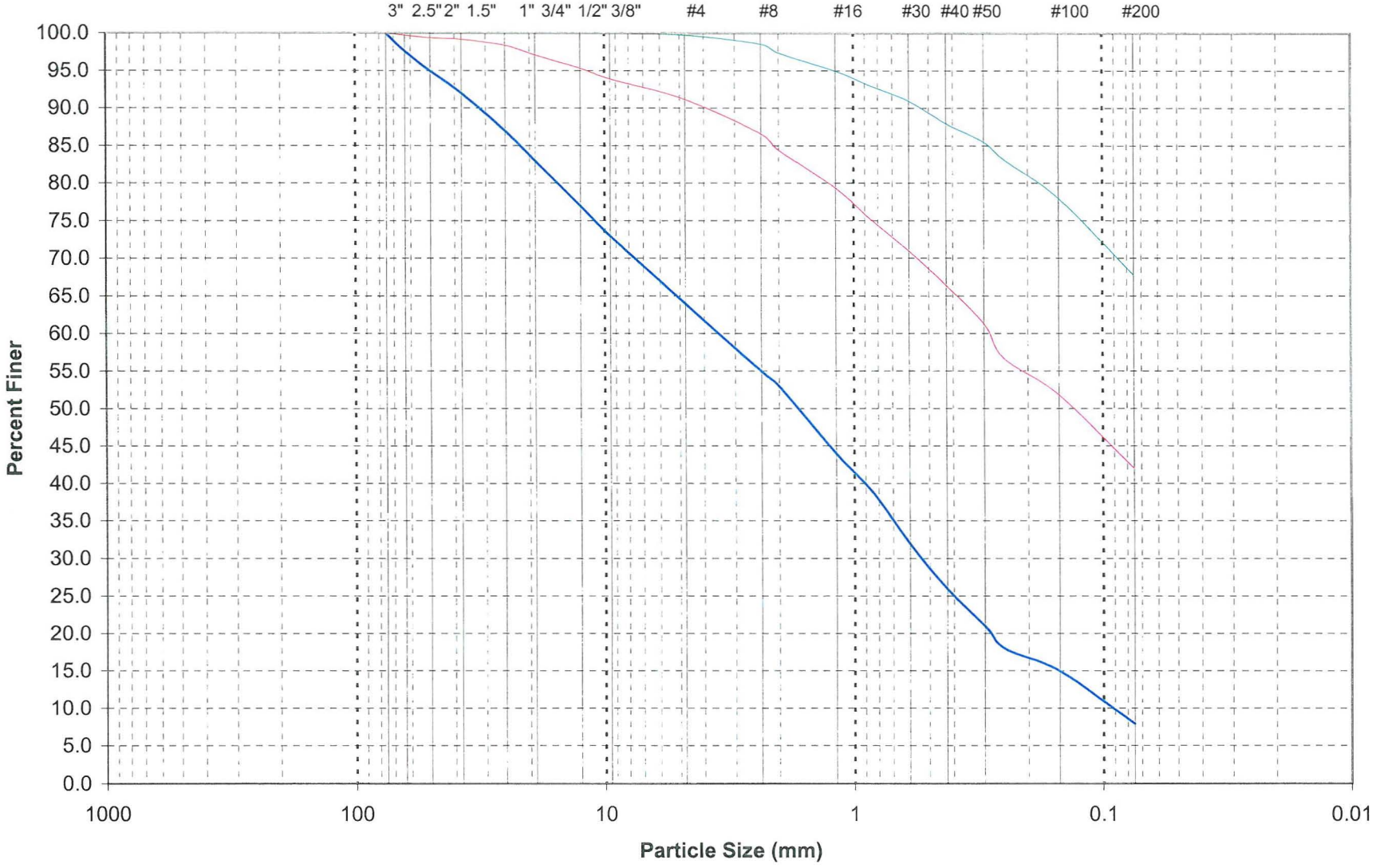


FIGURE 2
GRADATION - FOUNDATION & EMBANKMENT (ADJUSTED)

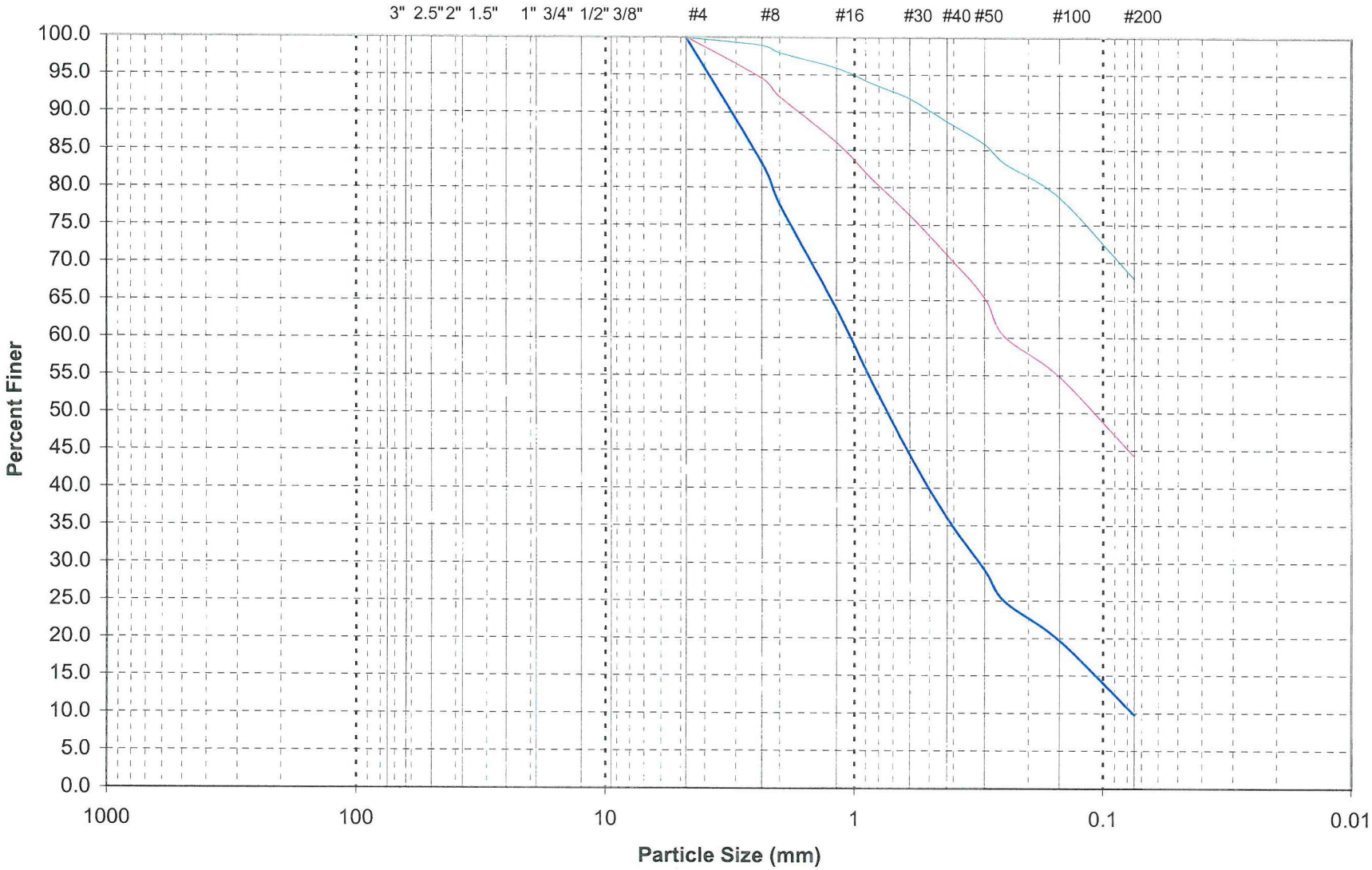


FIGURE 3
DESIGN BANDS PER CHAPTER 26 GUIDANCE

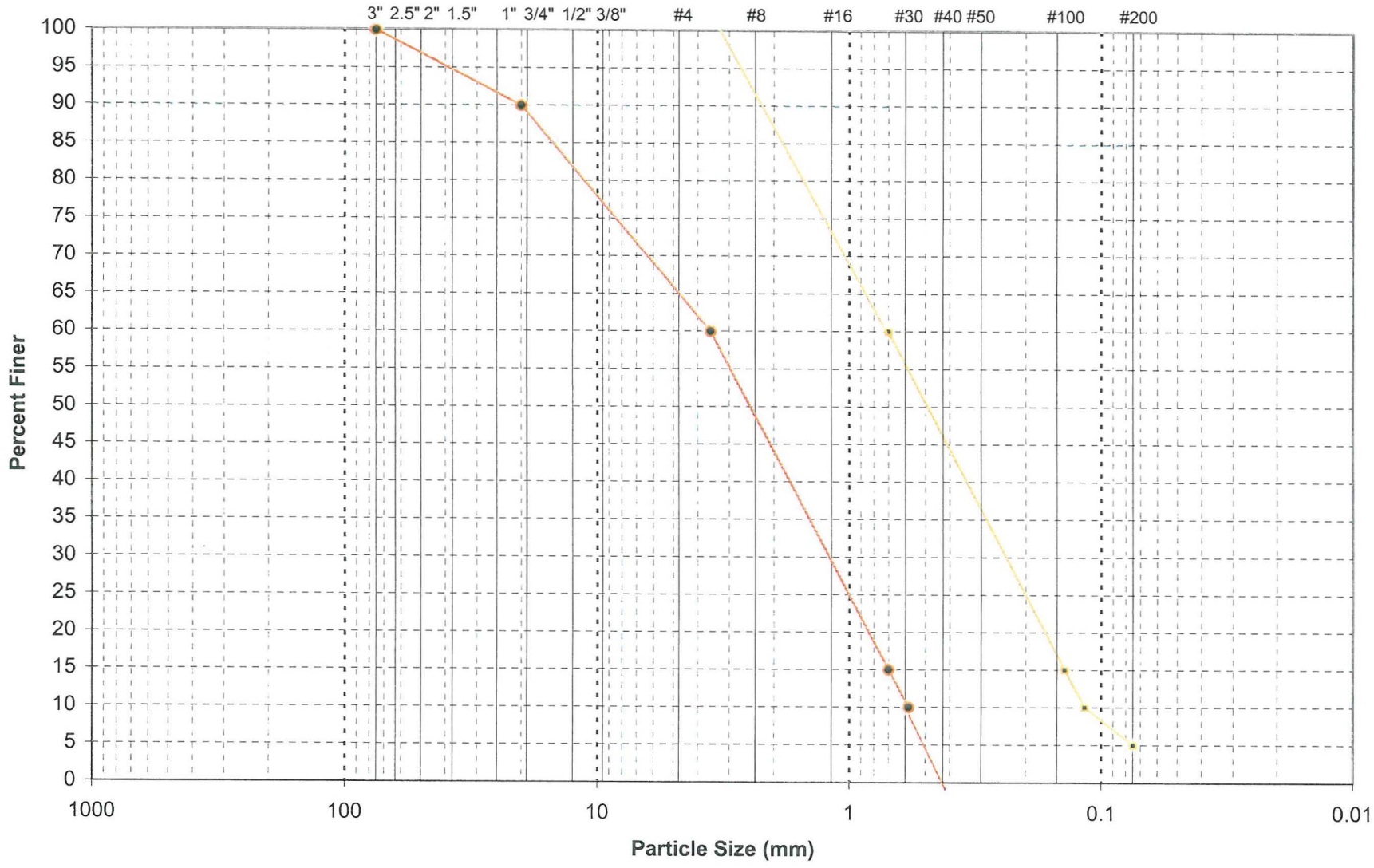


FIGURE 4
DESIGN BANDS PER CHAPTER 26 GUIDANCE WITH 60/40 C33/NO. 57 ROCK

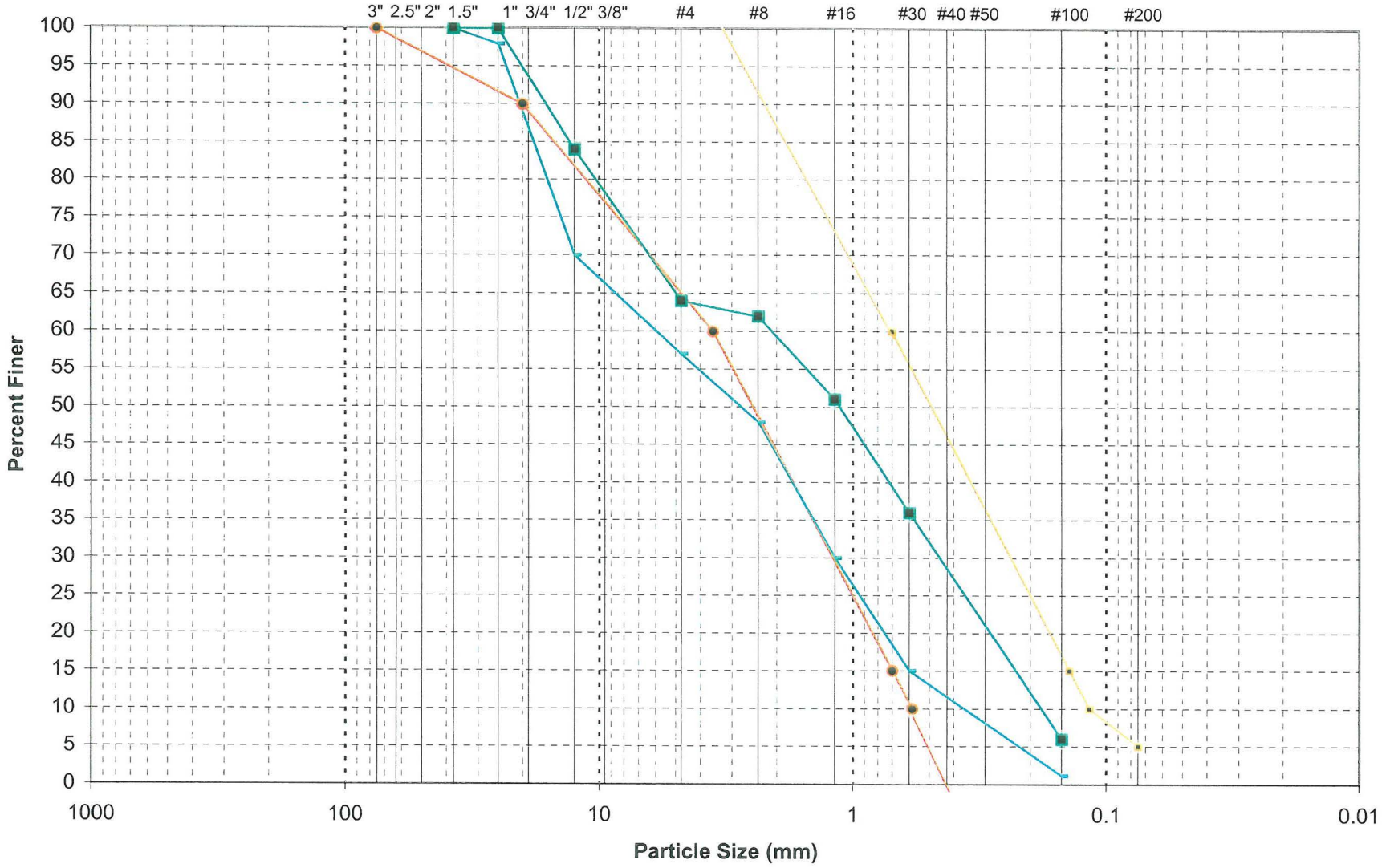


FIGURE 5
ADJUSTED GRADED FILTER DESIGN BANDS WITH 60/40 C33/NO. 57 ROCK; Cu=10.3

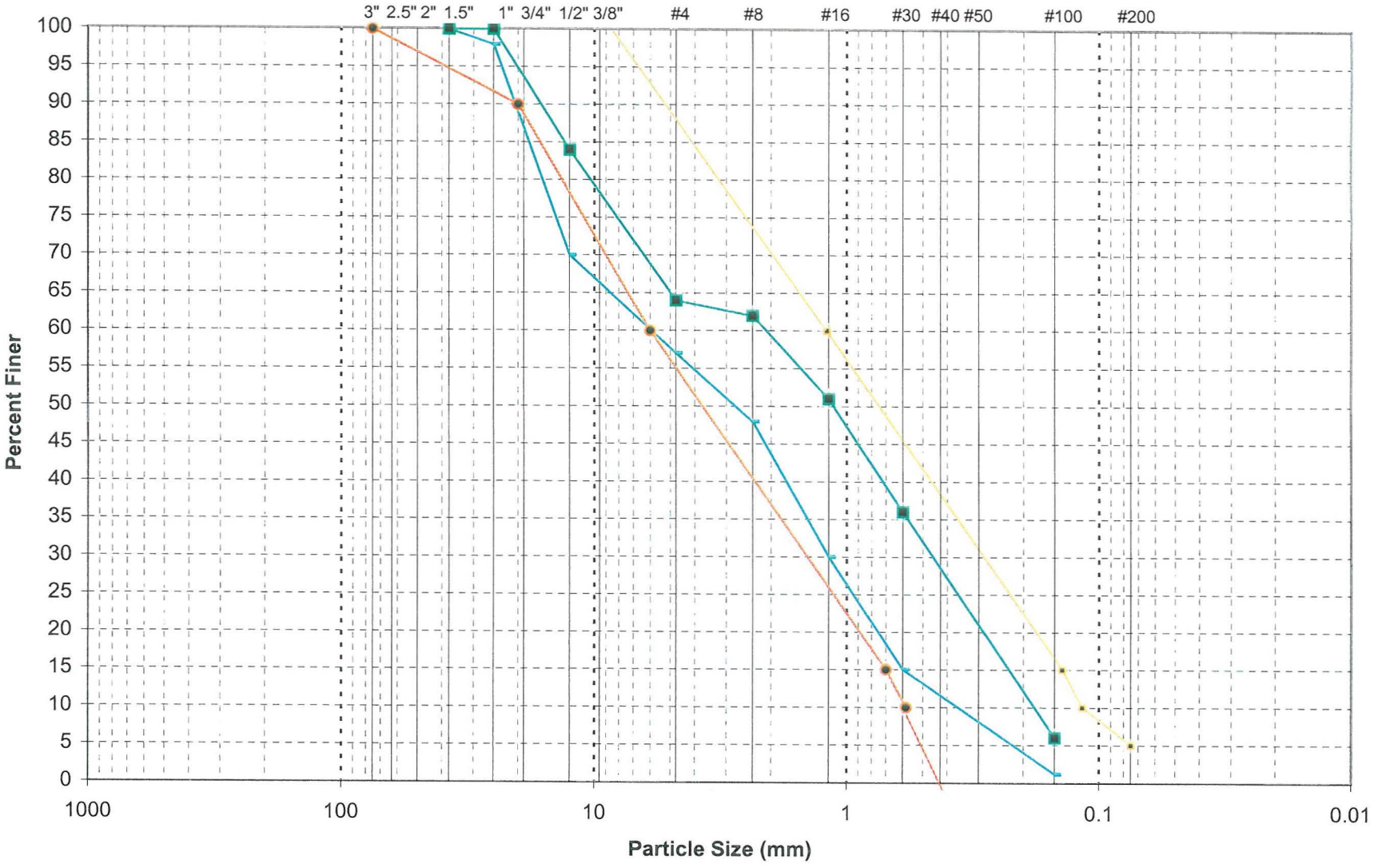
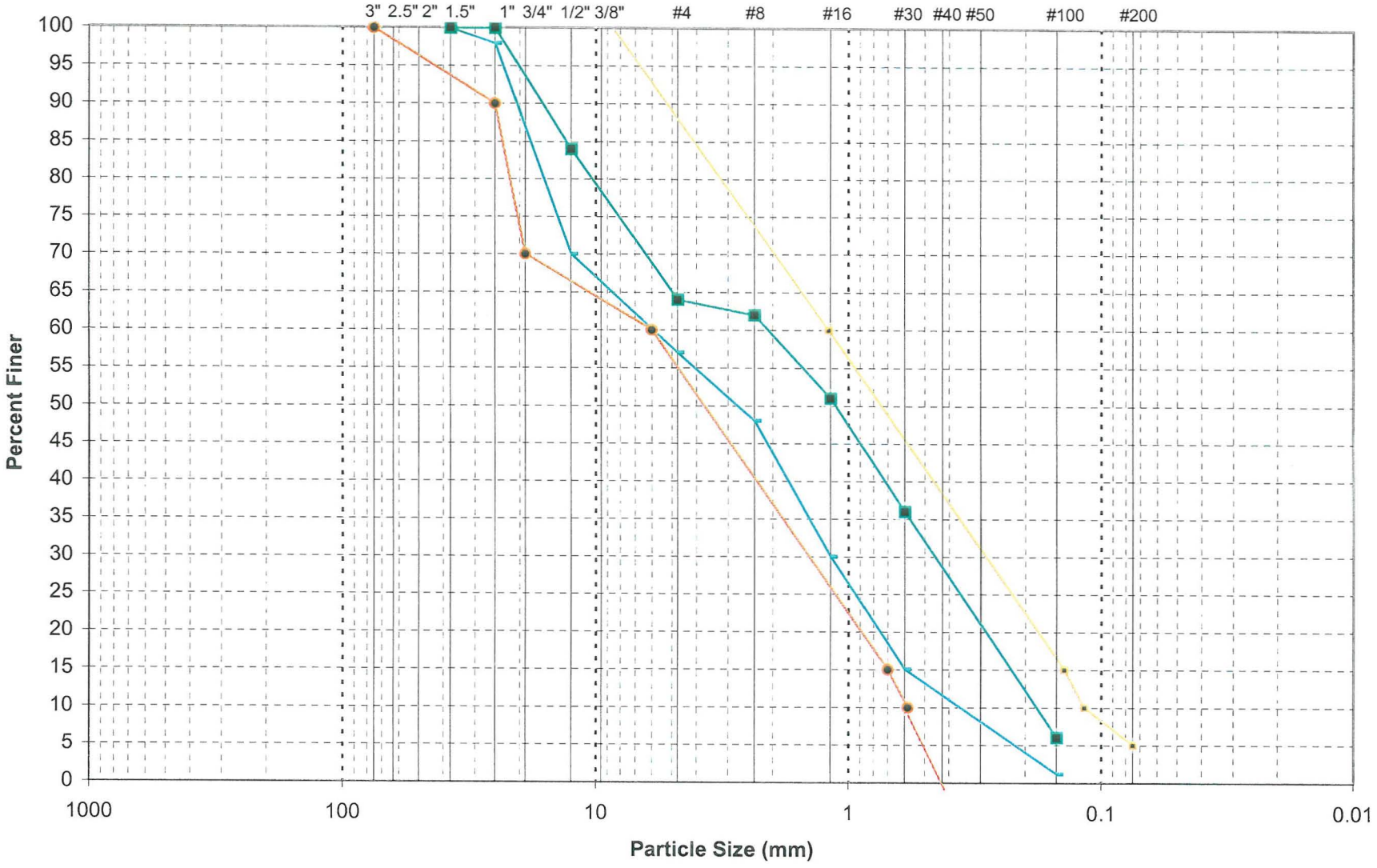


FIGURE 6
ADJUSTED GRADED FILTER DESIGN BANDS WITH 60/40 C33/NO. 57 ROCK



United States
Department of
Agriculture

Natural
Resources
Conservation
Service

Part 633
National
Engineering
Handbook

Chapter 26 Gradation Design of Sand and Gravel Filters

Issued October 1994

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, DC 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

Preface

Most of the criteria in this document was originally issued in Soil Mechanics Note 1, revised January 1986. This revision of Soil Mechanics Note 1 and any future revisions of other Soil Mechanics Notes will be placed in the National Engineering Handbook, Part 633, Soil Engineering. This material is Chapter 26, Gradation Design of Sand and Gravel Filters.

Acknowledgments

The criteria in this document are based on the results of an extensive laboratory filter study carried out by the Soil Conservation Service (SCS) at the Soil Mechanics Laboratory in Lincoln, Nebraska, from 1980 to 1985. The principals involved in this study were **Lorn P. Dunnigan**, SCS (retired), **James R. Talbot**, SCS (retired), and **James L. Sherard**, consultant (deceased).

Revisions were developed in 1993 by **Danny K. McCook**, assistant head, Soil Mechanics Laboratory, SCS, Fort Worth, Texas; **Charles H. McElroy**, head of the Soil Mechanics Laboratory, SCS, Fort Worth, Texas; and **James R. Talbot**, national soils engineer, SCS, Washington, DC (retired). Danny McCook developed the example problems.

Special recognition is given to the following Soil Conservation Service engineers for their many helpful comments during the review process: **Philip N. Jones**, Lincoln, Nebraska; **Christine M. Portillo**, Fort Worth, Texas; **William G. Hughey**, Chester, Pennsylvania; and **Clifton E. Deal**, Portland, Oregon.

Special thanks also to the following persons in the Technical Publishing Section of the National Cartography and GIS Staff, SCS, Fort Worth, Texas: **Wendy Pierce** for the graphic illustrations, **Suzi Self** for desktop publishing, and **Mary Mattinson** for her editorial contributions.

Chapter 26 Gradation Design of Sand and Gravel Filters

Contents:

633.2600	Purpose	26-1
633.2601	Basic purpose of filters and drains	26-1
633.2602	Permeability and capacity	26-2
633.2603	Determining filter gradation limits	26-2
633.2604	Definitions	26-37
633.2605	References	26-37
633.2606	Appendixes	
	Appendix 26A Steps in Filter Design	26A-1
	Appendix 26B Standard ASTM Aggregate Specifications	26B-1

Tables

Table 26-1	Regraded gradation curve data	26-3
Table 26-2	Filtering criteria — Maximum D_{15}	26-3
Table 26-3	Permeability criteria	26-3
Table 26-4	Other filter design criteria	26-3
Table 26-5	Maximum and minimum particle size criteria	26-4
Table 26-6	Segregation criteria	26-5
Table 26-7	Criteria for filters used adjacent to perforated collector pipe	26-5
Table 26-8	Design specification gradation for example 26-1 soil	26-8
Table 26-9	Design specification gradation for example 26-2 soil	26-13
Table 26-10	Design specification gradation for example 26-2A soil	26-16
Table 26-11	Design specification limits for clayey gravel base soil	26-21
Table 26-12	The final selected design filter band gradation for silty sand base soil	26-25

Table 26–13	Data for designed filter band	26–29
Table 26–14	Design filter band data for example 26–6 soil	26–34
Table 26B–1	Selected standard aggregate gradations	26–41

Figures

Figure 26–1	Grain size distribution curve for fine clay base soil	26–9
Figure 26–2	Grain size distribution curve for silty sand with gravel base soil—Category 3	26–14
Figure 26–2A	Grain size distribution curve for silty sand with gravel base soil where primary function is filter	26–17
Figure 26–2B	Grain size distribution curve for silty sand with gravel base soil	26–18
Figure 26–3	Grain size distribution curve for clayey gravel base soil	26–22
Figure 26–4	Grain size distribution curve for silty sand base soil	26–26
Figure 26–5	Gravel filter band design	26–30
Figure 26–5A	Gravel filter band design using an extended coarse filter limit	26–31
Figure 26–6	Grain size distribution curve for very fine clay base soil	26–36
Figure 26B–1	Standard aggregate gradations	26–43

Examples

Example 26–1	Fine clay base soil—Category 1	26–7
Example 26–2	Silty sand with gravel base soil—Category 3	26–11
Example 26–2A	Silty sand with gravel base soil—Category 3	26–15
Example 26–3	Clayey gravel base soil—Category 2	26–19
Example 26–4	Silty sand base soil—Category 4	26–23
Example 26–5	Design of a coarse filter to be compatible with a previously designed fine filter and used around a perforated pipe	26–27
Example 26–6	Very fine clay base soil—Category 1	26–33

Chapter 26 Gradation Design of Sand and Gravel Filters

633.2600 Purpose

Chapter 26 presents criteria for determining the grain-size distribution (gradation) of sand and gravel filters needed to prevent internal erosion or piping of soil in embankments or foundations of hydraulic structures.

These criteria are based on results of an extensive laboratory filter study carried out by the Soil Conservation Service at the Soil Mechanics Laboratory in Lincoln, Nebraska, from 1980 to 1985. (See Section 633.2605, References, for published reports.)

Refer to section 633.2604 for definitions used in this chapter.

633.2601 Basic purpose of filters and drains

Filters are placed in embankment zones, foundations, or other areas of hydraulic structures for two purposes:

- To intercept water flowing through cracks or openings in a base soil and block the movement of eroding soil particles into the filter. Soil particles are caught at the filter face, reducing the flow of water through cracks or openings and preventing further erosion and enlargement of the cracks or openings.
- To intercept water flowing through the pores of the base soil, allowing passage of the water while preventing movement of base soil particles. Without filters, piping of susceptible base soils can occur when seepage gradients or pressures are high enough to produce erosive discharge velocities in the base soil. The filter zone is generally placed upstream of the discharge point where sufficient confinement prevents uplift or blow-out of the filter.

Drains consist of sand, gravel, or a sand and gravel mixture placed in embankments, foundations, and backfill of hydraulic structures, or in other locations to reduce seepage pressure. A drain's most important design feature is its capacity to collect and carry water to a safe outlet at a low gradient or without pressure build-up. Drains are often used downstream of or in addition to a filter to provide outlet capacity.

Combined filters and drains are commonly used. The filter is designed to function as a filter and as a drain.

633.2602 Permeability and capacity

The laboratory filter study clearly demonstrated that graded filters designed in accordance with these criteria will seal a crack. The sealing begins when water flows through a crack or opening and carries soil particles eroded from the sides of the openings. Eroding soil particles collect on the face of the filter and seal the crack at the interface. Any subsequent flow is through the pores of the soil. If filters are designed to intercept cracks, the permeability required in the filter zone should be based on the steady state seepage flow through the pores of the base soil alone. The hydraulic capacity of any cracks need not be considered in designing the filter because the cracks have been shown to seal.

Where saturated steady-state seepage flow will not develop, for instance in dry dams for flood control having a normal drawdown time of 10 days or less, filter capacity need only be nominal. Filters designed either to protect against steady state seepage or internal erosion through cracks are to be thick enough to compensate for potential segregation and contamination of the filter zones during construction. They must also be thick enough that cracks cannot extend through the filter zone during any possible differential movements.

A zone of coarser materials immediately downstream or below the filter, or both, provides additional capacity to collect and convey seepage to a controlled outlet. In some cases a strip drain is used, and in others a perforated collector pipe is employed to outlet the collected seepage. To prevent movement of the filter materials into the coarse drain materials, the coarse drain materials must be designed for the proper gradation using procedures in this subchapter. Perforations in collector pipes must also be sized properly to prevent movement of the coarse drain materials into the perforations.

633.2603 Determining filter gradation limits

Determine filter gradation limits using the following steps:

Step 1: Plot the gradation curve (grain-size distribution) of the base soil material. Use enough samples to define the range of grain sizes for the base soil or soils. Design the filter using the base soil that requires the smallest D_{15} size for filtering purposes. Base the design for drainage purposes on the base soil that has the largest D_{15} size.

Step 2: Proceed to step 4 if the base soil contains no gravel (material larger than No. 4 sieve).

Step 3: Prepare adjusted gradation curves for base soils that have particles larger than the No. 4 (4.75 mm) sieve.

- Obtain a correction factor by dividing 100 by the percent passing the No. 4 (4.75 mm) sieve.
- Multiply the percentage passing each sieve size of the base soil smaller than No. 4 (4.75 mm) sieve by the correction factor determined above.
- Plot these adjusted percentages to obtain a new gradation curve.
- Use the adjusted curve to determine the percentage passing the No. 200 (0.075 mm) sieve in step 4.

Step 4: Place the base soil in a category determined by the percent passing the No. 200 (0.075 mm) sieve from the regraded gradation curve data according to table 26–1.

Step 5: To satisfy filtration requirements, determine the maximum allowable D_{15} size for the filter in accordance with the table 26–2.

If desired, the maximum D_{15} may be adjusted for certain noncritical uses of filters where significant hydraulic gradients are not predicted, such as bedding beneath riprap and concrete slabs. For fine clay base soil that has d_{85} sizes between 0.03 and 0.1 mm, a maximum D_{15} of ≤ 0.5 mm is still conservative. For fine-grained silt that has low sand content, plotting below the "A" line, a maximum D_{15} of 0.3 mm may be used.

Step 6: If permeability is a requirement (see section 633.2602), **determine the minimum allowable D_{15} in accordance with table 26-3.** Note: The permeability requirement is determined from the d_{15} size of the base soil gradation before regrading.

Step 7: The width of the allowable filter design band must be kept relatively narrow to prevent the use of possibly gap-graded filters. Adjust the maximum and minimum D_{15} sizes for the filter band determined in steps 5 and 6 so that the ratio is 5 or less at any given percentage passing of 60 or less. Criteria are summarized in table 26-4.

Table 26-1 Regraded gradation curve data

Base soil category	% finer than No. 200 sieve (0.075 mm) (after regrading, where applicable)	Base soil description
1	> 85	Fine silt and clays
2	40 – 85	Sands, silts, clays, and silty & clayey sands
3	15 – 39	Silty & clayey sands and gravel
4	< 15	Sands and gravel

Table 26-2 Filtering criteria — Maximum D_{15}

Base soil category	Filtering criteria
1	≤ 9 x d_{85} but not less than 0.2 mm
2	≤ 0.7 mm
3	$\leq \left(\frac{40-A}{40-15}\right)\left[\left(4\times d_{85}\right)-0.7\text{mm}\right]+0.7\text{mm}$ A = % passing #200 sieve after regrading (If 4 x d_{85} is less than 0.7 mm, use 0.7 mm)
4	≤ 4 x d_{85} of base soil after regrading

This step is required to avoid the use of gap-graded filters. The use of a broad range of particle sizes to specify a filter gradation could result in allowing the use of gap-graded (skip-graded) materials. These materials have a grain size distribution curve with sharp breaks or other undesirable characteristics. Materials that have a broad range of particle sizes may also be susceptible to segregation during placement. The requirements of step 9 should prevent segregation, but other steps are needed to eliminate the use of any gap-graded filters.

Gap-graded materials generally can be recognized by simply looking at their grain size distribution curve. However, for specification purposes, more precise controls are needed. In designing an acceptable filter band using the preliminary control points obtained in steps 1 through 6, the following additional requirements should be followed to decrease the probability of using a gap-graded filter.

Table 26-3 Permeability criteria

Base soil category	Minimum D_{15}
All categories	≥ 4 x d_{15} of the base soil before regrading, but not less than 0.1 mm

Table 26-4 Other filter design criteria

Design element	Criteria
To prevent gap-graded filters	The width of the designed filter band should be such that the ratio of the maximum diameter to the minimum diameter at any given percent passing value ≤ 60% is ≤ 5.
Filter band limits	Coarse and fine limits of a filter band should each have a coefficient of uniformity of 6 or less.

First, calculate the ratio of the maximum D_{15} to the minimum D_{15} sizes determined in steps 5 and 6. If this ratio is greater than 5, adjust the values of these control points so that the ratio of the maximum D_{15} to the minimum D_{15} is no greater than 5. If the ratio is 5 or less, no adjustments are necessary. Label the maximum D_{15} size as Control point 1 and the minimum D_{15} size as Control point 2. Proceed to step 8.

The decision on where to locate the final D_{15} sizes within the range established with previous criteria should be based on one of the following considerations:

1. Locate the design filter band at the maximum D_{15} side of the range if the filter will be required to transmit large quantities of water (serve as a drain as well as a filter). With the maximum D_{15} size as the control point, establish a new minimum D_{15} size by dividing the maximum D_{15} size by 5, and locate a new minimum D_{15} size. Label the maximum D_{15} size Control point 1 and the minimum D_{15} size Control point 2.

2. Locate the band at the minimum D_{15} side of the range if it is probable there are finer base materials than those sampled and filtering is the most important function of the zone. With the minimum D_{15} size as the control point, establish a new maximum D_{15} size by multiplying the minimum D_{15} size by 5, and locate a new maximum D_{15} size. Label the maximum D_{15} size Control point 1 and the minimum D_{15} size Control point 2.

3. The most important consideration may be to locate the maximum and minimum D_{15} sizes, within the acceptable range of sizes determined in steps 5 and 6, so that a standard gradation available from a commercial source or other gradations from a natural source near the site would fall within the limits. Locate a new maximum D_{15} and minimum D_{15} within the permissible range to coincide with the readily available material. Ensure that the ratio of these sizes is 5 or less. Label the maximum D_{15} size Control point 1 and the minimum D_{15} size Control point 2.

Step 8: The designed filter band must not have an extremely broad range of particle sizes to prevent the use of possibly gap-graded filters. Adjust the limits of the design filter band so that the coarse and fine sides have a coefficient of uniformity of 6 or less. The width of the filter band should be such that the ratio of maximum to minimum diameters is less than or equal to 5 for all percent passing values of 60 or less.

Other filter design criteria in step 8

To prevent gap-graded filters—Both sides of the design filter band will have a coefficient of uniformity, defined as:

$$CU = \frac{D_{60}}{D_{10}} \leq 6$$

Initial design filter bands by this step will have CU values of 6. For final design, filter bands may be adjusted to a steeper configuration, with CU values less than 6, if needed. This is acceptable so long as other filter and permeability criteria are satisfied.

Calculate a maximum D_{10} value equal to the maximum D_{15} size divided by 1.2. (This factor of 1.2 is based on the assumption that the slope of the line connecting D_{15} and D_{10} should be on a coefficient of uniformity of about 6.) Calculate the maximum permissible D_{60} size by multiplying the maximum D_{10} value by 6. Label this Control point 3.

Determine the minimum allowable D_{60} size for the fine side of the band by dividing the determined maximum D_{60} size by 5. Label this Control point 4.

Step 9: Determine the minimum D_5 and maximum D_{100} sizes of the filter according to table 26–5. Label as Control points 5 and 6, respectively.

Table 26–5 Maximum and minimum particle size criteria*

Base soil category	Maximum D_{100}	Minimum D_5, mm
All categories	≤ 3 inches (75 mm)	0.075 mm (No. 200 sieve)

* The minus No. 40 (.425 mm) material for all filters must be nonplastic as determined in accordance with ASTM D4318.

Step 10: To minimize segregation during construction, the relationship between the maximum D_{90} and the minimum D_{10} of the filter is important. Calculate a preliminary minimum D_{10} size by dividing the minimum D_{15} size by 1.2. (This factor of 1.2 is based on the assumption that the slope of the line connecting D_{15} and D_{10} should be on a coefficient of uniformity of about 6.) Determine the maximum D_{90} using table 26–6. Label this as Control point 7.

Sand filters that have a D_{90} less than about 20 mm generally do not require special adjustments for the broadness of the filter band. For coarser filters and gravel zones that serve both as filters and drains, the ratio of D_{90}/D_{10} should decrease rapidly with increasing D_{10} sizes.

Step 11: Connect Control points 4, 2, and 5 to form a partial design for the fine side of the filter band. Connect Control points 6, 7, 3, and 1 to form a design for the coarse side of the filter band. This results in a preliminary design for a filter band. Complete the design by extrapolating the coarse and fine curves to the 100 percent finer value. For purposes of writing specifications, select appropriate sieves and corresponding percent finer values that best reconstruct the design band and tabulate the values.

Step 12: Design filters adjacent to perforated pipe to have a D_{85} size no smaller than shown in table 26–7. For critical structure drains where rapid gradient reversal (surging) is probable, it is recommended that the D_{15} size of the material surrounding the pipe be no smaller than the perforation size.

Additional design considerations: Note that these steps provide a filter band design that is as well graded as possible and still meets criteria. This generally provides the most desirable filter characteristics. However, in some cases a more poorly graded filter band may be preferable; for example, if more readily available standard gradations are needed or where onsite filters are used for economy.

The design filter band obtained in steps 1 through 12 may be adjusted to a steeper configuration in such cases. The width of the filter band should be maintained so that the ratio of the maximum diameters to the minimum diameters at a given percent finer is no greater than 5 below the 60 percent finer value.

Only the portion of the design filter band above the previously established minimum and maximum D_{15} sizes should be adjusted. The design band may be adjusted so that the coefficients of uniformity of both the coarse and fine sides of the design band are less than 6, but not less than 2, to prevent use of very poorly graded filters.

Table 26–6 Segregation criteria

Base soil category	If D_{10} is :	Then maximum D_{90} is:
	(mm)	(mm)
All categories	< 0.5	20
	0.5 – 1.0	25
	1.0 – 2.0	30
	2.0 – 5.0	40
	5.0 – 10	50
	> 10	60

Table 26–7 Criteria for filters used adjacent to perforated collector pipe

Noncritical drains where surging or gradient reversal is not anticipated	The filter D_{85} must be greater than or equal to the perforation size
Critical drains where surging or gradient reversal is anticipated	The filter D_{15} must be greater than or equal to the perforation size.

Note that the requirements for coefficient of uniformity apply only to the coarse and fine limits of the design filter band. It is possible that an individual, acceptable filter whose gradation plots completely within the specified limits could have a coefficient of uniformity greater than 6 and still be perfectly acceptable. The design steps of this procedure will prevent acceptance of gap-graded filters, which is the main concern associated with filters having a high coefficient of uniformity, and it is not necessary to closely examine the coefficient of uniformity of a particular filter as long as it plots within the design filter band.

Illustrations of these filter design steps are in the following examples. The steps in the filter design process are summarized in appendix 26A. The summary is useful to follow as the example problems are reviewed.

Example 26-1 Fine clay base soil—Category 1

Given: The most important function of the filter being designed is to act as a filter.

Step 1: Plot the gradation curve of the base soil material.

Refer to figure 26-1 for the plotted grain size distribution curve for this example clay base soil, labeled Base soil. The plotted curve is from the following data:

Sieve size	% passing
No 10	100
No. 200	90
0.05 mm	80
0.02 mm	60
0.005 mm	40
0.002 mm	32

Step 2: Proceed to step 4 if the base soil contains no gravel (material larger than the No. 4 sieve).

The example base soil has 100 percent finer than the No. 4 sieve, and the grain size distribution curve does not need to be regraded. Proceed to step 4.

Step 3: Not applicable because the base soil contains no particles larger than the No. 4 sieve

Step 4: Place the base soil in a category determined by the percent passing the No. 200 (0.075 mm) sieve from the regraded gradation curve data according to table 26-1.

The example soil has 90 percent finer than the No. 200 sieve. From table 26-1, the soil is in category 1.

Step 5: To satisfy filtration requirements, determine the maximum allowable D_{15} size for the filter according to table 26-2.

The filtering criteria for base soil category 1 is (table 26-2): The maximum D_{15} of the filter will be less than or equal to 9 times the d_{85} of the base soil, but not less than 0.2 mm.

The d_{85} size of the base soil is 0.06 mm. Thus, the maximum D_{15} of the filter is

$$\leq 9 \times 0.06 = 0.54 \text{ mm (not} < 0.2 \text{ mm)}$$

This is labeled as Maximum D_{15} in figure 26-1.

Step 6: If permeability is a requirement (section 633.2602), determine the minimum allowable D_{15} according to table 26-3. Note: The permeability requirement is determined from the d_{15} size of the base soil gradation before regrading.

The permeability criterion for all categories of base soils is that the filter will have a minimum D_{15} of no less than 4 times the d_{15} of the base soil (before any regrading of the base soil), but will not be less than 0.1 mm in any case.

The example 26-1 base soil does not have a meaningful d_{15} size. The data show that the base soil has 32 percent finer than 0.002 mm, the smallest commonly determined particle size. Therefore, use the default value of 0.1 mm for the minimum D_{15} of the filter. This value is the preliminary value for minimum D_{15}. Proceed to step 7 for any needed adjustments.

Step 7: The width of the allowable filter design band must be kept relatively narrow to prevent the use of possibly gap-graded filters. Adjust the maximum and minimum D_{15} sizes for the filter band determined in previous steps 5 and 6 so that the ratio is 5 or less, at any given percent passing of 60 or less. Adjustments may be required based on the following considerations.

For example 26-1, the ratio of the maximum D_{15} to the minimum D_{15} sizes is equal to 0.54 / 0.1 = 5.4. Because the value is slightly greater than 5, a slight adjustment is needed in this step. The minimum D_{15} is the control because filtering is stated as the most important purpose. Label this as Control point 2. Determine an adjusted maximum D_{15} size for the final design filter band as equal to the minimum D_{15} size, 0.10 x 5 = 0.50 mm. This is the final Control point 1 labeled in figure 26-1. Go to step 8.

Step 8: The designed filter band must not have an extremely broad range of particle sizes to prevent using possibly gap-graded filters. Adjust the limits of the design filter band so that coarse and fine sides of the filter band have a coefficient of uniformity of 6 or less. Width of the filter band should be such that the ratio of maximum to minimum diameters is less than or equal to 5 for all percent passing values of 60 or less.

For example 26–1, calculate a value for maximum D_{10} by dividing the maximum D_{15} size of 0.5 mm (determined in step 7) by 1.2 = 0.42 mm. Determine the value for the maximum D_{60} size by multiplying the value of D_{10} by 6 = 0.42 x 6 = 2.5 mm. Label this as Control point 3.

Determine the minimum allowable D_{60} size for the fine side of the band by dividing the determined maximum D_{60} size by 5:

$$\frac{D_{60}}{5} = \frac{2.5}{5} = 0.50$$

Label this Control point 4.

Step 9: Determine the minimum D_5 and maximum D_{100} sizes of the filter according to table 26–5.

This table shows that filters must have a D_5 greater than or equal to 0.075 mm, equal to the No. 200 sieve size. Label this value as Control point 5 in figure 26–1.

It also shows that filters must have a D_{100} of less than or equal to 3 inches. Label this value as Control point 6 in figure 26–1.

Step 10: To minimize segregation during construction, the relationship between the maximum D_{90} and the minimum D_{10} of the filter is important. Calculate a preliminary minimum D_{10} size by dividing the minimum D_{15} size by 1.2. Determine the maximum D_{90} using table 26–6. Label this as Control point 7.

Calculate the minimum D_{10} size of the preliminary filter band as equal to the minimum D_{15} value of 0.1 mm (obtained in step 6) divided by 1.2:

$$0.10 / 1.2 = 0.083 \text{ mm}$$

Table 26–6 lists maximum D_{90} sizes for filters for a range of D_{10} sizes. Because the D_{10} value is less than 0.5 mm, the maximum D_{90} size is 20 mm. Label this value as Control point 7 in figure 26–1.

Step 11: Connect Control points 4, 2, and 5 to form a partial design for the fine side of the filter band. Connect Control points 6, 7, 3, and 1 to form a partial design for the coarse side of the filter band.

Complete the design of the filter band by extrapolating the coarse and fine curves to the 100 percent finer value. For purposes of writing specifications, select appropriate sieves and corresponding percent finer values that best reconstruct the design band and tabulate the values.

Refer to figure 26–1 for an illustration of the complete filter design. Note that adjustments have been made in straight line portions of the design band to intercept even values for percent passing at standard sieve sizes and to prevent the use of very broadly graded filters. The final design specified gradation is shown in table 26–8.

Step 12: Design filters adjacent to perforated pipe to have a D_{85} size no smaller than the perforation size. For critical structure drains where rapid gradient reversal (surging) is probable, it is recommended that the D_{15} size of the material surrounding the pipe be no smaller than the perforation size.

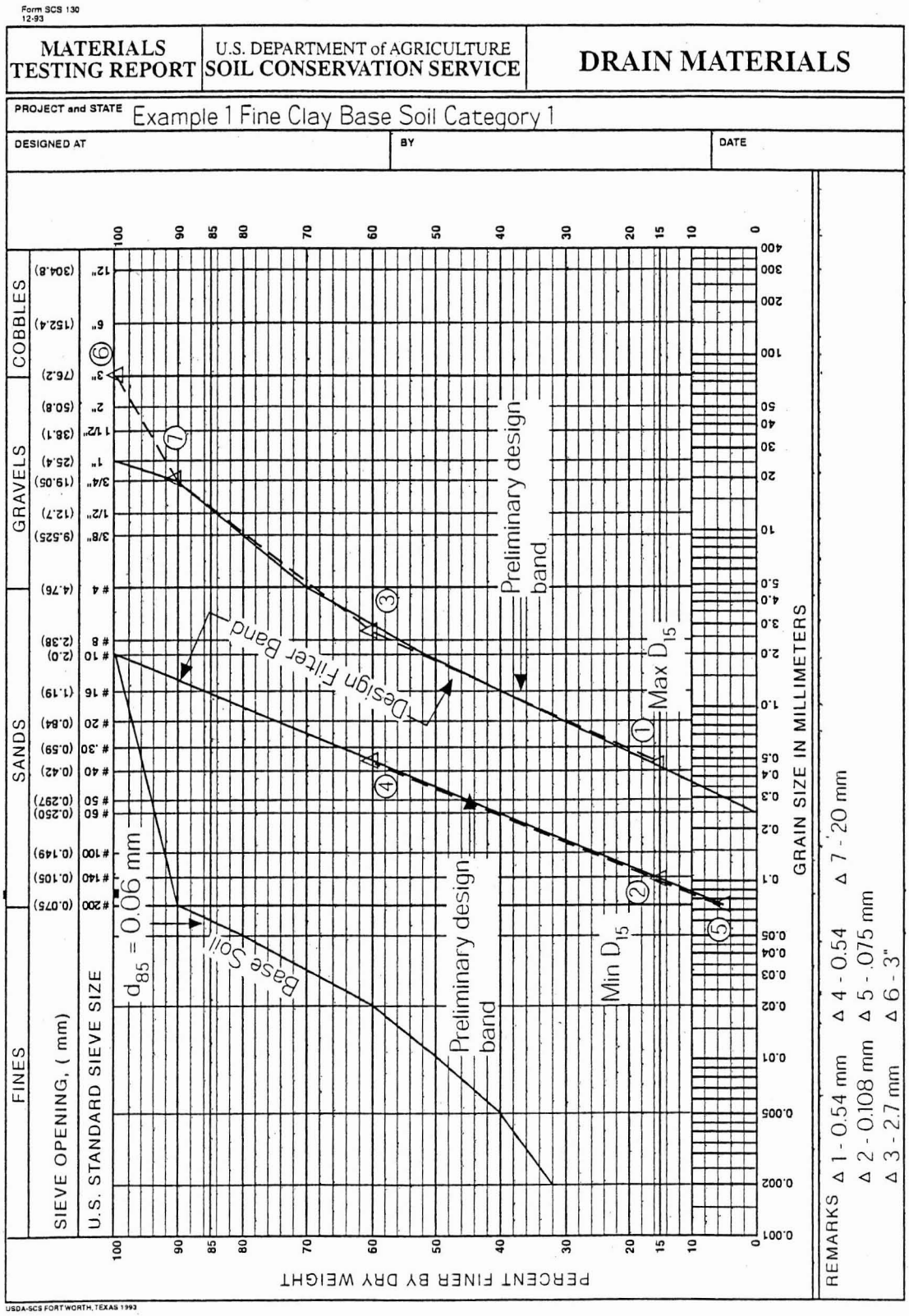
For this example, the filter will not be used around a perforated collector pipe, so step 12 is not applicable.

Additional design considerations: For this example, ASTM C-33 concrete sand falls well within the design band. Because this is a fairly standard, readily available gradation, no adjustments in the design band appear warranted. Selected ASTM Aggregate Specifications are given in appendix 26B.

Table 26–8 Design specification gradation for example 26–1 soil

Sieve size	% passing
1 inch	100
3/4 inch	90–100
No. 4	70–100
No. 10	52–100
No. 20	30–75
No. 60	0–40
No. 140	0–15
No. 200	0–5

Figure 26–1 Grain size distribution curve for fine clay base soil



Example 26-2 Silty sand with gravel base soil—Category 3

Given: The most important function of the filter being designed in this example is to act as a drain.

Step 1: Plot the gradation curve of the base soil material.

Refer to figure 26–2 for the plotted grain size distribution curve for this example silty sand with gravel base soil. The plotted curve is from the following data:

Sieve size	% passing
3 inch	100
1 inch	90
3/8 inch	82
No 4	78
No. 10	72
No. 20	66
No. 40	54
No. 100	32
No. 200	20
0.005 mm	4
0.002 mm	2

Step 2: Proceed to step 4 if the base soil contains no gravel (material larger than the No. 4 sieve).

The example 26–2 base soil has particles larger than the No. 4 sieve, so the grain size distribution curve should be regraded on the No. 4 sieve. Proceed to step 3:

Step 3: Prepare adjusted gradation curves for base soils with particles larger than the No. 4 (4.75 mm) sieve.

Determine the regrading factor by dividing the value 100 by the percent passing the No. 4 (4.75 mm) sieve size. The regrading factor is:

$$\frac{100\%}{78\%} = 1.28$$

Using the original gradation analysis, plot a regraded curve for 100 percent passing the No. 4 (4.75 mm) sieve. The regraded percent passing values are equal to the original percent passing values times the regrading factor.

Sieve size	Original % passing	Regraded % passing
3 inch	100	—
1 inch	90	—
3/8 inch	82	—
No 4	78	100
No. 10	72	92
No. 20	66	85
No. 40	54	69
No. 100	32	41
No. 200	20	26
0.005 mm	4	5
0.002 mm	2	3

Step 4: Place the base soil in a category determined by the percent passing the No. 200 (0.075 mm) sieve from the regraded gradation curve data according to table 26–1.

The example soil after regrading has 26 percent finer than the No. 200 sieve. From table 26–1, the soil is in category 3.

Step 5: To satisfy filtration requirements, determine the maximum allowable D_{15} size for the filter according to table 26–2.

The filtering criteria for base soil category 3 is (table 26–2): The maximum D_{15} of the filter will be less than or equal that given by the following expression:

$$D_{15} \le \left[\frac{(40-A)}{(40-15)}\right]\left[(4)(d_{85}) - 0.7\text{ mm}\right] + 0.7\text{ mm}$$

Determine from the gradation curve of the regraded base soil that the d_{85} size is 0.84 mm. From the regraded curve, the value of A is 26 percent. Then the maximum D_{15} of the filter by the equation above is:

$$D_{15} \leq \left[\frac{(40-26)}{(40-15)}\right]\left[(4)(0.84) - 0.7\text{ mm}\right] + 0.7\text{ mm}$$
$$\leq 2.2\text{ mm}$$

This is labeled as Maximum D_{15} in figure 26–2.

Step 6: If permeability is a requirement (section 633.2603), determine the minimum allowable D_{15} according to table 26–3. Note: The permeability requirement is determined from the d_{15} size of the base soil gradation before regrading.

The permeability criterion for all categories of base soils is that the filter have a minimum D_{15} of no less than 4 times the d_{15} of the base soil (before any regrading of the base soil), but not be less than 0.1 mm in any case.

The example 26–2 base soil has a d_{15} size of 0.032 before regrading. The minimum D_{15} of the filter is 4 x 0.032 = 0.128 (acceptable because it is larger than 0.1 mm). Label this value as Minimum D_{15} in figure 26–2.

Step 7: The width of the allowable filter design band must be kept relatively narrow to prevent the use of possibly gap-graded filters. Adjust the maximum and minimum D_{15} sizes for the filter band determined in previous steps 5 and 6 so that the ratio is 5 or less at any given percent passing of 60 or less. Adjustments may be required based on the following considerations:

Determine the ratio of the maximum D_{15} size to the minimum D_{15} sizes determined in previous steps. This ratio is:

$$\frac{2.2\text{ mm}}{0.13\text{ mm}} = 16.9$$

Because this ratio exceeds the criterion ratio of 5, adjustments are required in the values.

It was given that the most important function of the filter is to serve as a drain, so the maximum D_{15} is selected as the control point, equal to 2.2 mm. Label this value as Control point 1. To satisfy criteria, determine that the minimum D_{15} value is 1/5 of this value.

The minimum D_{15} value is then:

$$\frac{2.2\text{ mm}}{5} = 0.44\text{ mm}$$

Label this as Control point 2 in figure 26–2.

Step 8: The designed filter band must not have an extremely broad range of particle sizes to prevent the use of possibly gap-graded filters. Adjust the limits of the design filter band so that the coarse and fine sides of the filter band have a coefficient of uniformity of 6 or less. The width of the filter band should be such that the ratio of maximum to minimum diameters is less than or equal to 5 for all percent passing values of 60 or less.

The value for maximum D_{10} is calculated to be the maximum D_{15} size determine in step 7, divided by 1.2:

$$\frac{D_{15}}{1.2} = \frac{2.2}{1.2} = 1.83\text{ mm}$$

Calculate a value for the maximum D_{60}. The maximum D_{10} size times 6 is 1.83 x 6 = 11 mm. Label the maximum D_{60} size as Control point 3.

The minimum allowable D_{60} size is equal to the maximum D_{60} size divided by 5.

$$\frac{11}{5} = 2.2\text{ mm}$$

Label this as Control point 4 in figure 26–2.

Step 9: Determine the minimum D_5 and maximum D_{100} sizes of the filter according to table 26.5.

This table requires filters to have a D_5 greater than or equal to 0.075 mm, equal to the No. 200 sieve size. Label this value as Control point 5 in figure 26–2.

It also shows that filters must have a D_{100} of less than or equal to 3 inches. Label this value as Control point 6 in figure 26–2.

Step 10: To minimize segregation during construction, the relationship between the maximum D_{90} and the minimum D_{10} of the filter is important. Calculate a preliminary minimum D_{10} size by dividing the minimum D_{15} size by 1.2. Determine the maximum D_{90} using table 26–6. Label this as Control point 7.

Determine that the minimum D_{10} size is equal to the minimum D_{15} size (determined in step 7) of 0.44 divided by 1.2:

$$\frac{0.44}{1.2} = 0.37 \text{ mm}$$

Because the value of minimum D_{10} size is less than 0.5 mm, the maximum D_{90} size is 20 mm (table 26–6). Label this value as Control point 7 in figure 26–4.

Step 11: Connect control points 4, 2, and 5 to form a partial design for the fine side of the filter band. Connect control points 6, 7, 3, and 1 to form a design for the coarse side of the filter band.

Complete the design of the filter band by extrapolating the coarse and fine curves to the 100 percent finer value. For purposes of writing specifications, select appropriate sieves and corresponding percent finer values that best reconstruct the design band and tabulate the values.

Refer to figure 26–2 for the completed filter band design. Table 26–9 gives the final design specified gradation. Note that all the control points are considered and that sieve sizes and corresponding percent finer values are selected to best fit the design band.

Step 12: Design filters adjacent to perforated pipe to have a D_{85} size no smaller than the perforation size. For critical structure drains where rapid gradient reversal (surging) is probable, it is recommended that the D_{15} size of the material surrounding the pipe be no smaller than the perforation size.

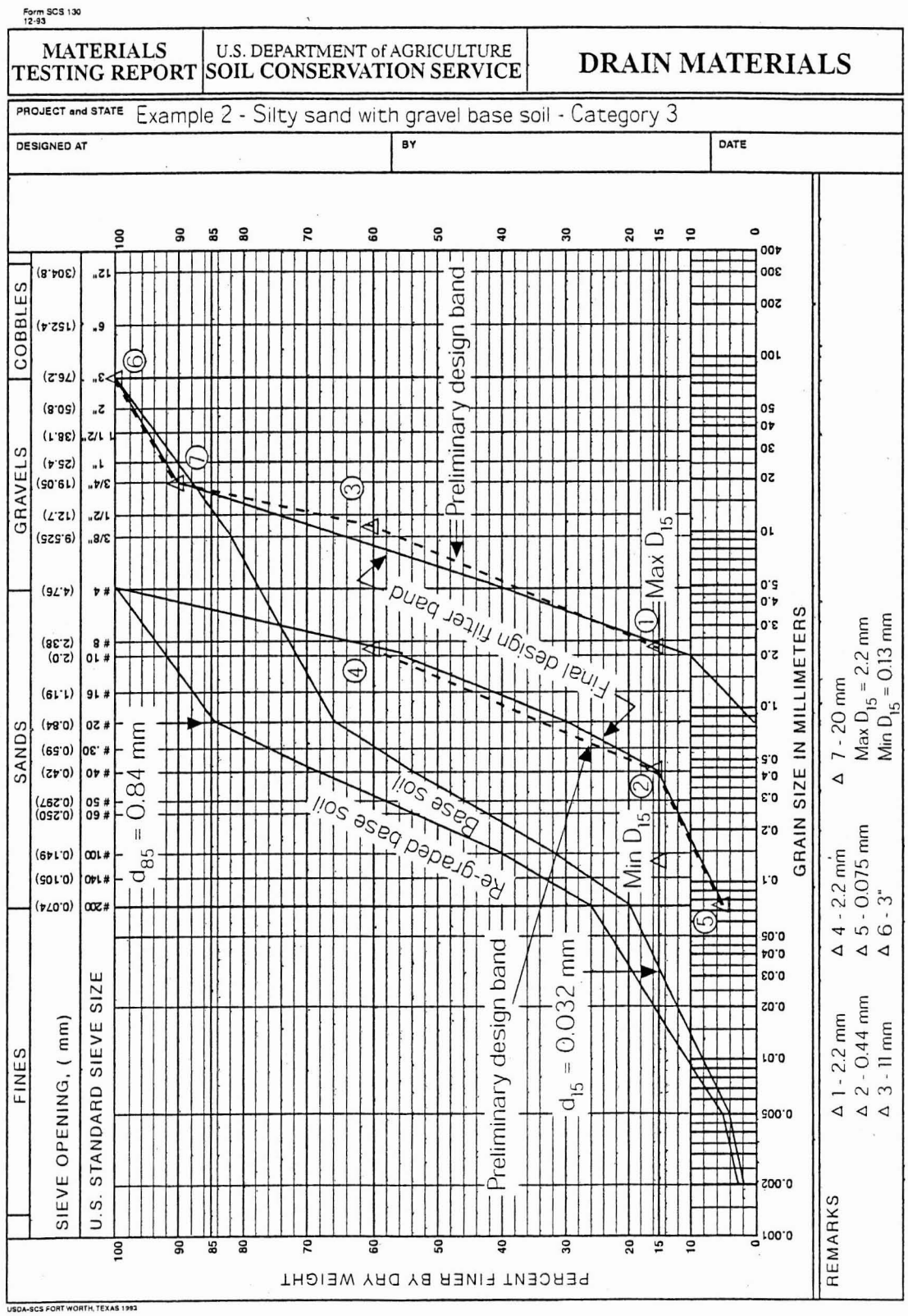
It is not given that this filter is to be used around a collector pipe, so this criterion is not applicable.

Additional design considerations: The design filter band does not coincide with standard, readily available aggregate gradations. Probably, a blend of standard aggregate gradations would be required to meet this design. Adjustments to the filter according to this step would not improve the availability. See following examples where this adjustment would be applicable. Using the design filter band, prepare the following tabular listing of the design.

Table 26–9 Design specification gradation for example 26–2 soil

Sieve size	% passing
3 inch	100
3/4 inch	90–100
1/2 inch	75–100
No. 4	40–100
No. 10	10–55
No. 20	0–30
No. 40	0–15
No. 100	0–9
No. 200	0–5

Figure 26–2 Grain size distribution curve for silty sand with gravel base soil—Category 3



Example 26-2A Silty sand with gravel base soil—Category 3

This example uses the same base soil as that in example 26-2. It is assumed that the most important function of the filter being designed is to act as a filter. Example 26-2 assumed the most important function was to act as a drain. Note the differences in the design steps.

Step 1: Plot the gradation curve of the base soil material. This step is the same as that in example 26-2. Refer to figure 26-2A for the plotted grain size distribution curve for this example silty sand with gravel base soil.

Step 2: Proceed to step 4 if the base soil contains no gravel (material larger than the No. 4 sieve). Because the example 26-2 base soil has particles larger than the No. 4 sieve, the grain size distribution curve should be regraded on the No. 4 sieve. Proceed to step 3.

Step 3: Prepare adjusted gradation curves for base soils with particles larger than the No. 4 (4.75 mm) sieve. This step is the same as that for example 26-2. Refer to that example and see figure 26-2A.

Step 4: Place the base soil in a category determined by the percent passing the No. 200 (0.075 mm) sieve from the regraded gradation curve data according to table 26-1. This step is the same as that for example 26-2. The soil is in category 3.

Step 5: To satisfy filtration requirements, determine the maximum allowable D_{15} size for the filter according to table 26-2. This step is the same as that for example 26-2. The maximum D_{15} size is 2.2 mm. This is labeled as Maximum D_{15} in figure 26-2A.

Step 6: If permeability is a requirement (section 633.2603), determine the minimum allowable D_{15} according to table 26-3. Note: The permeability requirement is determined from the d_{15} size of the base soil gradation before regrading.

The example 26-2A base soil has a d_{15} size of 0.032 mm before regrading. The value of minimum D_{15} of the filter is 4 x 0.032 = 0.128 mm (acceptable because it is larger than 0.1 mm). Label this value as Minimum D_{15} in figure 26-2A.

Step 7: The width of the allowable filter design band must be kept relatively narrow to prevent the use of possibly gap-graded filters. Adjust the maximum and minimum D_{15} sizes for the filter band determined in steps 5 and 6 so that the ratio is 5 or less at any given percent passing of 60 or less. Adjustments may be required based on the following considerations.

Determine the ratio of the maximum D_{15} size to the minimum D_{15} sizes determined in previous steps:

$$\frac{2.2\text{ mm}}{0.13\text{ mm}} = 16.9$$

Because this ratio exceeds the criterion ratio of 5, adjustments are required in the values.

The most important function of the filter is to serve as a filter, so the minimum D_{15} is selected as the control point, equal to 0.13 mm. Label this Control point 2. To satisfy criteria, determine that the maximum D_{15} value is 5 times this value. The maximum D_{15} value is:

$$0.13 \times 5 = 0.65\text{ mm}$$

Label this as Control point 1 in figure 26-2A.

Step 8: The designed filter band must not have an extremely broad range of particle sizes to prevent the use of possibly gap-graded filters. Adjust the limits of the design filter band so that the coarse and fine sides of the filter band have a coefficient of uniformity of 6 or less. The width of the filter band should be such that the ratio of maximum to minimum diameters is less than or equal to 5 for all percent passing values of 60 or less.

A value for maximum D_{10} is calculated by dividing the maximum D_{15} size (determine in step 7) by 1.2.

$$\frac{0.65}{1.2} = 0.54\text{ mm}$$

Calculate a value for the maximum D60 by multiplying the maximum D_{10} size times 6:

$$0.54 \times 6 = 3.24\text{ mm}$$

Label the maximum D_{60} size as Control point 3.

The minimum allowable D_{60} size is equal to the maximum D_{60} size divided by 5:

$$\frac{3.24}{5} = 0.65 \text{ mm}$$

Label this as Control point 4 in figure 26–2A.

Step 9: Determine the minimum D_5 and maximum D_{100} sizes of the filter according to table 26–5.

This table shows that filters must have a D_5 greater than or equal to 0.075 mm, equal to the No. 200 sieve size. Label this value as Control point 5 in figure 26–2A.

It also shows that filters must have a D_{100} of less than or equal to 3 inches. Label this value as Control point 6 in figure 26–2A.

Step 10: To minimize segregation during construction, the relationship between the maximum D_{90} and the minimum D_{10} of the filter is important. Calculate a preliminary minimum D_{10} size by dividing the minimum D_{15} size by 1.2. Determine the maximum D_{90} using table 26–6. Label this as Control point 7.

This table lists maximum D_{90} sizes for filters for a range of D_{10} sizes. Calculate the minimum D_{10} size as equal to the minimum D_{15} size (determined in step 7) of 0.13 mm divided by 1.2:

$$\frac{0.13}{1.2} = 0.11 \text{ mm}$$

Because the value is less than 0.5 mm, the maximum D_{90} size is 20 mm (table 26–6). Label this value as Control point 7 in figure 26–2A.

Step 11: Connect control points 4, 2, and 5 to form a partial design for the fine side of the filter band. Connect control points 6, 7, 3, and 1 to form a design for the coarse side of the filter band.

Complete the design of the filter band by extrapolating the coarse and fine curves to the 100 percent finer value. For purposes of writing specifications, select appropriate sieves and corresponding percent finer values that best reconstruct the design band and tabulate the values.

Refer to figure 26–2A for the completed filter band design. The design is also tabulated in table 26–10.

Note that the control points are considered and that relatively even percent finer values are selected for standard sieve sizes for ease in writing specifications.

Step 12: Design filters adjacent to perforated pipe to have a D_{85} size no smaller than the perforation size. For critical structure drains where rapid gradient reversal (surging) is probable, it is recommended that the D_{15} size of the material surrounding the pipe be no smaller than the perforation size.

It is not given that this filter is to be used around a collector pipe, so this criterion is not applicable.

Additional design considerations: The design filter band coincides fairly well with a standard, readily available aggregate gradation, ASTM C-33 fine aggregate for concrete. However, a slight adjustment in the filter design would make it more compatible with this standard gradation. The filter band can be adjusted to a more poorly graded configuration, a CU value of less than 6. Note that this is accomplished without violating other filtering or permeability criteria. Figure 26–2B shows how the original filter band design shown in figure 26–2A could be slightly altered to a steeper sloping band for the filter limits without violating any of the criteria previously covered.

The final filter design specification limits selected for example 26–2A, before and after possible adjustment, are shown in table 26–10.

Table 26–10 Design specification gradation for example 26–2A soil

Sieve size	Fig. 26–2A before adjustment (% passing)	Fig. 26–2B after adjustment (% passing)
3 inch	100	
3/4 inch	90–100	
1/2 inch	85–100	100
No. 4	70–100	80–100
No. 10	45–100	60–100
No. 20	20–65	20–100
No. 40	0–45	0–60
No. 60	0–30	0–35
No. 100	0–17	0–17
No. 200	0–5	0–5

Figure 26–2A Grain size distribution curve for silty sand with gravel base soil where primary function is filter

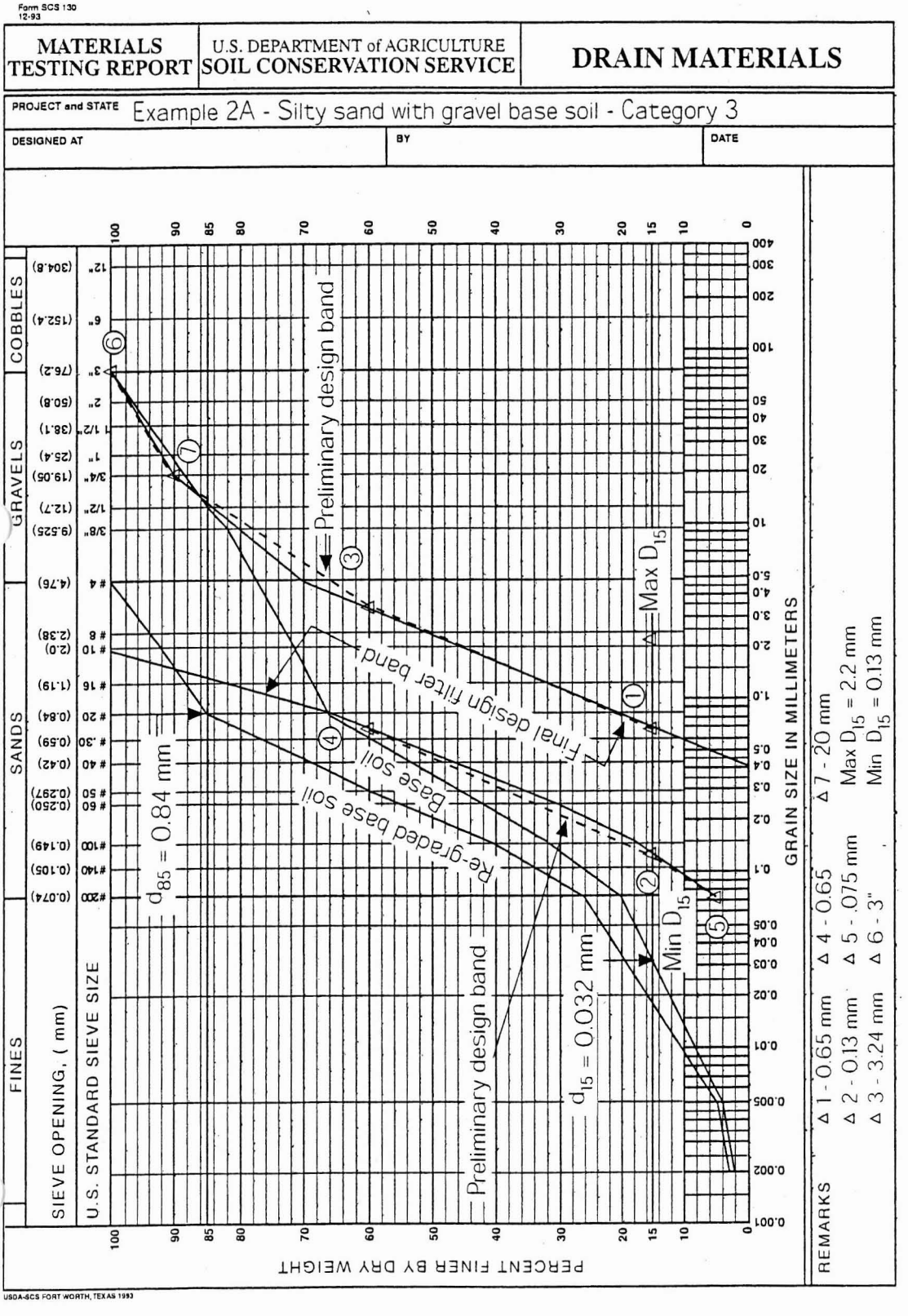
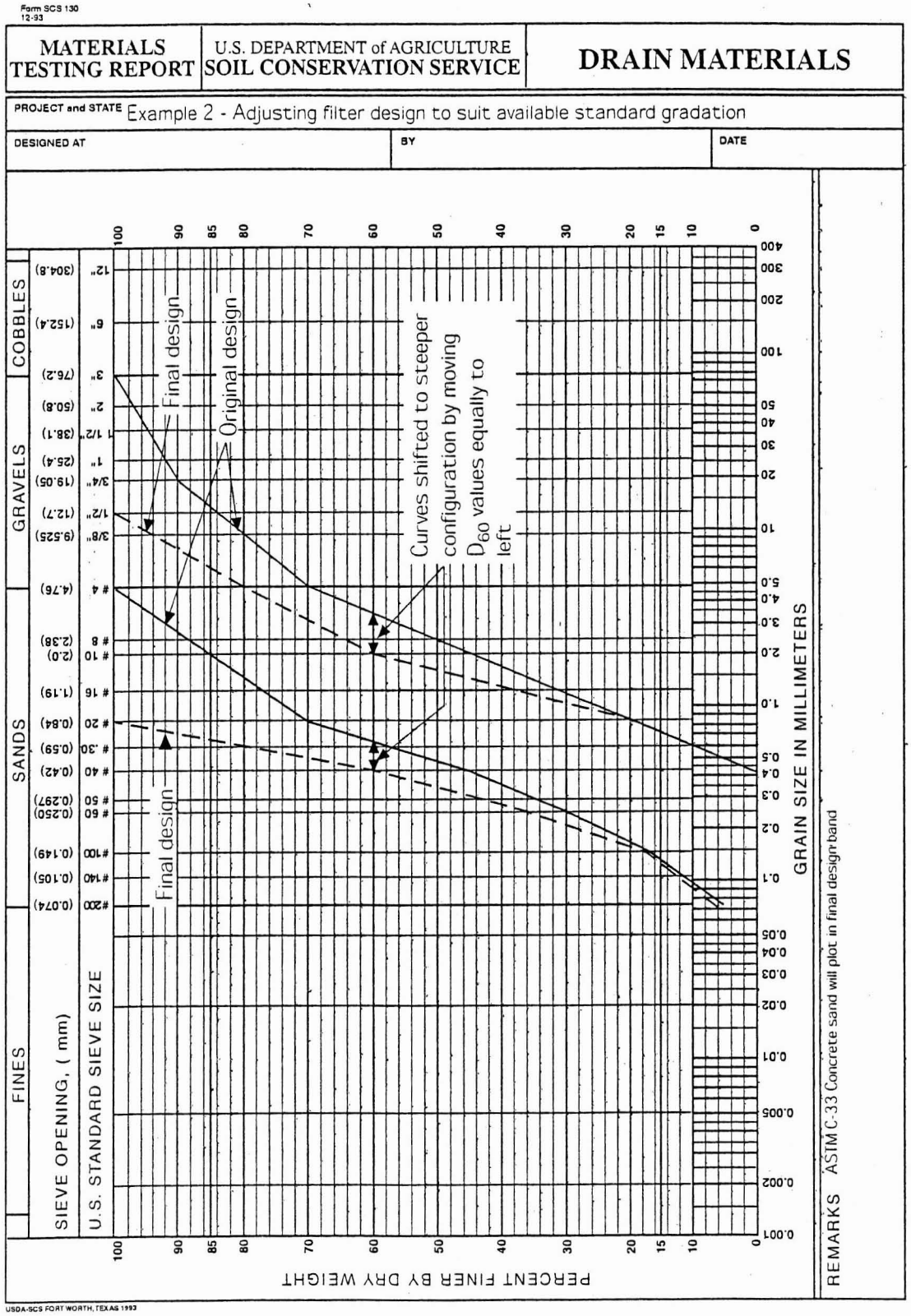


Figure 26–2B Grain size distribution curve for silty sand with gravel base soil (adjusting limits)



Example 26-3 Clayey gravel base soil—Category 2

Given: The most important function of the filter being designed is to act as a filter.

Step 1: Plot the gradation curve of the base soil material.

Refer to figure 26-3 for the plotted grain size distribution curve for this example clayey gravel base soil, labeled Base soil. The plotted curve is from the following data:

Sieve size	% passing
3 inch	100
1 inch	73
3/4 inch	66
1/2 inch	59
No. 4	47
No. 40	34
No. 60	31
No. 200	28
0.05 mm	26
0.02 mm	25
0.005 mm	18
0.002 mm	13

Step 2: Proceed to step 4 if the base soil contains no gravel (material larger than the No. 4 sieve).

Because the example 26-3 base soil has particles larger than the No. 4 sieve, the grain size distribution curve should be regraded on the No. 4 sieve. Proceed to step 3.

Step 3: Prepare adjusted gradation curves for base soils with particles larger than the No. 4 (4.75 mm) sieve.

Determine the regrading factor by dividing the value 100 by the percent passing the No. 4 (4.75 mm) sieve size. The regrading factor is

$$\frac{100\%}{47\%} = 2.13$$

Using the original gradation analysis, plot a regraded curve for 100 percent passing the No. 4 (4.75 mm) sieve. The regraded percent passing values are equal to the original percent passing values times the regrading factor.

Sieve size	Original % passing	Regraded % passing
3 inch	100	—
1 inch	73	—
3/4 inch	66	—
1/2 inch	59	—
No. 4	47	100
No. 40	34	72
No. 60	31	66
No. 200	28	60
0.05 mm	26	55
0.02 mm	25	53
0.005 mm	18	38
0.002 mm	13	28

Step 4: Place the base soil in a category determined by the percent passing the No. 200 (0.075 mm) sieve from the regraded gradation curve data according to table 26-1.

The example 26-3 base soil after regrading has 60 percent finer than the No. 200 sieve. From table 26-1, the soil is in category 2.

Step 5: To satisfy filtration requirements, determine the maximum allowable D_{15} size for the filter according to table 26-2.

This table shows the filtering criteria for base soil category 2 as follows. The maximum D_{15} of the filter will be less than or equal to 0.7 mm. This is labeled as Maximum D_{15} in figure 26-3.

Step 6: If permeability is a requirement (section 633.2602), determine the minimum allowable D_{15} according to table 26-3. Note: The permeability requirement is determined from the d_{15} size of the base soil gradation before regrading.

The permeability criterion for all categories of base soils is that the filter have a minimum D_{15} of no less than 4 times the d_{15} of the base soil (before any regrading of the base soil), but will not be less than 0.1 mm in any case.

The example 26–3 base soil has a d_{15} size of about 0.0028 mm before regrading. Using the criterion, the minimum D_{15} of the filter would be 4 x 0.0028 = 0.011 mm. However, table 26–3 also shows that the minimum D_{15} is 0.1 mm. Label this value as minimum D_{15} in figure 26–3.

Step 7: The width of the allowable filter design band must be kept relatively narrow to prevent the use of possibly gap-graded filters. Adjust the maximum and minimum D_{15} sizes for the filter band determined in steps 5 and 6 so that the ratio is 5 or less at any given percent passing of 60 or less. Adjustments may be required based on the following considerations:

Determine the ratio of the maximum D_{15} to the minimum D_{15} sizes:

$$\frac{0.7 \text{ mm}}{0.1 \text{ mm}} = 7$$

Because this value exceeds the criterion of 5, adjustment in the values is required. The most important function of this design filter is to act as a filter, so the minimum D_{15} value becomes controlling and is unchanged. Label this value Control point 2 in figure 26–3. Then, the maximum D_{15} value is 5 times this, or 5 x 0.1 mm = 0.5 mm. Label this as Control point 1 in figure 26–3.

Step 8: The designed filter band must not have an extremely broad range of particle sizes to prevent the use of possibly gap-graded filters. Adjust the limits of the design filter band so that the coarse and fine sides of the filter band have a coefficient of uniformity of 6 or less. The width of the filter band should be such that the ratio of maximum to minimum diameters is less than or equal to 5 for all percent passing values of 60 or less

Calculate a value for the maximum D_{10} size as equal to the maximum D_{15} size determined in Step 7 divided by 1.2:

$$\frac{0.5}{1.2} = 0.42 \text{ mm}$$

The value for the maximum D_{60} is calculated using the maximum D_{10} size times 6:

$$0.42 \times 6 = 2.52 \text{ mm}$$

Label the maximum D_{60} size as Control point 3.

The minimum allowable D_{60} size is then:

$$\frac{D_{60}}{5} = \frac{2.52}{5} = 0.50 \text{ mm}$$

Label this as Control point 4 in figure 26–3.

Step 9: Determine the minimum D_5 and maximum D_{100} sizes of the filter according to table 26–5.

This table shows that filters must have a D_5 greater than or equal to 0.075 mm, equal to the No. 200 sieve size. Label this value as Control point 5 in figure 26–3.

Table 26–5 also shows that filters must have a D_{100} of less than or equal to 3 inches. Label this value as Control point 6 in figure 26–3.

Step 10: To minimize segregation during construction, the relationship between the maximum D_{90} and the minimum D_{10} of the filter is important. Calculate a preliminary minimum D_{10} size by dividing the minimum D_{15} size by 1.2. Determine the maximum D_{90} using table 26–6. Label this as Control point 7.

Table 26–6 lists maximum D_{90} sizes for filters for a range of D_{10} sizes. Calculate a value for minimum D_{10} size by dividing the minimum D_{15} size determined in Step 7 by 1.2:

$$\frac{0.1}{1.2} = 0.083 \text{ mm}$$

Because the value is less than 0.5 mm, the maximum D_{90} size is 20 mm (table 26–6). Label this value as Control point 7 in figure 26–3.

Step 11: Connect Control points 4, 2, and 5 to form a partial design for the fine side of the filter band. Connect Control points 6, 7, 3, and 1 to form a design for the coarse side of the filter band. Complete the design of the filter band by extrapolating the coarse and fine curves to the 100 percent finer value. For purposes of writing specifications, select appropriate sieves and corresponding percent finer values that best reconstruct the design band and tabulate the values.

See figure 26–3 for the final filter band design.

Step 12: Design filters adjacent to perforated pipe to have a D_{85} size no smaller than the perforation size. For critical structure drains where rapid gradient reversal (surging) is probable, it is recommended that the D_{15} size of the material surrounding the pipe be no smaller than the perforation size.

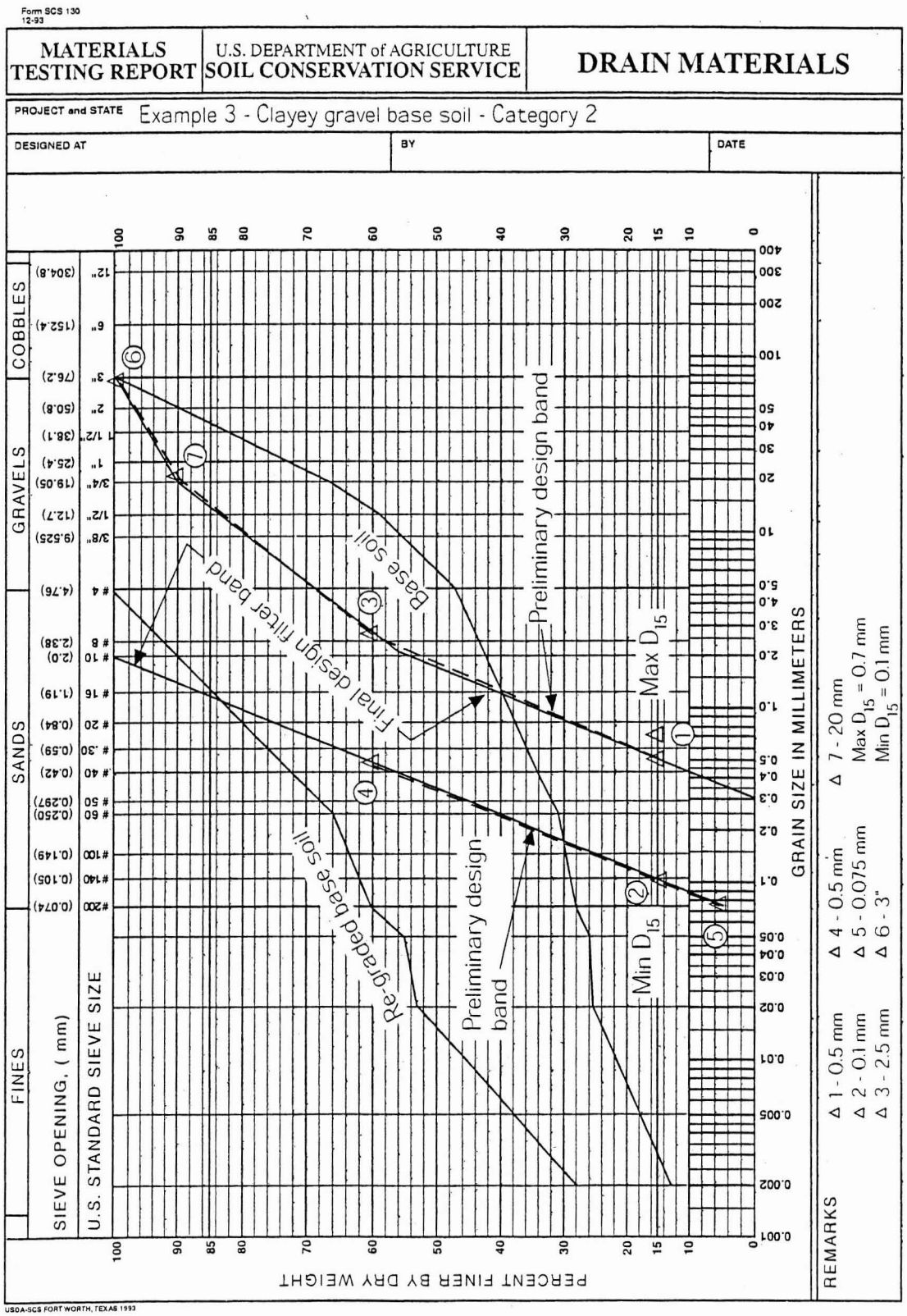
It is not given that this filter is to be used around a collector pipe, so this criterion is not applicable.

Additional design considerations: Standard Concrete Sand, ASTM C–33, plots within this final design band, so one may consider the design acceptable with no further modifications. If onsite sand or other cheaper filters could be located, some modification could be considered. Possible specification limits are shown in table 26–11.

Table 26–11 Design specification limits for clayey gravel base soil

Sieve size	% passing (1)
3 inch	100
3/4 inch	90–100
No. 4	70–100
No. 10	55–100
No. 20	30–75
No. 40	10–55
No. 50	0–45
No. 100	0–25
No. 200	0–5

Figure 26-3 Grain size distribution curve for clayey gravel base soil



Example 26-4 Silty sand base soil—Category 4

Given: The most important function of the filter being designed is to act as a filter.

Step 1: Plot the gradation curve of the base soil material.

Refer to figure 26-4 for the plotted grain size distribution curve for this example silty sand base soil, labeled Base soil. The plotted curve is from the following data.

Sieve size	% passing
No. 20	100
No. 40	94
No. 60	44
No. 140	14
0.05 mm	12
0.02 mm	10
0.005 mm	7
0.002 mm	4

Step 2: Proceed to Step 4 if the base soil contains no gravel (material larger than the No. 4 sieve).

Because the example 26-4 base soil has 100 percent of its particles finer than the No. 20 sieve, it has no particles larger than the No. 4 sieve. Therefore, the grain size distribution curve does not have to be regraded. Proceed to step 4.

Step 3: This step is not applicable because the base soil contains no particles larger than the No. 4 sieve. Go to step 4.

Step 4: Place the base soil in a category determined by the percent passing the No. 200 (0.075 mm) sieve from the regraded gradation curve data according to table 26-1.

The example 26-4 base soil has 13 percent finer than the No. 200 sieve, determined from examination of the plotted grain size distribution curve in figure 26-4. From table 26-1, the soil is in category 4.

Step 5: To satisfy filtration requirements, determine the maximum allowable D_{15} size for the filter according to table 26-2.

The filtering criterion for base soil category 4 (table 26-2) is that the maximum D_{15} of the filter will be less than or equal to 4 times the d_{85} of the base soil.

The d_{85} of the base soil from the plotted grain size distribution curve in figure 26-4 is 0.39 mm. The maximum D_{15} is:

$$4 \times 0.39 \text{ mm} = 1.56 \text{ mm}$$

Label this as Maximum D_{15} in figure 26-4.

Step 6: If permeability is a requirement (section 633.2602), determine the minimum allowable D_{15} according to table 26-3. Note: The permeability requirement is determined from the d_{15} size of the base soil gradation before regrading.

The permeability criterion for all categories of base soils is that the filter have a minimum D_{15} of no less than 4 times the d_{15} of the base soil (before any regrading of the base soil), but not be less than 0.1 mm in any case.

The example 26-4 base soil has a d_{15} size of 0.12 mm before regrading. Using the criterion, the minimum D_{15} of the filter would be $4 \times 0.12 = 0.48$. This is greater than the minimum required D_{15} of 0.1 mm, so it is acceptable. Label this value as Minimum D_{15} in figure 26-4.

Step 7: The width of the allowable filter design band must be kept relatively narrow to prevent the use of possibly gap-graded filters. Adjust the maximum and minimum D_{15} sizes for the filter band determined in steps 5 and 6 so that the ratio is 5 or less at any given percent passing of 60 or less. Adjustments may be required based on the following considerations.

The ratio of the maximum D_{15} to the minimum D_{15} is:

$$\frac{1.56}{0.48} = 3.3$$

Because this value is less than the criterion value of 5, no adjustment is necessary. Label the maximum D_{15} and minimum D_{15} sizes as Control points 1 and 2, respectively, and proceed to the next consideration.

Step 8: The designed filter band must not have an extremely broad range of particle sizes to prevent the use of possibly gap-graded filters. Adjust the limits of the design filter band so that the coarse and fine sides of the filter band have a coefficient of uniformity of 6 or less. The width of the filter band should be such that the ratio of maximum to minimum diameters is less than or equal to 5 for all percent passing values of 60 or less.

Calculate a value for the maximum D_{10} size as equal to the maximum D_{15} size (determined in Step 7) divided by 1.2:

$$\frac{1.56}{1.2} = 1.3 \text{ mm}$$

Calculate a value for the maximum D_{60} by multiplying the maximum D_{10} size times 6:

$$1.3 \times 6 = 7.8 \text{ mm}$$

Label the maximum D_{60} size as Control point 3.

The minimum allowable D_{60} size is:

$$\frac{7.8}{5} = 1.56 \text{ mm}$$

Label this as Control point 4 in figure 26–4.

Step 9: Determine the minimum D_5 and maximum D_{100} sizes of the filter according to table 26–5.

This table shows that filters must have a D_5 greater than or equal to 0.075 mm, equal to the No. 200 sieve size. Label this value as Control point 5 in figure 26–4.

The table also shows that filters must have a D_{100} of less than or equal to 3 inches. Label this value as Control point 6 in figure 26–4.

Step 10: To minimize segregation during construction, the relationship between the maximum D_{90} and the minimum D_{10} of the filter is important. Calculate a preliminary minimum D_{10} size by dividing the minimum D_{15} size by 1.2. Determine the maximum D_{90} using table 26–6. Label this as Control point 7.

Table 26–6 lists maximum D_{90} sizes for filters for a range of D_{10} sizes. Calculate a value for minimum D_{10} size by dividing the minimum D_{15} size determined in step 7 by 1.2:

$$\frac{0.48}{1.2} = 0.40 \text{ mm}$$

Because the D_{10} size is less than 0.5 mm, the maximum D_{90} size is 20 mm (table 26–6). Label this value as Control point 7 in figure 26–4.

Step 11: Connect Control points 4, 2, and 5 to form a partial design for the fine side of the filter band. Connect Control points 6, 7, 3, and 1 to form a design for the coarse side of the filter band. Complete the design of the filter band by extrapolating the coarse and fine curves to the 100 percent finer value. For purposes of writing specifications, select appropriate sieves and corresponding percent finer values that best reconstruct the design band and tabulate the values.

Refer to figure 26–4 for the selected filter band drawn. Table 26–12 lists the sieve/percent finer values selected.

Step 12: Design filters adjacent to perforated pipe to have a D_{85} size no smaller than the perforation size. For critical structure drains where rapid gradient reversal (surging) is probable, it is recommended that the D_{15} size of the material surrounding the pipe be no smaller than the perforation size.

The filter is not being used adjacent to a collector pipe, so this step is not applicable.

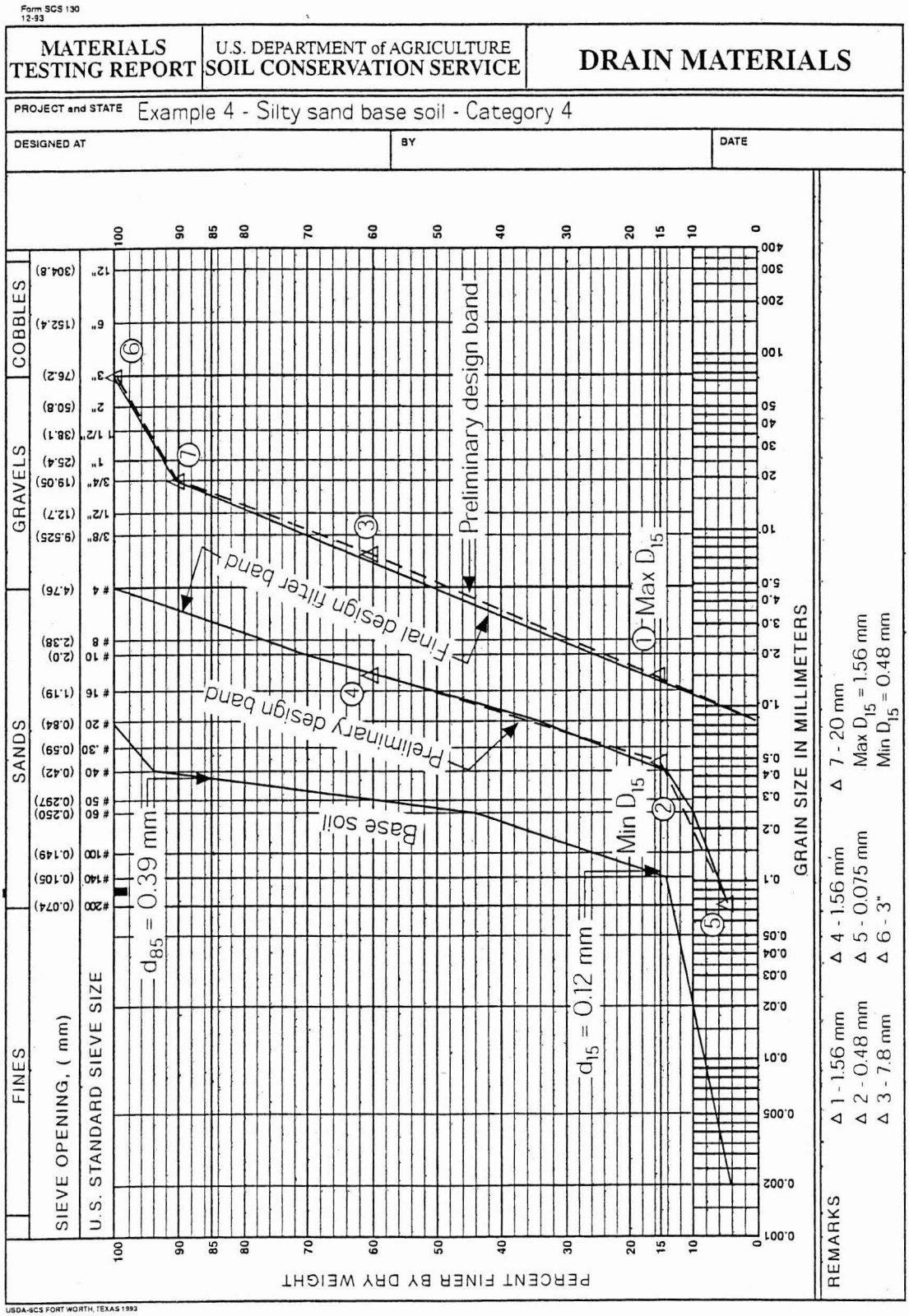
Additional design considerations: The specified filter band does not meet standard aggregate gradations. The band is more coarse than C-33 concrete sand, and it is finer than the standard gravel gradations (see appendix 26B). Possibly, the required filter gradation could be met by blending standard available gradations.

Consider adjustments in the steepness of the final design filter band shown in figure 26–4 if these adjustments would allow the use of such blends or other readily available gradations. The filter band may be adjusted to a steeper configuration, with a coefficient of uniformity of less than 6, but all the other criteria must still be met. Example 26–2A illustrated such an adjustment in the design filter band.

Table 26–12 The final selected design filter band gradation for silty sand base soil

Sieve size	% passing
3 inch	100
3/4 inch	90–100
No. 4	50–100
No. 10	25–70
No. 20	0–35
No. 40	0–14
No. 60	0–10
No. 200	0–5

Figure 26–4 Grain size distribution curve for silty sand base soil



Example 26-5 Design of a coarse filter to be compatible with a previously designed fine filter and used around a perforated pipe

The base soil for this example is the filter band obtained in the design for example 26-1. The base soil in this case is actually a band of soil gradations specifying a suitable sand filter. The sand filter was designed to protect a silty clay base soil.

Example 26-5 illustrates how to design a gravel filter band to be compatible with the finer sand filter previously designed. In the first part of this example it is understood that the gravel filter will not be used around perforated collector pipe, but some other type of outlet of seepage is employed. The second part of this example illustrates how the design of a coarse filter is changed if perforated pipe is used.

Step 1: Plot the gradation curve of the base soil material. In example 26-5, the base soil is actually a band of possible filter gradations. The filter band that was obtained in example 26-1 is used. Refer to the plotted grain size distribution curve for this example, labeled Fine filter in figure 26-5. The plotted band is from the following data:

Sieve size	% passing
1 inch	100
3/4 inch	90-100
No. 4	70-100
No. 10	52-100
No. 20	30-75
No. 60	0-40
No. 140	0-15
No. 200	0-5

Step 2: Proceed to step 4 if the base soil contains no gravel (material larger than the No. 4 sieve).

Only the fine side of the specified filter band need be considered for this step because the finest base soil controls the filter criteria. Because the fine side of the filter band has no particles larger than the No. 4 sieve, step 3 is skipped. Proceed to step 4.

Step 3: Not applicable because the base soil contains no particles larger than the No. 4 Sieve.

Step 4: Place the base soil in a category determined by the percent passing the No. 200 (0.075 mm) sieve from the regraded gradation curve data according to table 26-1.

Example 26-5 base filter band has from 0 to 5 percent finer than the No. 200 sieve, determined from examination of the plotted grain size distribution curve in figure 26-5. From table 26-1, the soil is in category 4.

Step 5: To satisfy filtration requirements, determine the maximum allowable D_{15} size for the filter according to table 26-2.

This table states the filtering criteria for base soil category 4 as: The maximum D_{15} of the filter will be less than or equal 4 times the d_{85} of the base soil.

The finest gradation from the range of gradations given by the base filter band will be controlling under this criterion. The d_{85} of the fine side of the base filter band from the plotted grain size distribution curve in figure 26-5 is 1.2 mm. Then, 4 x 1.2 mm = 4.8 mm. This is labeled as Maximum D_{15} in figure 26-5.

Step 6: If permeability is a requirement (section 633.2602), determine the minimum allowable D_{15} according to table 26-3. Note: The permeability requirement is determined from the d_{15} size of the base soil gradation before regrading.

The permeability criterion for all categories of base soils is that the filter have a minimum D_{15} of no less than 4 times the d_{15} of the base soil (before any regrading of the base soil), but not be less than 0.1 mm in any case.

The coarse limit of the base filter band will control under this criterion. Determine that the coarse limit line for the base filter band has a maximum d_{15} size of 0.45 mm. Using the criterion, the minimum D_{15} of the filter would be 4 x 0.45 = 1.8 mm. Label this value as Minimum D_{15} in figure 26-5.

Step 7: The width of the allowable filter design band must be kept relatively narrow to prevent the use of possibly gap-graded filters. Adjust the maximum and minimum D_{15} sizes for the filter band determined in steps 5 and 6 so that the ratio is 5 or less at any given percent passing of 60 or less. Adjustments may be required based on the following considerations.

The ratio of the maximum D_{15} to the minimum D_{15} is:

$$\frac{4.8}{1.8} = 2.7$$

Because this value is less than the criterion value of 5, no adjustment is necessary. Label the values of maximum D_{15} and minimum D_{15} as Control points 1 and 2, respectively, and proceed to step 8

Step 8: The designed filter band must not have an extremely broad range of particle sizes to prevent the use of possibly gap-graded filters. Adjust the limits of the design filter band so that the coarse and fine sides of the filter band have a coefficient of uniformity of 6 or less. The width of the filter band should be such that the ratio of maximum to minimum diameters is less than or equal to 5 for all percent passing values of 60 or less.

Calculate a value for the maximum D_{10} size by dividing the maximum D_{15} size determined in Step 7 by 1.2:

$$\frac{4.8}{1.2} = 4.0 \text{ mm}$$

Calculate a value for the maximum D_{60} by multiplying the maximum D_{10} size times 6:

$$4.0 \times 6 = 24 \text{ mm}$$

Label the maximum D_{60} size as Control point 3.

To prevent an overly broad range of particle sizes in the filter, consider the requirement in step 7 that the ratio of maximum to minimum diameters be less than 5 for all percent passing values less than 60. The minimum allowable D_{60} size is:

$$\frac{24.0}{5} = 4.8 \text{ mm}$$

Label this as Control point 4 in figure 26–5.

Step 9: Determine the minimum D_5 and maximum D_{100} sizes of the filter according to table 26–5.

This table shows that filters must have a D_5 greater than or equal to 0.075 mm, equal to the No. 200 sieve size. Label this value as Control point 5 in figure 26–5.

Table 26–5 also shows that filters must have a D_{100} of less than or equal to 3 inches. Label this value as Control point 6 in figure 26–5.

Step 10: To minimize segregation during construction, the relationship between the maximum D_{90} and the minimum D_{10} of the filter is important. Calculate a preliminary minimum D_{10} size by dividing the minimum D_{15} size by 1.2. Determine the maximum D_{90} using table 26–6. Label this as Control point 7.

This table lists maximum D_{90} sizes for filters for a range of D_{10} sizes. Calculate the minimum D_{10} size by dividing the minimum D_{15} size determined in step 7 by 1.2:

$$\frac{1.8}{1.2} = 1.5$$

Because the D_{10} size is between 1.0 and 2.0 mm, the maximum D_{90} size is 30 mm (table 26–6). Label this value as Control point 7 in figure 26–5.

Step 11: Connect Control points 4, 2, and 5 to form a partial design for the fine limits of the filter band being designed. Connect Control points 6, 7, 3, and 1 to form the preliminary coarse limits of the filter band being designed. Complete the design of the filter band by extrapolating the coarse and fine curves to the 100 percent finer value. For purposes of writing specifications, select appropriate sieves and corresponding percent finer values that best reconstruct the design band, and tabulate the values.

Refer to figure 26–5 for the final coarse filter band designed for the condition of no perforated pipe being used. Note that the filter selected for final design has coefficient of uniformity values for the fine and coarse sides of the design bands slightly less than 6. The Control points 3 and 7 were shifted to the left slightly to have a smoother band shape. The data used for the designed filter band is given in table 26–13.

Step 12: Design filters adjacent to perforated pipe to have a D_{85} size no smaller than the perforation size. For critical structure drains where rapid gradient reversal (surging) is probable, it is recommended that the D_{15} size of the material surrounding the pipe be no smaller than the perforation size.

For the second part of this example, it is assumed that the gravel filter being designed is for use around standard perforated drain pipe and is not for a critical drain. It is also given that rapid gradient reversal or surging is not predicted.

Standard perforations in drain pipe are 1/4 inch, plus-or-minus 1/16 inch. The maximum size of perforation that must be protected is then 5/16 inch, or about 8 mm. If the gravel filter being designed is to be used surrounding perforated pipe, an additional control point as defined by step 12 is necessary.

Design steps 1 through 11 are unchanged and not repeated here. The additional requirement of step 12 is that the D_{85} size of the filter may be no smaller than the perforation size for designs of noncritical drains where gradient reversal or surging is not predicted.

The additional design step 12 results in an additional control point labeled Control point 8. This is plotted in figure 26–5A. This additional control point is a minimum D_{85} size for the filter being designed and is equal to 8 mm, the maximum perforation size possible. Using Control point 8 does not significantly change the design for the coarse filter band.

Step 12 has different criteria if the coarse filter is designed for critical structure drains or for a situation where gradient reversal and surging were predicted with collector pipes. For this situation the coarse filter must have a D_{15} size no less the perforation size, 8 mm for the example. (For noncritical drains where surging is not predicted, the requirement is based on D_{85}.) In other words, this requirement is that the filter must be relatively coarse to prevent intrusion of the filter into the perforations in the high stresses present. However, filtering criteria require the gravel band to be a satisfactory filter for the sand filter (step 5) as well.

To accomplish this filtration function, the gravel must have a D_{15} of less than 4.8 mm. It is obvious then that one gravel filter cannot be used to satisfy both functions because both the criteria cannot be met. Another coarser filter that has a D_{15} greater than 8 mm must be designed to surround the perforations in the pipe and at the same time filter the gravel filter just designed. This is an example of the need for a 3-stage filter that could arise in critical flow situations.

Additional design considerations: Examine the limits of the gravel filter band constructed in figure 26–5. Note that the band is somewhat narrow at the lower percent passing sizes. Some designers have used an extended coarse filter limit as part of the specifications of the coarse filter band design to make it easier to supply the required filters (figure 26–5A).

The extended upper limits for a coarse filter are acceptable contingent upon the fine filter material actually used or delivered to a construction site, from the range of possible fine filters specified in the band being protected.

A gravel filter with a D_{15} size larger than the design filter band is acceptable if the fine sand filter actually delivered to a site has a d_{85} size larger than the minimum size possible within the design band of the fine sand filter. The coarse gravel filter actually used on the site must have a D_{15} less than or equal to 4 times the d_{85} size of the fine filter actually supplied from within the design band, based on the criteria in table 26–2 for Category 4 soils.

An extended coarse filter limit in the design band is used to provide maximum flexibility in obtaining filter materials. Where possible, specifications should fit readily available gradations from concrete aggregate suppliers to reduce cost of obtaining specially manufactured filter materials. However, criteria should not be relaxed because filter zones are important to the safe functioning of many structures.

Table 26–13 Data for designed filter band

Sieve size	% passing
3 inch	100
1 inch	90–100
1/2 inch	45–100
No. 4	15–60
No. 10	0–15
No. 20	0–10
No. 200	< 5

Figure 26-5 Gravel filter band design

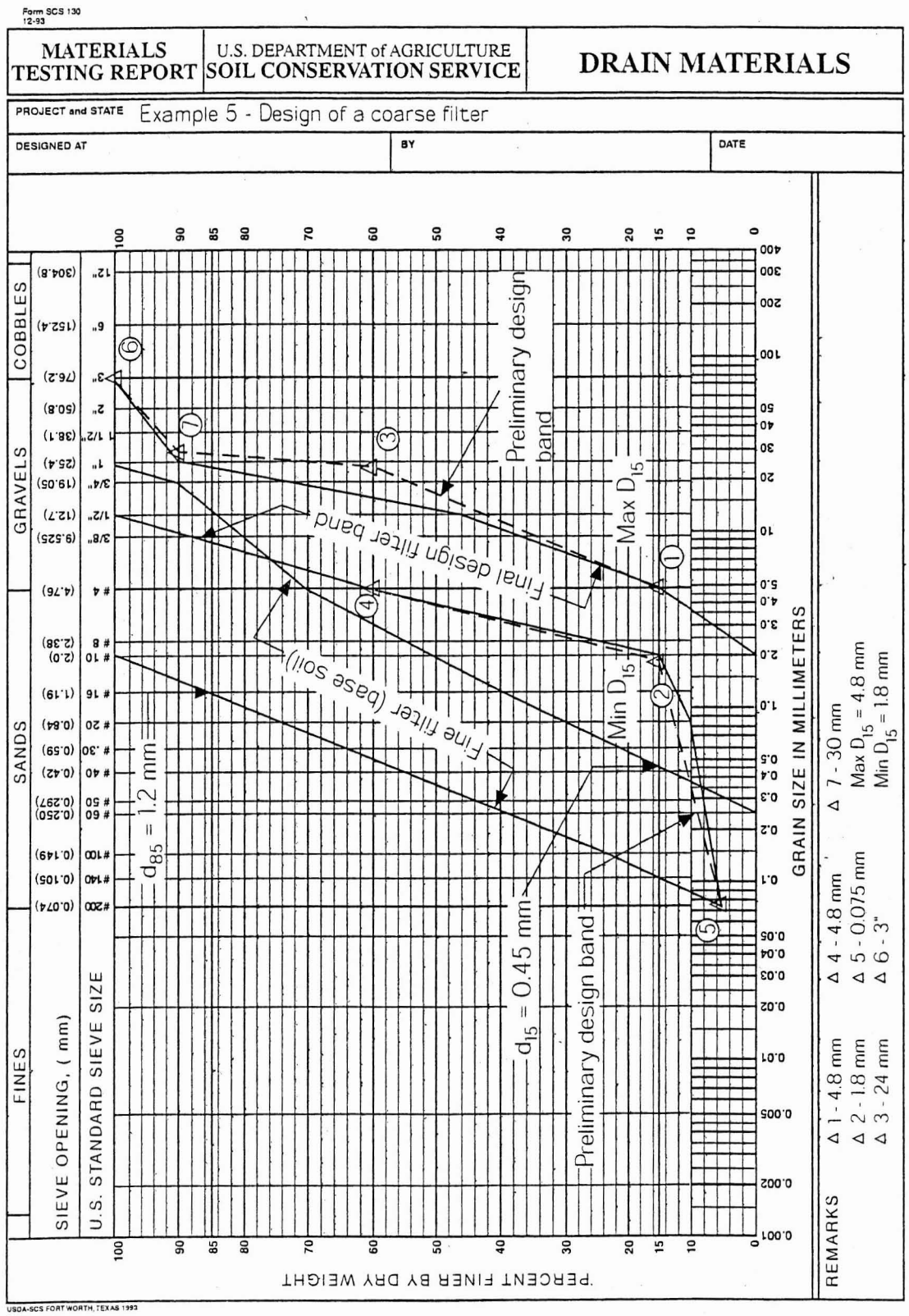
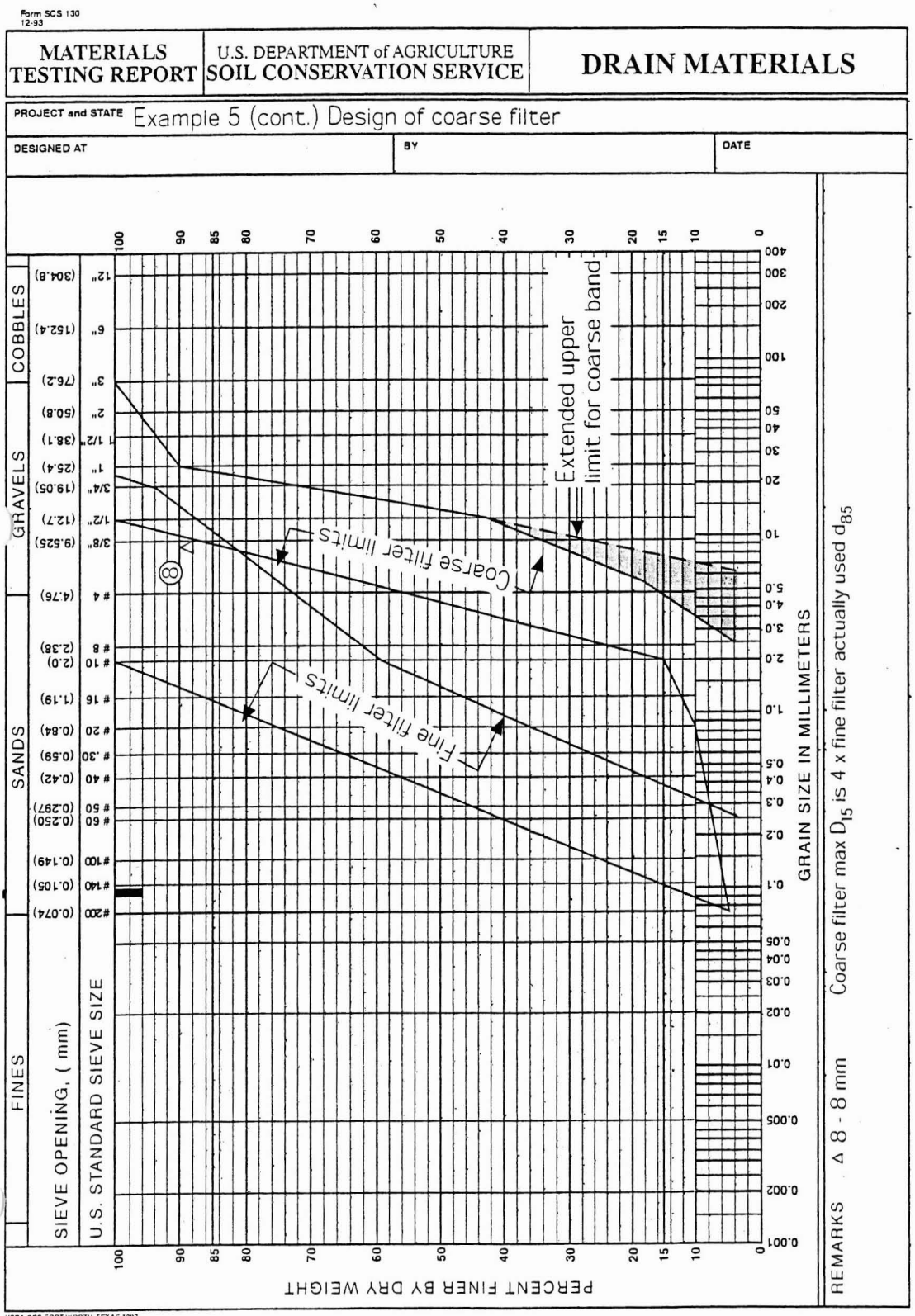


Figure 26–5A Gravel filter band design using an extended coarse filter limit



Example 26-6 Very fine clay base soil—Category 1

Given: The most important function of the filter being designed is to act as a filter.

Step 1: Plot the gradation curve of the base soil material.

Refer to figure 26–6 for the plotted grain size distribution curve for this example clay base soil, labeled Base soil. The plotted curve is from the following data:

Sieve size	% passing
No 4	100
No. 200	96
0.02 mm	90
0.005 mm	60
0.002 mm	34

Step 2: Proceed to step 4 if the base soil contains no gravel (material larger than the No. 4 sieve).

The example 26–6 base soil has 100 percent finer than the No. 4 sieve, and the grain size distribution curve does not have to be regraded. Proceed to step 4.

Step 3: Not applicable because the base soil contains no particles larger than the No. 4 sieve

Step 4: Place the base soil in a category determined by the percent passing the No. 200 (0.075 mm) sieve from the regraded gradation curve data according to table 26–1.

The example 26–6 base soil has 96 percent finer than the No. 200 sieve. The soil is in category 1 (table 26–1).

Step 5: To satisfy filtration requirements, determine the maximum allowable D_{15} size for the filter according to table 26–2.

This table shows the filtering criteria for base soil category 1 as: The maximum D_{15} of the filter will be less than or equal to 9 times the d_{85} of the base soil, but not less than 0.2 mm.

The d_{85} size of the base soil is 0.016 mm. Then, the maximum D_{15} of the filter will be less than or equal to 9 x 0.016 = 0.14 mm, but not less than 0.2 mm. Therefore, the maximum D_{15} of the filter is 0.2 mm. This is labeled Maximum D_{15} in figure 26–6.

Step 6: If permeability is a requirement (section 633.2602), determine the minimum allowable D_{15} according to table 26–3. Note: The permeability requirement is determined from the d_{15} size of the base soil gradation before regrading.

The permeability criterion for all categories of base soils is that the filter have a minimum D_{15} of no less than 4 times the d_{15} of the base soil (before any regrading of the base soil), but not be less than 0.1 mm in any case.

The example 26–6 base soil does not have a meaningful d_{15} size. The data shows that the base soil has 34 percent finer than 0.002 mm, the smallest commonly determined particle size. Therefore, use the default value of 0.1 mm for the minimum D_{15} of the filter. Label this value Minimum D_{15} in figure 26–6.

Step 7: The allowable filter design band must be kept relatively narrow to prevent the use of possibly gap-graded filters. Adjust the maximum and minimum D_{15} sizes for the filter band determined in steps 5 and 6 so that the ratio is 5 or less at any given percent passing of 60 or less. Adjustments may be required based on the following considerations.

For example 26–6, the ratio of the maximum D_{15} to the minimum D_{15} sizes is:

$$\frac{0.2}{0.1} = 2$$

Because the value is less than 5, no adjustment is needed in this step. The sizes selected become the maximum D_{15} and minimum D_{15} sizes for the final design filter band. These are labeled Control points 1 and 2, respectively, in figure 26–6. Go to step 8.

Step 8: The designed filter band must not have an extremely broad range of particle sizes to prevent the use of possibly gap-graded filters. Adjust the limits of the design filter band so that the coarse and fine sides of the filter band have a coefficient of uniformity of 6 or less. The width of the filter band should be such that the ratio of maximum to minimum diameters is less than or equal to 5 for all percent passing values of 60 or less

For example 26-6, calculate a value for maximum D_{10} by dividing the maximum D_{15} size of 0.2 mm determined in step 5 by 1.2:

$$\frac{0.2}{1.2} = 0.17 \text{ mm}$$

Calculate a value for the maximum allowable D_{60} size by multiplying the maximum D_{10} size by 6:

$$6 \times 0.17 = 1.02 \text{ mm}$$

Label this value as Control point 3 in figure 26-6.

Determine the minimum allowable D_{60} size for the fine side of the band by dividing the determined maximum D_{60} size by 5:

$$\frac{1.02}{5} = 0.20 \text{ mm}$$

Label this Control point 4 in figure 26-6.

Step 9: Determine the minimum D_5 and maximum D_{100} sizes of the filter according to table 26-5.

This table shows that filters must have a D_5 greater than or equal to 0.075 mm, equal to the No. 200 sieve size. Label this value as Control point 5 in figure 26-6.

Table 26-5 also shows that filters must have a D_{100} of less than or equal to 3 inches. Label this value as Control point 6 in figure 26-6.

Step 10: To minimize segregation during construction, the relationship between the maximum D_{90} and the minimum D_{10} of the filter is important. Calculate a preliminary minimum D_{10} size by dividing the minimum D_{15} size by 1.2. Determine the maximum D_{90} using table 26-6. Label this as Control point 7.

Calculate the minimum D_{10} size of the preliminary filter band as equal to the minimum D_{15} value of 0.1 mm (obtained in step 6) divided by 1.2:

$$\frac{0.1}{1.2} = 0.083 \text{ mm}$$

Table 26-6 lists maximum D_{90} sizes for filters for a range of D_{10} sizes. Because the D_{10} value is less than 0.5 mm, the maximum D_{90} size is 20 mm (table 26-6). Label this value as Control point 7 in figure 26-6.

Step 11: Connect Control points 4, 2, and 5 to form a partial design for the fine side of the filter band. Connect Control points 6, 7, 3, and 1 to form a partial design for the coarse side of the filter band. Complete the design of the filter band by extrapolating the coarse and fine curves to the 100 percent finer value. For purposes of writing specifications, select appropriate sieves and corresponding percent finer values that best reconstruct the design band, and tabulate the values.

Refer to figure 26-6 for an illustration of the complete filter design. Note that adjustments have been made in straight line portions of the design band to intercept even values for percent passing at standard sieve sizes. See the selected specified gradation in table 26-14.

Step 12: Design filters adjacent to perforated pipe to have a D_{85} size no smaller than the perforation size. For critical structure drains where rapid gradient reversal (surging) is probable, it is recommended that the D_{15} size of the material surrounding the pipe be no smaller than the perforation size.

Table 26-14 Design filter band data for example 26-6 soil

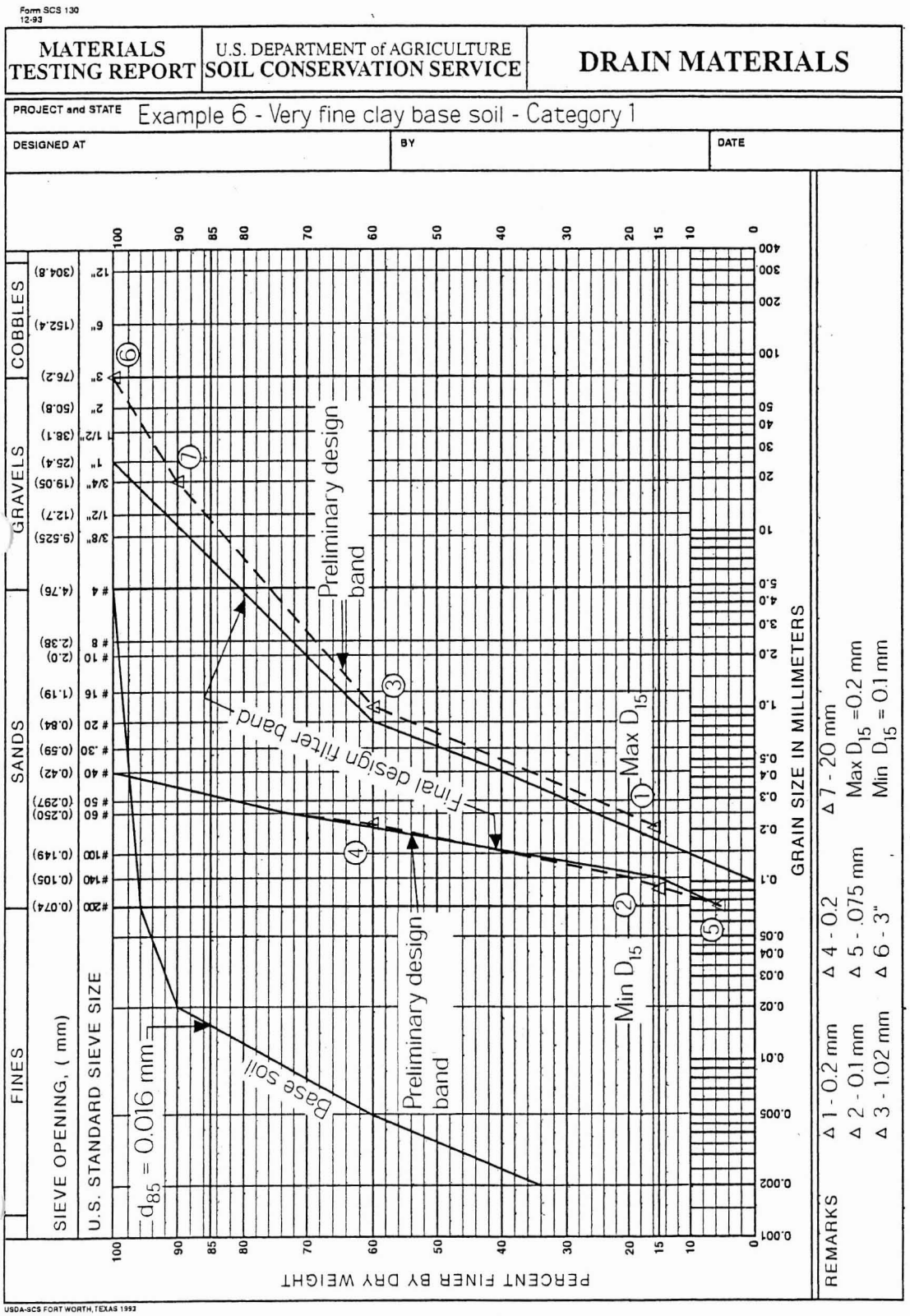
Sieve size	% passing
1 inch	100
No. 4	80-100
No. 10	70-100
No. 20	60-100
No. 40	40-100
No. 60	25-75
No. 140	0-15
No. 200	0-5

This step is then not applicable for this example because the filter will not be used around a perforated collector pipe. Table 26–14 lists the design filter band data obtained from the steps of this example.

Additional design considerations: ASTM C–33 fine concrete aggregate often meets the filter gradation requirements for many silts and clays. The base soil in example 26–6, however, is an unusual case in which the base soil is so fine that a filter finer than C–33 fine aggregate is required. Several alternatives are suggested for such situations:

- If a base soil having a d_{85} of 0.05 mm or larger is available at the site, using this soil in a core zone or in a transition zone between the core zone and the filter zone may be more economical. A more coarse filter could then be designed for the new base soil with the larger d_{85} size, and it is more likely that the specified gradation could be met with standard supplier sources.
- Attempt to locate a standard gradation that may fit the specified filter band. An example of such a gradation that might be located is ASTM D1073, Bituminous Mixture, Gradation No. 3. ASTM D1073 specifications for selected gradations are shown in appendix 26B.

Figure 26-6 Grain size distribution curve for very fine clay base soil



633.2604 Definitions

Base soil—The soil immediately adjacent to a filter or drainage zone through which water may pass. This movement of water may have a potential for moving particles from the base soil into or through the filter or drain materials.

d_{15}, d_{85}, and d_{100} sizes—Particle sizes (mm) corresponding respectively to 15, 85, and 100 percent finer by dry weight from the gradation curve of the base soil.

D_5, D_{10}, D_{15}, D_{30}, D_{60}, D_{85}, D_{90}, and D_{100} sizes—Particle sizes (mm) corresponding to the 5, 10, 15, 30, 60, 85, 90, and 100 percent finer by dry weight from the gradation curve of the filter.

Gradation curve (grain-size distribution)—Plot of the distribution of particle sizes in a base soil or material used for filters or drains.

Drain—A designed pervious zone, layer, or other feature used to reduce seepage pressures and carry water.

Filter—Sand or sand and gravel having a gradation designed to prevent movement of soil particles from a base soil by flowing water. Guidance on design using geotextiles and other nonsoil filter materials is not included.

Fines—That portion of a soil finer than a No. 200 (0.075 mm) U.S. Standard sieve as explained in table 26-1.

Soil category—One of four types of base soil material based on the percentage finer than the No. 200 (0.075 mm) U.S. Standard sieve as explained in table 26-1.

633.2605 References

Al-Hussaini, M.M. 1977. Contribution to the engineering soil classification of cohesionless soils. Misc. Pap. S-77-21, U.S. Army Corps. of Eng., Vicksburg, MS, November 1977.

Sherard, J.L. and L.P. Dunnigan. 1985. Filters and leakage control in embankment dams. *In* R.L. Volpe and W.E. Kelly (ed.). Seepage and leakage from dams and impoundments. Geotechnical Engineering Division Symposium Proceedings, Denver, CO, May 5, 1985. Amer. Soc. Civil Eng., New York, NY, pp. 1-30.

Sherard, J.L., and L.P. Dunnigan. 1989. Critical filters for impervious soils. Amer. Soc. Civil Eng., Journal of Geotechnical Engineering, No. 115 (7), July 1989, pp. 927-947.

Sherard, J.L., L.P. Dunnigan, and J.R. Talbot. 1984. Basic properties of sand and gravel filters. Amer. Soc. Civil Eng., Journal of Geotechnical Engineering, No. 110 (6), June 1984, pp. 684-700.

Sherard, J.L., L.P. Dunnigan, and J.R. Talbot. 1984. Filters for silts and clays. Amer. Soc. Civil Eng., Journal of Geotechnical Engineering, No. 110 (6), June 1984, pp. 701-718.

Talbot, J.R., and D.C. Ralston. 1985. Earth dam seepage control, SCS experience. *In* R.L. Volpe and W.E. Kelly (ed.), Seepage and leakage from dams and impoundments. Geotechnical Engineering Division Symposium Proceedings, Denver, CO, May 5, 1985. Amer. Soc. Civil Eng., New York, NY, pp. 44-65.

Appendix 26A Steps in Filter Design

1. Plot the gradations of base soils for which a filter is being designed on Form SCS-130 or acceptable alternative.

2. Determine the finest base soil that will control filter requirements. Also determine the soil with the most coarse limits that will control permeability requirements for the filter.

3. If the finest base soil has particles larger than the No. 4 sieve, regrade the soil on the No. 4 sieve.

4. Determine within which base soil category the regraded sample falls.

5. Determine the maximum D_{15} size based on filter criterion in criteria tables for that base soil category using the finest soil of the category plotted.

6. Determine the minimum D_{15} size based on permeability criterion in criteria tables, considering the coarsest sample plotted.

7. Calculate the ratio of the maximum D_{15} to the minimum D_{15} sizes from steps 5 and 6. If the ratio is less than or equal to 5, label the points Control points 1 and 2, respectively, on Form SCS-130, and continue to step 8. If the ratio is greater than 5, determine whether filtering or drainage is the most important function of the filter being designed. If filtering is most important, go to step 7A. If permeability is the most important consideration, go to step 7B.

7A. Filtering controls—Label the minimum D_{15} size as control point 2. Multiply minimum D_{15} by 5. This is the maximum D_{15} size; plot on Form 130 and label as control point 1. Go to Step 8.

7B. Permeability controls design—Label the maximum D_{15} size as Control point 1. Divide the maximum D_{15} size by 5. This is the minimum D_{15} size; plot on Form 130 and label as Control point 2. Go to Step 8.

8. Calculate a value for the maximum D_{10} size by dividing the maximum D_{15} size (Control point 1) determined in step 7 by 1.2. (This factor of 1.2 is based on the assumption that the slope of the line connecting D_{15} and D_{10} should be on a coefficient of uniformity of about 6.) Calculate a value for maximum D_{60} by multiplying the maximum D_{10} size by 6. Label this as Control point 3.

Determine the minimum allowable D_{60} size for the fine side of the band by dividing the determined maximum D_{60} size by 5. Label this Control point 4.

9. Plot the minimum D_5 (for all filters) as equal to 0.075 mm (the No. 200 sieve). Label as Control point 5 on Form 130. Plot the maximum D_{100} (for all filters) as equal to 3 inches. Label as Control point 6 on Form 130.

10. Calculate a value for the minimum D_{10} size by dividing the minimum D_{15} size (Control point 2) determined in step 7 by 1.2. (This factor of 1.2 is based on the assumption that the slope of the line connecting D_{15} and D_{10} should be on a coefficient of uniformity of about 6.)

Based on the determined value of minimum D_{10} size, obtain from table 26–6 the maximum allowable D_{90} size for the filter. Plot this value on Form 130 and label it as Control point 7.

11. Connect Control points 6, 7, 3, and 1 to form the coarse side of the initial filter design band. Connect Control points 4, 2, and 5 to form the fine side of the initial filter design band. Extrapolate the previously drawn lines to complete the preliminary fine and coarse limits of the preliminary filter band to 0 and 100 percent passing values. Adjust these limits to intercept relatively even values of percent passing at standard sieve sizes to simplify specifications (generally rounded at the nearest 5 on the percent passing scale) staying within the preliminary band. In most cases avoid sharp breaks in the design envelopes that might allow too broadly graded filter materials to be used in this final design step. If necessary to meet available gradations, adjust Control points 3 and 4 to the left, maintaining the ratio of diameters at 5, then draw other preliminary fine and coarse limits.

12. Design filters surrounding perforated pipe with an additional control point, determined as the minimum D_{85} size of the filter according to criteria tables. Label this value as Control point 8, and re-examine the design obtained in step 11.

A summary of the important criteria associated with the filter design process follows.

Base Soil Categories Summary

Base soil category	% finer than No. 200 sieve (0.075 mm) (After regrading, where applicable)	Base soil description
1	> 85	Fine silt, clays
2	40-85	Sands, silts, clays, silty and clayey sands
3	15-39	Silty and clayey sands, gravel
4	< 15	Sands, gravel

Filtering Criteria—Maximum D_{15}

Base soil category	Filtering criteria
1	$\leq 9 \times d_{85}$, but not less than 0.2 mm
2	≤ 0.7 mm
3	$\leq \left(\frac{40-A}{40-15}\right)\left[(4 \times d_{85}) - 0.7\text{mm}\right] + 0.7\text{mm}$ A = % passing No. 200 sieve after regrading (If $4 \times d_{85}$ is less than 0.7 mm, use 0.7 mm)
4	$\leq 4 \times d_{85}$ of base soil after regrading

Other Filter Design Criteria

To Prevent Gap-graded Filters

The width of the designed filter band should be such that the ratio of the maximum diameter to the minimum diameter, at any given percent passing value less than or equal to 60 percent, is less than or equal to 5. Both sides of the design filter band will have a coefficient of uniformity, defined as

$$CU = \frac{D_{60}}{D_{10}} \leq 6$$

Initial design filter bands by these steps have CU value of 6. For final design, filter bands may be adjusted so that CU values less than 6 result. This is acceptable as long as other filter and permeability criteria are satisfied.

Permeability Criteria

Base soil category	Minimum D_{15}
All categories	$\geq 4 \times d_{15}$ of the base soil before regrading, but not less than 0.1 mm

Maximum and Minimum Particle Size Criteria

Base soil category	Maximum D_{100}	Minimum D_5 (mm)
All categories	< 3 inches (75 mm)	0.075 mm (No. 200 sieve)

(The minus No. 40 (.425 mm) material for all filters must be nonplastic as determined according to ASTM D4318.)

Segregation Criteria

Base soil category	If D_{10} is: (mm)	Then maximum D_{90} is: (mm)
All categories	< 0.5	20
	0.5–1.0	25
	1.0–2.0	30
	2.0–5.0	40
	5.0–10	50
	> 10	60

Criteria for Filters Used Adjacent to Perforated Collector Pipe

For noncritical drains where surging or gradient reversal is not anticipated, the filter D_{85} must be greater than or equal to the perforation size.

For critical drains, or where surging or gradient reversal is anticipated, the filter D_{15} must be greater than or equal to the perforation size.

Appendix 26B

Standard ASTM Aggregate Specifications

Standard gradations for aggregates used in production of concrete are established by the American Society for Testing and Materials (ASTM). These aggregates are also commonly used for filter and drain zones in embankments, retaining walls, and other applications. Selected representative standard aggregates are listed in following tables for reference.

ASTM C-33—Standard Specification for Concrete Aggregates, lists standard gradations for both fine and coarse aggregates.

ASTM D-448—Standard Classification for Sizes of Aggregate for Road and Bridge Construction, lists standard gradations for only coarse aggregates.

ASTM D-1073—Lists standard gradations for Bituminous Mixtures.

In the interest of brevity, only selected representative standard gradations from the C-33 and D-1073 standards are listed in table 26B-1. A few gradations that may be useful are listed in D-448 and not in C- 33, but many of the gradations listed in the two standards are identical. Both of these ASTM standards are in Volume 04.02, Concrete and Aggregates.

Figure 26B-1 has plotted gradation bands for selected aggregates from the table.

Note: ASTM standards are periodically reviewed and updated, so use the latest version of the Standards for writing specifications. Refer to the latest ASTM standards volume to ensure that the gradations have not changed from those listed in table 26B-1 or to determine other standard gradations not listed. This table only lists selected representative gradations.

Table 26B-1 Selected standard aggregate gradations

Fine aggregate—ASTM C-33

ASTM size	Percent finer than sieve no. #200	#100	#50	#30	#16	#8	#4	3/8"
Fine	3-5*	2–10	10–30	25–60	50–85	80–100	95–100	100

Coarse aggregates—ASTM C-33

ASTM size	Percent finer than sieve no. #16	#8	#4	3/8"	1/2"	3/4"	1"	1-1/2"	2"	3"
357	—	—	0–5	—	10–30	—	35–70	—	95–100	100
56	—	—	0–5	0–15	10–40	40–85	90–100	100		
57	—	0–5	0–10	—	25–60	—	95–100	100		
67	—	0–5	0–10	20–55	—	90–100	100			
7	—	0-5	0-15	40-70	90-100	100				
8	0–5	0–10	10–30	85–100	100					

See the footnote at the end of the table.

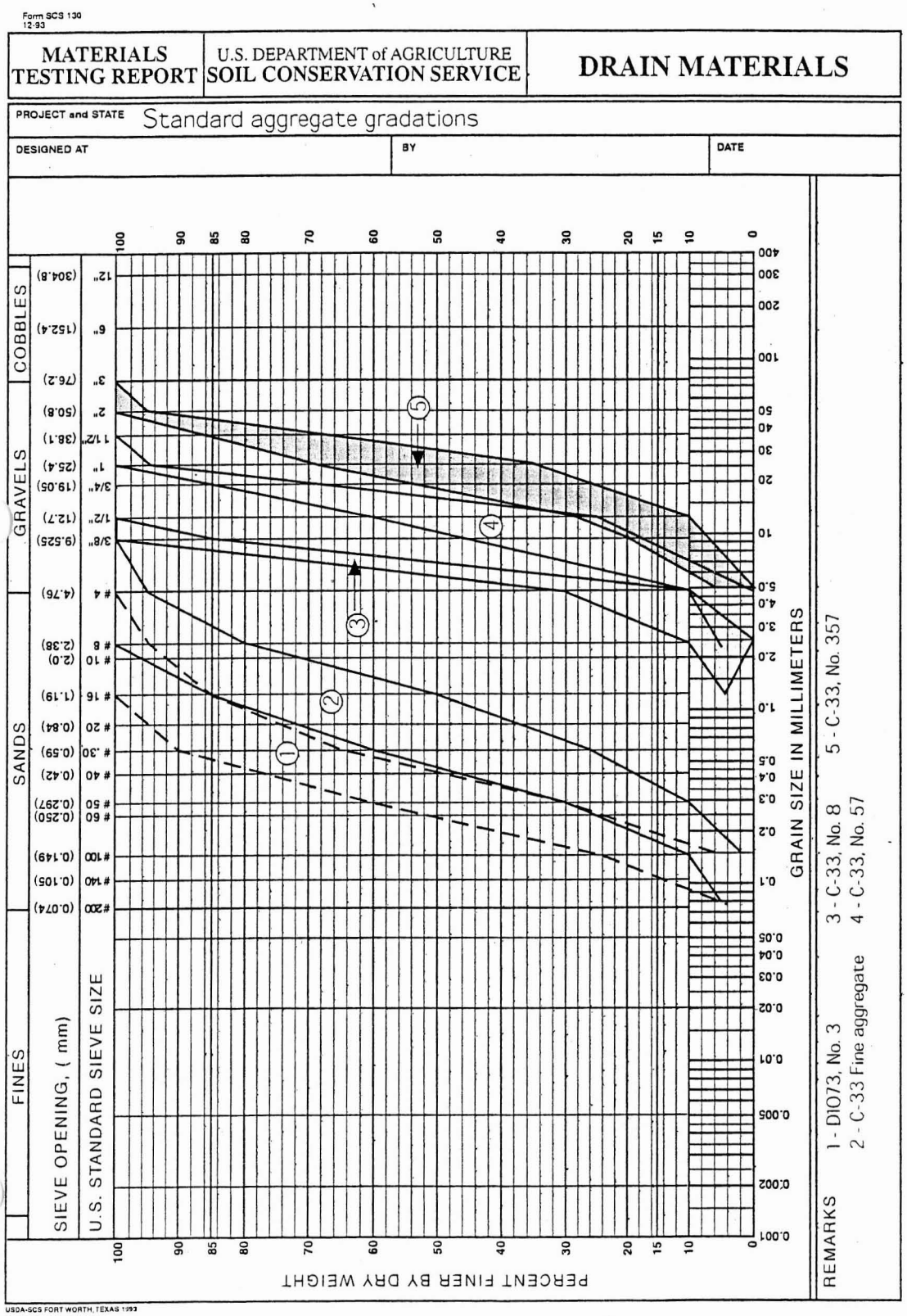
Table 26B-1 Selected standard aggregate gradations—Continued

Bituminous mixtures—ASTM D-1073

ASTM mix	Percent finer than sieve no.							
	#200	#100	#50	#30	#16	#8	#4	3/8"
2	0–5	0–12	8–30	28–52	50–74	75–100	100	
3	0–5	5–25	30–60	65–90	85–100	95–100	100	
4	0–10	2–20	7–40	20–65	40–80	65–100	80-100	100

* For concrete aggregate, the permissible percentage finer than the No. 200 sieve is 3 to 5 percent, depending on the abrasion resistance desired for the manufactured concrete. In the case of manufactured sand, if the material finer than the No. 200 sieve consists of the dust of fracture, essentially free of clay or shale, these limits may be increased to 5 and 7 percent respectively. For drain and filter applications, the percentage finer than the No. 200 sieve is specified according to SM Note 1 as less than or equal to 5 percent, and an additional requirement is that the fines (minus No. 40 sieve) are nonplastic.

Figure 26B-1 Standard aggregate gradations



Basis for Design Requirements for Filter. This Appendix summarizes the design for the central filter zone in the proposed repair for the Florence FWRS embankment. The design assumes that embankment soils are represented by test data for several embankment samples obtained in an investigation by NRCS in February, 2004. Representative samples of embankment soils are plotted on an attached graph. The plot and the data summarized in Appendix V show that the Florence embankment soils are characterized by having from 40 to 85 percent finer than the #200 sieve. This places the soils into filter design base soil category 2, using the procedures and criteria shown in the NRCS design document, Chapter 26 of the National Engineering Manual, Chapter 633.

Filtration Requirement. One of the requirements for a successful critical filter for group 2 soils is that the filter has a D_{15} size equal to 0.7 mm or smaller. As noted in following sections, several alternatives for the final design of the filter are considered. All of the suggested gradations satisfy this basic requirement. Other attachments show filter bands that result from 3 different mixtures considered for the filter design. The three alternative mixtures considered in the design are plotted on attachments, and summarized as follows:

Filter Composition (% C-33 Sand / % # 57 Gravel)	Maximum D_{15}, mm	Minimum D_{15}, mm
60 / 40	0.6	0.27
50 / 50	0.7	0.3
40 / 60	0.8	0.35
Design Filter	0.6	0.2
Buckeye Filter (Design)	1.0	0.18
Buckey Fitler (Actual)	0.6	0.6

Based on these studies, either a 60/40 blend or a 50/50 blend would approximately achieve the designed filter D_{15} requirements. We recommend just specifying the design filter band with acceptable gradations and allow the supplier to determine the blending requirements.

Permeability Requirement. The second criteria for filters according to Chapter 26 criteria is that the minimum D_{15} size of the filter is 0.1 mm, to ensure adequate permeability. Also to meet this goal, a satisfactory filter must have 5 percent or less passing the # 200 sieve according to Chapter 26 criteria. The design filter band meets this requirement as shown on attached plots.

Segregation. Other requirements given in Chapter 26 criteria are that the design filter has a Coefficient of Uniformity of 6 or less to prevent having a wide gradation that might segregate during placement. The design filter band would not meet this requirement. The average CU value for the design blend is about 20. To evaluate the advisability of deviating from the criterion in Chapter 26, the original articles that formed the basis for the filter criteria were examined. The following discussions related to findings related to segregation of broadly graded sand/gravel filters.

Intentionally Blank

A criterion to ensure that sands aren't subject to segregations given in Table 26-6 of the NRCS criteria document Chapter 26, NEH Part 633, which is that filters with a D_{10} size smaller than 0.5 mm must have less than 10 percent of the total weight being particles larger than 20 mm. As can be visualized on the attached plot, the design filter has about 20 percent particles larger than 20 mm, slightly more than the Table 26-6 criterion allows.

Additional guidance on segregation is given in the article by Sherard, et al, "Filters for Silts and Clays". The following discussion is from page 715 of that article:

> *This segregation problem is difficult to evaluate except by experience. The amount of segregation depends both on the nature of the filter material and on the method of handling and placing it. In our experience, sand-gravel filters with gravel content and maximum size shown in Figure 8 (curve A) can be placed without significant segregation if considerable care is taken, but a filter of this gradation is near the limit of desirable coarseness for critical filters protecting fine-grained silts and clays. We have observed segregation problems in sandy gravel filter similar to Fig. 8, with only slightly larger maximum particle size and somewhat larger D_{50} size. These problems occurred despite careful handling and placement. For conservative practice, and to avoid excessive segregation, no more than 60 % of a well-graded sand-gravel critical filter for a clay core should be material coarser than the No. 4 sieve.*

Referring to attachments, the design filter is entirely to the left of curve A from the Sherard article, and about parallel, and the conclusion is that segregation should not be a significant problem if the height of drop of the filter is kept to a reasonable distance (less than about 5 feet) by using tremies or similar devices.

Self-healing Properties. A final desirable property for filters is that they have good self-healing properties. This quality may be qualitatively evaluated using a simple test proposed by Vaughan and Soares (1982). A version of the test procedure is also presented in the U.S. Army Corps of Engineers Engineering Manual EM 1110-2-1901, which is included in this appendix.

Because the 50/50 mixture is much more broadly graded than the single filter, it should have even better self-healing properties. A recent investigation at the Buckeye Site 1 dam site showed the excellent self-healing properties of a filter with a similar gradation as the proposed mixture of sand and gravel for Florence. An attached plot shows a comparison with the measured gradation of the filter from Buckeye Site 1 with the 50/50 blend proposed for Florence. To further verify the self-healing properties of the proposed design for the filter at Florence, a gradation of the fine side of the design band for the filter will be manufactured using coarse and fine aggregates from nearby suppliers, and a self-healing evaluation will be performed. That test will be furnished in supplemental documentation to this report.

Bulking and Water Content Specifications. The proposed design does not include a requirement for placement density. To assure that the filter materials are not placed at a loose condition susceptible to settlement on wetting, the following approach is recommended. The approach is to determine at what water content bulking is significant for the design filters, and to then specify an upper permissible placement water content that will not result in bulking for the filter.

To evaluate this property, the NRCS laboratory will perform bulking tests on the fine side of the specified band for the design filter. Because bulking is always worse for finer gradation mixtures, the water content necessary to prevent bulking for this gradation may safely be assumed to be adequate for a coarser mixture. The outline of the bulking test is as follows:

1. An arbitrary amount of dry sand is weighed and dumped into a cylinder. The volume of this weight of sand is carefully measured to establish a condition of no bulking.

2. Samples with the same weight of dry sand are prepared at progressively increasing water contents, in the range of about 2 percent

3. A percent bulking value is determined for each sample prepared at a given water content using the equation:

$$(\%)\text{Bulking} = \frac{\text{Volume}@\,w\% - \text{Volume(dry)}}{\text{Volume(dry)}} \text{x}100$$

Results of the bulking tests to be performed will be included in supplemental documentation. Based on results of those tests, a maximum allowable water content will be determined and specified in the final constract.

Filter Design Gradations. Originally, the designed filter for the Florence FWRS was recommended to be a filter sand like ASTM C-33 gradation fine concrete aggregate. This gradation was considered to be an excellent filter with very little tendency to segregate during placement. However, after observations made of the filter in the Buckeye Site 1 repair, detailed in an attached trip report and discussed in more detail in a report by AMEC, more consideration was given to employing a more broadly graded filter for the design. Observations of the Buckeye filter showed excellent self-healing properties, and this is considered an overriding concern for the Florence repair filter characteristics. A second advantage to using a more broadly graded fitler is the reduced tendency to bulk during placement at intermediate water contents.

Considering the advantages and disadvantages, a blended filter that will be more broadly graded was determined to be optimal for the Florence FWRS repair. Following sections discuss alternatives for the design of an ideal filter at Florence. A second type of filter considered is a blend of standard gradations of concrete sand and gravels. This type of filter has an extra cost of blending two gradations, but is considered superior in self-healing properties. Because it is more broadly graded, this second type of filter may be more prone to segregation, but is probably less susceptible to bulking.

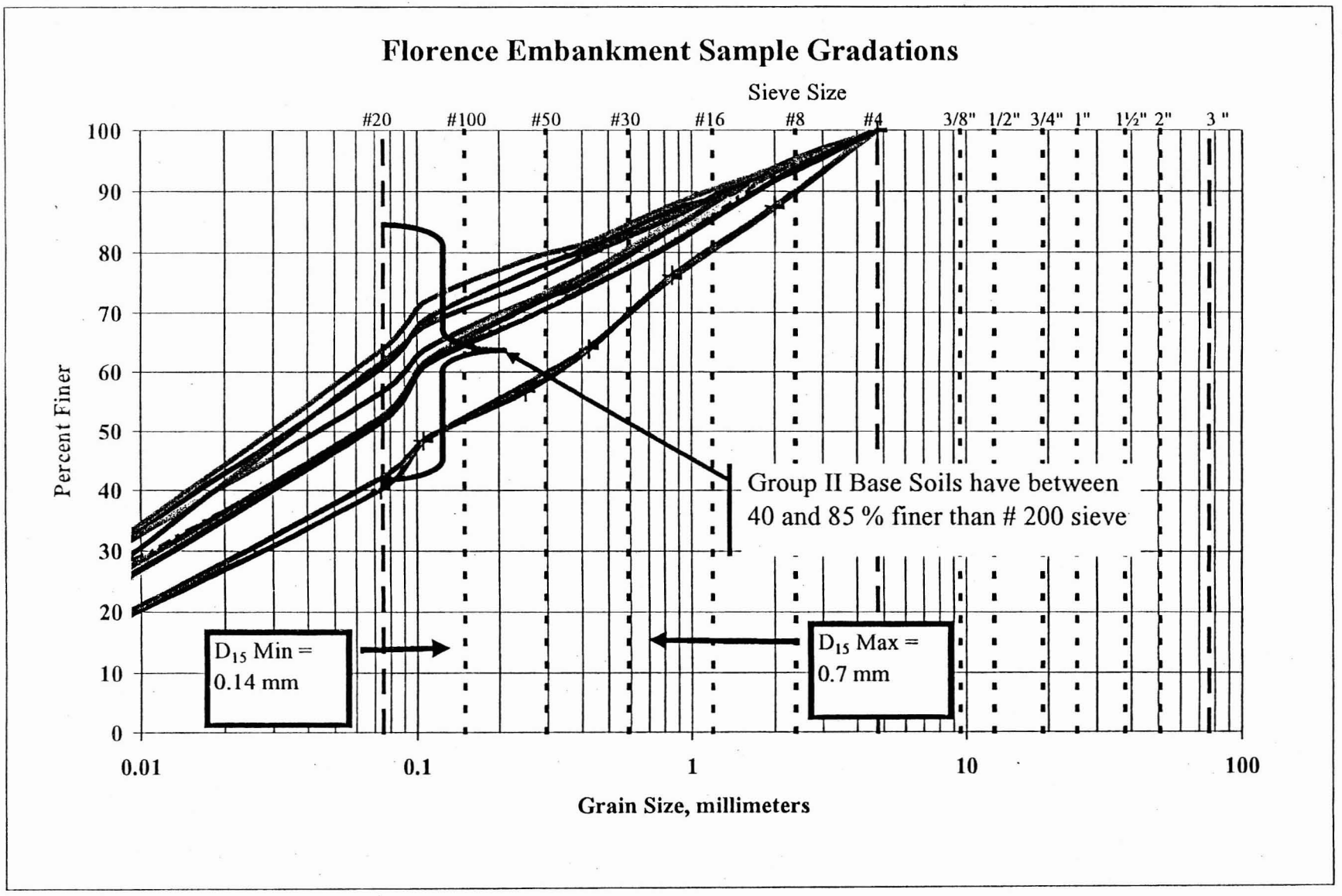
The filtration ability of broadly graded filters has been found to be exceptional. In the June 1984 article by Sherard, et al on Basic Properties of Sand and Gravel Filters, the statement is given that, "A well-graded filter with a Cu of 20 and a given D_{15} will catch particles that are roughly ½ the size of a uniform filter with the same D_{15} size.

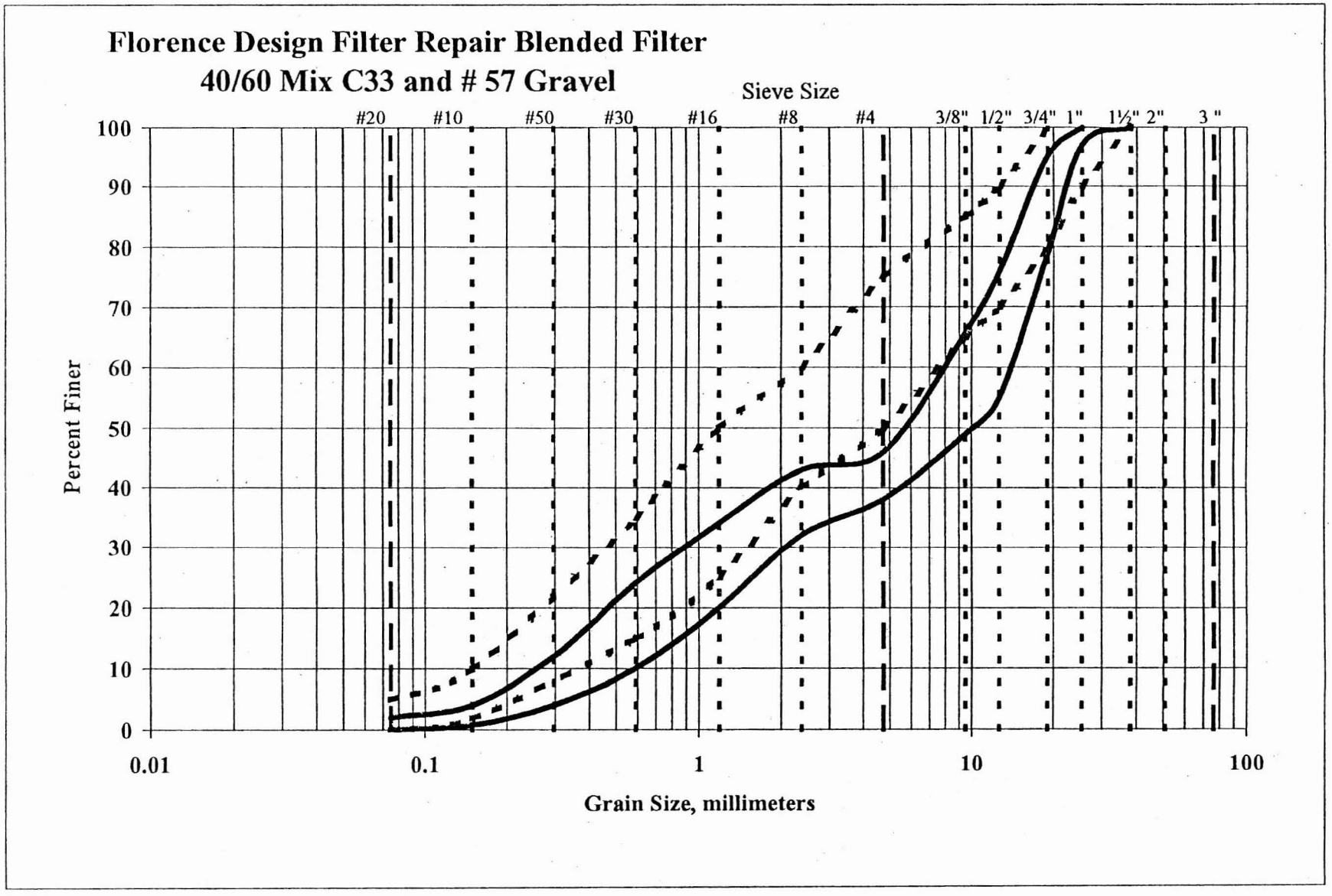
The following table summarizes the theoretical advantages and disadvantages of the two approaches to filter design:

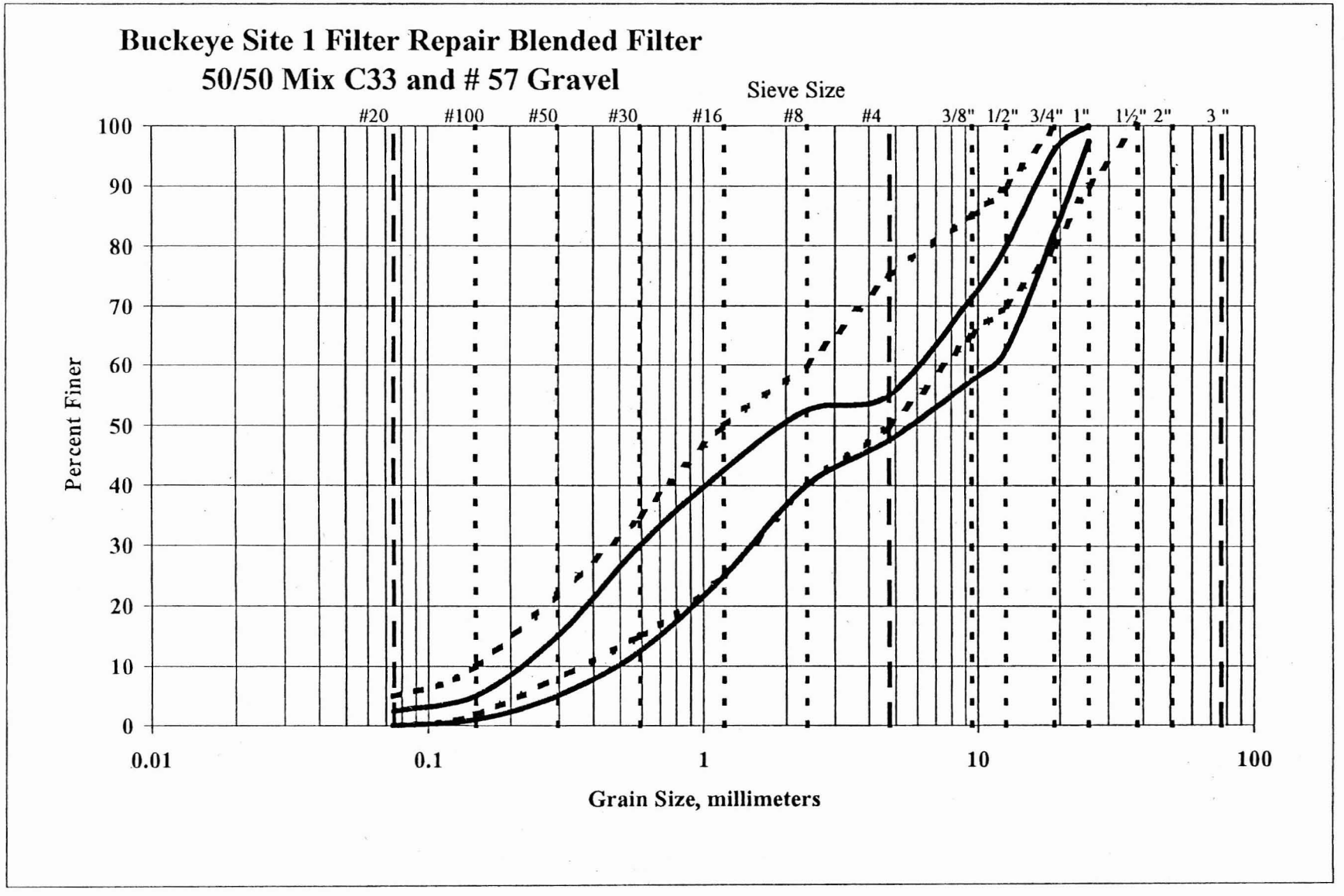
Type of Filter	Bulking is Significant Design Consideration	Segregation may be Problem	Potential Poor Self Healing Properties
Single Fine Filter	√		√
Blended Filter		√	

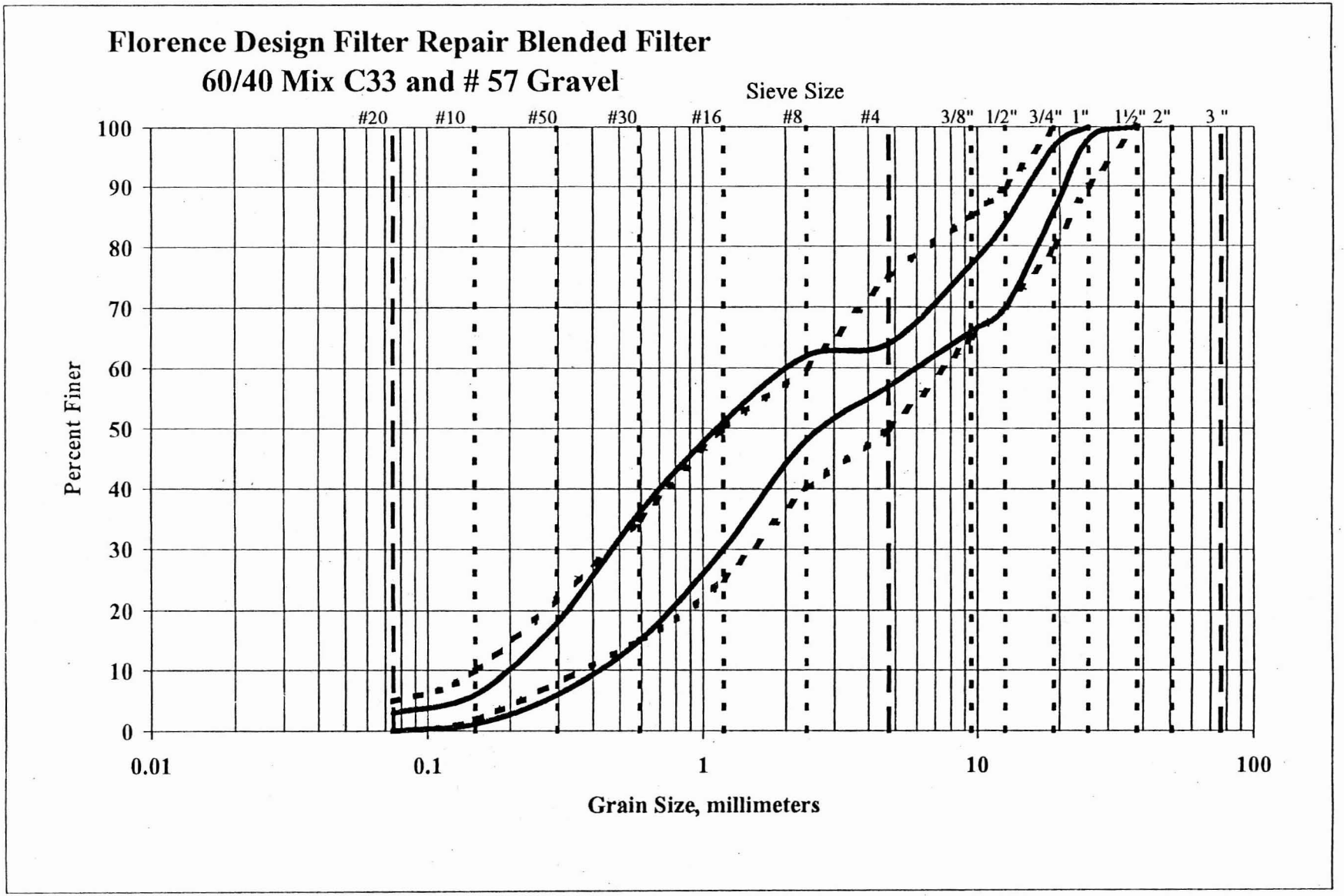
Final Recommended Filter for Florence Repair. Based on previous discussions and criteria in Chapter 26, the following filter design band is recommended:

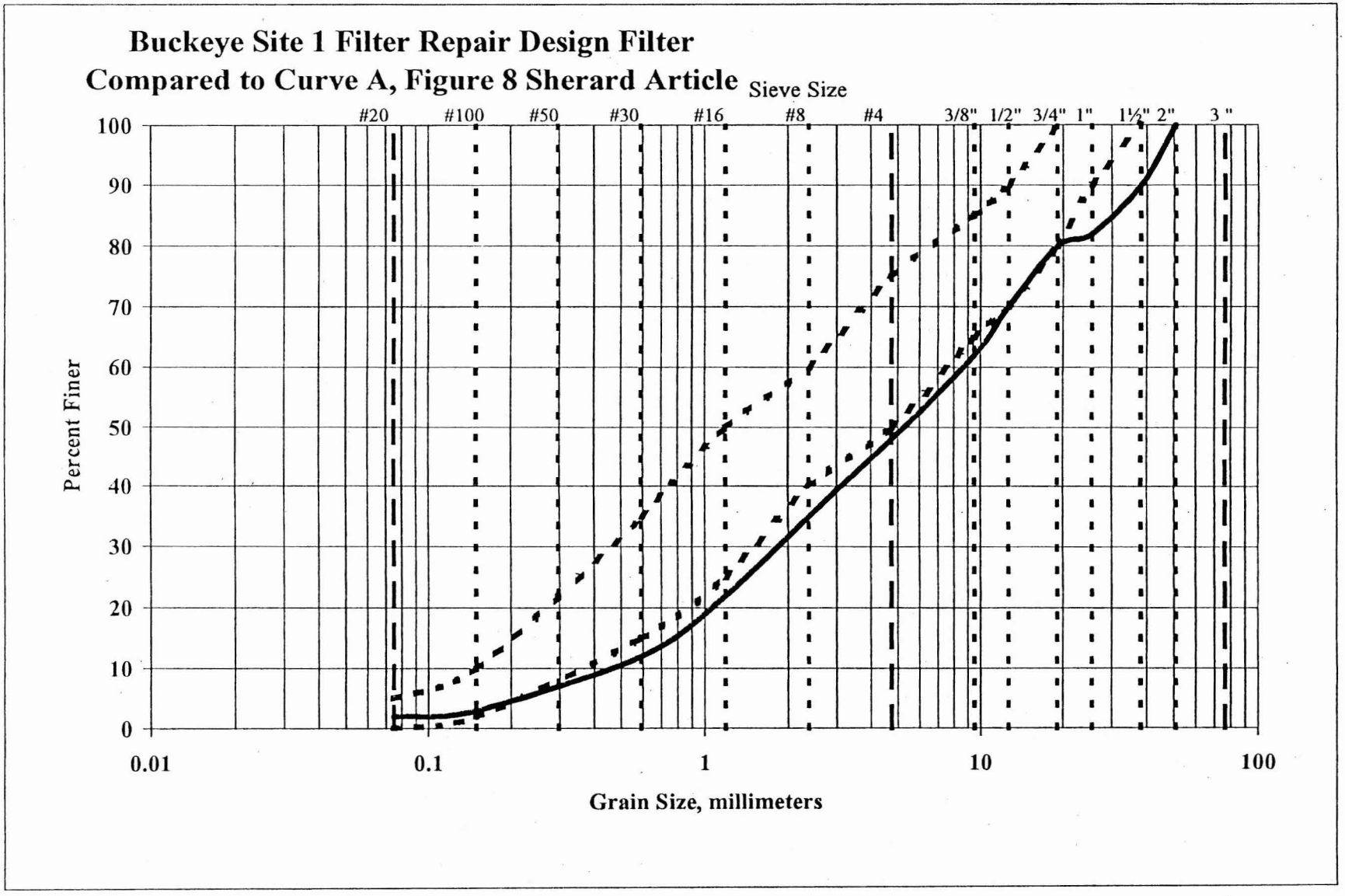
Sieve Size	Percent Finer Minimum	Percent Finer Maximum
1.5 inches	100	100
1 inch	90	100
3/4 inch	80	100
½ inch	70	90
3/8 inch	65	85
# 4	50	75
# 8	40	60
# 16	25	50
# 30	15	25
# 100	2	10
# 200	0	5

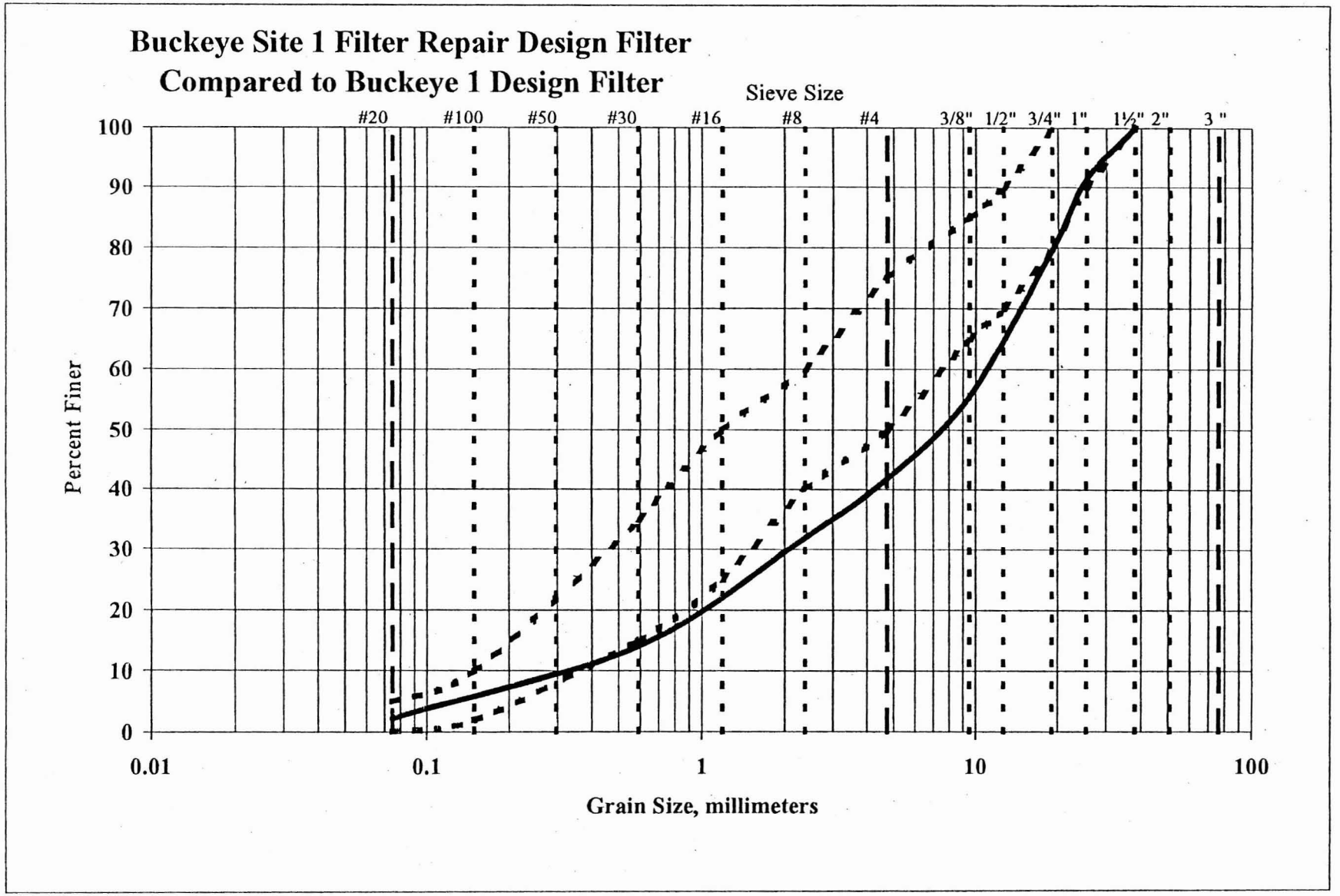

Florence Embankment Sample Gradations
Sieve Size
#20
#100
#50
#30
#16
#8
#4
3/8"
1/2"
3/4"
1"
1½"
2"
3 "
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
Group II Base Soils have between
40 and 85 % finer than # 200 sieve
D15 Min =
0.14 mm
D15 Max =
0.7 mm
0.01
0.1
1
10
100
Grain Size, millimeters


Florence Design Filter Repair Blended Filter
40/60 Mix C33 and # 57 Gravel
Sieve Size
#20
#10
#50
#30
#16
#8
#4
3/8"
1/2"
3/4"
1"
1½"
2"
3 "
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
0.01
0.1
1
10
100
Grain Size, millimeters


Buckeye Site 1 Filter Repair Blended Filter
50/50 Mix C33 and # 57 Gravel
Sieve Size
#20
#100
#50
#30
#16
#8
#4
3/8"
1/2"
3/4"
1"
1½"
2"
3 "
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
0.01
0.1
1
10
100
Grain Size, millimeters


Florence Design Filter Repair Blended Filter
60/40 Mix C33 and # 57 Gravel
Sieve Size
#20
#10
#50
#30
#16
#8
#4
3/8"
1/2"
3/4"
1"
1½"
2"
3 "
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
0.01
0.1
1
10
100
Grain Size, millimeters


Buckeye Site 1 Filter Repair Design Filter
Compared to Curve A, Figure 8 Sherard Article
Sieve Size
#20
#100
#50
#30
#16
#8
#4
3/8"
1/2"
3/4"
1"
1½"
2"
3 "
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
0.01
0.1
1
10
100
Grain Size, millimeters


Buckeye Site 1 Filter Repair Design Filter
Compared to Buckeye 1 Design Filter
Sieve Size
#20
#100
#50
#30
#16
#8
#4
3/8"
1/2"
3/4"
1"
1½"
2"
3 "
100
90
80
70
60
50
40
30
20
10
0
Percent Finer
0.01
0.1
1
10
100
Grain Size, millimeters

/

June

APPENDIX VII - FILTER DESIGN

BASIC PROPERTIES OF SAND AND GRAVEL FILTERS

By James L. Sherard,[1] F. ASCE, Lorn P. Dunnigan,[2] and James R. Talbot,[3] Members, ASCE

ABSTRACT: Laboratory experiments have shown that uniform filters will catch particles with diameter of about $0.11D_{15}$ when the particles are carried in suspension in seeping water. Smaller particles will be carried through the filter pores and larger particles will not enter. The main current filter criterion, $D_{15}/d_{85} \leq 5$, is shown to be conservative, but not excessively. Its use should be continued. Filter criteria using the ratios D_{50}/d_{50} and D_{15}/d_{15} are not supported by experiments or theory. Filters of angular particles of crushed rock are as satisfactory as those of rounded alluvial particles. It is not necessary for the filter particle size distribution to have a shape generally similar to that of the base particle size distribution.

INTRODUCTION

An investigation of filters was carried out during 1981–82 at the Soil Mechanics Laboratory, Midwest National Technical Center, Soil Conservation Service, U.S. Department of Agriculture, Lincoln, Nebraska. The investigation was directed at improving understanding of the fundamental properties and behavior of filters.

This paper mainly relates to experiments with relatively uniformly graded filters having D_{15} of about 1.0–10 mm. A companion paper (6) gives results of a study of filters for fine-grained silts and clays and filters with smaller D_{15}.

FILTER TESTS WITH UNIFORM SAND BASE

Fig. 1 shows details and dimensions of the test apparatus. Very uniform base (protected) soils were used (Fig. 2); these were obtained by screening between the nearest two sizes of commercial sieves. Filters were mostly uniform sands and gravels consisting of subrounded to subangular particles of alluvial origin (Fig. 3).

The filters were well compacted while in a saturated condition on a vibrating table with a 10 kg surcharge weight. Filter densities were not measured but probably ranged from 80–100% relative density. The uniform base sand was placed dry in three lightly tamped layers. The "side material" (Fig. 1) was placed between the filter and the cylinder wall to eliminate large voids (pores) at the interface that were larger than the pore channels inside the filter. General test procedures were as follows:

1. A valve to the city water system (about 4 kg/cm^2 pressure) was

[1]Consulting Engr., San Diego, Calif.
[2]Head, Soil Mechanics Lab., National Technical Center, Soil Conservation Service, U.S.D.A., Lincoln, Neb.
[3]National Soil Engr., Soil Conservation Service, U.S.D.A., Washington, D.C.

Note.—Discussion open until November 1, 1984. Separate discussions should be submitted for the individual papers in this symposium. To extend the closing date one month, a written request must be filed with the ASCE Manager of Technical and Professional Publications. The manuscript for this paper was submitted for review and possible publication on May 4, 1983. This paper is part of the *Journal of Geotechnical Engineering*, Vol. 110, No. 6, June, 1984. ©ASCE, ISSN 0733-9410/84/0006-0684/$01.00. Paper No. 18933.

ameter, because head loss is inversely related to the fourth power of the diameter. Thus, the diameter of an "equivalent" small pipe, computed earlier as $0.16D_{15}$, approaches the diameter of the smaller pores in the sand or gravel, and it corresponds very well with the experimental results of the filter tests (Fig. 4), which show that particles with diameter $0.12D_{15}$ will always be caught in the filter pores.

Broadly Graded Filters

The preceding results have been derived from tests on relatively uniform filters. For more broadly graded filters, these results are usually conservative since the permeability is often less than $k = 0.35D_{15}^2$ and minimum pore channel diameter is less than $0.1D_{15}$, but the difference generally is not great. A well-graded filter with C_u of 20 and a given D_{15} will catch particles that are roughly 1/2 the size of a uniform filter with the same D_{15} size. This is reviewed in more detail in a companion paper (6).

Well-Graded (Nonuniform) Base Soils

In addition to the tests with uniform sand bases, we have performed many other filter tests with conservative testing procedures (high water pressures and holes in the base samples to create initial concentrated leaks), using a large number of relatively widely graded sandy silts and sandy clays as base soils (with d_{85} in the range of 0.1–0.6 mm). For all these tests, the failure boundary was always at a D_{15}/d_{85} ratio in excess of 9, showing that the d_{85} size is a reasonable measure of the base size for this purpose for sandy silts and clays (6). Tests by others for well-graded (nonuniform) sand bases show similar results. Table 3 summarizes filter tests made by Lund (1949) as part of the research program described earlier on three relatively broadly graded sand bases, with d_{85} in the range of 1.2–1.9 mm using uniform gravel filters (4).

The preceding results confirm that, for the well-graded base soils tested (sandy silts and clays and well-graded pervious sands with d_{85} of 1.2–1.9 mm), a filter sufficiently fine to catch the d_{85} size will also catch the finer base particles. Thus, it can be concluded that, for the soils tested, the oldest and most widely used filter criterion, $D_{15}/d_{85} \leq 4$ or 5, is conservative. It can be considered to have a safety factor of about 2, since the experimental failure-success boundary is about $D_{15}/d_{85} = 9$.

TABLE 3.—Results of Filter Tests on Well-Graded Sand Bases [After Lund (4)]

Base (1)	d_{85}, in millimeters (2)	D_{15}, in millimeters (3)	D_{15}/d_{85} (4)	Test result (5)
Base 5	1.2	11.0	9.2	Stable
Base 5	1.2	12.3	10.2	Unstable
Base 6	1.5	12.3	8.2	Stable
Base 6	1.5	14.5	9.7	Unstable
Base 7	1.9	14.5	7.6	Stable
Base 7	1.9	16.0	8.4	Unstable

APPENDIX VII - FILTER DESIGN

FILTERS FOR SILTS AND CLAYS

By James L. Sherard,[1] F. ASCE, Lorn P. Dunnigan,[2] and James R. Talbot,[3] Members, ASCE

ABSTRACT: An investigation was made of the filters needed in dams for fine-grained clays and silts. The "critical" downstream filter in a central core dam should be capable of controlling and sealing a concentrated leak through the core, and should also be stable in conventional laboratory filter tests under a relatively high gradient, such as 1,000. Two different types of laboratory tests were developed to simulate the action of a critical filter (slot and slurry tests). Both gave identical and reproducible results. For fine-grained clays a sand filter with D_{15} of 0.5 mm is conservative. For sandy clays and silts the filter criterion $D_{15}/d_{85} \leq 5$ is conservative and reasonable. The Atterberg limits of a clay have no significant influence on the needed critical filter. For nondispersive and dispersive clays having similar particle size distribution the needed critical filters are the same. For "noncritical" filters, such as filters upstream of a clay core, quantitative filter criteria are not necessary.

INTRODUCTION

An investigation of filters was carried out during 1981–82 at the Soil Mechanics Laboratory, Midwest National Technical Center, Soil Conservation Service, U.S. Department of Agriculture, Lincoln, Nebraska. The main object was to improve understanding of filters needed to protect clays and silts commonly used as the impervious sections of embankment dams. In current practice there is no widely agreed upon quantitative filter design criteria for fine clays.

In this paper only the "filter action" of a filter is considered, i.e., the properties of the filter needed to prevent any significant penetration of the base soil particles into the filter. It does not treat the problem of the permeability needed for a single-band filter that functions as both filter and drain, or the need for additional drainage zones.

A parallel study directed at improving basic understanding of sand and gravel filters, including the sizes of pore channels which catch particles carried in suspension in water flowing into the filter, is described in a companion paper (8).

"CRITICAL" FILTERS NEEDED TO SEAL CONCENTRATED LEAKS THROUGH IMPERVIOUS DAM SECTIONS

Small concentrated leaks occasionally develop through the impervious sections of embankment dams designed and constructed according to

[1]Consulting Engr., San Diego, Calif.
[2]Head, Soil Mechanics Lab., National Technical Center, Soil Conservation Service, U.S.D.A., Lincoln, Neb.
[3]National Soil Engr., Soil Conservation Service, U.S.D.A., Washington, D.C.

Note.—Discussion open until November 1, 1984. Separate discussions should be submitted for the individual papers in the symposium. To extend the closing date one month, a written request must be filed with the ASCE Manager of Technical and Professional Publications. The manuscript for this paper was submitted for review and possible publication on May 4, 1983. This paper is part of the *Journal of Geotechnical Engineering*, Vol. 110, No. 6, June, 1984. ©ASCE, ISSN 0733-9410/84/0006-0701/$01.00. Paper No. 18934.

In tests of this type, the base soil specimen is so impervious that the quantity and energy of seepage water discharging from the base soil into the filter are too small to overcome the low cohesive forces in the soil.

There has been a growing practice in recent years to use relatively coarse gravels or small-size quarried rock for the transition placed directly on the upstream face of a central impervious dam core of clay, with no reference to filter criteria. We are confident that this practice is safe and reasonable, even with rapid reservoir drawdown, frequently allowing considerable cost savings.

Segregation Problems in Coarse Filters

The compacted sand and gravel filters used in our tests (Fig. 4) ranged from fairly uniform to moderately graded (C_u generally 1.5–8). Their permeability generally is related to the D_{15} size in the approximate range of $k = 0.2\ (D_{15})^2$ to $0.6\ (D_{15})^2$, in which k is in centimeters per second and D_{15} is in millimeters (8). Their average permeability was about $0.35\ (D_{15})^2$.

The permeability of coarse, well-graded sandy gravels is frequently considerably less than the value calculated from this relationship. Fig. 8 shows the average gradation of a coarse sandy gravel filter (Curve A) used in a recent major dam. (Note that in Fig. 8: (1) Curve A is the average gradation of a processed sandy gravel used as the "critical" filter in a recent major dam; and (2) Curve B is the gradation of the finer half of Curve A.) Permeability tests on representative compacted specimens gave a considerable spread of results, with a median value of the order of $k = 2 \times 10^{-2}$ cm/s. For the filter of Fig. 8, $k = 0.35\ (D_{15})^2$ gives $k = 17 \times 10^{-2}$ cm/s, i.e., the permeability of the well-graded sandy gravel filter (Fig. 8) is only about 2/17 or 12% of the permeability of a uniform sand with the same D_{15} size (0.7 mm).

In a sandy gravel filter, the gravel particles have negligible influence on the filter action. They float in a mass of sand sized particles, and it is the pore sizes in the sand that govern the sizes of particles which will be caught and seal the filter. In the finer half of the sandy gravel filter (curve B, Fig. 8), the D_{15} size is about 0.35 mm (about half of the D_{15} size of the entire material). Using this value in the equation $k = 0.35$

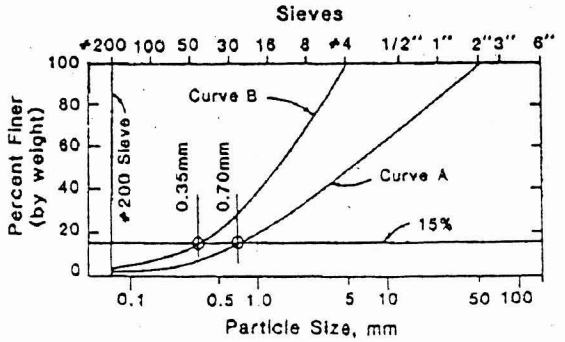


FIG. 8.—Comparison between Total Gradation of Gravelly Sand Filter and Sand Comprising Finer Half (by Weight)

$(D_{15})^2$, the computed k (4×10^{-2} cm/s) is of the same general magnitude as the measured k for the entire material ($2 \times 10 - 2$ cm/s), taking into account the fact that the sand portion (curve B, Fig. 8) occupies only a little more than half the total volume. Thus, the coarse, well-graded sandy gravel of Fig. 8 (with D_{15} of 0.7 mm and C_u about 20) should be able to catch particles about the same size as those caught by a uniform sand filter with D_{15} of 0.35 mm and C_u about 8.

Based on the reasoning and test results illustrated here, we believe that, for well-graded, coarse filters with maximum size particle of 1.5 in. or larger, it is appropriate to evaluate filter criteria as follows:

1. It is conservative to use the D_{15} size of the entire material when applying the filter criteria.
2. However, if permeability tests on compacted specimens show the average permeability is less than about $k = 0.05\ (D_{15})^2$, it is reasonable to use the D_{15} size of the finer portion of the gradation curve when applying the filter criteria. This can be the finer 50% or the sand portion finer than the No. 4 sieve.

Well graded sandy gravels are excellent filters for silts and clays up to a certain maximum coarseness beyond which segregation during construction becomes important. For excessively coarse materials, segregation during construction results in streaks or pockets of gravel particles, without sand in the voids, accumulating at the filter face. If such a segregated filter were used in a dam and an erosive concentrated leak developed, the voids in the segregated gravel pockets would have to fill with eroded fines from the impervious zone before the filter could function.

This segregation problem is difficult to evaluate except by experience. The amount of segregation depends both on the nature of the filter material and on the methods of handling and placing it. In our experience, sand-gravel filters with gravel content and maximum size shown in Fig. 8 (curve A) can be placed without significant segregation if considerable care is taken, but a filter of this gradation is near the limit of desirable coarseness for critical filters protecting fine-grained silts and clays. We have observed segregation problems in sandy gravel filters similar to Fig. 8, with only slightly larger maximum particle size and somewhat larger D_{50} size. These problems occurred despite careful handling and placement. For conservative practice, and to avoid excessive segregation, no more than 60% of a well-graded sand-gravel critical filter for a clay core should be material coarser than the No. 4 sieve. Also, the maximum particle size should be no larger than about 2-in. (50 mm). Many successful dams with fine-grained clay cores have had somewhat coarser down-stream filters, but we believe these criteria are reasonable and not too conservative.

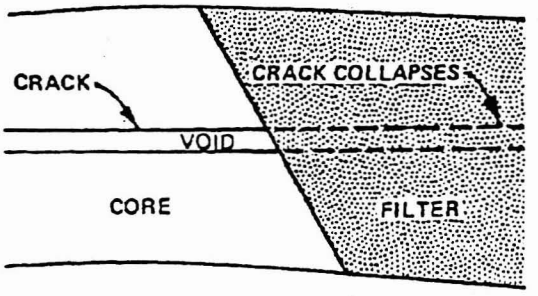
Application to Practice (Critical Filters)

The current technical literature on dams says relatively little about filters for fine-grained clays. Only a few specialized publications offer filter criteria related to clay properties, and the difference between "critical"

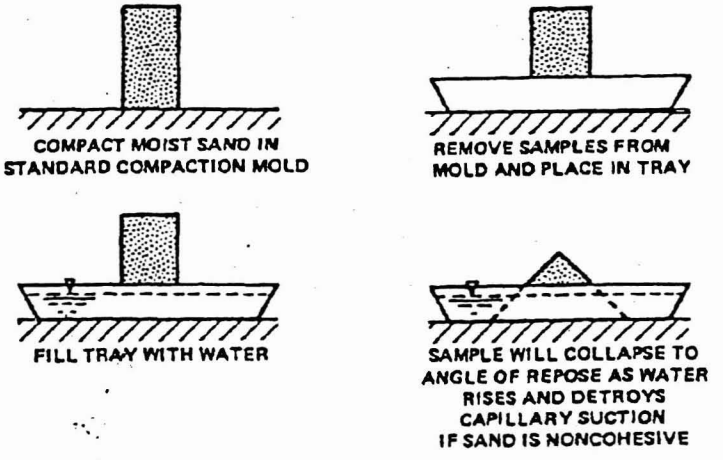
but below the bottom of the frost zone, A vertical core located near the center of the dam is performed over an inclined upstream core because the former provides higher contact pressure between the core and foundation to prevent leakage, greater stability under earthquake loading (Sherad 1966, 1967), and better access for remedial seepage control. An inclined upstream core allows the downstream portion of the embankment to be placed first and the core later and reduces the possibility of hydraulic fracturing (Nobari, Lee, and Duncan 1973).

c. Filter Zones. Filters may be required in various locations in earth dams such as vertical (or inclined) and horizontal drains within the downstream section of the embankment as shown in figure 8-2, around outlet conduits passing under the downstream portion of the embankment, under concrete structures such as stilling basins, around relief wells, beneath riprap where drawdown may occur, and between the embankment and abutment. Important properties of the filter material are gradation, compacted density, and permeability. Filters are designed to permit free passage of water and prevent migration of fines through the filter as discussed in Appendix D. The average in-place relative density of the filter should be at least 85 percent and no portion of the filter should have a relative density less than 80 percent (EM 1110-2-2300). This requirement applies to vertical (or inclined) and horizontal drains and filters under concrete structures but not to bedding layers under riprap. Special care must be taken to assure that compaction does not degrade the filter material (by grain breakage and/or segregation) and reduce its permeability. When the filter material is sand or contains significant portions of sand sizes, the material should be maintained in as saturated a condition as possible during compaction to prevent bulking. The discharge capacity of the filter zones should be determined in dimensioning the filters (Cedergren 1977). The filter material should pass the 3-in. screen for minimizing particle segregation and bridging during placement. As discussed previously in Chapter 2 (see figure 2-12), the permeability of sands and gravels varies significantly with the amount and type of fines (material smaller than the No. 200 sieve) present. Also, the amount and type of fines present influence the capacity of a filter to self-heal by collapsing any cracks within the filter (see figure 8-3). Therefore, the maximum percent fines and type (silt, clay, etc.) to be allowed in the filter of an earth dam must be shown to be sufficiently pervious by laboratory filter tests [1] and self healing by collapse tests (Vaughn 1978). If vibration is present, such as in the vicinity of a stilling basin or powerhouse, the. laboratory filter tests should be conducted with vibration effects. If the base material to be protected is dispersive, large-scale box filter tests will be required (McDaniel and Decker 1979, Bordeaux and Imaizumi 1977, and Logani and Lhez 1979). The procedure to use in identifying dispersive clays is given in EM 1110-2-1906. Generally, two or more filter zones, each with a uniform or narrow gradation (sand, pea gravel, etc.) are preferable to a single well-graded filter zone which often becomes segregated during processing, stockpiling, and placement. Care must

[1] Laboratory filter tests are not a routine laboratory test. Standard testing procedures have not been developed. The conduct of laboratory filter tests should be under the direction of a specialist and should be carried out in a research laboratory.



a. Self-healing (by collapse) of filter



b. Laboratory test for ability of filter material to self-heal (by collapse)

Figure 8-3. Self-healing (by collapse) of crack within a filter downstream of a core (courtesy of American Society of Civil Engineers[282])

be taken during construction to prevent reduction in permeability of the filter by intrusion of fines carried by surface runoff, spillage by compaction equipment, or degradation during compaction. Also, care must be taken to prevent coarse material from rolling down the surface of the filter and collecting between the core and filter (or between filter zones if two or more filters are used) forming a "tube" (in cross section) of more permeable material through which core (or filter) material could be lost by piping.

APPENDIX J

PRELIMINARY ASSESSMENT OF SOIL CEMENT MEMORANDUM

PRELIMINARY ASSESSMENT OF SOIL CEMENT
WHITE TANKS FRS NO. 3
MARICOPA COUNTY, ARIZONA
REVISED SEPTEMBER 2004

1.0 INTRODUCTION

1.1 BACKGROUND

The American Concrete Institute (ACI) defines soil cement as a mixture of soil and measured quantities of Portland cement and water, compacted to a relatively high density. Soil cement is prepared by blending, compacting, and curing a mixture of soil, cement, and water. The relative proportions of the materials can be varied in order to control specific engineering properties of the soil cement.

Soil cement will be used to construct the structural core of the embankment for the White Tanks FRS No. 3 rehabilitation design. The shear strength and the erosion resistance of the soil cement element will be key properties for the successful performance of the new embankment. Additional details specific to this project are discussed in Section 1.2.5.

1.2 APPLICATION OF SOIL CEMENT IN DAMS

1.2.1 Soil Cement for Slope Protection

Soil-cement was developed in the U.S., starting in the 1920s, as a means of stabilizing local soils with cement to produce an economical road building base material as an alternative to importing gravel base. In 1951, the use of soil-cement to provide slope protection for earth dams was initiated by the U.S. Bureau of Reclamation (USBR) with construction of a test section at Bonny Reservoir in eastern Colorado. Observation of the test section for the first 10-year period of service indicated excellent performance of the soil-cement, which was subjected to harsh wave action and repeated cycles of freezing and thawing and wetting and drying. This led to the conclusion that use of soil-cement for slope protection was feasible, based on both economical and service life considerations. Since 1961, more than 300 major soil-cement slope protection projects have been built in the United States and Canada.

Since the initial applications of soil cement for erosion protection of embankments and slopes, the number of applications of soil cement in embankment dam engineering have increased. Soil

cement has been used to construct embankment dam cores where low permeability (clays) are not readily available, as well as to construct entire embankments.

1.2.2 Total Dam Cross Section (Hardfill)

At some locations, especially where clay is not available, embankments and dams have been constructed entirely of soil-cement. A soil-cement embankment serves several purposes. It provides slope protection, acts as a water barrier (i.e. the function of a core in an embankment dam), and can be built on relatively steep slopes because of its inherent shear strength properties. Soil cement has also been used as a core (water barrier) in embankment dams. Table 1-1 summarizes several water control projects where soil-cement has been used in the entire embankment or in the core.

TABLE 1-1
Summary of Solid Soil-cement Embankments for Water Control Projects

Project Location	Maximum Height (ft)	Mix Design		PI	Optimum Water Content %	Soil Material	Permeability (m/s)	Remarks
		Percent Cement by weight	Percent Cement by volume					
Barney M. Davis Power Station Cooling Water Reservoir, TX	22	10		N/A	N/A	Beach Sand	N/A	solid soil-cement ring levee
Lubbock Canyon Lakes Project (four dams), TX	12	N/A	12.1	N/A	N/A	N/A	N/A	solid soil-cement embankment capped with concrete
Sylvenstein Dam, Germany	134.5 (41 m)	N/R	N/A	3 to 5	8	65 to- 57% sand 5 to 10% fines	10^{-9} upper part 10^{-5} (10 m below crest)	soil-cement core with 1 to- 2% bentonite added

Note: N/A = Not Available

1.2.3 Soil Cement in Dam Foundation Applications

Soil-cement has been used as a massive fill to provide foundation strength and uniform support under large structures. Table 1-2 summarizes projects where soil-cement has been used to stabilize foundations in dam projects.

TABLE 1-2
Summary of Soil-cement Projects – Foundation Application

Project, Location	Thickness (ft)	Percent Cement by weight	Soil Material	Compressive Strength (psi)	Remarks
Castaic Power Plant, Tail Race and Storm Bypass Channel, CA	2.5	9	N/A	N/A	Compacted soil-cement bottom channel
Cochiti Dam Outlet Works Support, NM	35	5.2	Sand and Gravel 57,700 cy	> 1,000 (28-day)	Soil-cement replaced low-strength shaley clay
Richland Creek Dam, Texas	10	10	N/A	> 1,000 (28-day)	Soil-cement substituted for overburden soil for a 1,200- ft wide spillway
W.G. Huxtable Pump. Plant Foundation Stabilization, AR	23	7	Sands	N/A	Soil-cement pad to increase liquefaction resistance.

Note: N/A = Not Available

1.2.4 Core Walls for Earth Dams

The Portland Cement Association (PCA, 1964) provides guidelines for use of soil cement core walls in embankment dams. PCA (1964) suggests that soil cement core walls are particularly useful in applications where low permeability materials are not readily available. The PCA (1964) document is reproduced in Appendix A.

1.2.5 Application to White Tanks FRS No. 3

As currently planned, the segment of the White Tanks FRS No. 3 embankment within the fissure risk zone will include a soil cement component. The proposed embankment will include a central soil cement structure buried within an earthfill embankment with 0.6:1 (horizontal to vertical) side slopes, 35-foot height, 10-foot crest width, and 52-foot base width.

2.0 MATERIALS

2.1 SOIL

Soil-cement has been constructed using a wide range of soils. Sands with at least 85% passing the No. 4 sieve and 10 to 25% fines (material passing the No. 200 sieve) which have low plasticity and are non-organic have proven to require the least amount of cement. The amount of fines in soil-cement mixtures used on actual projects has ranged from 4 to 38%.

Plasticity of soils used in soil-cement is usually limited to a plasticity index (PI) less than or equal to 8. For comparable durability, clayey soils require higher cement contents than sands. Also, it is more difficult to mix cement into clayey soils than into sandy soils. Clay balls tend to form when the plasticity index is greater than 8. For slope protection and or other applications where soil-cement is exposed to weathering, the clay balls tend to wash out of the soil-cement, which can weaken the overall soil-cement structure. Soils with a PI greater than 8 may be treated with hydrated lime prior to cement stabilization, but no dam applications using both materials have been constructed to date.

According to the USBR, the most desirable soil for soil cement is a silty sand (SM) that has a good distribution of sizes, with 15 to 25% fines, and a maximum particle size between the No. 4 sieve size and about 2 inches. The USBR requires that clay balls greater than 1 inch be removed, and imposes a 10 percent limit on clay balls passing the 1-inch sieve.

The U.S. Army Corps of Engineers (USACE) recommends using soils not containing any material retained on a 2-inch sieve, nor more than 45% retained on a No. 4 sieve, nor more than 35% or less than 5% fines (finer than the No. 200 sieve size). Additionally, the PI of the soil should be equal to or less than 12, and the organic content should be less than 2%. Clay balls greater than 1 inch should be removed, and the minus 1-inch clay ball content should be limited to no more than 10%.

Table 2-1 provides examples of aggregate gradations required by a various agencies for cement-stabilized bank protection.

TABLE 2-1
Aggregate Grading Specification for Bank Protection

Sieve Size	PCA – 1976 (suggested)	Orange County, CA	Albuquerque, NM	Albuquerque, NM	Pima County, AZ [1]	Maricopa County, AZ
	soil-cement	soil-cement	"B" soil-cement	"A" soil-cement	soil-cement	CSA[2]
2 inch	100	100	100			100
1-1/2 inch		98 – 100		100	90 – 100	
¾ inch				80 – 95		
#4	55 – 100	60 – 90	55 – 100	50 – 70	60 – 90	30 – 65
#200	5 – 35	5 – 20	5 – 35	5 – 20	5 – 15	0 – 8
PI			10 max	10 max	3 max	25 max

Notes:
1. Clay and silt lumps larger than ½ inch shall be removed.
2. CSA = Cement Stabilized Alluvium – could be considered roller compacted concrete (RCC).

2.2 CEMENT

Portland cements meeting specifications of ASTM C 150 are suitable. Generally, Type I is used for soil-cement. Where high sulfate soils or water have been encountered, Type II has been specified.

Chemical admixtures are rarely used in soil-cement. Use of fly ash as a replacement for Portland cement is not recommended, because fly ash reduces early age compressive strength and durability when used in soil-cement. The use of fly ash, cement-kiln dust, and aggregate screenings serves to fill the voids in the soil structure and help reduce the cement content. PCA recommends that fly ash, when used, conform to ASTM Specification C 168.

Cement content requirements vary, depending on desired properties and types of soils used. Cement contents generally range from as low to 4 to as high as 16 percent by dry weight of soil. Generally, as the clayey portion of the soil increases, the quantity of cement required increases. Robbins and Mueller (1960) provided initial estimates for the soil-cement mix proportioning, as summarized in Table 2-2. It should be noted that these values are not mix-design recommendations, but rather recommendations of ranges of cement content to consider for initial mix design testing. The actual mix design would be identified from the results of the testing program.

TABLE 2-2
Typical Cement Requirements for Various Soil Types
(Robbins and Mueller, 1960)

AASHTO soil classification	USCS soil classification symbol	Typical range of cement requirement, percent by weight	Typical cement content for moisture-density test (ASTM D 558), percent by weight	Typical cement contents for durability tests (ASTM D 559 and D 506), percent by weight
A-1-a	GW, GP, GM, SW, SP, SM	3-5	5	3-5-7
A-1-b	GM, GP, SM, SP	5-8	6	4-6-8
A-2	GM, GC, SM, SC	5-9	7	5-7-9
A-3	SP	7-11	9	7-9-11
A-4	CL, ML	7-12	10	8-10-12
A-5	ML, MH, CH	8-13	10	8-10-12
A-6	CL, CH	9-15	12	10-12-14
A-7	MH, CH	10-16	13	11-13-15

2.3 WATER

Water serves two purposes, to help obtain maximum compaction and to hydrate the cement, which hardens and binds the soil into a solid mass. Most water is acceptable to use. The only requirement is that the water is free from excessive amounts of alkalis, acids, or organic matter that might inhibit proper hardening of the soil-cement. The USACE recommended guidance on water quality may be found in USACE CRD-C 400.

2.4 POTENTIAL AGGREGATE SOIL AT WHITE TANKS NO. 3

The District has identified two potential borrow sources within the reservoir of the dam, designated as Borrow Areas A and B. In addition, the soils in the vicinity of the current emergency spillway and along the upstream toe of the existing embankment are possible borrow sources. URS reviewed all available geotechnical data to assess the possibility of using the near-surface soils (upper 10 feet) as aggregate for the soil cement. Laboratory test results for all near-surface soil samples obtained during URS' April 2004 investigation, as well as previous investigations, indicate that the fines contents range from 11 to 86 percent, with an average fines content of 43.6 percent, for all samples tested (44 total). The plasticity index (PI) of the near-surface soils ranges from zero (non plastic) to 26, with an average PI of 6.3 percent, for all samples tested (26 total).

Composite samples from Borrow Area A (composite borrow south, or CBS), Borrow Area B (composite borrow north, or CBN), and the embankment borrow source (composite borrow embankment, or CBE) were collected during URS' April 2004 investigation for the purpose of soil cement mix design testing. Percent fines for the CBS, CBN, and CBE samples were 48.7, 62.6, and 40.4 percent, respectively, with an average fines content of 50.6 percent for the three composite samples. The soil cement mix design testing program and results are presented in URS' 2004 White Tanks FRS No. 3 Dam Rehabilitation Geotechnical Data Report (hereafter Geotechnical Report), and summarized in URS' 2004 Design Report for White Tanks FRS No. 3 (hereafter Design Report).

Borrow area soils, if assumed to be blended, classify on average as a silty sand (SM) using the USCS system, and as an A-4 soil using the AASHTO classification system. Based on all available geotechnical data and the results of the mix design testing, near-surface soils from the various borrow areas are considered suitable for use as aggregate for soil cement.

3.0 GENERAL PROPERTIES

The properties of soil-cement are influenced by several factors, including (a) type and proportion of soil, cementitious materials, and water, (b) compaction, (c) uniformity of mixing, (d) curing conditions, and (e) age of the compacted mixture. Because of these factors a wide range of values for specific properties may result.

This section presents a discussion of properties related to soil-cement mixtures and their associated recommended standardized tests. The mentioned test methods have been used by organizations such as the Natural Resources Conservation Service (NRCS), PCA, USACE, and USBR.

3.1 DENSITY

Density of soil-cement is usually measured in terms of dry density, although moist density may be used for field control. The optimum moisture content and maximum dry density for a compacted soil-cement mixture is determined according to ASTM D 588.

Adding cement to a soil generally causes some change in both the optimum moisture content and maximum dry density for a given compactive effort. However, the direction of this change is not usually predictable. The flocculating action of the cement tends to produce an increase in optimum moisture content and a decrease in maximum density, while the high specific gravity of the cement relative to the soil tends to produce an increase in maximum density.

3.2 COMPRESSIVE STRENGTH

Unconfined Compressive Strength is the most widely referenced property of soil-cement and is usually measured according to ASTM D 1633. Strength is dependent on the degree of reaction of the soil-cement mixture and the rate of hardening. Strength is directly related to density and, therefore, it is affected by the degree of compaction and the compaction water content, which control compacted density.

Compressive strength serves as a criterion for determining minimum cement requirements for proportioning soil-cement. The ACI Committee 230 (1997) showed that, for a given soil, a linear relationship can be used to approximate the relationship between compressive strength and cement content, for cement contents up to 15% and a curing period of 28 days (Figure 3-1).

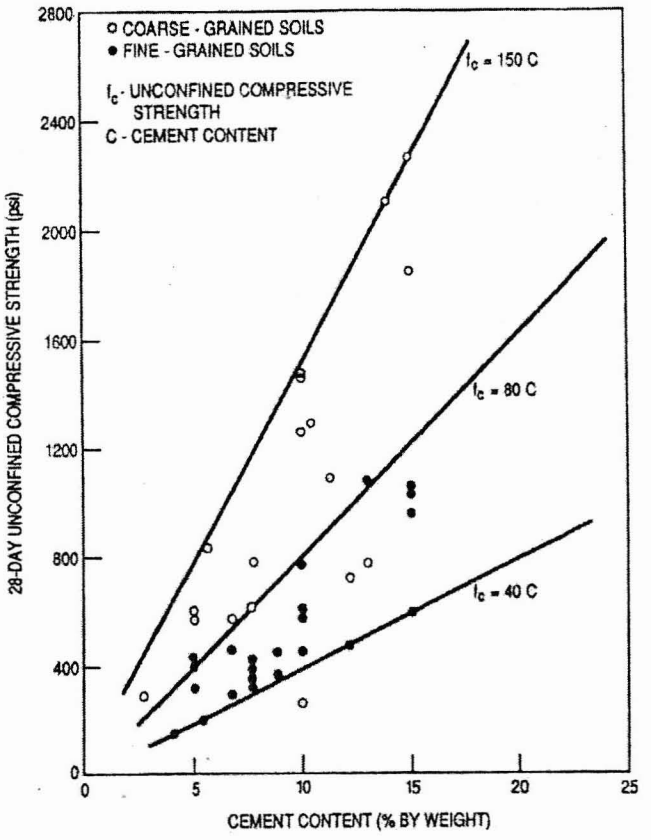


Figure 3-1
Relationship Between Cement Content and Unconfined Compressive Strength for Soil-Cement Mixtures (ACI Committee 230)

Curing time influences strength gain differently for soil cements produced with different types of soils. As shown in Figure 3-2, the rate of strength increase is greater for granular soil-cement than for fine-grained soil-cement, according to the Federal Highway Administration (1979).

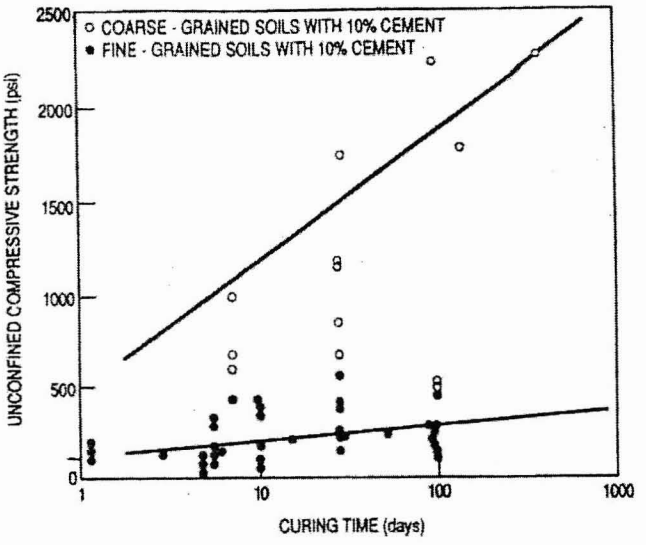


Figure 3-2
Effect of Curing Time on Unconfined Concrete Compressive Strength of Some Soil-Cement Mixtures (Federal Highway Administration 1979)

Compressive strength criteria of five agencies in the Southwest for soil-cement bank protection and grade control structures are given in Table 3-4.

TABLE 3-4
Minimum 7-day Compressive Strength Requirements for Soil-Cement Banks and Grade Control Structures[1]

Agency	Soil-Cement Banks	Grade Control Structures	Comments
Pima County, Tucson, AZ	750 psi	4-ft thick RCC cap over soil-cement	Grade control structures designed by USACE-LA
Maricopa County, Pheonix, AZ[2]	750 psi	1,000 psi + 2% [5]	Greater bed load conditions than other areas
AMAFCA Albuquerque, NM	750 psi + 2%[3]	1,000 psi + 2% [5]	Coarser grading for aggregates for grade control structures
Orange County, CA	700 psi + 2%	1,000 psi + 2% [5]	
USACE – LA[4]	1,000 psi	2,000 psi	Crushed aggregate to produce RCC

Notes:
1. Examples of grade control structures include channel bottoms and spillway crests.
2. Cement stabilized alluvium.
3. Minimum 7% by weight.
4. For use in Maricopa County, AZ.
5. Cement content required to produce specified strength, plus and additional 2 percent cement by dry weight.

For slope protection measures, the USBR requires a minimum compressive strength of 600 psi at 7 days and 875 psi at 28 days.

Of the compressive strength criteria listed above, the criteria judged to be most applicable to the White Tanks FRS No. 3 soil-cement structure is Maricopa County's minimum 7-day compressive strength requirement of 750 psi. However, the long-term compressive strength of the White Tanks FRS soil cement structure is considered to be a better indicator of performance under the design loading conditions (Probable Maximum Flood, or PMF), as the PMF statistically is a long-term event.

3.3 DURABILITY

Along with compressive strength tests, durability tests are conducted on test specimens of soil-cement mixtures to determine adequate cement content. The laboratory durability tests (ASTM D 599 and ASTM D 560) consist of subjecting the compacted specimens to 12 cycles of freezing and thawing (F/T) and/or 12 cycles of wetting and drying (W/D). The entire surface of the test specimen is brushed after each cycle to remove loose particles that have become dislodged during the previous cycle of the test. The minimum cement content is that which produces specimens that remain within specified limits of weight loss after the 12 F/T or W/D cycles, as summarized in Table 3-3.

TABLE 3-3
Summary of Durability Requirements for Wet-Dry Tests

Agency	Soil Type	Maximum Allowable Weight loss, percent
PCA	GW, GP, GM, GC, SW, SP, SM, SC	14[(1)]
	CL, CH, ML, MH,	10
	CL, CH, OH, MH	7
USBR	Silty Sands[(2)]	6
USACE	Granular, PI<10	11
	Granular, PI>10	8
	Silt	8
	Clay	6

Notes:
1. 10% is maximum for AASHTO A-2-6 and A-2-7 soils.
2. Developed specifically for soil-cement slope protection. In addition, the USBR requires a minimum compressive strength of 600 psi at 7 days and 875 psi at 28 days.

The final cement content should be the minimum cement content used in specimens that met or exceeded both the durability and compressive strength criteria. PCA compared results of more than 1,700 soil-cement samples tested for both strength and durability. Figure 3-3 illustrates the

general relationship between 7-day compressive strength and durability for soil-cement samples. It is apparent from these curves that a 7-day compressive strength of 800 psi would be adequate from the standpoint of durability for all soils, but this strength would be higher than needed for most soils and would result in a conservative and more costly design for many soils.

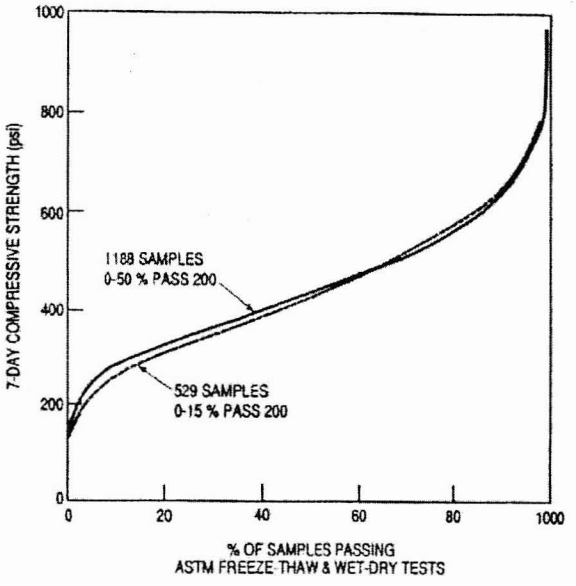


Figure 3-3
Relationship Between Compressive Strength and Durability of Soil-Cement Based on PCA Durability Criteria (PCA, 1992)

Although durability testing is normally conducted for water control structures, durability is considered to be of lesser importance than compressive strength for the White Tanks FRS soil cement structure. The soil cement structure will be blanketed with a thick layer of common fill on both sides, and will not be subjected to repeated cycles of freeze/thaw and wetting/drying, as is the case with water control structures with permanent pools, located in harsh climates. The laboratory tests used to measure durability – freeze/thaw and wet/dry tests – were therefore judged to not be representative of the climatic exposure that the FRS soil-cement core will experience, and consequently were not performed as part of the mix design testing program.

Generally, once a cement content has been established based on the strength and durability tests, an additional 2% of cement is generally specified for construction of water control projects. This additional cement is intended to account for 1) the more severe effects of water exposure in these structures, as compared to in road base applications, according to PCA, and 2) field variations in the soil and the mixing process, according to the USBR.

3.4 SHRINKAGE CRACKING

Cement treated soils undergo shrinkage during drying. The shrinkage and subsequent cracking depend on cement content, soil type, water content, degree of compaction, and curing conditions. Soil-cements made from different soil types produce different crack patterns. Soil-cement made from clay develops higher total shrinkage, but crack widths are smaller and individual cracks more closely spaced (e.g. hairline cracks, spaced 2 to 10 ft apart). Soil-cement made with granular soil produces less total shrinkage, but larger cracks spaced at greater intervals (usually 10 to 20 ft or more apart). Methods suggested for reducing or minimizing shrinkage cracks include keeping the soil-cement surface moist beyond the normal curing periods and placing the soil-cement at slightly below optimum moisture content.

Laboratory tests were conducted by Nussbaum and Colley (1971) to obtain design factors for the application of soil-cement in earth dams as slope protection, impermeable barriers, and erosion-resistant surfaces in areas of rapid flow. The results showed that shrinkage cracks in the upstream soil-cement facings do not increase seepage through the dam by appreciable quantities when compared to a condition without cracks.

Some shrinkage cracking is expected to occur in the White Tanks FRS No. 3 soil cement structure, as the soil cement mix will have a considerable fines content and will be exposed to the hot, dry climatic conditions of the Phoenix area. However, even if the wetted front penetrates the soil cement core during an extreme flood, seepage through the core would not increase by appreciable quantities, as indicated above.

3.5 EROSION RESISTANCE

Because soil-cement contains very little, if any, coarse aggregate, its erosion resistance is invariably controlled by the compressive strength produced by the cement paste. It has been shown in both the laboratory and the field that properly designed soil-cement can withstand the flow of clean water up to a velocity of 20 ft/sec with little erosion damage.

For higher flow velocities or abrasive erosion conditions, the compressive strength needs to be increased or roller compacted concrete (RCC), with coarse aggregate, should be used. Means for increasing the strength of soil-cement exposed to more severe erosion conditions include modification to the mixture proportions, increased degree of compaction on exposed soil-cement surfaces, and extending the curing period. Methods for increasing compressive strength of the soil-cement by mixture proportion adjustments include increasing the cement content, changing to a coarser, more well-graded aggregate, or adding coarse aggregate to a finer sand or silty sand.

In the White Tanks FRS No. 3 application, the compressive strength of the soil cement section will govern erosion resistance. With an adequate compressive strength, the soil cement structure will be able to withstand the erosive forces caused by water flow along a potential transverse crack through the soil cement section.

3.6 PERMEABILITY

Permeability of most soils is reduced by the addition of cement. Table 3-4 summarizes the results from laboratory permeability tests conducted on a variety of soil types according to PCA (1986). Based on published data, the hydraulic conductivity of soil-cement material can range from about $1x10^{-5}$ to $1x10^{-8}$ cm/sec, depending on the fines content of soil in the mix, cement content of the mix, delay time between lift compaction, and whether flow is normal or parallel to the lifts. Permeabilities of cement-treated soils are provided on Figure 1 and Table 1 in Appendix A for soil cements produced from a wide range of soil types, according to PCA data (PCA, 1969).

A hydraulic conductivity value of $1x10^{-7}$ cm/sec was selected for use in seepage modeling for the White Tanks FRS No. 3, which is representative of a mix with AASHTO A-4 type soil, an 8 percent cement content, and assumes flow parallel to the lifts. Blended on-site soil, which was used in the soil-cement mix, compares most closely with AASHTO A-4 soil.

TABLE 3-4
Permeability of Cement-Treated Soils (PCA, 1986)

ASTM soil classification	Dry density lb/ft^3	Moisture content, percent	Cement content percent by weight	*K*, coefficient of permeability ft per yr, 10^{-6} cm/sec	Gradation analysis, percent passing						
					#4 (4.75 mm)	#10 (2.0 mm)	#40 (425 μm)	#200 (75 μm)	.005 mm	.0005 mm	Cement required by weight
Standard Ottawa sand	108.2 112.8 117.6	10.8 9.4 9.7	0 5.3 10.5	48,800 6900 76	(100 percent passing #20 (850 μm): 0 percent passing #30 (600 μm)						-
Graded Ottawa sand	103.2 104.7 107.4	13.7 13.6 12.3	0 5.4 10.5	16,300 470 21	100	100	28	2	-	-	-
Fine sand (SP)	101.0 100.9 103.6 105.3	12.2 13.2 12.3 12.0	0 3.2 6.5 9.5	750 560 190 21	100	100	91	7	1	-	11.5
Silty sand (SM)	100.8 99.9 104.0	14.9 14.7 15.1	0 3.2 6.4	5000 1400 60	100	100	96	13	12	2	8.0
Fine sand (SP)	100.1 105.8 109.3	16.0 14.8 13.5	0 6 12.2	360 20 1	99	--	96	6	6	1	-
Fine sand (SP)	101.0 106.7 108.2 108.8	13.8 13.3 13.4 13.4	0 3.1 6.3 9.6	140 33 0.3 0.02	100	100	94	2	-	-	11.0
Fine sand (SP)	112.5 115.8	11.0 10.4	0 5.5	36 5	-	97	-	-	11	4	-
Fine sand (SP)	111.7 115.2	12.0 11.7	0 5.5	23 8	100	99	-	-	9	3	-
Silty sand (SM)	121.9 125.5	9.6 8.0	0 8.6	16 0.1	98	94	66	20	18	5	-
Silty sand (SM)	117.9 123.0	10.8 8.1	0 8.9	10 2	99	97	69	16	12	4	-
Silty sand (SM)	112.5 115.0	11.5 12.3	0 5.5	5 3	-	98	-	-	12	5	-
Silty sand (SM)	118.7 119.2	11.0 10.5	1 9.1	5 0.1	100	99	88	36	25	7	-
Silty sand (SM)	125.0	- 10.1	0 3.3 7.3	16 0.4 0.07	100	75	41	13	12	5	5.0

4.0 DESIGN MIX TESTING PROGRAM FOR WHITE TANKS FRS NO. 3

A mix design testing program was performed to evaluate the performance of soil-cement mixes prepared with on-site near-surface soils and a range of cement contents. Nine trial mixes were prepared using soil from the three potential borrow areas mentioned previously, and using three cement contents (3, 6, and 9 percent). Standard Proctor tests, grain size analyses, and Atterburg limit tests were performed on composite soil samples from the three borrow areas. Standard Proctor tests were also performed on each of the 9 soil-cement trial mixes. Test cylinders were subjected to unconfined compressive tests after 3, 7, 14, 28, and approximately 90 days of curing. A more detailed description of the mix testing program is provided in URS' 2004 Geotechnical Report.

4.1.1 Mix Design Test Results

Mix design test results are summarized below and are presented in detail in URS' 2004 Geotechnical Report. Of the three potential borrow sources, composite soil from the embankment borrow source (EBS) produced mixes that had the highest compressive strengths. The EBS composite sample also had the lowest fines content (40 percent). Composite samples from Borrow Areas A and B had fines contents of 49 and 63 percent, respectively. Composite samples from all three borrow sources produced mixes that achieved Maricopa County's 7-day compressive strength criteria of 750 psi. However, the cement content required to meet this criteria differed, depending on the composite soil borrow source: 5 percent cement content for the embankment borrow source, 6 percent for Borrow Area B, and 7.5 percent for Borrow Area A. A minimum cement content of 7.5 percent would therefore provide maximum flexibility during construction, so that soil from any of the three potential borrow sources could be used and still meet the 750 psi criteria. However, to account for field variations in the soil and mixing process, the minimum cement content should be increased to 9 percent.

Compressive strength showed substantial increases at test time intervals of 14, 28 and approximately 90 days. Ninety-day compressive strengths for 9-percent cement mixes ranged from 1360 psi to 1610 psi (approximately double the 7-day strengths). Although the average on-site soil fines content is in the 45 to 50 percent range, and exceeds the industry-standard fines-content range of 4 to 38 percent and Maricopa County's criteria for 0 to 8 percent fines, use of on-site soils and a 9-percent cement content is judged to be acceptable, based on achievement of compressive strength criteria. Additionally, an average PI of 6.3, obtained by averaging PI's of 26 shallow soil samples (0 to 10 feet bgs), meets Maricopa County's maximum PI criteria of 25.

Athough no significant mixing problems occurred in the controlled laboratory conditions, a greater mixing effort may be required during field mixing due to the high fines content and variability of the on-site soils. Clay ball formation during field mixing is possible, and may require greater mixing energy to disperse the clay balls. However, the possible formation of clay balls in the field should not have a significant impact on workability and performance, based on the results of the mix design testing program.

5.0 CONCLUSION

This memorandum documents the results of a preliminary assessment of soil cement for use White Tanks FRS No. 3, and summarizes the results of the mix design testing program conducted using on-site soils and thee cement contents. Based on the preliminary assessment and mix design test results, it appears that near-surface soils from any of the potential borrow sources at the site would be suitable for use as aggregate in the soil cement embankment proposed for the project.

6.0 REFERENCES

1. ACI Committee 230 (1997) "State-of-the-Art Report on Soil-cement" *ACI 230.1R-90.*

2. Beier, H., List, F. and Lorenz, W. (1979) "Subsequent Sealing in the Impervious Core of the Sylvenstein Dam" *Treizième Congrès des Grands Barrages*, New Delhi.

3. Federal Highway Administration (1979) "Soil Stabilization in Pavement Structures: A User's Manual, V.2" *Report No. FHWA-IP-80-2*. Washington D.C., October.

4. Hansen, K. D. and Lynch, J. B. (1995) "Controlling Floods in the Desert with Soil-Cement" *Second CANMET/ACI International Symposium on Advances in Concrete Technology.* Las Vegas, NV, June 11-14.

5. Holtz, W. G. and Hansen, K. D. (1976) "The Use of Compacted Soil-Cement in Water Control Structures" *Commission Internationale Des Grands Barrages*, Mexico

6. ICOLD Bulletin 54 (1986) "Soil-Cement for Embankment Dams". Report prepared by Kenneth D. Hansen on behalf of USCOLD for the Committee on Materials for Embankment Dams.

7. List, F. and Strobl, Th. (1991) "Changing of Tightness in the Grout Curtain and Core of the Sylvenstein Dam by Ageing" *Dix-septième Congrès des Grands Barrages*, Vienna.

8. Nussbaum, P. J. and Colley, B. E. (1971) "Dam Construction and Facing with Soil-Cement" *Portland Cement Association (RD 010.01W).*

9. Pima County Department of Transportation (1997) "Bridge Scour and Stream Instability Countermeasures" *Design Guideline 2: HEC 23*. July.

10. Portland Cement Association (PCA). (1964) "Soil-Cement Core Walls for Earth Dams" Staff Paper, June.

11. PCA (1976) "Soil-Cement for Water Control: Laboratory Tests" (IS166.02W).

12. PCA (1986) "Soil-Cement for Facing Slopes and Lining Channels, Reservoirs, and Lagoons" *Information Sheet No. IS126W*, Skokie.

13. PCA (1992) "Soil-Cement Laboratory Handbook" *Engineering Bulletin No. EB052.07S.*

14. PCA (2002) "Erosion and Abrasion Resistance of Soil-Cement and Roller-Compacted Concrete" *Research & Development Bulletin RD126*. By K.D. Hansen, Schnabel Engineering Associates.

15. PCA (2003) "Properties and uses of Cement – Modified Soil" *Soil-Cement Information*.

16. Soil Conservation Service (1984) "Soil Mechanics Note No. 8 – Soil Mechanics Testing Standards" U.S. Department of Agriculture. October.

17. URS (2004) "White Tanks FRS No. 3 Dam Rehabilitation Geotechnical Data Report.

18. U.S. Army Corps of Engineers (USACE) (1998) "Innovative Methods for Levee Rehabilitation" *Technical Report REMR-GT-26*. By Edward B. Perry. September.

19. USACE (2000) "Design and Construction of Levees" *Engineering Manual EM 1110-2-1913*. April 30.

20. U.S. Bureau of Reclamation (1974) "Earth Manual" *A Water Resources Technical Publication*. U.S. Department of the Interior. Second Edition.

Appendix A

Soil-Cement Core Walls For Earth Dams, (PCA 1964)

INTRODUCTION

The use of soil-cement core walls is suggested by the expense and difficulty involved in obtaining impervious cores from natural materials in many areas, coupled with the recent successful development of soil-cement slope protection for earth dams. Where only relatively pervious materials exist at the site, the use of a soil-cement core is strongly indicated. A wide range of soils can be used to make virtually impermeable soil-cement, as illustrated in Fig. 1 and Table 1. This demonstrates the feasibility of soil-cement core walls and makes their use primarily a question of economics.

PLANNING

In the planning stage of the project, the following considerations are of importance:

1. The use of a soil-cement core wall will usually allow construction of the dam at the location most desirable from the functional standpoint. This will minimize the cost of other facilities.

2. The permeability and structural properties of any particular soil-cement mixture can be accurately determined. Design procedures can therefore be more refined, as compared to the larger safety factors required for un-stabilized cores.

DESIGN

In the design of a soil-cement core wall, it is necessary to utilize proper procedures to ensure the structural and hydraulic integrity of the entire facility, as is the case with any core material. The size, location, and other details of the soil-cement core wall will depend on individual project conditions. As a general guide to the designer, the following recommendations are offered (see Fig. 2):

1. The soil-cement should have a permeability ("k" value) of less than 1 ft. per year. The cement content required to obtain this degree of impermeability for any given soil should be determined by a reliable testing laboratory. The standard wet-dry, freeze-thaw, and compressive strength tests should also be made in order to verify the absence of any substance in the soil or water which would inhibit hardening of the soil-cement.

2. A key or cutoff trench of soil-cement should be provided to increase the seepage path and bond the core to the foundation. The depth of the cutoff trench should be determined in accordance with a competent investigation of the foundation conditions.

3. The minimum width of the soil-cement core wall at any elevation should be about one-fourth to one-tenth the height of the dam above that elevation. The exact dimension selected should be determined by allowable seepage conditions through the dam, foundation conditions, size of the dam, desirable safety factors and practical construction considerations.

4. The soil-cement should be central-plant mixed in order to obtain maximum homogeneity of the product. See "Suggested Specifications: Soil-Cement Slope Protection For Earth Dams" (Portland Cement Association) for applicable provisions.

5. The soil-cement should be placed in layers of not more than 6 in. compacted thickness.

6. Succeeding layers should be placed as quickly as is practicable on completed layers. Each completed layer surface should be kept clean and moist until covered with the next layer.

Soil-cement is an extremely versatile and economical material with properties similar to concrete. Soil-cement gains steadily in strength while in service, typically doubling its 28-day strength in a few years. It can be used with confidence in many new applications with proper consideration of its engineering properties. The use of soil-cement for the core of an earth dam will give the engineer additional freedom in site selection and more accurate design factors, thus leading to improved performance and reduced costs.

Portland Cement Association, Water Resources Bureau, June 1964

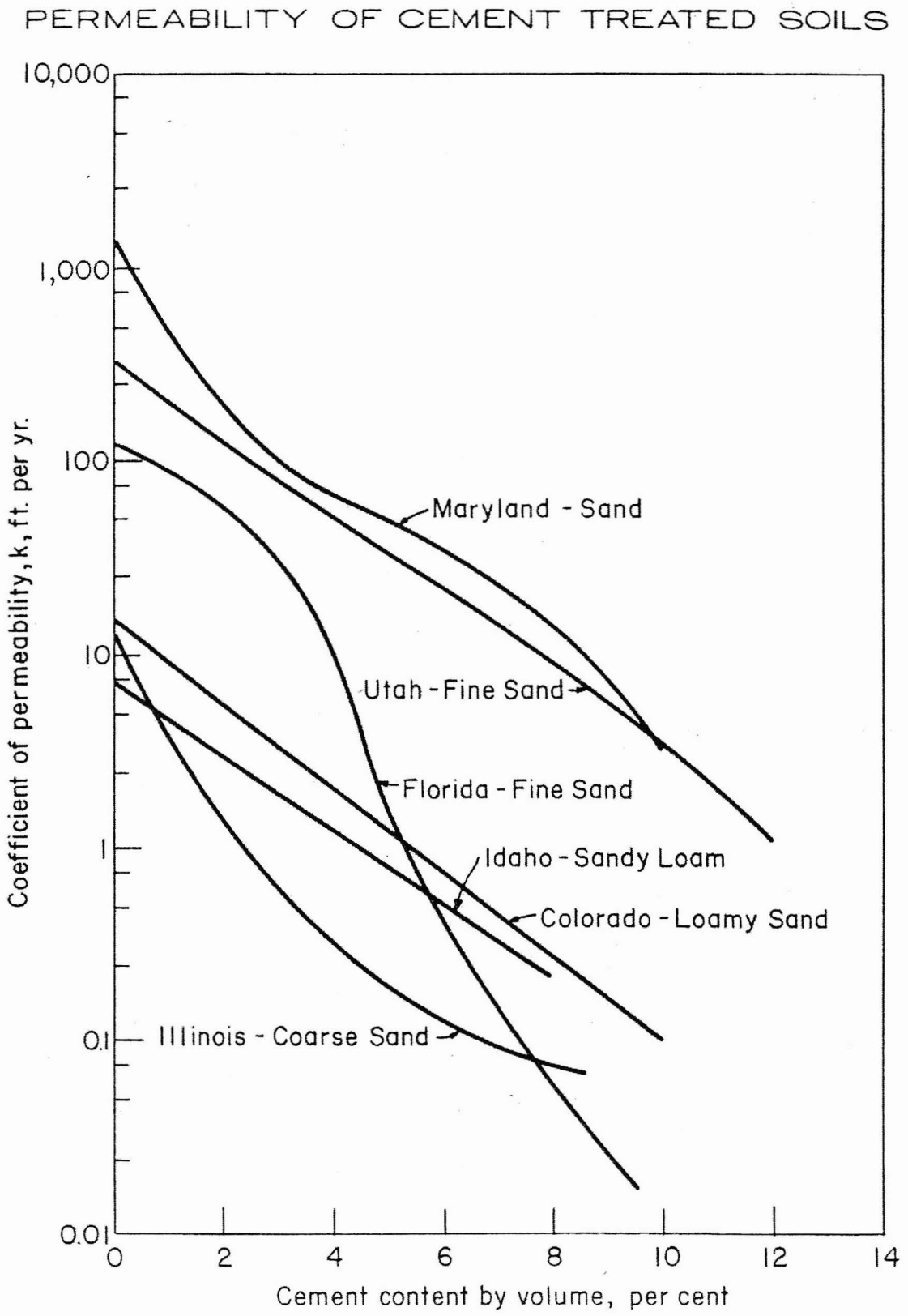

PERMEABILITY OF CEMENT TREATED SOILS
10,000
1,000
100
10
1
0.1
0.01
Coefficient of permeability, k, ft. per yr.
Maryland - Sand
Utah - Fine Sand
Florida - Fine Sand
Idaho - Sandy Loam
Colorado - Loamy Sand
Illinois - Coarse Sand
0
2
4
6
8
10
12
14
Cement content by volume, per cent

FIG. 1

Table I—PERMEABILITY OF CEMENT-TREATED SOILS

Curve No.	Soil No. or Sample Identification	Dry Density P. C. F.	Moisture Content %	Cement Content % by Vol.	Type of Soil-Cement	K, Coefficient of Permeability, Ft. Per Year	U. S. D. A. Texture	Gradation Analysis % Passing 3/4	4	10	40	200	.05	.005	AASHO Soil CLASS (1)	Cement Req't. by Vol. (2)
1	P. C. A. Soil No. 6863-2 Maryland	104.9	10.3	0	Compacted	1,640	Sand	100	100	100	77	4	--	--	A-3(0)	8.5
		106.6	10.8	3.3	Compacted	90.3										
		112.4	10.3	6.8	Compacted	25.6										
		114.4	10.3	10	Compacted	3.6										
2	SP Sand, 11 H-X65 Utah	100.1	16.0	0	Compacted	356	Fine Sand	100	99	99	96	6	6	1	A-3(0)	--
		105.8	14.8	6	Compacted	19.8										
		109.3	13.5	12	Compacted	1.1										
3	P. C. A. Soil No. 7019 Florida	101.0	13.8	0	Compacted	144	Fine Sand	100	100	100	94	2	--	--	A-3(0)	11.0
		106.7	13.3	3.1	Compacted	33										
		108.2	13.4	6.5	Compacted	0.3										
		108.8	13.4	9.5	Compacted	0.02										
4	13N-421 (SP Med) Fine Sand, Colo.	121.9	9.6	0	Compacted	16	Loamy Sand	99	98	94	66	20	18	5	A-2-4(0)	--
		125.5	8.0	10	Compacted	0.1										
5	SF Silty Soil 11 H-27, Idaho	-	-	0	Plastic	7.4	Sandy Loam	100	100	99	86	34	31	11	A-2-4(0)	--
		105.2	20.0	8	Plastic	0.2										
6	P. C. A. Soil S-1 Illinois	-	-	0	Compacted	15.8	Coarse Sand	100	100	75	41	13	12	5	A-1-b(0)	6.0
		125.0	10.1	3.8	Compacted	0.39										
				8.7	Compacted	0.07										

(1) All soils non-plastic.
(2) Cement requirement based on ASTM Standard Freeze-Thaw and Wet-Dry Tests for Soil Cement Mixtures.

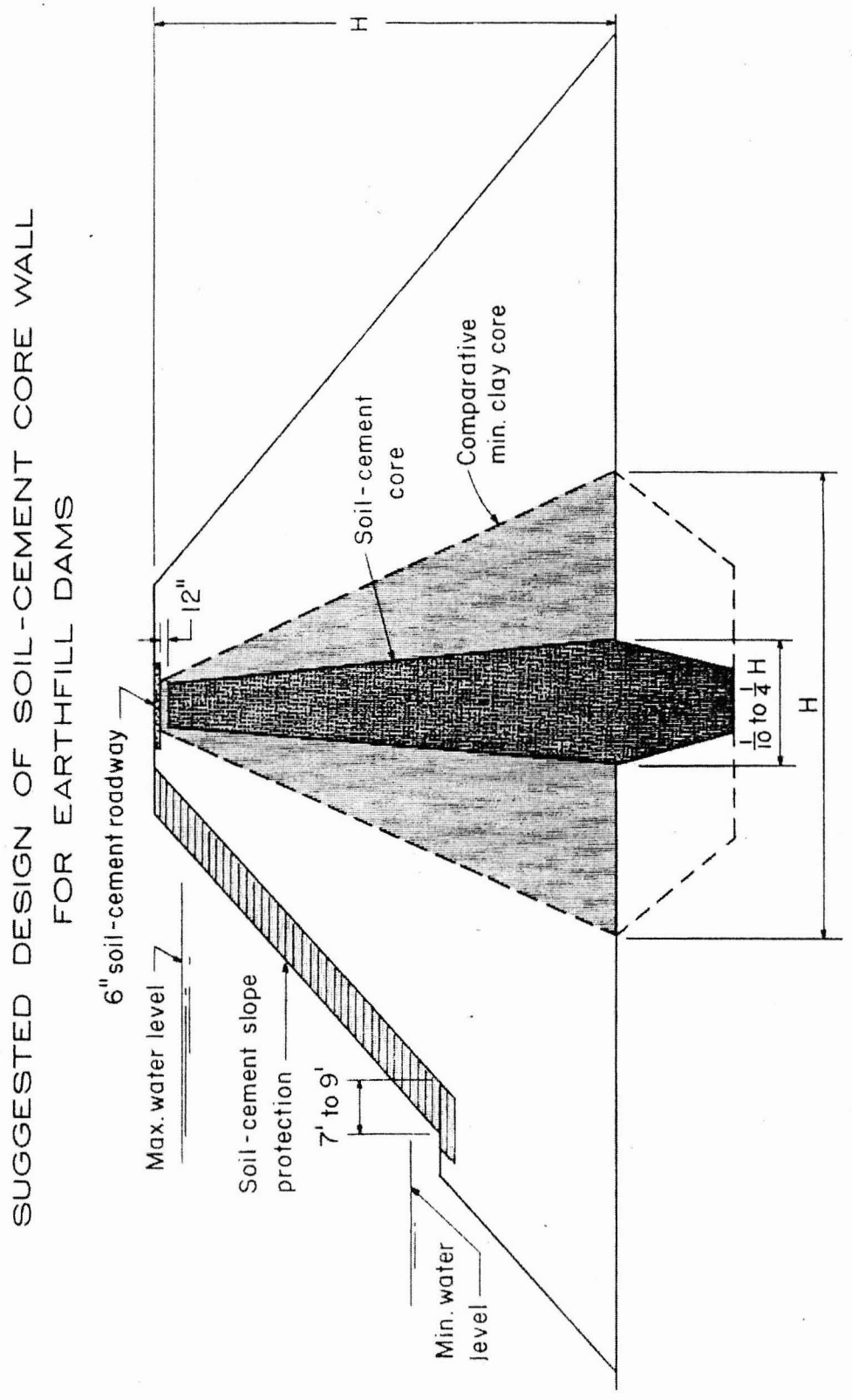
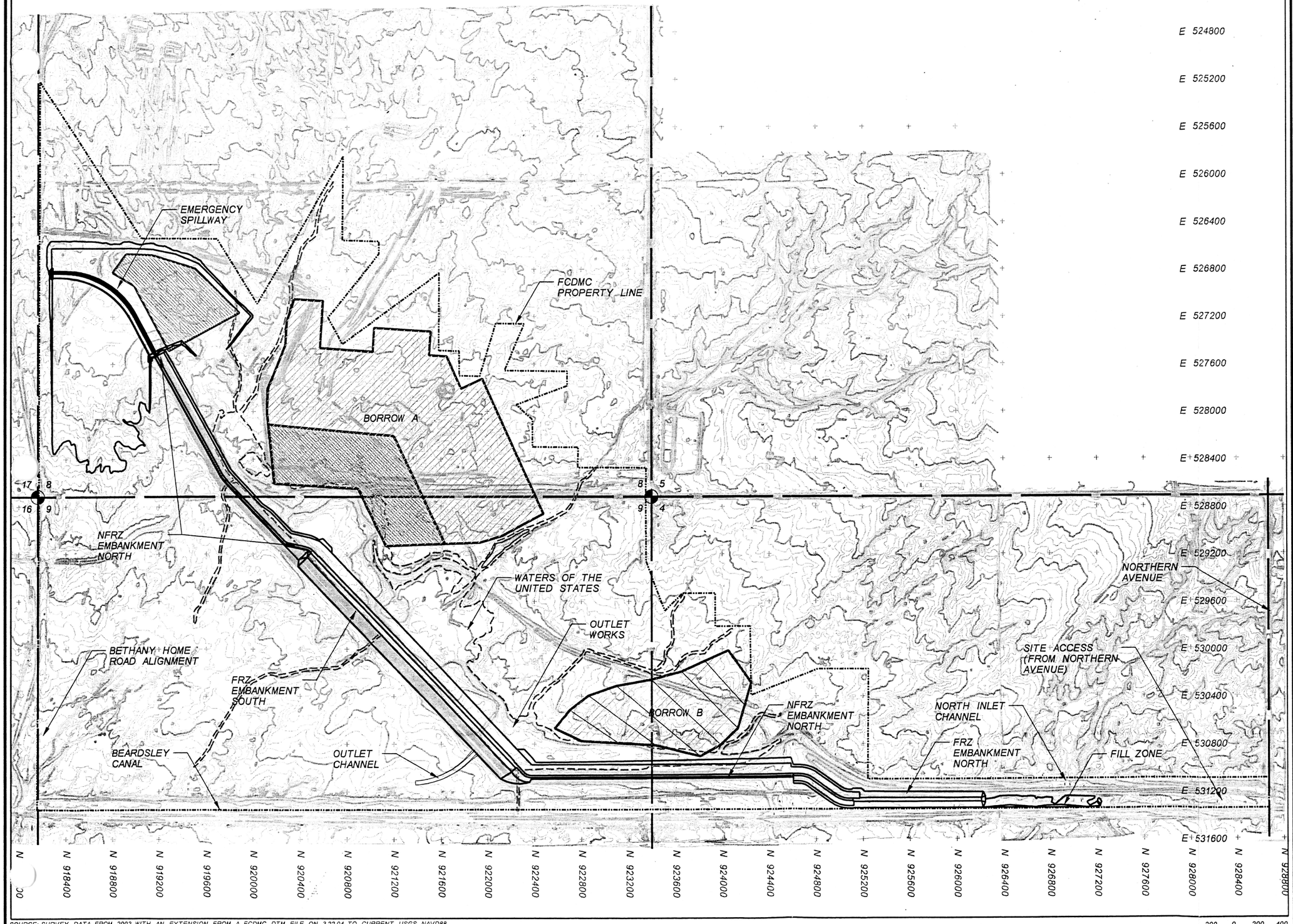

SUGGESTED DESIGN OF SOIL-CEMENT CORE WALL
FOR EARTHFILL DAMS
H
12"
Soil-cement core
Comparative min. clay core
6" soil-cement roadway
Max. water level
Soil-cement slope protection
7' to 9'
Min. water level
1/10 to 1/4 H
H

FIG. 2

APPENDIX K

PHASE 2 DESIGN CONCEPTS



SOURCE: SURVEY DATA FROM 2003 WITH AN EXTENSION FROM A FCDMC DTM FILE ON 3.22.04 TO CURRENT USGS NAVD88

P:\FCDMC\23443698 White Tanks\CADD\P1\Appendix\WT3,K1-P1-REVD.dgn

XREFS: FCDMC_TOPO.DGN, NEW_CREST_ALIGNMENT.DGN, 52604_TOPO.DGN, BORROW_SOURCE.DGN, WHITETANKS3_WOFUS.DGN, ESPILLWAY.DGN, WT3_CHANNEL.DGN, PL-FCD.DGN

200 0 200 400
Scale in Feet

ONE FOOT CONTOURS

TWO WORKING DAYS BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE

ADWR APPROVAL

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO 3
REMEDIATION DESIGN - PHASE 2

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	TER	3-05
DRAWN	MSJ	3-05
CHECKED	CDW	3-05

URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO. K1

GENERAL SITE PLAN

SHEET OF

FCDMC PROPERTY LINE

RIPRAP PLACED ONE FOOT ABOVE MAXIMUM WATER LEVEL AND THREE FEET BELOW EXISTING GRADE

RIPRAP PLACED ONE FOOT ABOVE MAXIMUM WATER LEVEL AND THREE FEET BELOW CHANNEL BOTTOM

EMERGENCY SPILLWAY

C / L4

B / L4

A / L3

R = 700' O.C

DOWNSTREAM SPILLWAY CHANNEL

0.5% SLOPE

A / L4

E / L5

BETHANY HOME ROAD DIKE

D / L5

100'

15'

SOURCE: SURVEY DATA FROM 2003 WITH AN EXTENSION FROM A FCDMC DTM FILE ON 3.22.04 TO CURRENT USGS NAVD88

p:\fcdmc\23443698 white tanks\cadd\p1\appendix\wt3_k2-p1-revd.dgn

XREFS: 52604_TOPO.DGN, PL-FCD.DGN

50 0 50 100
Scale in Feet

ONE FOOT CONTOURS

N

TWO WORKING DAYS BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE

ADWR APPROVAL

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO. 3 REMEDIATION DESIGN - PHASE 2

PRELIMINARY NOT FOR CONSTRUCTION

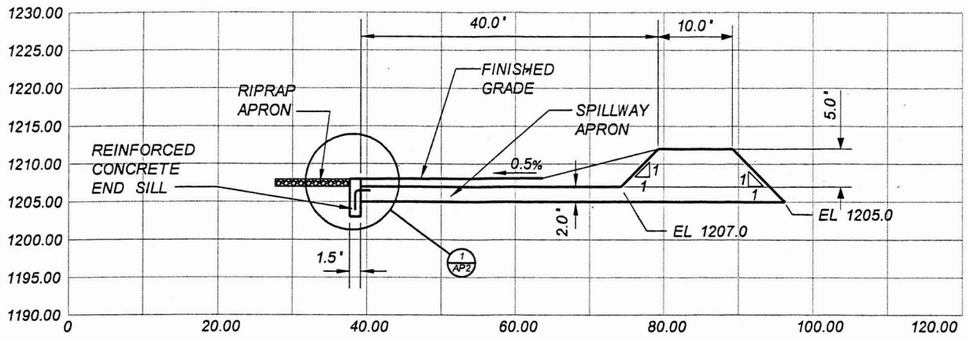
	BY	DATE
DESIGNED	TER	3-05
DRAWN	MSJ	3-05
CHECKED	CDW	3-05

URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO. K2

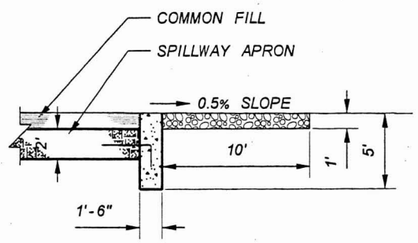
EMERGENCY SPILLWAY PLAN

SHEET OF



ELEVATION
EMERGENCY SPILLWAY
A
L2

5 0 5 10
Scale in Feet



SECTION/DETAIL
REINFORCED CONCRETE CUTOFF WALL ALTERNATIVE
1
L2

2.5 0 2.5 5
Scale in Feet

TWO WORKING DAYS BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE

ADWR APPROVAL

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO. 3
REMEDIATION DESIGN - PHASE 2

	BY	DATE
DESIGNED	TER	3-05
DRAWN	MSJ	3-05
CHECKED	CDW	3-05

PRELIMINARY NOT FOR CONSTRUCTION

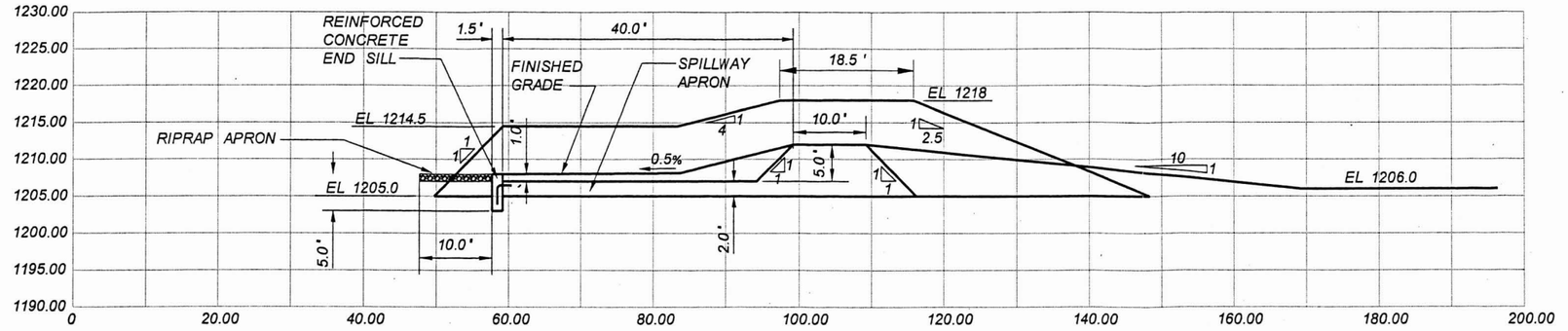
URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO. K3

EMERGENCY SPILLWAY SECTIONS AND DETAILS

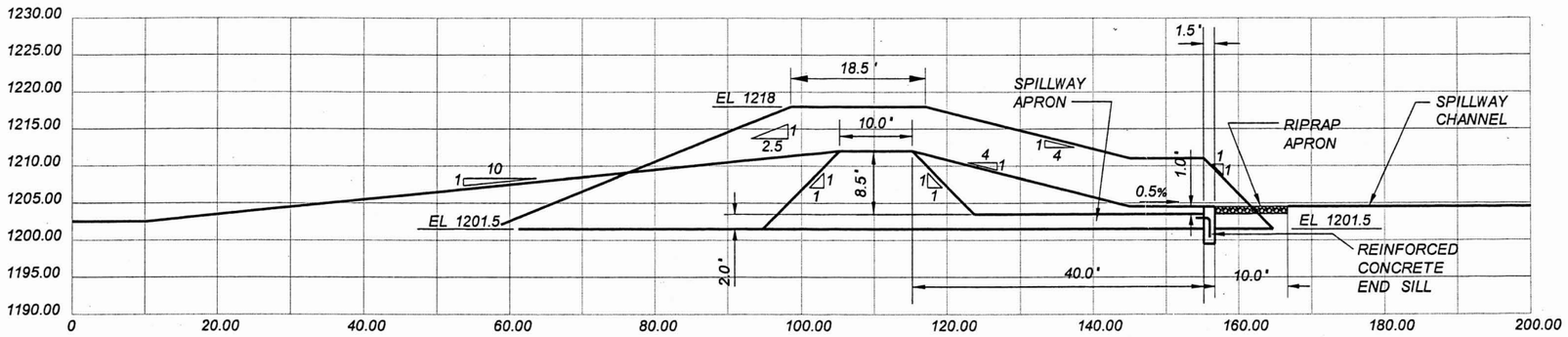
SHEET OF

p:\fcdmc\23443698 white tanks\cadd\p1\appendix\wt3_k3-p1-revc.dgn
XREFS: XSEC-7.DGN, XSEC-14.DGN, PL-FCD.DGN



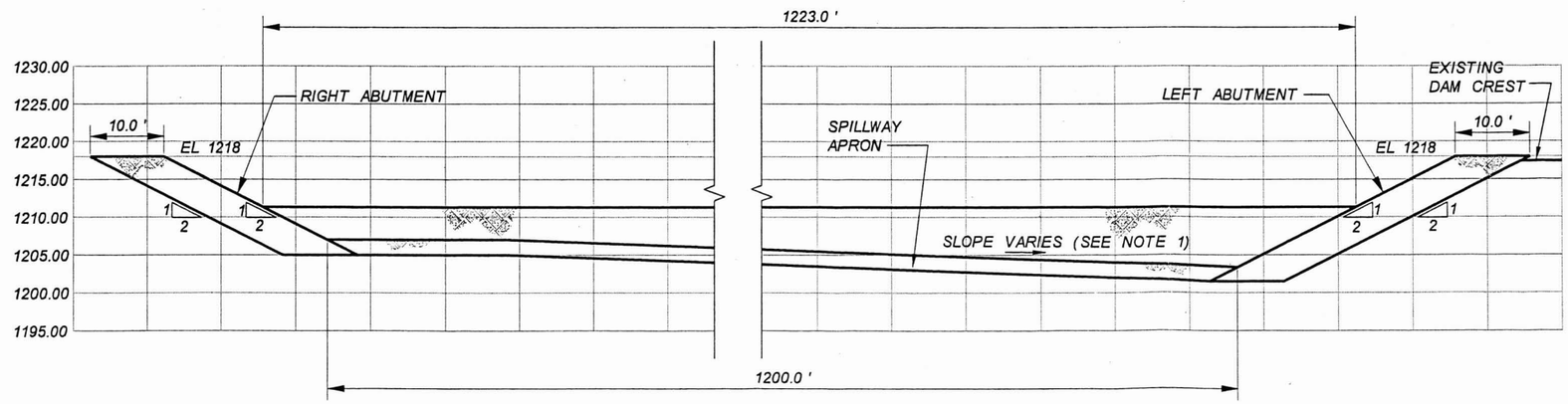
ELEVATION A
EMERGENCY SPILLWAY
RIGHT ABUTMENT

5 0 5 10
Scale in Feet



ELEVATION B
EMERGENCY SPILLWAY
LEFT ABUTMENT

5 0 5 10
Scale in Feet



ELEVATION C
EMERGENCY SPILLWAY
ABUTMENT TO ABUTMENT

5 0 5 10
Scale in Feet

TWO WORKING DAYS BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE

ADWR APPROVAL

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO. 3
REMEDIATION DESIGN - PHASE 2

PRELIMINARY NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	TER	3-05
DRAWN	MSJ	3-05
CHECKED	CDW	3-05

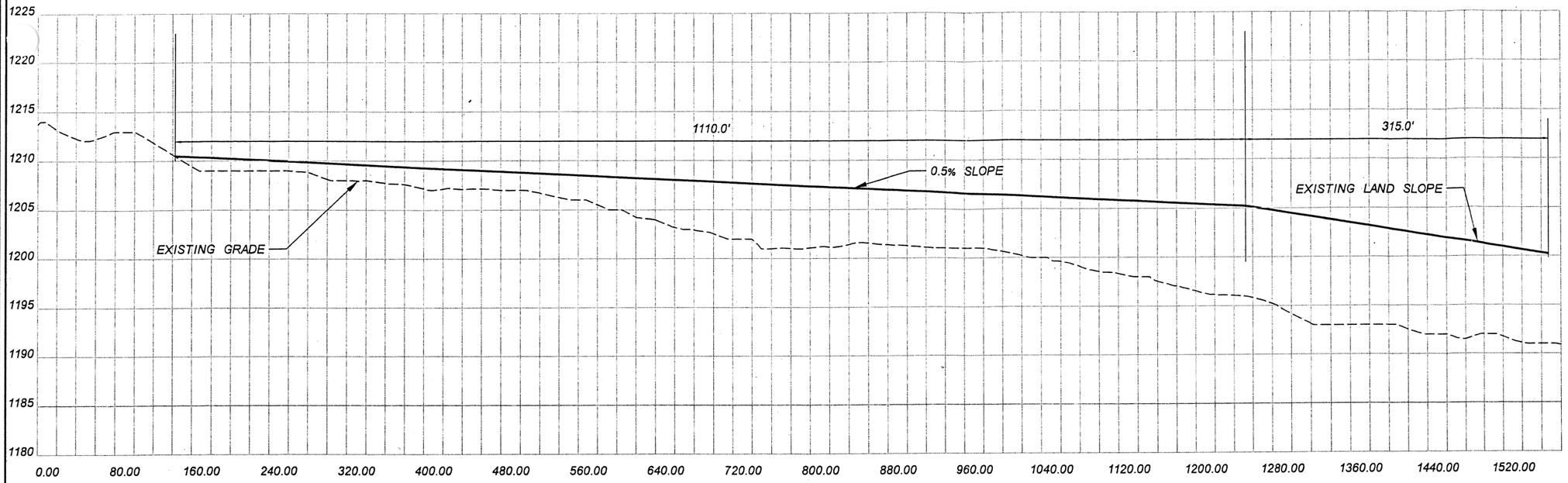
URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO. K4

EMERGENCY SPILLWAY SECTIONS AND DETAILS

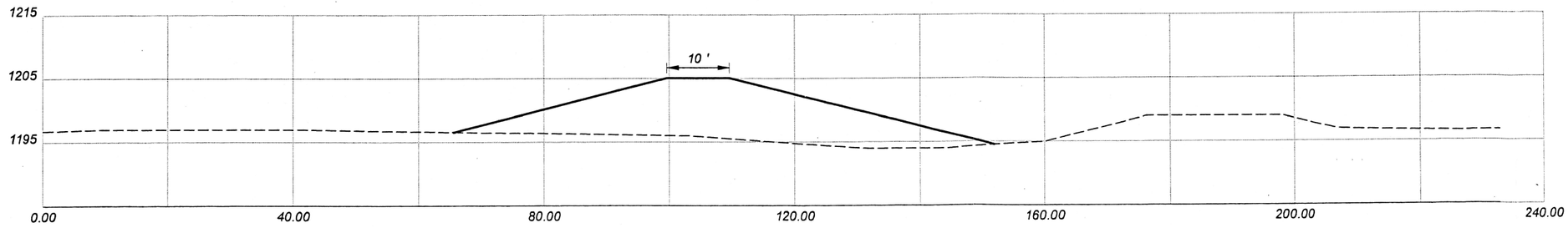
SHEET OF

p:\fcdmc\23443698 white tanks\cadd\p1\appendix\wt3_k4-p1-revc.dgn
XREFS: XSEC-14.DGN, PL-FCD.DGN



PROFILE
BETHANY HOME ROAD DIKE
D
L2

30 0 30 60
Scale in Feet



SECTION
BETHANY HOME ROAD DIKE
E
L2

5 0 5 10
Scale in Feet

p:\fcdmc\23443698 white tanks\cadd\p1\appendix\wt3_k5-p1-revb.dgn

TWO WORKING DAYS
BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE

ADWR
APPROVAL

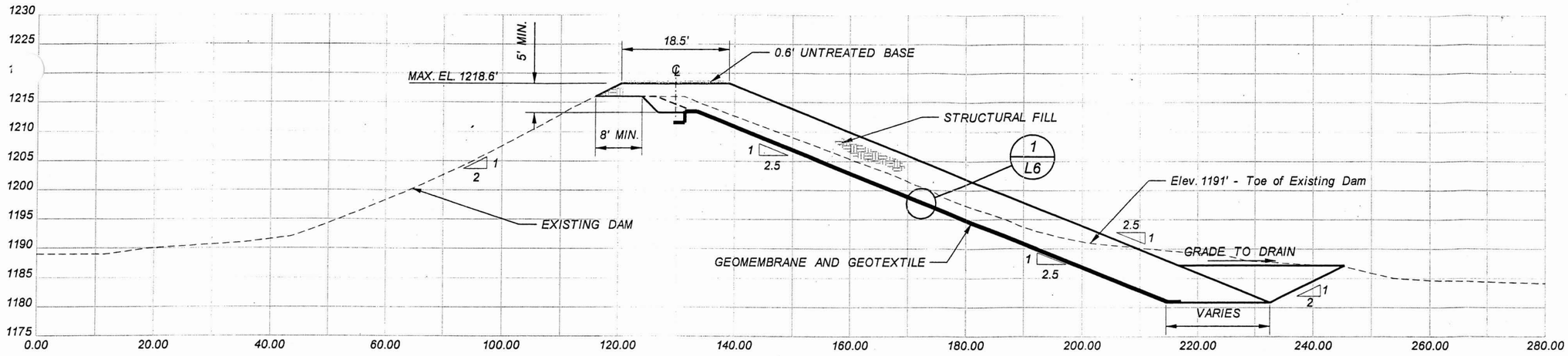
FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO. 3
REMEDIATION DESIGN - PHASE 2

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	TER	3-05
	DRAWN	MSJ	3-05
	CHECKED	CDW	3-05

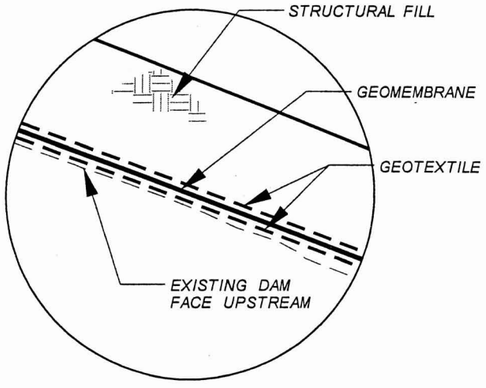
URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO.		SHEET OF
K5	BETHANY HOME ROAD DIKE PROFILE AND SECTION	



SECTION A
NORTH NON-FISSURE RISK ZONE EMBANKMENT

5 0 5 10
Scale in Feet



DETAIL 1/L6
GEOMEMBRANE AND GEOTEXTILE
NOT TO SCALE

TWO WORKING DAYS BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE

ADWR APPROVAL

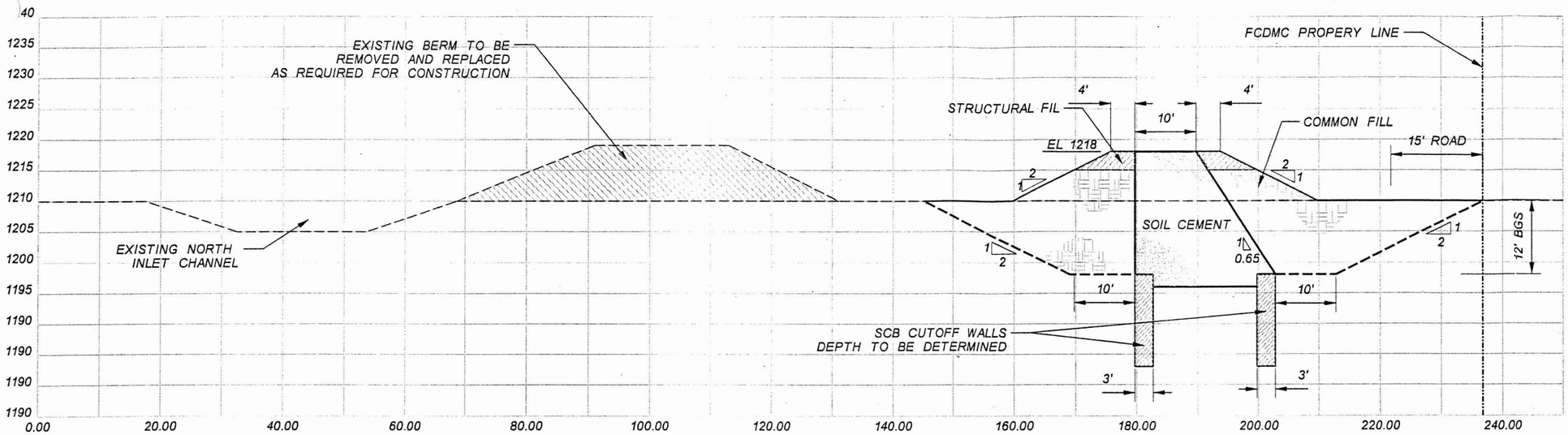
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO. 3
REMEDIATION DESIGN - PHASE 2

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	TER	3-05
	DRAWN	MSJ	3-05
	CHECKED	CDW	3-05

URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO.		SHEET OF
K6	NORTH NFRZ EMBANKMENT SECTIONS AND DETAILS	



SECTION A
NORTH FISSURE RISK ZONE
EMBANKMENT EXTENSION
STA. 0+00

5 0 5 10
Scale in Feet

TWO WORKING DAYS BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE

ADWR APPROVAL

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

WHITE TANKS FRS NO 3
PCN 470.04.30
FCD CONTRACT NO. 2003CO55

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION	DESIGNED	TER	3-05
	DRAWN	MSJ	3-05
	CHECKED	CDW	3-05

URS
7720 NORTH 16TH STREET
SUITE 100
PHOENIX, AZ 85020

DRAWING NO. K7

NORTH FISSURE RISK ZONE EMBANKMENT SECTIONS

SHEET OF

J:\fcdmc\23443698 white tanks\cadd\p1\appendix\wt3_k7-p2-revb.dgn
(REFS: PL-FCD.DGN, XSEC-5.DGN

APPENDIX L

RESPONSES TO ADWR AND NRCS COMMENTS ON 90 PERCENT DESIGN SUBMITTAL

APPENDIX L

INDEX OF RESPONSES TO ADWR AND NRCS COMMENTS ON THE 90 PERCENT DESIGN SUBMITTAL

(WHITE TANK FLOOD RETARDING STRUCTURE NO. 3 REMEDIATION DESIGN STUDY)

Index Number	Title
L-1	Response to ADWR Hydrology and Hydraulics Comments
L-2	Response to NRCS Hydrology and Hydraulics Comments
L-3	Response to NRCS Design Comments (Phoenix)
L-4	Response to NRCS Design Comments (Albuquerque, New Mexico)
L-5	Response to NRCS Design Comments (Fort Worth, Texas)

Technical Memorandum

URS

7720 N. 16th Street
Suite 100
Phoenix, Arizona 85020
602.371.1100 Tel
602.371.1615 Fax

Action	Info	File
Larry Lambert – FCDMC Ravi Murthy - ADWR Ilde Chavez – NRCS		23443748

From Todd Ringsmuth/Hammad Hussain

Date January 19, 2005

Subject Response to ADWR Hydrology and Hydraulics Comments
White Tanks FRS No. 3 Remediation Project

Document Reviewed: Hydrologic and Hydraulics Design Details Memorandum, White Tanks FRS No. 3 Remediation Project. Dated August 20, 2004.

Comment Letter Date: November 10, 2004

The following text includes the comment (shown in italics) followed by the response. The response may include a discussion concerning the comment and/or reference to a section of the 100 Percent Design Report that includes revisions to text, tables, or figures. In some cases, references may be made to the 100 Percent plans or specifications.

RESPONSES

Reservoir Infiltration

Routing of storm events through the reservoir include estimation of infiltration losses. Estimated infiltration rates of 0.002 in/hr and 0.26 in/hr are assumed for the sediment pool and the remainder of the reservoir, respectively. These estimates are based on results of four small-scale infiltration tests performed within the WT3 reservoir and comparison with other reported values. Total infiltration rates vary with wetted reservoir area for a maximum of about 100 ft^3/s at the maximum water surface elevation (WSEL).

Responses to Comments 1 through 8 regarding Reservoir Infiltration are provided with Comment No.8

1. *To the best of my knowledge, infiltration losses have not been included in any other ADWR accepted reservoir routings.*

2. *The assumed infiltration rates conservatively assume continuous ponding of negligible depth. Infiltration rates versus ponding depth are not considered.*

3. *The assumed infiltration rates are likely valid for shallow soil horizons as would be tested during limited-duration small-scale testing. These values would be appropriate for rainfall-runoff computations. Large-volume infiltration rates are often reduced by the presence of lower permeability layers of wide lateral extent (above which perched saturated conditions could develop). Several artificial recharge operations in the Phoenix area have experienced much lower than expected seepage rates.*

4. *Assuming a fillable porosity of about 0.33, infiltration of a twenty-foot depth of water creates a wetting front extending more than 66 feet into the subsurface. A more detailed description of the soil profiles across the reservoir area and analyses of infiltration through layered soils would be required to adequately predict infiltration rates for such a large volume of water.*

5. *When water is initially ponded over large spreading areas, a volume of air approximately equal to the volume of water necessary to wet the soil profile must be displaced from beneath the ponded area. The entrapment of air ahead of the wetting front can influence the rate of infiltration and the shape of the wetting front.*

6. *Although sediment is usually assumed to only accumulate at the lowest points of the reservoir, some deposition of fine grained materials will occur wherever sediment-laden water ponds for an extended period of time. Therefore, after several significant impoundments (i.e. service lifetime of the darn) the average surficial infiltration capacity across a large portion of the reservoir would he expected to decrease.*

7. *The potential for biological and fine-sediment clogging of the pore spaces during numerous days of impoundment would be expected to decrease the rate of infiltration.*

8. *Back-calculated infiltration rates from previous significant impoundments at White Tanks FRS No. 3 Reservoir (if they were available) would add greater reliability for their use.*

The comments are noted. The TR-20 models prepared to address ADWR criteria have been modified to remove infiltration losses from the outflow hydrograph. The routing results remain

unchanged following the modification to the models. The revised models will be provided with the 100 Percent Design Report.

Antecedent Reservoir Conditions (ARC)

Three routing conditions are considered: (1) Interim time period between the rehabilitation project and construction of a downstream conveyance channel for the principal spillway (closed PS), (2) Future condition following construction of a downstream conveyance channel for the principal spillway (open PS), and (3) Future condition assuming a downstream conveyance channel is not constructed (closed PS).

The 100-yr, 24-hr storm was calculated to have a maximum WSEL of 1208.9 (3.1 feet below the ES) assuming the 48-in gated outlet is closed and only infiltration is passing water. If the 48-in outlet is opened following the storm, then the combined discharge from it (average of about 150 ft/s) and infiltration (average of about 25 ft/s) was calculated to dewater 97% of the reservoir volume within 10 days.

The ARC for the interim Condition with Closed PS was set at the invert of the gated outlet (1193.0). The 6-hr and 72-hr PMF's both result in a maximum WSEL of 1215.7.

The ARC for the Future Condition with Closed PS was set at the 100-yr sediment pool (1199.2). The 6-hr and 72-hr PMF's both result in a maximum WSEL of 1215.9.

The ARC for the Future Condition with Open PS was set at the invert of the PS (1200.0). The 6-hr and 72-hr PMF's result in maximum WSEL's of 1216.0 and 1215.9, respectively.

1. *The 100-yr sediment pool is above the invert of the 48-inch gated outlet. How is the ARC for the Future Condition with Closed PS determined? In other words, how is the reservoir dewatered following the 100-yr, 24-hr storm?*

The White Tank FRS No. 3 reservoir will be dewatered using a 48-inch gated outlet following the 100-year 24-hr storm. The 100-yr sediment pool level is above the invert of the 48-inch gated outlet. The 100-year sediment pool is estimated to result from the accumulation of sediment over a 100-year period. The Flood Control District of Maricopa County (District) will monitor the sediment accumulation in White Tank FRS No. 3 reservoir and remove accumulated sediment from the reservoir as necessary to ensure that the gated outlets remain operational.

2. *The ARC's and maximum WSEL's for the Interim Condition with Closed PS and Future Condition with Closed PS should he re-assessed neglecting infiltration losses.*

The ARC's and WSEL's were adjusted to reflect removal of infiltration losses in the TR-20 models. The revised models will be provided in the appendices of the 100 Percent Design Report.

3. *The Department has a strong preference for ungated outlets on single-purpose flood control dams. An operational plan REQUIRING the 48-inch gated outlet be opened and the reservoir be dewatered within ten days (until the PS is operational) should be required as part of our approval of the Application to Alter the Dam.*

The District will develop an operational plan that will include operational requirements for 48-inch gated outlet.

4. *The maximum WSEL during the IDF for an ARC at elevation 1208.9 (i.e. 100-yr, 24-hour WSEL) should be calculated given the potential risk for malfunction or failure to operate the 48-inch gated outlet. Zero residual freeboard would be acceptable for this case.*

The design consists of two gated 48-inch outlets. The operational condition of the outlets will be checked regularly in order to maintain the gates in working condition in accordance with the operations and maintenance plan to be prepared by the District. Therefore, it is anticipated at least one of the gated outlets will be operational during and following a storm event for emptying of the reservoir, if necessary. Previous calculations show that discharge through one of the outlets can remove over 85 percent of the 100-year, 24-hour storm volume within 10 days.

A model was prepared to route the PMF using an ARC at elevation 1,208.9 ft (NAVD 88) and assuming the Principal Spillway is closed and the gated outlet remains closed. The results of this model indicate a maximum water surface elevation of 1,217.5 ft (NAVD 88). A model was also developed to route the 90 percent PMF, which resulted in a maximum water surface elevation of 1,217.0 ft (NAVD 88).

The design embankment crest elevations are presented in Table 1. Table 1 also provides the embankment crest elevations following potential subsidence of the embankment. The design embankment crest elevation, wave runup, and freeboard are discussed in further detail later in this response.

TABLE 1
Embankment Crest Elevations

Embankment Section	Design Crest Elevation (ft) (NAVD 88)	Design Subsidence - Potential (ft)	Crest Elevation after Subsidence (ft) (NAVD 88)
North Fissure Risk Zone	1,218.0	1.0	1,217.0
North Non-Fissure Risk Zone	1,218.6	1.0	1,217.6
South Fissure Risk Zone	1,218.0	1.0	1,217.0
South Non-Fissure Risk Zone	Ranges from 1,218.6 to 1,218.0	Ranges from 1.0 to 0.4	1,217.6

Based on the design crest elevations, routing of the full PMF results in 0.4 ft of residual freeboard. Following the potential subsidence, routing of 90 percent of the PMF results in zero residual freeboard.

Hydraulics of Emergency Spillway

The proposed emergency spillway (ES) is a trapezoidal soil-cement structure with ten-foot crest width, 1:1 upstream and downstream slopes, and a length of about 1200 feet. Aesthetic fill is to he placed at a 10:1 upstream slope and 4:1 downstream. It is modeled as a broad-crested weir using a standard coefficient of 2.64. The approach length for flow behind the crest narrows significantly at the south end of the spillway. The effect of this narrowing was calculated to be a 0.25 ft drop in water surface along the length of the spillway, which was accounted for by lowering the driving head behind the weir 0.125 feet (average along the length). The capacity of the ES was calculated at about 30,000 ft^3/s at the maximum WSEL.

1. *The text states that the selected weir coefficient takes into account the placement of the aesthetic fill. How so? Does assuming the fill remains in place increase or decrease the hydraulic performance?*

As per Table 5.9 of *Handbook of Hydraulics by King H.W and Brater E.F, 1963,* the weir coefficient decreases with increasing upstream and downstream slopes. The weir coefficient used for design purposes reflects upstream and downstream slope flatter than 4:1. We have assumed the fill will remain in place. If the fill washes away during any flow event, the weir coefficient will increase. The relevant portions of *Handbook of Hydraulics by King H.W and Brater E.F, 1963* are provided in Appendix A of this submittal.

2. *A traditional broad-crested weir is rectangular in section. Trapezoidal-shaped weirs typically have higher discharge coefficients (often ranging 2.7 to 3.1) which are a complex function of crest width, slope of upstream face, height of crest above the approach channel floor, etc.*

The Calculation Package No. 3 titled as " Establishment of Elevation Spillway Discharge Rating Curve for a Broad Crested Weir" includes the detailed calculations and relevant references related to the development of elevation-spillway discharge rating curve for White Tank FRS No 3 emergency spillway. The spillway coefficient "C' of 2.64 for a broad crested weir is based on the information provided in Table 5-3 of *Handbook of Hydraulics by King H.W and Brater E.F, 1963.* As per this information, the spillway coefficient for a broad crested weir is equal to 2.64 for heads equal to 1.5 ft or above when the breadth of crest of weir is equal to 10 ft. For White Tank FRS No 3 project, the breadth of weir was selected to be equal to 10 ft with the head above the weir varying between 1 and 7 ft. Therefore, a spillway coefficient of 2.64 was used to develop the elevation-spillway discharge rating curve for the White Tank FRS No 3 emergency spillway.

3. *A higher rating curve may be justified by developing a steady-state HEC-RAS model with close cross-section spacing (to approximate rapidly-varied flow conditions). Models would be required with and without the aesthetic fill and the lesser performance selected for design. Models for this purpose would be expected to extend far enough downstream of the crest to accurately predict flow depths in the outflow channel and far enough upstream to predict head losses in the approach channel*

The comment is noted.

4. *Calculation Package 25 references a "FCDMC HEC-RAS" model. What model is referred to?*

The "FCDMC HECRAS" model referred in Calculation Package No. 25 is the HECRAS model developed by District to develop the existing rating curve for the emergency spillway as part of the Interim Dam Safety project.

5. *The effect of the narrowing of the approach length at the south end of the spillway crest is characterized through a series of 'normal' depth cross-sections. Why was a step backwater analysis with contraction losses not used?*

The step backwater analysis did not incorporate contraction losses because the differential velocity head across the length of the emergency spillway was small and the resulting contraction losses would not have a significant impact on the results. The analysis shows a minor change in

the flow velocity from the left (north) end to the right (south) end of the emergency spillway (See Table 1 of Calculation Package 25). The flow velocity was estimated to be 2.5 ft/sec at the left end and 0.9 ft/sec at the right end of the emergency spillway. The differential velocity head between the left and right ends of the emergency spillway is approximately 0.04 ft. An appropriate contraction loss coefficient would be 0.3, with contraction losses equal to the product of the coefficient and differential velocity head. Therefore, given a small differential velocity head between the left and right ends of the emergency spillway, the contraction losses would have no significant impact on the water surface elevation in the reservoir pool upstream of the emergency spillway. The development of the rating curve did include losses related to reduction in cross-sectional area between the left and right ends of the emergency spillway.

6. *The selected submergence criteria arc for Ogee crest weirs. Ogee weirs are more sensitive to submergence than broad-crested weirs. A widely used definition of submergence and associated criterion for broad-crested weirs is presented in Hydraulics of Bridge Waterways (FHWA, 1978).*

As per Curve C of Figure 24 presented in Section 8.5 "Flow Over Roadway" of Federal Highway Administration (FHWA) Manual "*Hydraulics of Bridge Waterways (1978")*, the submergence effect is present only if the ratio between the tail water depth (D) and the head pool level (H) is greater than 0.7. The proposed design for the emergency spillway has a D/H ratio equal to 0.34, which is less than 0.7. Therefore, there will be no submergence effect on emergency spillway.

Wave Runup and Freeboard Estimate

The sum of wave runup and setup (1.0 feet) was computed using the maximum fetch (about 1.3 miles) and 20 mph wind speed. The wind speed was based on 17 years of wind data recorded at the Litchfield Weather Station between 1987 and 2003. The text states the intent to request a waiver of the freeboard requirements as described in A.A. C. R12-1.5-1216(2)(d).

Responses to Comments 1 through 6 regarding Wave Runup and Freeboard Estimate are provided with Comment No. 6.

1. *The computational procedures used to determine necessary freeboard are not recognized dam design criteria. Both the USBR and USACE have prepared documents outlining procedures for calculating freeboard allowances. I have enclosed a copy of ACER TM No. 2 (USBR, 1981). The methodologies outlined in this document should be followed for computing setup and wave runup for the rehabilitation of WT3.*

2. *The average 24-hour wind speeds as defined by the provided data are not meaningful for determining velocity versus duration relationships.*

3. *The historic wind data from the Litchfield Weather Station is not detailed enough to define the necessary one-minute (i.e. "fastest mile of record") wind. The 2/3 ratio applied to recorded peak wind speed based on a single year of records from the Sky Harbor Airport Weather Station might be reasonable, but should be substantiated with more data.*

4. *Instead of averaging the limited historic records to obtain the one-minute wind, a statistical distribution (i.e. Pearson Type III) should be fitted to the wind data to determine annual exceedence probabilities from which an acceptable design level can be chosen. Alternatively, Figures 1 through 4 from ACER TM No. 2 may be used.*

5. *For WT3, the response time between the IDF and the resulting maximum pool elevation is very short and therefore high winds associated with storms (e.g. the 100-yr one-minute wind) cannot be assumed to have subsided and should be used in determining setup and wave runup.*

6. *The historic wind data from the Litchfield Weather Station is not detailed enough to define the necessary one-hour and two-hour winds. Figures 5 through 8 and procedures outlined in ACER TM No. 2 should be used.*

The calculation for wave runup has been revised to follow the guidance document recommended by ADWR, USBR's Manual ACER TM. No. 2 (1981). Details of the calculation are provided in Appendix B of this submittal. The revised estimate of wave runup is 1.6 feet. During the meeting held on December 15, 2004, ADWR agreed that 1.0 foot of freeboard above the PMF would be acceptable for the soil cement embankment sections and 1.6 feet of freeboard would be acceptable for the earthen embankment sections. In addition, the 1.6 feet of freeboard would consist of 1.0 ft of embankment structural fill and 0.6 ft of aggregate base material used for the crest roadway. Based on the reservoir routing results, the maximum reservoir stage occurs for the Future Condition (Principal Spillway Open) at an elevation of 1,216.0 feet (NAVD 88). The design embankment crest elevations and residual freeboard are presented in Table 2.

TABLE 2
Embankment Crest Elevations

Embankment Section	Design Crest Elevation (ft) (NAVD 88)	Design Subsidence - Potential (ft)	Crest Elevation after Subsidence (ft) (NAVD 88)	Resulting Residual Freeboard (ft)
North Fissure Risk Zone	1,218.0	1.0	1,217.0	1.0
North Non-Fissure Risk Zone	1,218.6	1.0	1,217.6	1.6
South Fissure Risk Zone	1,218.0	1.0	1,217.0	1.0
South Non-Fissure Risk Zone	Ranges from 1,218.6 to 1,218.0	Ranges from 1.0 to 0.4	1,217.6	1.6

Miscellaneous Comments

1. *Section 10.3.2.2 and Calculation Package 18 incorrectly references ADWR design criteria and guidelines. Arizona Administrative Code (A.A.C.) R12-15-1216 provides the Department's Rules for dam design. Additionally, "PMF Studies for Evaluation of Spillway Adequacy - General Guidelines" (March 2004) provides guidelines intended to assist owners and consultants to submit acceptable H&H analyses. These newer references have replaced the 1994 draft document.*

Section 10.3.2.2 and Clauclation Package 18 have been revised to include latest reference, *"PMF Studies for Evaluation of Spillway Adequacy - General Guidelines" (March 2004).*

2. *Text accompanying Calculation Package 24 incorrectly references elevation 1995.0 as the invert of the 48-inch gated outlet pipe.*

Calculation Package No. 24 has been revised with a correct invert of the 48-inch pipeline of 1197.0 ft (NAVD 88) for the 100 percent design report. In addition, all report text and calculation packages referencing or using the gated outlet pipe invert elevation have been modified.

APPENDIX A

SPILLWAY HYDRAULICS REFERENCE

OTHER McGRAW-HILL HANDBOOKS OF INTEREST

American Institute of Physics · American Institute of Physics Handbook
American Society of Mechanical Engineers · ASME Handbooks
Engineering Tables
Metals Engineering—Design
Metals Engineering—Processes
Metals Properties
Baumeister and Marks · Standard Handbook for Mechanical Engineers
Brady · Materials Handbook
Burington · Handbook of Mathematical Tables and Formulas
Burington and May · Handbook of Probability and Statistics with Tables
Callender · Time-Saver Standards for Architectural Design Data
Chow · Handbook of Applied Hydrology
Condon and Odishaw · Handbook of Physics
Considine · Chemical and Process Technology Encyclopedia
Considine · Encyclopedia of Instrumentation and Control
Considine · Process Instruments and Controls Handbook
Considine and Ross · Handbook of Applied Instrumentation
Dean · Lange's Handbook of Chemistry
DeChiara and Callender · Time-Saver Standards for Building Types
Etherington · Nuclear Engineering Handbook
Fink · Electronics Engineers' Handbook
Fink and Carroll · Standard Handbook for Electrical Engineers
Flügge · Handbook of Engineering Mechanics
Grant · Hackh's Chemical Dictionary
Hamsher · Communication System Engineering Handbook
Harris and Crede · Shock and Vibration Handbook
Hicks · Standard Handbook of Engineering Calculations
Hunter · Handbook of Semiconductor Electronics
Huskey and Korn · Computer Handbook
Ireson · Reliability Handbook
Juran · Quality Control Handbook
Kallen · Handbook of Instrumentation and Controls
Klerer and Korn · Digital Computer User's Handbook
Korn and Korn · Mathematical Handbook for Scientists and Engineers
Landee, Davis, and Albrecht · Electronic Designer's Handbook
Machol · System Engineering Handbook
Mantell · Engineering Materials Handbook
Markus · Electronics and Nucleonics Dictionary
Meites · Handbook of Analytical Chemistry
Merritt · Standard Handbook for Civil Engineers
Perry · Engineering Manual
Perry · Chemical Engineers' Handbook
Rothbart · Mechanical Design and Systems Handbook
Streeter · Handbook of Fluid Dynamics
Truxal · Control Engineers' Handbook
Tuma · Engineering Mathematics Handbook
Tuma · Handbook of Physical Calculations
Tuma · Technology Mathematics Handbook
Urquhart · Civil Engineering Handbook

HANDBOOK OF HYDRAULICS

for the Solution of Hydraulic Engineering Problems

ERNEST F. BRATER
Professor of Hydraulic Engineering
University of Michigan

HORACE WILLIAMS KING
Late Professor of Hydraulic Engineering
University of Michigan

Sixth Edition

McGRAW-HILL BOOK COMPANY
New York St. Louis San Francisco Auckland Bogatá
Caracas Lisbon London Madrid Mexico Milan
Montreal New Delhi Paris San Juan São Paulo
Singapore Sydney Tokyo Toronto

12/14/2004 17:52 FAX 84/2/92510 SIS CONSULTANTS 002/014
12/14/2004 TUE 16:48 [TX/RX NO 6879] 002

crest is likely to become dulled or rusted, or it may be damaged by floating ice and debris. Under such conditions it may be advisable to use a weir with a thicker crest. It is often convenient to use an existing weir or overflow dam for measuring discharges. Weirs of various dimensions and shapes are used in hydraulic structures. When designing such structures it is important to be able to estimate approximately the discharges over these weirs (p. 2-15).

The amount of water which will pass over a weir, not sharp-crested, depends to a large extent upon its sectional form and the shape of its crest, and it is necessary to resort to experiment to determine the discharge over any particular shape. Inasmuch as the number of shapes of weirs is unlimited, it is not to be expected that experimental data are or ever will be available for them all. There are available, however, the results of several series of experiments on weirs of different cross sections which furnish much valuable information for determining discharges over weirs of the same or similar shapes.

The available experiments are not extensive enough for a comprehensive study of the effect of velocity of approach on weirs not sharp-crested. The coefficients given in this chapter probably apply more accurately where the velocity of approach is not high. From a consideration of sharp-crested weirs it appears that discharges, for high velocities of approach, will be somewhat greater than is given by formula (5-10).

Since experimental conditions will seldom be duplicated in practice, it is probable that errors may result from the general use of the coefficients given in this chapter. Extreme accuracy, however, is not always necessary in design, where uncertainty as to the exact quantity of water to be provided for may exist.

The problem of establishing a fixed relation between head and discharge, for weirs not sharp-crested, is complicated by the fact that the nappe may assume a variety of forms in passing over the weir. For each modification of nappe form, there is a corresponding change in the relation between head and discharge. The effect of this condition is more noticeable for low heads.

The nappe may undergo several of these modifications in succession as the head is varied. The successive forms that appear with an increasing stage may differ from those pertaining to similar stages with a decreasing head. The head at which the changes of nappe form occur varies with the rate of change of head, whether increasing or decreasing, and with other conditions.

Among weirs of irregular section there is a large class for which, from the nature of their section, the nappe can assume only one form unless drowned. Such weirs, it is suggested, may, if properly calibrated, equal or exceed the usefulness of the thin-edged weir for purposes of stream gaging, because of their stability of section and because the thin-edged weir is not free from modification of nappe form for low heads.

Broad-crested Weirs. A weir approximately rectangular in cross section is termed a broad-crested weir. Unless otherwise noted, it will be assumed to have vertical faces, a plane level

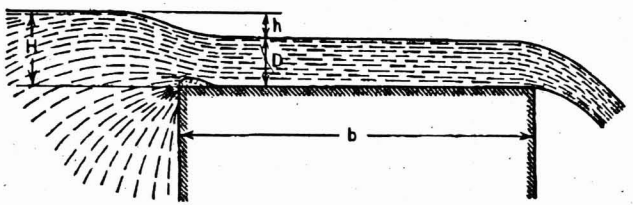


FIG. 5-6. Broad-crested weir.

crest, and sharp right-angled corners. Figure 5-6 represents a broad-crested weir of breadth b. The head H should be measured at least $2.5H$ upstream from the weir. Because of the sharp upstream edge, contraction of the nappe occurs. Surface contraction begins at a point slightly upstream from the weir.

The discharge over broad-crested weirs is usually expressed by the equation

$$Q = CLH^{3/2} \qquad (5\text{-}10)$$

Experiments on broad-crested weirs have been performed by Blackwell, Bazin, Woodburn, the U.S. Deep Waterways Board, and the U.S. Geological Survey. These experiments cover a wide range of conditions as to head, breadth, and height of weir. Considerable discrepancy exists in the results of the different experimenters, especially for heads below 0.5 ft. For heads from 0.5 to about 1.5 ft the coefficient becomes more uniform, and for heads from 1.5 ft to that at which the nappe becomes detached from the crest, the coefficient as given by the different experiments is nearly constant and equals approximately 2.63.

12/14/2004 17:52 FAX 8472792510 STS CONSULTANTS. 003/014
12/14/2004 TUE 16:48 [TX/RX NO 6879] 003

When the head reaches one to two times the breadth, the nappe becomes detached and the weir becomes essentially sharp-crested. The effect on discharge of roughness of the crest can be computed by applying the principles of flow in open channels.

In order to put the results of the various experiments in a form convenient for use, Table 5-3 has been prepared by graphically interpolating the results of all experiments, giving more weight to those of the U.S. Geological Survey. This table should give values of C within the limits of accuracy of the original experiments. Table 5-1 gives three-halves powers of numbers.

The effect of rounding the upstream corner of a broad-crested weir is to increase the discharge for a given head. Table 5-4 gives a résumé of experiments on this type of weir. The effect of rounding the upstream corner on a radius of 4 in. is to increase the coefficient C approximately 9 per cent. Coefficients by Woodburn[1] for flat weirs with rounded upstream corners and gently sloping crests are given in Table 5-5*a*.

Blackwell experimented with three weirs 3.0 ft broad having a slightly inclined crest. Inclining the crest appears slightly to increase the coefficient of discharge. The results of these experiments are rather inconsistent, especially for low heads. Table 5-5*b* has been obtained from Blackwell's experiments. Sloping the top of a broad-crested weir makes it similar to a triangular weir with the upstream face vertical. The coefficients given in Tables 5-6 and 5-7 will therefore be helpful in selecting coefficients for broad-crested weirs with sloping crests.

If the upstream corner of a weir is so rounded as entirely to prevent contraction, and if the slope of the crest is as great as the loss of head due to friction, flow occurs at critical depth, and discharge is given by the rational formula

$$Q = 3.087LH^{3/2} \qquad (5\text{-}53)$$

For further discussion of flow at critical depth, see Sec. 8. It should be noted that $C = 3.087$ is the maximum value of the coefficient that is obtainable for broad-crested weirs under any conditions.

Weirs of Triangular Section. Figure 5-7 represents the cross section of a weir having the upper face vertical and the lower face inclined downward, the two faces meeting in a sharp angle which forms the crest.

[1] J. G. Woodburn, Tests on Broad Crested Weirs, *Trans. ASCE*, vol. 96, 1932.

Bazin has experimented with weirs of this type, 2.46 ft high, having various slopes of the downstream face. The coefficients resulting from those experiments are given in Table 5-6.

It will be observed that the coefficient for a given slope, in each case shown by the experiments, is nearly constant for heads above 0.7 ft. It seems fair to assume, therefore, that these values could be extended to higher heads with reasonable assurance. The average values of the coefficients given in Table 5-6, for heads above 0.7 ft, were plotted logarithmically and found to fall very accurately on a straight line. This line was then extended to include slopes of 20 horizontal to 1 vertical, from which the values given in Table 5-7 were taken. Table 5-7 may be used for computing discharges over weirs of the types shown in Fig. 5-7 for heads above 0.7 ft. These coefficients are to be used for broad-crested weirs with inclined tops only when the breadth is sufficient to prevent the nappe from springing clear. In the latter case the weir becomes in principle a thin-edged weir.

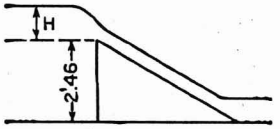


FIG. 5-7. Triangular weir.

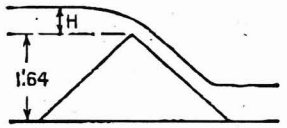


FIG. 5-8. Triangular weir.

Bazin also experimented with weirs of triangular cross sections 1.64 ft high, having both faces inclined (Fig. 5-8). Coefficients covering the range of these experiments are given in Table 5-8.

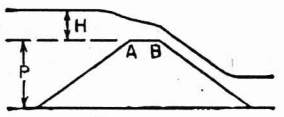


FIG. 5-9. Trapezoidal weir.

Weirs of Trapezoidal Section. Figure 5-9 represents a weir of trapezoidal section with both upstream and downstream faces inclined. Experiments on this type of weir were made by Bazin and the U.S. Deep Waterways Board. Bazin's experiments were all on weirs 2.64 ft high, the breadth of crest AB varying from 0.66 to 1.32 ft. Experiments on two

12/14/2004 TUE 16:48 [TX/RX NO 6879] 004
12/14/2004 17:53 FAX 847/279210 SIS CONSULTANTS. 004/014

weirs of this type, each 4.9 ft high, were performed by the U.S. Deep Waterways Board.

Coefficients covering the range of Bazin's experiments are given in Table 5-9. Table 5-10 gives coefficients resulting from the experiments by the U.S. Deep Waterways Board.

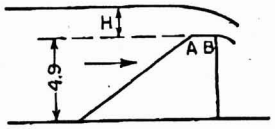


Fig. 5-10. Trapezoidal weir.

For weirs of trapezoidal cross section with sloping upstream and vertical downstream face (Fig. 5-10) there are five series of experiments by the U.S. Deep Waterways Board. All the models for these experiments were approximately 4.9 ft high, and the breadth of crest AB was either 0.33 or 0.66 ft. The length of all weirs was 6.58 ft. Table 5-11 gives coefficients derived from these experiments.

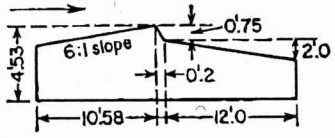


Fig. 5-11

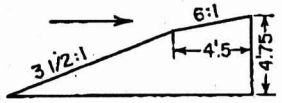


Fig. 5-12

Weirs of Irregular Section. Figures 5-11 to 5-15 represent models of weirs experimented on by the U.S. Deep Waterways Board, under the direction of G. W. Rafter, at the hydraulic laboratory of Cornell University. From four to seven experiments were run on each model, the range of head varying approximately from 1 to 5.5 ft. Values of C tabulated from these experiments are given in Table 5-12.

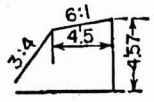


Fig. 5-13

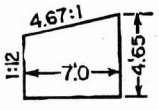


Fig. 5-14

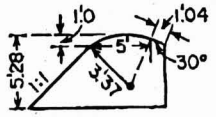


Fig. 5-15

Experiments for the U.S. Geological Survey, under the direction of Robert E. Horton, were performed in 1903 at the hydraulic laboratory of Cornell University to determine the coefficients of discharge of weirs modeled after various types

of dams. Figures 5-16 to 5-25 show forms of crests of models experimented on. The weirs were all 11.25 ft high and either 8 or 15 ft long. The purpose of the experiments was to enable the Geological Survey to determine more accurately discharges

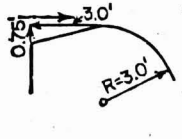


Fig. 5-16

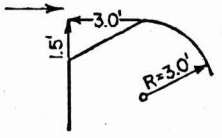


Fig. 5-17

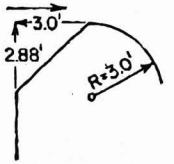


Fig. 5-18

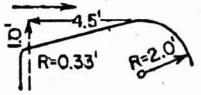


Fig. 5-19

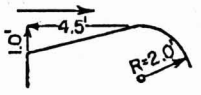


Fig. 5-20

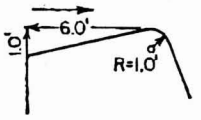


Fig. 5-21

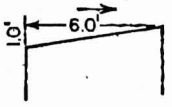


Fig. 5-22

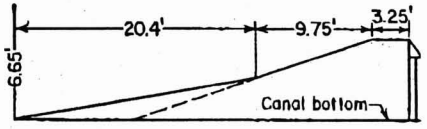


Fig. 5-23

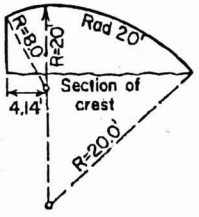


Fig. 5-24

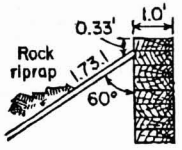


Fig. 5-25

over weirs at gaging stations. Coefficients obtained from these experiments are given in Table 5-13.

Figure 5-24 is a cross section of the old dam at Austin, Tex. Five series of gagings of flow over this dam were made with a current meter by Taylor[1] in 1900. The range of head was from 0.42 to 1.44 ft.

[1] T. U. Taylor, The Austin Dam, *U.S. Geol. Survey Water Supply and Irrigation Paper* 40, 1900.

12/14/2004 17:53 FAX 8472792510 STS CONSULTANTS. 005/014
12/14/2004 TUE 16:48 [TX/RX NO 6879] 005

Figure 5-25 is a cross section of the Blackstone River dam at Albion, Mass. Five current meter measurements of the water passing over this dam were made by Dwight Porter. The head in each case was about 1 ft, and the resulting values of C vary from 3.41 to 3.94.

The last two lines in Table 5-13 give mean values of C as determined for measurement of flow over the above dams.

Spillway Sections. The typical overflow spillway section of a dam, as illustrated in Fig. 5-26, is a weir with rounded crest. The coefficient varies from 3.0 to more than 4.0, depending primarily on the shape of the crest, the extent of end contraction, and the head. Because of the variation in C for different weirs, it is necessary to calibrate each weir if a high degree of accuracy is desired. However, the shape of the crest is often designed as a "standard crest," which was developed[1] to fit the shape of the underside of the nappe of a sharp-crested weir. For this type of crest it is possible to coordinate the coefficients of discharge for various overflow sections to some extent. The shape of this crest may be obtained from tables[2] or from the following equation[3] for the portion of the spillway downstream from the crest:

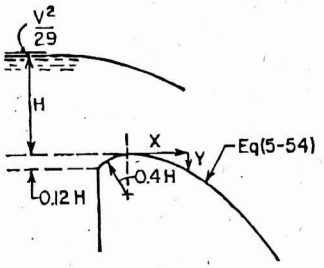


FIG. 5-26. Spillway section "standard crest."

$$Y = 0.47X^{1.80} \qquad (5\text{-}54)$$

combined with a circular curve for the upstream portion as shown in Fig. 5-26. Equation (5-54) gives the shape of the crest for $H = 1$, and all values of Y and X must be multiplied by whatever value of H is selected for the design head. It has

[1] William P. Creager, "Engineering for Masonry Dams," John Wiley & Sons, Inc., New York, 1929.

[2] William P. Creager, Joel D. Justin, and Julian Hinds, "Engineering for Dams," vol. 11, John Wiley & Sons, Inc., New York, 1945.

[3] Richard R. Randolph, "Hydraulic Tests on the Spillway of Madden Dam," *Trans. ASCE*, vol. 103, 1938; also discussion by Ettore Scimeni, p. 1113.

been shown that there is an orderly variation of the coefficient of discharge for heads above and below the design head for weirs of this type. Kirkpatrick[1] presented a curve relating C/C_0 to H/H_0 for seven TVA dams having shapes similar to the standard crest, C being the coefficient of discharge for any head H, and C_0 and H_0 corresponding values for the design head. His curve is reproduced in Fig. 5-27. A similar relationship between C/C_0 and H/H_0 developed by Randolph[2] is also shown in Fig. 5-27. Values of the coefficients of discharge for the design head, C_0, obtained for the seven TVA dams, varied from

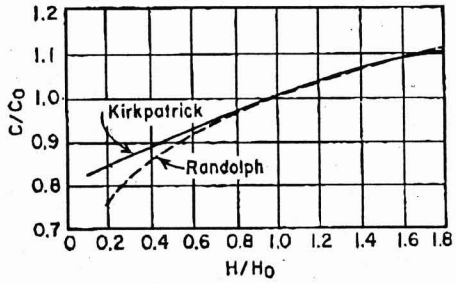


FIG. 5-27. Coefficients for spillway sections.

3.71 to 3.93, whereas the one reported by Randolph was 3.97. All the tests reported here were made on scale models and include the effect of contractions caused by piers at the ends of the crests. Kirkpatrick's tests were made through one bay of a spillway with adjacent bays closed. If, for example, a standard crest is designed for $H_0 = 15$ ft and it is assumed that the value of C_0 is 3.9, then it may be estimated from Fig. 5-27 that C for $H = 20$ is $1.05 \times 3.9 = 4.1$. Values obtained in this manner can be considered only as estimates, pending a laboratory calibration.

The Selection and Use of Weirs

Weir selection for a particular situation depends upon the range of discharges to be measured, the accuracy desired, and

[1] Hennety W. Kirkpatrick, Discharge Coefficients for Spillways of TVA Dams, *Trans. ASCE*, vol. 22, pp. 190–210, 1957.

[2] *Op. cit.*

12/14/2004 TUE 16:48 [TX/RX NO 6879] 006
12/14/2004 11:53 FAX 847/823[illegible] SIS CONSULTANTS

whether or not the weir can be calibrated after installation. Most weir equations for sharp-edged weirs are not accurate for heads less than 0.2 ft; therefore, for very small discharges, a V-notch weir should be selected. On the other hand, few discharge measurements have been made on sharp-edged weirs for heads greater than 2 ft. Therefore, if a sharp-crested weir is to be used, it might be suggested that the weir be selected so that H will be between 0.2 and 2.0 ft. Weirs with rounded crests are used with much higher heads. If the weir is so located that it can be calibrated by means of volumetric or weighing tanks in the position that it will be used, exceedingly great accuracy can be expected, especially for sharp-crested weirs, and the errors will be principally those resulting from the determination of the head. When weirs are used in locations where they cannot be calibrated in place, the errors are likely to be much greater, as indicated by the difference in results obtained by various investigators for similar weirs. Table 5-14 shows the percentage of error in discharge for different discharges and dimensions of weirs resulting from various-sized errors in the measurement of head. If the head is measured too far upstream, there may be some drop in the water surface due to friction. In order to avoid errors due to drawdown at the nappe, the head should be measured at least $4H$ upstream from horizontal crested weirs and $2.5H$ upstream from V-notch weirs. A detailed discussion of various types of error which may affect weir measurements has been presented by Thomas.[1]

Heads are usually measured in a stilling well by means of a hook gage. The pipe connecting the well and channel should not project beyond the channel surface. Schoder used a cylindrical copper float in a 6-in. vertical pipe which served as a stilling well. A float stem extending above the end of the pipe had at its top a combined index and guide which traveled along a brass scale graduated to hundredths of a foot. Schoder also used a plumb bob attached to the end of a steel tape to measure the vertical distance of the water surface from a fixed mark above the channel. The gage reading corresponding to zero head should be determined with great care and checked at frequent intervals. If accuracy is essential, the head used to compute discharge should be the mean of at least 10, and

[1] Charles W. Thomas, Errors in Measurement of Irrigation Water, *Trans. ASCE*, vol. 124, pp. 319–340, 1959.

preferably 20, separate measurements made at equal intervals of about 30 sec.

Weirs for Measuring Stream Flow. Weirs of many types are used to measure the discharge of small streams. Sharp-crested weirs have the advantage that laboratory calibration conditions can be quite accurately reproduced in the field. Sharp-edged metal blades, however, require considerable maintenance, and in some cases they may be damaged by floating debris. The U.S. Geological Survey has standardized and calibrated a number of round-crested weirs specifically for stream-gaging purposes. Their Trenton and Columbus types[1] have cross sections similar to that shown in Figs. 5-1*d* and 5-26, thus avoiding

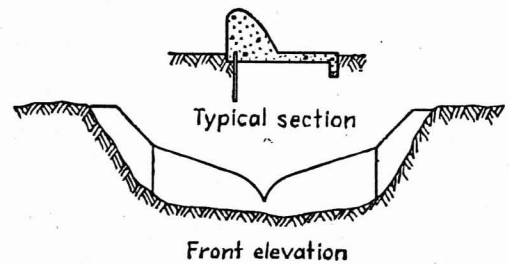


FIG. 5-28. Columbus deep-notch type of weir.

the disadvantages of sharp-crested weirs. The Columbus type of deep-notch weir (Fig. 5-28) has the same cross section as the Columbus type, and in addition, the crest slopes downward toward the center to form a notch. This weir combines a large maximum capacity with good sensitivity at low discharges. It must be carefully constructed to specifications in order to assure that the rating curve derived in the laboratory will also apply in the field. In some cases standardized metal forms are used to ensure exact duplication.

When weirs are used to measure natural streams, a recording gage is used. Methods of developing such a gaging station are discussed elsewhere.[2]

[1] Equipment for River Measurements, Preliminary Report on Studies of Artificial Control, *U.S. Geol. Survey Mimeographed Circ.* 1935.

[2] C. O. Wisler and E. F. Brater, "Hydrology," 2d ed., John Wiley & Sons, Inc., New York, 1959.

12/14/2004 TUE 16:48 [TX/RX NO 6879] 007
12/14/2004 17:54 FAX 8472792510 STS CONSULTANTS. 007/014

Table 5-1. Three-halves Powers of Numbers

No.	.000	.001	.002	.003	.004	.005	.006	.007	.008	.009
.00	.0000	.0000	.0001	.0002	.0003	.0004	.0005	.0006	.0007	.0009
.01	.0010	.0012	.0013	.0015	.0017	.0018	.0020	.0022	.0024	.0026
.02	.0028	.0030	.0033	.0035	.0037	.0040	.0042	.0044	.0047	.0049
.03	.0052	.0055	.0057	.0060	.0063	.0065	.0068	.0071	.0074	.0077
.04	.0080	.0083	.0086	.0089	.0092	.0095	.0099	.0102	.0105	.0108
.05	.0112	.0115	.0119	.0122	.0125	.0129	.0132	.0136	.0140	.0143
.06	.0147	.0151	.0154	.0158	.0162	.0166	.0170	.0173	.0177	.0181
.07	.0185	.0189	.0193	.0197	.0201	.0205	.0210	.0214	.0218	.0222
.08	.0226	.0231	.0235	.0239	.0243	.0248	.0252	.0257	.0261	.0265
.09	.0270	.0275	.0279	.0284	.0288	.0293	.0297	.0302	.0307	.0312
.10	.0316	.0321	.0326	.0331	.0335	.0340	.0345	.0350	.0355	.0360
.11	.0365	.0370	.0375	.0380	.0385	.0390	.0395	.0400	.0406	.0411
.12	.0416	.0421	.0426	.0431	.0436	.0442	.0447	.0452	.0458	.0463
.13	.0469	.0474	.0480	.0485	.0491	.0496	.0502	.0507	.0513	.0518
.14	.0524	.0529	.0535	.0541	.0546	.0552	.0558	.0564	.0569	.0575
.15	.0581	.0587	.0593	.0598	.0604	.0610	.0616	.0622	.0628	.0634
.16	.0640	.0646	.0652	.0658	.0664	.0670	.0676	.0682	.0688	.0695
.17	.0701	.0707	.0713	.0720	.0726	.0732	.0738	.0745	.0751	.0757
.18	.0764	.0770	.0776	.0783	.0789	.0796	.0802	.0809	.0815	.0822
.19	.0828	.0835	.0841	.0848	.0854	.0861	.0868	.0874	.0881	.0888
.20	.0894	.0901	.0908	.0915	.0921	.0928	.0935	.0942	.0949	.0955
.21	.0962	.0969	.0976	.0983	.0990	.0997	.1004	.1011	.1018	.1025
.22	.1032	.1039	.1046	.1053	.1060	.1067	.1074	.1081	.1089	.1096
.23	.1103	.1110	.1118	.1125	.1132	.1139	.1146	.1154	.1161	.1168
.24	.1176	.1183	.1191	.1198	.1205	.1213	.1220	.1228	.1235	.1243
.25	.1250	.1258	.1265	.1273	.1280	.1288	.1295	.1303	.1311	.1318
.26	.1326	.1333	.1341	.1349	.1356	.1364	.1372	.1380	.1387	.1395
.27	.1403	.1411	.1419	.1426	.1434	.1442	.1450	.1458	.1466	.1474
.28	.1482	.1490	.1498	.1506	.1514	.1522	.1530	.1538	.1546	.1554
.29	.1562	.1570	.1578	.1586	.1594	.1602	.1611	.1619	.1627	.1635
.30	.1643	.1652	.1660	.1668	.1676	.1684	.1693	.1701	.1709	.1718
.31	.1726	.1734	.1743	.1751	.1760	.1768	.1776	.1785	.1793	.1802
.32	.1810	.1819	.1827	.1836	.1844	.1853	.1861	.1870	.1879	.1887
.33	.1896	.1904	.1913	.1922	.1930	.1939	.1948	.1956	.1965	.1974
.34	.1983	.1991	.2000	.2009	.2018	.2026	.2035	.2044	.2053	.2062
.35	.2071	.2080	.2089	.2097	.2106	.2115	.2124	.2133	.2142	.2151
.36	.2160	.2169	.2178	.2187	.2196	.2205	.2214	.2223	.2232	.2242
.37	.2251	.2260	.2269	.2278	.2287	.2296	.2306	.2315	.2324	.2333
.38	.2342	.2352	.2361	.2370	.2380	.2389	.2398	.2408	.2417	.2426
.39	.2436	.2445	.2454	.2464	.2473	.2483	.2492	.2501	.2511	.2520
.40	.2530	.2539	.2549	.2558	.2568	.2578	.2587	.2597	.2606	.2616
.41	.2625	.2635	.2645	.2654	.2664	.2674	.2683	.2693	.2703	.2712
.42	.2722	.2732	.2741	.2751	.2761	.2771	.2781	.2790	.2800	.2810
.43	.2820	.2830	.2840	.2849	.2859	.2869	.2879	.2889	.2899	.2909
.44	.2919	.2929	.2939	.2949	.2959	.2969	.2979	.2989	.2999	.3009
.45	.3019	.3029	.3039	.3049	.3059	.3069	.3079	.3089	.3100	.3110
.46	.3120	.3130	.3140	.3150	.3161	.3171	.3181	.3191	.3202	.3212
.47	.3222	.3232	.3243	.3253	.3263	.3274	.3284	.3294	.3305	.3315
.48	.3325	.3336	.3346	.3357	.3367	.3378	.3388	.3399	.3409	.3420
.49	.3430	.3441	.3451	.3462	.3472	.3483	.3493	.3504	.3514	.3525

Table 5-1. Three-halves Powers of Numbers (*Continued*)

No.	.000	.001	.002	.003	.004	.005	.006	.007	.008	.009
.50	.3536	.3546	.3557	.3567	.3578	.3589	.3599	.3610	.3621	.3631
.51	.3642	.3653	.3664	.3674	.3685	.3696	.3707	.3717	.3728	.3739
.52	.3750	.3761	.3771	.3782	.3793	.3804	.3815	.3826	.3837	.3847
.53	.3858	.3869	.3880	.3891	.3902	.3913	.3924	.3935	.3946	.3957
.54	.3968	.3979	.3990	.4001	.4012	.4023	.4035	.4046	.4057	.4068
.55	.4079	.4090	.4101	.4112	.4123	.4135	.4146	.4157	.4168	.4179
.56	.4191	.4202	.4213	.4224	.4236	.4247	.4258	.4269	.4281	.4292
.57	.4303	.4315	.4326	.4337	.4349	.4360	.4372	.4383	.4394	.4406
.58	.4417	.4429	.4440	.4451	.4463	.4474	.4486	.4497	.4509	.4520
.59	.4532	.4544	.4555	.4566	.4578	.4590	.4601	.4613	.4624	.4636
.60	.4648	.4659	.4671	.4682	.4694	.4706	.4718	.4729	.4741	.4752
.61	.4764	.4776	.4788	.4799	.4811	.4823	.4835	.4847	.4858	.4870
.62	.4882	.4894	.4906	.4917	.4929	.4941	.4953	.4965	.4977	.4988
.63	.5000	.5012	.5024	.5036	.5048	.5060	.5072	.5084	.5096	.5108
.64	.5120	.5132	.5144	.5156	.5168	.5180	.5192	.5204	.5216	.5228
.65	.5240	.5253	.5265	.5277	.5289	.5301	.5313	.5325	.5338	.5350
.66	.5362	.5374	.5386	.5399	.5411	.5423	.5435	.5447	.5460	.5472
.67	.5484	.5496	.5509	.5521	.5533	.5546	.5558	.5570	.5583	.5595
.68	.5607	.5620	.5632	.5645	.5657	.5669	.5682	.5694	.5707	.5719
.69	.5732	.5744	.5757	.5769	.5782	.5794	.5806	.5819	.5832	.5844
.70	.5857	.5869	.5882	.5894	.5907	.5919	.5932	.5945	.5957	.5970
.71	.5983	.5995	.6008	.6020	.6033	.6046	.6059	.6071	.6084	.6097
.72	.6109	.6122	.6135	.6148	.6160	.6173	.6186	.6199	.6212	.6224
.73	.6237	.6250	.6263	.6276	.6288	.6301	.6314	.6327	.6340	.6353
.74	.6366	.6379	.6392	.6404	.6417	.6430	.6443	.6456	.6469	.6482
.75	.6495	.6508	.6521	.6534	.6547	.6560	.6573	.6586	.6599	.6612
.76	.6626	.6639	.6652	.6665	.6678	.6691	.6704	.6717	.6730	.6744
.77	.6757	.6770	.6783	.6796	.6809	.6823	.6836	.6849	.6862	.6876
.78	.6889	.6902	.6915	.6929	.6942	.6955	.6968	.6982	.6995	.7008
.79	.7022	.7035	.7048	.7062	.7075	.7088	.7102	.7115	.7129	.7142
.80	.7155	.7169	.7182	.7196	.7209	.7223	.7236	.7250	.7263	.7276
.81	.7290	.7303	.7317	.7331	.7344	.7358	.7371	.7385	.7398	.7412
.82	.7425	.7439	.7453	.7466	.7480	.7493	.7507	.7521	.7534	.7548
.83	.7562	.7575	.7589	.7603	.7616	.7630	.7644	.7658	.7671	.7685
.84	.7699	.7712	.7726	.7740	.7754	.7768	.7781	.7795	.7809	.7823
.85	.7837	.7850	.7864	.7878	.7892	.7906	.7920	.7934	.7947	.7961
.86	.7975	.7989	.8003	.8017	.8031	.8045	.8059	.8073	.8087	.8101
.87	.8115	.8129	.8143	.8157	.8171	.8185	.8199	.8213	.8227	.8241
.88	.8255	.8269	.8283	.8297	.8311	.8326	.8340	.8354	.8368	.8382
.89	.8396	.8410	.8425	.8439	.8453	.8467	.8481	.8495	.8510	.8524
.90	.8538	.8552	.8567	.8581	.8595	.8609	.8624	.8638	.8652	.8667
.91	.8681	.8695	.8709	.8724	.8738	.8752	.8767	.8781	.8796	.8810
.92	.8824	.8839	.8853	.8868	.8882	.8896	.8911	.8925	.8940	.8954
.93	.8969	.8983	.8998	.9012	.9026	.9041	.9056	.9070	.9085	.9099
.94	.9114	.9128	.9143	.9157	.9172	.9186	.9201	.9216	.9230	.9245
.95	.9259	.9274	.9289	.9303	.9318	.9333	.9347	.9362	.9377	.9391
.96	.9406	.9421	.9435	.9450	.9465	.9480	.9494	.9509	.9524	.9539
.97	.9553	.9568	.9583	.9598	.9613	.9627	.9642	.9657	.9672	.9687
.98	.9702	.9716	.9731	.9746	.9761	.9776	.9791	.9806	.9821	.9836
.99	.9850	.9865	.9880	.9895	.9910	.9925	.9940	.9955	.9970	.9985

12/14/2004 TUE 16:48 [TX/RX NO 6879] 008
12/14/2004 17:54 FAX 847/272510 SIS CONSULTANTS. 008/014

Table 5-1. Three-halves Powers of Numbers (*Continued*)

No.	.000	.001	.002	.003	.004	.005	.006	.007	.008	.009
1.00	1.0000	1.0015	1.0030	1.0045	1.0060	1.0075	1.0090	1.0105	1.0120	1.0135
1.01	1.0150	1.0165	1.0181	1.0196	1.0211	1.0226	1.0241	1.0256	1.0271	1.0286
1.02	1.0301	1.0317	1.0332	1.0347	1.0362	1.0377	1.0393	1.0408	1.0423	1.0438
1.03	1.0453	1.0468	1.0484	1.0499	1.0514	1.0530	1.0545	1.0560	1.0575	1.0591
1.04	1.0606	1.0621	1.0637	1.0652	1.0667	1.0683	1.0698	1.0713	1.0728	1.0744
1.05	1.0759	1.0775	1.0790	1.0805	1.0821	1.0836	1.0852	1.0867	1.0882	1.0898
1.06	1.0913	1.0929	1.0944	1.0960	1.0975	1.0991	1.1006	1.1022	1.1037	1.1053
1.07	1.1068	1.1084	1.1098	1.1114	1.1129	1.1146	1.1161	1.1177	1.1193	1.1208
1.08	1.1224	1.1239	1.1255	1.1271	1.1286	1.1302	1.1317	1.1333	1.1349	1.1364
1.09	1.1380	1.1396	1.1411	1.1427	1.1443	1.1458	1.1474	1.1490	1.1505	1.1521
1.10	1.1537	1.1553	1.1568	1.1584	1.1600	1.1616	1.1631	1.1647	1.1663	1.1679
1.11	1.1695	1.1710	1.1726	1.1742	1.1758	1.1774	1.1789	1.1805	1.1821	1.1837
1.12	1.1853	1.1869	1.1885	1.1901	1.1917	1.1932	1.1948	1.1964	1.1980	1.1996
1.13	1.2012	1.2028	1.2044	1.2060	1.2076	1.2092	1.2108	1.2124	1.2140	1.2156
1.14	1.2172	1.2188	1.2204	1.2220	1.2236	1.2252	1.2268	1.2284	1.2300	1.2316
1.15	1.2332	1.2349	1.2365	1.2381	1.2397	1.2413	1.2429	1.2445	1.2461	1.2477
1.16	1.2494	1.2510	1.2526	1.2542	1.2558	1.2574	1.2591	1.2607	1.2623	1.2639
1.17	1.2655	1.2672	1.2688	1.2704	1.2720	1.2737	1.2753	1.2769	1.2786	1.2802
1.18	1.2818	1.2834	1.2851	1.2867	1.2883	1.2900	1.2916	1.2932	1.2948	1.2965
1.19	1.2981	1.2998	1.3014	1.3030	1.3047	1.3063	1.3080	1.3096	1.3112	1.3129
1.20	1.3145	1.3162	1.3178	1.3195	1.3211	1.3228	1.3244	1.3261	1.3277	1.3294
1.21	1.3310	1.3327	1.3343	1.3360	1.3376	1.3393	1.3409	1.3426	1.3442	1.3459
1.22	1.3475	1.3492	1.3509	1.3525	1.3542	1.3558	1.3575	1.3591	1.3608	1.3625
1.23	1.3641	1.3658	1.3675	1.3691	1.3708	1.3725	1.3741	1.3758	1.3775	1.3791
1.24	1.3808	1.3825	1.3841	1.3858	1.3875	1.3892	1.3908	1.3925	1.3942	1.3959
1.25	1.3975	1.3992	1.4009	1.4026	1.4043	1.4059	1.4076	1.4093	1.4110	1.4127
1.26	1.4143	1.4160	1.4177	1.4194	1.4211	1.4228	1.4245	1.4262	1.4278	1.4295
1.27	1.4312	1.4329	1.4346	1.4363	1.4380	1.4397	1.4414	1.4431	1.4448	1.4465
1.28	1.4482	1.4499	1.4516	1.4533	1.4550	1.4567	1.4584	1.4601	1.4618	1.4635
1.29	1.4652	1.4669	1.4686	1.4703	1.4720	1.4737	1.4754	1.4771	1.4788	1.4805
1.30	1.4822	1.4839	1.4856	1.4874	1.4891	1.4908	1.4925	1.4942	1.4959	1.4976
1.31	1.4994	1.5011	1.5028	1.5045	1.5062	1.5080	1.5097	1.5114	1.5131	1.5148
1.32	1.5166	1.5183	1.5200	1.5217	1.5235	1.5252	1.5269	1.5286	1.5304	1.5321
1.33	1.5338	1.5356	1.5373	1.5390	1.5408	1.5425	1.5442	1.5460	1.5477	1.5494
1.34	1.5512	1.5529	1.5546	1.5564	1.5581	1.5599	1.5616	1.5633	1.5651	1.5668
1.35	1.5686	1.5703	1.5720	1.5738	1.5755	1.5773	1.5790	1.5808	1.5825	1.5843
1.36	1.5860	1.5878	1.5895	1.5913	1.5930	1.5948	1.5965	1.5983	1.6000	1.6018
1.37	1.6035	1.6053	1.6071	1.6088	1.6106	1.6123	1.6141	1.6158	1.6176	1.6194
1.38	1.6211	1.6229	1.6247	1.6264	1.6282	1.6300	1.6317	1.6335	1.6353	1.6370
1.39	1.6388	1.6406	1.6423	1.6441	1.6459	1.6476	1.6494	1.6512	1.6530	1.6547
1.40	1.6565	1.6583	1.6600	1.6618	1.6636	1.6654	1.6672	1.6689	1.6707	1.6725
1.41	1.6743	1.6761	1.6778	1.6796	1.6814	1.6832	1.6850	1.6868	1.6885	1.6903
1.42	1.6921	1.6939	1.6957	1.6975	1.6993	1.7011	1.7029	1.7046	1.7064	1.7082
1.43	1.7100	1.7118	1.7136	1.7154	1.7172	1.7190	1.7208	1.7226	1.7244	1.7262
1.44	1.7280	1.7298	1.7316	1.7334	1.7352	1.7370	1.7388	1.7406	1.7424	1.7442
1.45	1.7460	1.7478	1.7496	1.7515	1.7533	1.7551	1.7569	1.7587	1.7605	1.7623
1.46	1.7641	1.7659	1.7677	1.7696	1.7714	1.7732	1.7750	1.7768	1.7786	1.7805
1.47	1.7823	1.7841	1.7859	1.7877	1.7896	1.7914	1.7932	1.7950	1.7968	1.7987
1.48	1.8005	1.8023	1.8041	1.8060	1.8078	1.8096	1.8115	1.8133	1.8151	1.8169
1.49	1.8188	1.8206	1.8224	1.8243	1.8261	1.8279	1.8298	1.8316	1.8334	1.8353

Table 5-1. Three-halves Powers of Numbers (*Concluded*)

No.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
1.5	1.837	1.856	1.874	1.892	1.911	1.930	1.948	1.967	1.986	2.005
1.6	2.024	2.043	2.062	2.081	2.100	2.120	2.139	2.158	2.178	2.197
1.7	2.216	2.236	2.256	2.276	2.295	2.315	2.335	2.355	2.375	2.395
1.8	2.415	2.435	2.455	2.476	2.496	2.516	2.537	2.557	2.578	2.598
1.9	2.619	2.640	2.660	2.681	2.702	2.723	2.744	2.765	2.786	2.807
2.0	2.828	2.850	2.871	2.892	2.914	2.935	2.957	2.978	3.000	3.022
2.1	3.043	3.065	3.087	3.109	3.131	3.153	3.174	3.197	3.219	3.241
2.2	3.263	3.285	3.308	3.330	3.352	3.375	3.398	3.420	3.443	3.465
2.3	3.488	3.511	3.534	3.557	3.580	3.602	3.626	3.649	3.672	3.695
2.4	3.718	3.741	3.765	3.788	3.811	3.835	3.858	3.882	3.906	3.929
2.5	3.953	3.977	4.000	4.024	4.048	4.072	4.096	4.120	4.144	4.168
2.6	4.192	4.217	4.241	4.265	4.290	4.314	4.338	4.363	4.387	4.412
2.7	4.437	4.461	4.486	4.511	4.536	4.560	4.585	4.610	4.635	4.660
2.8	4.685	4.710	4.736	4.761	4.786	4.811	4.837	4.862	4.888	4.913
2.9	4.938	4.964	4.990	5.015	5.041	5.067	5.093	5.118	5.144	5.170
3.0	5.196	5.222	5.248	5.274	5.300	5.327	5.353	5.379	5.405	5.432
3.1	5.458	5.484	5.511	5.538	5.564	5.591	5.617	5.644	5.671	5.698
3.2	5.724	5.751	5.778	5.805	5.832	5.859	5.886	5.913	5.940	5.968
3.3	5.995	6.022	6.049	6.077	6.104	6.132	6.159	6.186	6.214	6.242
3.4	6.269	6.297	6.325	6.352	6.380	6.408	6.436	6.464	6.492	6.520
3.5	6.548	6.576	6.604	6.632	6.660	6.689	6.717	6.745	6.774	6.802
3.6	6.830	6.859	6.888	6.916	6.945	6.973	7.002	7.031	7.060	7.088
3.7	7.117	7.146	7.175	7.204	7.233	7.262	7.291	7.320	7.349	7.378
3.8	7.408	7.437	7.466	7.496	7.525	7.554	7.584	7.613	7.643	7.672
3.9	7.702	7.732	7.761	7.791	7.821	7.850	7.880	7.910	7.940	7.970
4.0	8.000	8.030	8.060	8.090	8.120	8.150	8.181	8.211	8.241	8.272
4.1	8.302	8.332	8.363	8.393	8.424	8.454	8.485	8.515	8.546	8.577
4.2	8.607	8.638	8.669	8.700	8.731	8.762	8.793	8.824	8.855	8.886
4.3	8.917	8.948	8.979	9.010	9.041	9.073	9.104	9.135	9.167	9.198
4.4	9.230	9.261	9.292	9.324	9.356	9.387	9.419	9.451	9.482	9.514
4.5	9.546	9.578	9.610	9.642	9.674	9.706	9.738	9.770	9.802	9.834
4.6	9.866	9.898	9.930	9.963	9.995	10.03	10.06	10.09	10.12	10.16
4.7	10.19	10.22	10.25	10.29	10.32	10.35	10.39	10.42	10.45	10.48
4.8	10.52	10.55	10.58	10.62	10.65	10.68	10.71	10.75	10.78	10.81
4.9	10.85	10.88	10.91	10.95	10.98	11.01	11.05	11.08	11.11	11.15
5.0	11.18	11.21	11.25	11.28	11.31	11.35	11.38	11.42	11.45	11.48
5.1	11.52	11.55	11.59	11.62	11.65	11.69	11.72	11.76	11.79	11.82
5.2	11.86	11.89	11.93	11.96	11.99	12.03	12.06	12.10	12.13	12.17
5.3	12.20	12.24	12.27	12.31	12.34	12.37	12.41	12.44	12.48	12.51
5.4	12.55	12.58	12.62	12.65	12.69	12.73	12.76	12.79	12.83	12.86
5.5	12.90	12.93	12.97	13.00	13.04	13.07	13.11	13.15	13.18	13.22
5.6	13.25	13.29	13.32	13.36	13.39	13.43	13.47	13.50	13.54	13.57
5.7	13.61	13.64	13.68	13.72	13.75	13.79	13.82	13.86	13.90	13.93
5.8	13.97	14.00	14.04	14.08	14.11	14.15	14.19	14.22	14.26	14.29
5.9	14.33	14.37	14.40	14.44	14.48	14.51	14.55	14.59	14.62	14.66
6.0	14.70	14.73	14.77	14.81	14.84	14.88	14.92	14.95	14.99	15.03
6.1	15.07	15.10	15.14	15.18	15.21	15.25	15.29	15.33	15.36	15.40
6.2	15.44	15.48	15.51	15.55	15.59	15.62	15.66	15.70	15.74	15.78
6.3	15.81	15.85	15.89	15.93	15.96	16.00	16.04	16.08	16.12	16.15
6.4	16.19	16.23	16.27	16.30	16.34	16.38	16.42	16.46	16.50	16.53

12/14/2004 17:54 FAX 8472792510 STS CONSULTANTS. 009/014
12/14/2004 TUE 16:48 [TX/RX NO 6879] 009

Table 5-2. Five-halves Powers of Numbers

No.	.000	.001	.002	.003	.004	.005	.006	.007	.008	.009
.00	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
.01	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000
.02	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001
.03	.0001	.0001	.0002	.0002	.0002	.0002	.0002	.0003	.0003	.0003
.04	.0003	.0003	.0004	.0004	.0004	.0004	.0005	.0005	.0005	.0005
.05	.0006	.0006	.0006	.0006	.0007	.0007	.0007	.0008	.0008	.0008
.06	.0009	.0009	.0010	.0010	.0010	.0011	.0011	.0012	.0012	.0013
.07	.0013	.0013	.0014	.0014	.0015	.0015	.0016	.0016	.0017	.0018
.08	.0018	.0019	.0019	.0020	.0020	.0021	.0022	.0022	.0023	.0024
.09	.0024	.0025	.0026	.0026	.0027	.0028	.0029	.0029	.0030	.0031
.10	.0032	.0032	.0033	.0034	.0035	.0036	.0037	.0037	.0038	.0039
.11	.0040	.0041	.0042	.0043	.0044	.0045	.0046	.0047	.0048	.0049
.12	.0050	.0051	.0052	.0053	.0054	.0055	.0056	.0057	.0059	.0060
.13	.0061	.0062	.0063	.0065	.0066	.0067	.0068	.0069	.0071	.0072
.14	.0073	.0075	.0076	.0077	.0079	.0080	.0081	.0083	.0084	.0086
.15	.0087	.0089	.0090	.0092	.0093	.0095	.0096	.0098	.0099	.0101
.16	.0102	.0104	.0106	.0107	.0109	.0111	.0112	.0114	.0116	.0117
.17	.0119	.0121	.0123	.0124	.0126	.0128	.0130	.0132	.0134	.0136
.18	.0137	.0139	.0141	.0143	.0145	.0147	.0149	.0151	.0153	.0155
.19	.0157	.0159	.0162	.0164	.0166	.0168	.0170	.0172	.0174	.0177
.20	.0179	.0181	.0183	.0186	.0188	.0190	.0193	.0195	.0197	.0200
.21	.0202	.0205	.0207	.0209	.0212	.0214	.0217	.0219	.0222	.0224
.22	.0227	.0230	.0232	.0235	.0237	.0240	.0243	.0246	.0248	.0251
.23	.0254	.0256	.0259	.0262	.0265	.0268	.0271	.0273	.0276	.0279
.24	.0282	.0285	.0288	.0291	.0294	.0297	.0300	.0303	.0306	.0309
.25	.0312	.0316	.0319	.0322	.0325	.0328	.0332	.0335	.0338	.0341
.26	.0345	.0348	.0351	.0355	.0358	.0362	.0365	.0368	.0372	.0375
.27	.0379	.0382	.0386	.0389	.0393	.0397	.0400	.0404	.0407	.0411
.28	.0415	.0419	.0422	.0426	.0430	.0434	.0437	.0441	.0445	.0449
.29	.0453	.0457	.0461	.0465	.0469	.0473	.0477	.0481	.0485	.0489
.30	.0493	.0497	.0501	.0505	.0510	.0514	.0518	.0522	.0526	.0531
.31	.0535	.0539	.0544	.0548	.0552	.0557	.0561	.0566	.0570	.0575
.32	.0579	.0584	.0588	.0593	.0598	.0602	.0607	.0611	.0616	.0621
.33	.0626	.0630	.0635	.0640	.0645	.0650	.0654	.0659	.0664	.0669
.34	.0674	.0679	.0684	.0689	.0694	.0699	.0704	.0709	.0714	.0720
.35	.0725	.0730	.0735	.0740	.0746	.0751	.0756	.0762	.0767	.0772
.36	.0778	.0783	.0788	.0794	.0799	.0805	.0810	.0816	.0822	.0827
.37	.0833	.0838	.0844	.0850	.0855	.0861	.0867	.0873	.0878	.0884
.38	.0890	.0896	.0902	.0908	.0914	.0920	.0926	.0932	.0938	.0944
.39	.0950	.0956	.0962	.0968	.0974	.0981	.0987	.0993	.0999	.1006
.40	.1012	.1018	.1025	.1031	.1037	.1044	.1050	.1057	.1063	.1070
.41	.1076	.1083	.1090	.1096	.1103	.1109	.1116	.1123	.1130	.1136
.42	.1143	.1150	.1157	.1164	.1171	.1178	.1184	.1191	.1198	.1205
.43	.1212	.1220	.1227	.1234	.1241	.1248	.1255	.1262	.1270	.1277
.44	.1284	.1292	.1299	.1306	.1314	.1321	.1328	.1336	.1343	.1351
.45	.1358	.1366	.1374	.1381	.1389	.1396	.1404	.1412	.1420	.1427
.46	.1435	.1443	.1451	.1459	.1467	.1474	.1482	.1490	.1498	.1506
.47	.1514	.1522	.1531	.1539	.1547	.1555	.1563	.1571	.1580	.1588
.48	.1596	.1605	.1613	.1621	.1630	.1638	.1647	.1655	.1664	.1672
.49	.1681	.1689	.1698	.1707	.1715	.1724	.1733	.1741	.1750	.1759

Table 5-2. Five-halves Powers of Numbers (*Continued*)

No.	.000	.001	.002	.003	.004	.005	.006	.007	.008	.009
.50	.1768	.1777	.1785	.1794	.1803	.1812	.1821	.1830	.1839	.1848
.51	.1857	.1867	.1876	.1885	.1894	.1903	.1913	.1922	.1931	.1941
.52	.1950	.1959	.1969	.1978	.1988	.1997	.2007	.2016	.2026	.2036
.53	.2045	.2055	.2064	.2074	.2084	.2094	.2103	.2113	.2123	.2133
.54	.2143	.2153	.2163	.2173	.2183	.2193	.2203	.2213	.2223	.2233
.55	.2243	.2254	.2264	.2274	.2284	.2295	.2305	.2315	.2326	.2336
.56	.2347	.2357	.2368	.2378	.2389	.2400	.2410	.2421	.2431	.2442
.57	.2453	.2464	.2475	.2485	.2496	.2507	.2518	.2529	.2540	.2551
.58	.2562	.2573	.2584	.2595	.2606	.2618	.2629	.2640	.2651	.2662
.59	.2674	.2685	.2697	.2708	.2719	.2731	.2742	.2754	.2765	.2777
.60	.2789	.2800	.2812	.2824	.2835	.2847	.2859	.2871	.2882	.2894
.61	.2906	.2918	.2930	.2942	.2954	.2966	.2978	.2990	.3002	.3015
.62	.3027	.3039	.3051	.3064	.3076	.3088	.3101	.3113	.3125	.3138
.63	.3150	.3163	.3175	.3188	.3201	.3213	.3226	.3239	.3251	.3264
.64	.3277	.3290	.3302	.3315	.3328	.3341	.3354	.3367	.3380	.3393
.65	.3406	.3419	.3433	.3446	.3459	.3472	.3485	.3499	.3512	.3525
.66	.3539	.3552	.3566	.3579	.3593	.3606	.3620	.3633	.3647	.3661
.67	.3674	.3688	.3702	.3716	.3729	.3743	.3757	.3771	.3785	.3799
.68	.3813	.3827	.3841	.3855	.3869	.3884	.3898	.3912	.3926	.3940
.69	.3955	.3969	.3984	.3998	.4012	.4027	.4041	.4056	.4070	.4085
.70	.4100	.4114	.4129	.4144	.4158	.4173	.4188	.4203	.4218	.4233
.71	.4248	.4263	.4278	.4293	.4308	.4323	.4338	.4353	.4368	.4384
.72	.4399	.4414	.4429	.4445	.4460	.4476	.4491	.4506	.4522	.4538
.73	.4553	.4569	.4584	.4600	.4616	.4631	.4647	.4663	.4679	.4695
.74	.4711	.4727	.4743	.4759	.4775	.4791	.4807	.4823	.4839	.4855
.75	.4871	.4888	.4904	.4920	.4937	.4953	.4969	.4986	.5002	.5019
.76	.5036	.5052	.5069	.5085	.5102	.5119	.5135	.5152	.5169	.5186
.77	.5203	.5220	.5237	.5254	.5271	.5288	.5305	.5322	.5339	.5356
.78	.5373	.5390	.5408	.5425	.5442	.5460	.5477	.5495	.5512	.5530
.79	.5547	.5565	.5582	.5600	.5618	.5635	.5653	.5671	.5689	.5706
.80	.5724	.5742	.5760	.5778	.5796	.5814	.5832	.5850	.5869	.5887
.81	.5905	.5923	.5941	.5960	.5978	.5996	.6015	.6033	.6052	.6070
.82	.6089	.6107	.6126	.6145	.6163	.6182	.6201	.6220	.6238	.6257
.83	.6276	.6295	.6314	.6333	.6352	.6371	.6390	.6409	.6429	.6448
.84	.6467	.6486	.6505	.6525	.6544	.6564	.6583	.6603	.6622	.6642
.85	.6661	.6681	.6700	.6720	.6740	.6760	.6779	.6799	.6819	.6839
.86	.6859	.6879	.6899	.6919	.6939	.6959	.6979	.6999	.7019	.7040
.87	.7060	.7080	.7101	.7121	.7141	.7162	.7182	.7203	.7223	.7244
.88	.7265	.7285	.7306	.7327	.7347	.7368	.7389	.7410	.7431	.7452
.89	.7473	.7494	.7515	.7536	.7557	.7578	.7599	.7620	.7642	.7663
.90	.7684	.7706	.7727	.7749	.7770	.7792	.7813	.7835	.7856	.7878
.91	.7900	.7921	.7943	.7965	.7987	.8009	.8030	.8052	.8074	.8096
.92	.8118	.8140	.8163	.8185	.8207	.8229	.8251	.8274	.8296	.8318
.93	.8341	.8363	.8386	.8408	.8431	.8453	.8476	.8499	.8521	.8544
.94	.8567	.8590	.8612	.8635	.8658	.8681	.8704	.8727	.8750	.8773
.95	.8796	.8820	.8843	.8866	.8889	.8913	.8936	.8959	.8983	.9006
.96	.9030	.9053	.9077	.9101	.9124	.9148	.9172	.9195	.9219	.9243
.97	.9267	.9291	.9315	.9339	.9363	.9387	.9411	.9435	.9459	.9483
.98	.9507	.9532	.9556	.9580	.9605	.9629	.9654	.9678	.9703	.9727
.99	.9752	.9777	.9801	.9826	.9851	.9875	.9900	.9925	.9950	.9975

12/14/2004 TUE 16:48 [TX/RX NO 6879] 010

Table 5-2. Five-halves Powers of Numbers (*Continued*)

No.	.000	.001	.002	.003	.004	.005	.006	.007	.008	.009
1.00	1.0000	1.0025	1.0050	1.0075	1.0100	1.0125	1.0151	1.0176	1.0201	1.0227
1.01	1.0252	1.0277	1.0303	1.0328	1.0354	1.0379	1.0405	1.0430	1.0456	1.0482
1.02	1.0508	1.0533	1.0559	1.0585	1.0611	1.0637	1.0663	1.0689	1.0715	1.0741
1.03	1.0767	1.0793	1.0819	1.0846	1.0872	1.0898	1.0924	1.0951	1.0977	1.1004
1.04	1.1030	1.1057	1.1083	1.1110	1.1137	1.1163	1.1190	1.1217	1.1244	1.1270
1.05	1.1297	1.1324	1.1351	1.1378	1.1405	1.1432	1.1459	1.1486	1.1514	1.1541
1.06	1.1568	1.1595	1.1623	1.1650	1.1678	1.1705	1.1733	1.1760	1.1788	1.1815
1.07	1.1843	1.1871	1.1898	1.1926	1.1954	1.1982	1.2010	1.2038	1.2066	1.2094
1.08	1.2122	1.2150	1.2178	1.2206	1.2234	1.2262	1.2291	1.2319	1.2347	1.2376
1.09	1.2404	1.2433	1.2461	1.2490	1.2518	1.2547	1.2576	1.2604	1.2633	1.2662
1.10	1.2691	1.2719	1.2748	1.2777	1.2806	1.2835	1.2864	1.2893	1.2923	1.2952
1.11	1.2981	1.3010	1.3040	1.3069	1.3098	1.3128	1.3157	1.3187	1.3216	1.3246
1.12	1.3276	1.3305	1.3335	1.3364	1.3394	1.3424	1.3454	1.3484	1.3514	1.3544
1.13	1.3574	1.3604	1.3634	1.3664	1.3694	1.3724	1.3755	1.3785	1.3815	1.3846
1.14	1.3876	1.3906	1.3937	1.3967	1.3998	1.4029	1.4059	1.4090	1.4121	1.4151
1.15	1.4182	1.4213	1.4244	1.4275	1.4306	1.4337	1.4368	1.4399	1.4430	1.4461
1.16	1.4493	1.4524	1.4555	1.4586	1.4618	1.4649	1.4681	1.4712	1.4744	1.4775
1.17	1.4807	1.4839	1.4870	1.4902	1.4934	1.4966	1.4997	1.5029	1.5061	1.5093
1.18	1.5125	1.5157	1.5190	1.5222	1.5254	1.5286	1.5318	1.5351	1.5383	1.5416
1.19	1.5448	1.5480	1.5513	1.5545	1.5578	1.5611	1.5643	1.5676	1.5709	1.5742
1.20	1.5774	1.5807	1.5840	1.5873	1.5906	1.5939	1.5972	1.6005	1.6039	1.6072
1.21	1.6105	1.6139	1.6172	1.6205	1.6239	1.6272	1.6305	1.6339	1.6373	1.6406
1.22	1.6440	1.6474	1.6507	1.6541	1.6575	1.6609	1.6643	1.6677	1.6711	1.6745
1.23	1.6779	1.6813	1.6847	1.6881	1.6916	1.6950	1.6984	1.7019	1.7053	1.7087
1.24	1.7122	1.7157	1.7191	1.7226	1.7260	1.7295	1.7330	1.7365	1.7399	1.7434
1.25	1.7469	1.7504	1.7539	1.7574	1.7609	1.7644	1.7680	1.7715	1.7750	1.7785
1.26	1.7821	1.7856	1.7892	1.7927	1.7963	1.7998	1.8034	1.8069	1.8105	1.8141
1.27	1.8176	1.8212	1.8248	1.8284	1.8320	1.8356	1.8392	1.8428	1.8464	1.8500
1.28	1.8536	1.8573	1.8609	1.8645	1.8682	1.8718	1.8754	1.8791	1.8827	1.8864
1.29	1.8901	1.8937	1.8974	1.9011	1.9047	1.9084	1.9121	1.9158	1.9195	1.9232
1.30	1.9269	1.9306	1.9343	1.9380	1.9418	1.9455	1.9492	1.9529	1.9567	1.9604
1.31	1.9642	1.9679	1.9717	1.9754	1.9792	1.9830	1.9867	1.9905	1.9943	1.9981
1.32	2.0019	2.0057	2.0095	2.0133	2.0171	2.0209	2.0247	2.0285	2.0323	2.0362
1.33	2.0400	2.0438	2.0477	2.0515	2.0554	2.0592	2.0631	2.0669	2.0708	2.0747
1.34	2.0786	2.0824	2.0863	2.0902	2.0941	2.0980	2.1019	2.1058	2.1097	2.1136
1.35	2.1176	2.1215	2.1254	2.1293	2.1333	2.1372	2.1412	2.1451	2.1491	2.1530
1.36	2.1570	2.1610	2.1649	2.1689	2.1729	2.1769	2.1809	2.1848	2.1888	2.1928
1.37	2.1969	2.2009	2.2049	2.2089	2.2129	2.2170	2.2210	2.2250	2.2291	2.2331
1.38	2.2372	2.2412	2.2453	2.2493	2.2534	2.2575	2.2616	2.2656	2.2697	2.2738
1.39	2.2779	2.2820	2.2861	2.2902	2.2943	2.2985	2.3026	2.3067	2.3108	2.3150
1.40	2.3191	2.3232	2.3274	2.3315	2.3357	2.3399	2.3440	2.3482	2.3524	2.3566
1.41	2.3607	2.3649	2.3691	2.3733	2.3775	2.3817	2.3859	2.3901	2.3944	2.3986
1.42	2.4028	2.4071	2.4113	2.4155	2.4198	2.4240	2.4283	2.4325	2.4368	2.4411
1.43	2.4453	2.4496	2.4539	2.4582	2.4625	2.4668	2.4711	2.4754	2.4797	2.4840
1.44	2.4883	2.4926	2.4970	2.5013	2.5056	2.5100	2.5143	2.5187	2.5230	2.5274
1.45	2.5317	2.5361	2.5405	2.5449	2.5492	2.5536	2.5580	2.5624	2.5668	2.5712
1.46	2.5756	2.5800	2.5845	2.5889	2.5933	2.5977	2.6022	2.6066	2.6111	2.6155
1.47	2.6200	2.6244	2.6289	2.6333	2.6378	2.6423	2.6468	2.6513	2.6557	2.6602
1.48	2.6647	2.6692	2.6737	2.6783	2.6828	2.6873	2.6918	2.6964	2.7009	2.7054
1.49	2.7100	2.7145	2.7191	2.7236	2.7282	2.7328	2.7373	2.7419	2.7465	2.7511

Table 5-2. Five-halves Powers of Numbers (*Concluded*)

No.	.000	.001	.002	.003	.004	.005	.006	.007	.008	.009
1.50	2.7557	2.7603	2.7649	2.7695	2.7741	2.7787	2.7833	2.7879	2.7926	2.7972
1.51	2.8018	2.8065	2.8111	2.8158	2.8204	2.8251	2.8297	2.8344	2.8391	2.8438
1.52	2.8485	2.8531	2.8578	2.8625	2.8672	2.8719	2.8766	2.8814	2.8861	2.8908
1.53	2.8955	2.9003	2.9050	2.9097	2.9145	2.9192	2.9240	2.9288	2.9335	2.9383
1.54	2.9431	2.9479	2.9526	2.9574	2.9622	2.9670	2.9718	2.9766	2.9814	2.9863
1.55	2.9911	2.9959	3.0007	3.0056	3.0104	3.0153	3.0201	3.0250	3.0298	3.0347
1.56	3.0396	3.0444	3.0493	3.0542	3.0591	3.0640	3.0689	3.0738	3.0787	3.0836
1.57	3.0885	3.0934	3.0984	3.1033	3.1082	3.1132	3.1181	3.1231	3.1280	3.1330
1.58	3.1379	3.1429	3.1479	3.1528	3.1578	3.1628	3.1678	3.1728	3.1778	3.1828
1.59	3.1878	3.1928	3.1978	3.2029	3.2079	3.2129	3.2180	3.2230	3.2281	3.2331
1.60	3.2382	3.2432	3.2483	3.2534	3.2584	3.2635	3.2686	3.2737	3.2788	3.2839
1.61	3.2890	3.2941	3.2992	3.3043	3.3095	3.3146	3.3197	3.3249	3.3300	3.3352
1.62	3.3403	3.3455	3.3506	3.3558	3.3610	3.3662	3.3713	3.3765	3.3817	3.3869
1.63	3.3921	3.3973	3.4025	3.4077	3.4130	3.4182	3.4234	3.4286	3.4339	3.4391
1.64	3.4444	3.4496	3.4549	3.4601	3.4654	3.4707	3.4760	3.4812	3.4865	3.4918
1.65	3.4971	3.5024	3.5077	3.5130	3.5183	3.5237	3.5290	3.5343	3.5397	3.5450
1.66	3.5503	3.5557	3.5610	3.5664	3.5718	3.5771	3.5825	3.5879	3.5933	3.5987
1.67	3.6041	3.6095	3.6149	3.6203	3.6257	3.6311	3.6365	3.6419	3.6474	3.6528
1.68	3.6582	3.6637	3.6691	3.6746	3.6801	3.6855	3.6910	3.6965	3.7020	3.7074
1.69	3.7129	3.7184	3.7239	3.7294	3.7349	3.7405	3.7460	3.7515	3.7570	3.7626
1.70	3.7681	3.7736	3.7792	3.7847	3.7903	3.7959	3.8014	3.8070	3.8126	3.8182
1.71	3.8238	3.8293	3.8349	3.8406	3.8462	3.8518	3.8574	3.8630	3.8686	3.8743
1.72	3.8799	3.8855	3.8912	3.8968	3.9025	3.9082	3.9138	3.9195	3.9252	3.9309
1.73	3.9365	3.9422	3.9479	3.9536	3.9593	3.9651	3.9708	3.9765	3.9822	3.9879
1.74	3.9937	3.9994	4.0052	4.0109	4.0167	4.0224	4.0282	4.0340	4.0397	4.0455
1.75	4.0513	4.0571	4.0629	4.0687	4.0745	4.0803	4.0861	4.0919	4.0978	4.1036
1.76	4.1094	4.1153	4.1211	4.1270	4.1328	4.1387	4.1445	4.1504	4.1563	4.1622
1.77	4.1681	4.1739	4.1798	4.1857	4.1916	4.1976	4.2035	4.2094	4.2153	4.2212
1.78	4.2272	4.2331	4.2391	4.2450	4.2510	4.2569	4.2629	4.2689	4.2748	4.2808
1.79	4.2868	4.2928	4.2988	4.3048	4.3108	4.3168	4.3228	4.3288	4.3349	4.3409
1.80	4.3469	4.3530	4.3590	4.3651	4.3711	4.3772	4.3832	4.3893	4.3954	4.4015
1.81	4.4075	4.4136	4.4197	4.4258	4.4319	4.4380	4.4442	4.4503	4.4564	4.4625
1.82	4.4687	4.4748	4.4810	4.4871	4.4933	4.4994	4.5056	4.5118	4.5179	4.5241
1.83	4.5303	4.5365	4.5427	4.5489	4.5551	4.5613	4.5676	4.5738	4.5800	4.5862
1.84	4.5925	4.5987	4.6049	4.6112	4.6175	4.6237	4.6300	4.6363	4.6425	4.6488
1.85	4.6551	4.6614	4.6677	4.6740	4.6803	4.6866	4.6929	4.6993	4.7056	4.7119
1.86	4.7183	4.7246	4.7310	4.7373	4.7437	4.7500	4.7564	4.7628	4.7692	4.7755
1.87	4.7819	4.7883	4.7947	4.8011	4.8076	4.8140	4.8204	4.8268	4.8332	4.8397
1.88	4.8461	4.8526	4.8590	4.8655	4.8719	4.8784	4.8849	4.8914	4.8978	4.9043
1.89	4.9108	4.9173	4.9238	4.9303	4.9369	4.9434	4.9499	4.9564	4.9630	4.9695
1.90	4.9760	4.9826	4.9891	4.9957	5.0023	5.0088	5.0154	5.0220	5.0286	5.0352
1.91	5.0418	5.0484	5.0550	5.0616	5.0682	5.0748	5.0815	5.0881	5.0947	5.1014
1.92	5.1080	5.1147	5.1213	5.1280	5.1347	5.1413	5.1480	5.1547	5.1614	5.1681
1.93	5.1748	5.1815	5.1882	5.1949	5.2017	5.2084	5.2151	5.2218	5.2286	5.2353
1.94	5.2421	5.2488	5.2556	5.2624	5.2692	5.2759	5.2827	5.2895	5.2963	5.3031
1.95	5.3099	5.3167	5.3235	5.3303	5.3372	5.3440	5.3508	5.3577	5.3645	5.3714
1.96	5.3782	5.3851	5.3920	5.3988	5.4057	5.4126	5.4195	5.4264	5.4333	5.4402
1.97	5.4471	5.4540	5.4609	5.4679	5.4748	5.4817	5.4887	5.4956	5.5026	5.5095
1.98	5.5165	5.5235	5.5304	5.5374	5.5444	5.5514	5.5584	5.5654	5.5724	5.5794
1.99	5.5864	5.5934	5.6005	5.6075	5.6145	5.6216	5.6286	5.6357	5.6427	5.6498

12/14/2004 17:55 FAX 8472792510 STS CONSULTANTS. 011/014
12/14/2004 TUE 16:48 [TX/RX NO 6879] 011

Table 5-3. Values of C in the Formula $Q = CLH^{3/2}$ for Broad-crested Weirs

Measured head in feet, H	Breadth of crest of weir in feet										
	0.50	0.75	1.00	1.50	2.00	2.50	3.00	4.00	5.00	10.00	15.00
0.2	2.80	2.75	2.69	2.62	2.54	2.48	2.44	2.38	2.34	2.49	2.68
0.4	2.92	2.80	2.72	2.64	2.61	2.60	2.58	2.54	2.50	2.56	2.70
0.6	3.08	2.89	2.75	2.64	2.61	2.60	2.68	2.69	2.70	2.70	2.70
0.8	3.30	3.04	2.85	2.68	2.60	2.60	2.67	2.68	2.68	2.69	2.64
1.0	3.32	3.14	2.98	2.75	2.66	2.64	2.65	2.67	2.68	2.68	2.63
1.2	3.32	3.20	3.08	2.86	2.70	2.65	2.64	2.67	2.66	2.69	2.64
1.4	3.32	3.26	3.20	2.92	2.77	2.68	2.64	2.65	2.65	2.67	2.64
1.6	3.32	3.29	3.28	3.07	2.89	2.75	2.68	2.66	2.65	2.64	2.63
1.8	3.32	3.32	3.31	3.07	2.88	2.74	2.68	2.66	2.65	2.64	2.63
2.0	3.32	3.31	3.30	3.08	2.85	2.76	2.72	2.68	2.65	2.64	2.63
2.5	3.32	3.32	3.31	3.28	3.07	2.89	2.91	2.72	2.67	2.64	2.63
3.0	3.32	3.32	3.32	3.32	3.20	3.05	2.92	2.73	2.66	2.64	2.63
3.5	3.32	3.32	3.32	3.32	3.32	3.19	2.97	2.76	2.68	2.64	2.63
4.0	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.70	2.64	2.63
4.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.74	2.64	2.63
5.0	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.64	2.63
5.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.64	2.63

Table 5-4. Values of C in the Formula $Q = CLH^{3/2}$ for Models of Broad-crested Weirs with Rounded Upstream Corner

Name of experimenter	Radius of curve in feet	Breadth of weir in feet, B	Height of weir in feet, P	Head in feet, H									
				0.4	0.6	0.8	1.0	1.5	2.0	2.5	3.0	4.0	5.0
Bazin	0.33	2.62	2.46	2.93	2.97	2.98	3.01	3.04					
Bazin	0.33	6.56	2.46	2.70	2.82	2.87	2.89	2.92					
U. S. Deep Waterways	0.33	2.62	4.57	....	2.77	2.80	2.83	2.92	3.00	3.08	3.17	3.34	3.50
U. S. Deep Waterways	0.33	6.56	4.56	....	....	2.83	2.83	2.83	2.82	2.82	2.82	2.82	2.81

Table 5-5. Values of C in the Formula $Q = CLH^{3/2}$ for Broad-crested Weirs with Crests Inclined Slightly Downward

(*a*)

Crest	Energy head = H_e								
	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.4	1.5
Level	2.78	2.79	2.80	2.81	2.82	2.83	2.85	2.85	2.85
Slope = 0.004	2.95	2.94	2.93	2.92	2.91	2.90	2.88	2.87	2.87
Slope = 0.026	3.07	3.06	3.05	3.04	3.03	3.02	3.00	2.99	

(*b*)

Slope of crest	Length of weir in feet	Head in feet, H						
		0.1	0.2	0.3	0.4	0.5	0.6	0.7
12 to 1	3.0	2.58	2.87	2.57	2.60	2.84	2.81	2.70
18 to 1	3.0	2.91	2.92	2.53	2.60	2.80	2.74	2.62
18 to 1	10.0	2.52	2.68	2.73	2.80	2.90	2.80	2.68

Table 5-6. Values of C in the Formula $Q = CLH^{3/2}$ for Weirs of Triangular Cross Section with Vertical Upstream Face and Sloping Downstream Face

Slope of downstream face	Height of weir in feet, P	Head in feet, H										
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5
Hor. Vert.												
1 to 1	2.46	3.88	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85	3.85
2 to 1	2.46	3.48	3.48	3.49	3.49	3.50	3.50	3.50	3.50	3.50	3.51	3.51
2 to 1	1.64	3.56	3.47	3.47	3.51	3.54	3.57	3.58	3.58	3.58	3.59	3.57
3 to 1	1.64	....	2.90	3.11	3.22	3.26	3.33	3.37	3.40	3.40	3.41	3.41
5 to 1	2.46	....	3.08	3.06	3.05	3.05	3.07	3.09	3.12	3.13	3.13	3.13
10 to 1	2.46	....	2.82	2.83	2.84	2.86	2.89	2.90	2.91	2.91	2.92	2.93

12/14/2004 TUE 16:48 [TX/RX NO 6879] 012
12/14/2004 11:55 FAX 84/2/87310 SID CONSULTANTS.

Table 5-7. Values of C in the Formula $Q = CLH^{3/2}$, Being the Mean and Extension of Experimental Results on Weirs of Triangular Cross Section with Vertical Upstream Face and Sloping Downstream Face

This table should be used only for heads above 0.7 ft.

Slope of downstream face	Value of C	Slope of downstream face	Value of C	Slope of downstream face	Value of C
Hor. Vert.		Hor. Vert.		Hor. Vert.	
1 to 1	3.85	6 to 1	3.07	12 to 1	2.86
2 to 1	3.54	7 to 1	3.02	14 to 1	2.80
3 to 1	3.35	8 to 1	2.98	16 to 1	2.76
4 to 1	3.21	9 to 1	2.94	18 to 1	2.72
5 to 1	3.13	10 to 1	2.92	20 to 1	2.69

Table 5-8. Values of C in the Formula $Q = CLH^{3/2}$ for Weirs of Triangular Cross Section with Both Faces Inclined

For heads above 1.5 ft use the value of C given for a head of 1.5 ft.

Slope of upstream face	Slope of downstream face	Head in feet, H										
		0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5
Hor. Vert.	Hor. Vert.											
1 to 1	1 to 1	....	4.26	4.20	4.14	4.11	4.11	4.11	4.10	4.08	3.93	3.75
1 to 1	2 to 1	3.82	3.80	3.77	3.77	3.79	3.82	3.84	3.85	3.85	3.85	3.84
1 to 1	3 to 1	....	3.55	3.52	3.48	3.46	3.45	3.46	3.47	3.48	3.47	3.46
2 to 1	2 to 1	3.88	3.85	3.83	3.81	3.81	3.83	3.86	3.87	3.87	3.87	3.87
1 to 1	2 to 1	3.82	3.81	3.77	3.77	3.78	3.82	3.83	3.84	3.84	3.84	3.84
1 to 2	2 to 1	3.74	3.71	3.68	3.69	3.72	3.73	3.73	3.74	3.74	3.73	3.71
1 to 3	2 to 1	3.65	3.64	3.64	3.67	3.68	3.69	3.69	3.69	3.69	3.68	3.66
Vertical	2 to 1	3.56	3.47	3.47	3.51	3.54	3.57	3.58	3.58	3.58	3.59	3.57

Table 5-9.* Values of C in the Formula $Q = CLH^{3/2}$ for Weirs of Trapezoidal Cross Section with Both Faces Inclined

This table indicates that values of C increase slightly for heads above 1.5 ft

Slope of upstream face	Slope of downstream face	Width of crest in feet	Head in feet, H										
			0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.2	1.5
Hor. Vert.	Hor. Vert.												
1 to 2	1 to 1	0.66	2.70	2.82	2.89	3.02	3.13	3.24	3.34	3.44	3.52	3.66	3.82
1 to 2	2 to 1	0.66	2.71	2.79	2.83	2.92	3.03	3.14	3.27	3.32	3.38	3.50	3.61
1 to 2	3 to 1	0.66	2.70	2.76	2.80	2.91	3.00	3.07	3.14	3.21	3.27	3.37	3.45
1 to 2	4 to 1	0.66	2.71	2.74	2.84	2.88	2.98	3.06	3.12	3.17	3.21	3.28	3.36
1 to 2	5 to 1	0.66	2.71	2.80	2.86	2.88	2.93	3.02	3.08	3.12	3.17	3.23	3.26
1 to 2	2 to 1	1.32	....	2.71	2.77	2.80	2.80	2.84	2.88	2.93	2.98	3.06	3.22
1 to 2	4 to 1	1.32	....	2.76	2.80	2.82	2.82	2.85	2.88	2.91	2.94	3.01	3.10
1 to 2	6 to 1	1.32	....	....	2.79	2.80	2.82	2.85	2.87	2.90	2.93	2.98	3.08
2 to 1	2 to 1	0.67	2.82	2.94	3.04	3.13	3.20	3.26	3.32	3.38	3.43	3.51	3.61
1 to 1	2 to 1	0.67	2.73	2.86	2.92	3.02	3.12	3.21	3.29	3.36	3.42	3.53	3.65
1 to 3	2 to 1	0.67	2.50	2.62	2.75	2.87	2.99	3.09	3.18	3.27	3.34	3.46	3.55
Vertical	2 to 1	0.67	2.55	2.58	2.66	2.77	2.90	2.99	3.09	3 18	3.26	3.39	3.51

* See also Table 5-10.

Table 5-10.* Values of C in the Formula $Q = CLH^{3/2}$ for Weirs of Trapezoidal Cross Section with Both Faces Inclined

Slope of upstream face	Slope of downstream face	Width of crest in feet	Head in feet, H									
			1.6	1.8	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5
Hor. Vert.	Hor. Vert.											
2 to 1	2 to 1	0.67	3.57	3.56	3.56	3.57	3.58	3.60	3.62	3.65	3.68	3.70
2 to 1	5 to 1	0.33	3.58	3.56	3.53	3.48	3.44	3.43	3.48	3.54	3.57	3.58

* See also Table 5-9.

12/14/2004 17:56 FAX 8472792510 STS CONSULTANTS. 013/014
12/14/2004 TUE 16:48 [TX/RX NO 6879] 013

Table 5-11. Values of C in the Formula $Q = CLH^{3/2}$ for Weirs of Trapezoidal Cross Section with the Upstream Face Inclined and the Downstream Face Vertical

Slope of upstream face	Width of crest in feet	Head in feet, H								
		1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Hor. Vert.										
2 to 1	0.33	3.85	3.82	3.79	3.77	3.75	3.73	3.70	3.67	3.64
2 to 1	0.66	3.41	3.57	3.65	3.70	3.72	3.72	3.73	3.73	3.73
3 to 1	0.66	....	....	3.57	3.57	3.57	3.57	3.57	3.57	3.57
4 to 1	0.66	....	....	3.48	3.48	3.48	3.48	3.48	3.48	3.48
5 to 1	0.66	....	....	3.39	3.39	3.39	3.39	3.39	3.39	3.39

Table 5-12. Values of C in the Formula $Q = CLH^{3/2}$ for Weirs of Irregular Cross Section

No. of figure	Head in feet, H									
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5
5-11	3.13	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22
5-12	.....	3.41	3.35	3.30	3.33	3.37	3.38	3.38	3.38	3.38
5-13	3.47	3.46	3.41	3.35	3.32	3.33	3.37	3.41	3.46	
5-14	.....	.....	.....	3.44	3.39	3.38	3.38	3.39	3.41	
5-15	3.28	3.29	3.32	3.39	3.46	3.51	3.59	3.62	3.65	

Table 5-13. Values of C in the Formula $Q = CLH^{3/2}$ from Experiments at Cornell University

Experiments were made on models resembling existing dams (except that the last two experiments were made on actual dams).

No. of figure	Length of model in feet	Head in feet, H									
		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
5-16	7.94	....	3.30	3.32	3.36	3.40	3.43	3.48	3.53	3.62	3.72
5-16	15.97	3.32	3.44	3.46	3.42	3.41	3.46	3.50			
5-17	7.98	....	3.38	3.46	3.51	3.55	3.58	3.62	3.68	3.74	3.83
5-17	15.97	3.22	3.48	3.61	3.67	3.70	3.72				
5-18	15.97	3.15	3.45	3.64	3.75	3.82	3.87	3.88			
5-19	15.97	3.23	3.34	3.43	3.52	3.59	3.64				
5-20	15.97	3.18	3.30	3.37	3.42	3.46	3.49	3.52	3.54		
5-21	15.97	3.28	3.50	3.54	3.52	3.36	3.31	3.30			
5-22	15.97	3.53	3.54	3.55	3.50	3.35	3.27	3.25	3.25		
5-23	15.93	3.13	3.14	3.10	3.14	3.20	3.26	3.31	3.37		
5-24	.....	3.09	3.11	3.33							
5-25	.....	....	3.30								

Table 5-14. Errors in Weir Discharge Resulting from Errors in Measurement of Head

Discharge in second-feet Q	Error in head in feet	Weir 1 ft. long		Weir 2 ft. long		Weir 5 ft. long		Weir 10 ft. long		Right-angled V-notch weir	
		Head	Per cent. error in Q	Head	Per cent. error in Q	Head	Per cent. error in Q	Head	Per cent. error in Q	Head	Per cent. error in Q
0.05	0.001	0.06	2.6	0.04	4.0	0.02	8.0	0.01	12.0	0.20	1.2
	0.005		13.2		21.2		41.0		68.0		6.1
	0.010		26.6		43.6		85.0		144.0		13.2
0.10	0.001	0.09	1.6	0.06	2.6	0.03	5.0	0.02	8.0	0.27	0.9
	0.005		8.1		13.2		25.0		41.0		4.6
	0.010		16.4		26.6		51.5		85.0		9.1
0.50	0.001	0.27	0.5	0.17	0.9	0.09	1.6	0.06	2.6	0.52	0.5
	0.005		2.7		4.3		8.1		13.2		2.4
	0.010		5.5		8.7		16.4		26.6		4.8
	0.050		27.3		45.7		89.5				23.8
1.00	0.001	0.44	0.3	0.27	0.5	0.15	1.0	0.09	1.6	0.69	0.4
	0.005		1.7		2.7		5.0		8.1		1.8
	0.010		3.4		5.5		10.1		16.4		3.6
	0.050		17.0		27.3		53.6		89.5		18.0
2.50	0.001	0.82	0.2	0.51	0.3	0.27	0.5	0.17	0.9	1.00	0.8
	0.005		0.9		1.5		2.7		4.3		1.2
	0.010		1.8		3.0		5.5		8.7		2.5
	0.050		9.1		14.7		27.3		45.7		12.4
5.00	0.001	1.32	0.1	0.82	0.2	0.44	0.3	0.27	0.5	1.32	0.2
	0.005		0.6		0.9		1.7		2.7		0.9
	0.010		1.1		1.8		3.4		5.5		1.9
	0.050		5.6		9.1		17.0		27.3		9.2
10.00	0.001	2.11	0.1	1.32	0.1	0.71	0.2	0.44	0.3	1.75	0.1
	0.005		0.4		0.6		1.1		1.7		0.7
	0.010		0.7		1.1		2.1		3.4		1.5
	0.050		3.5		5.6		10.6		17.0		7.3
25.00	0.001	3.93	0.1	2.45	0.1	1.32	0.1	0.82	0.2	2.53	0.1
	0.005		0.2		0.3		0.6		0.9		0.5
	0.010		0.4		0.6		1.1		1.8		1.0
	0.050		1.8		3.0		5.6		9.1		5.0

12/14/2004 TUE 16:48 [TX/RX NO 6879] 014
12/14/2004 17:56 FAX 847/272-6110 SIS CONSULTANTS.

APPENDIX B

WAVE RUNUP CALCULATION

The calculation *Wave Runup and Freeboard Estimation at White Tanks Flood Retarding Structure (FRS) No. 3* is provided in Appendix C (Calculation C-15) of the Design Report.

Technical Memorandum

URS

7720 N. 16th Street
Suite 100
Phoenix, Arizona 85020
602.371.1100 Tel
602.371.1615 Fax

Action	Info	File
Larry Lambert - FCDMC Ilde Chavez – NRCS Ravi Murthy - ADWR		23443748

From Todd Ringsmuth/Hammad Hussain

Date January 14, 2005

Subject Response to NRCS Hydrology and Hydraulics Comments
White Tanks FRS No. 3 Remediation Project

Document Reviewed: Hydrologic and Hydraulics Design Details Memorandum, White Tanks FRS No. 3 Remediation Project. Dated August 20, 2004.

Comment Letter Date: September 10, 2004

The following text includes the comment (shown in italics) followed by the response. The response may include a discussion concerning the comment and/or reference to a section of the 100 Percent Design Report that includes revisions to text, tables, or figures. In some cases, references may be made to the 100 Percent plans or specifications.

RESPONSES

1. *At Calculations-11, the 10-day drawdown level for the first storm is Elev. 1206.92, and at Calculations-13, the 10-day drawdown level is 1204.78. It is recommended that the difference in drawdown levels be clearly explained.*

The purpose of Calculation Package 11 is to demonstrate that back-to-back 100-year, 10-day storms would be contained below the emergency spillway crest elevation. The 10-day drawdown level of elevation 1,206.92 ft (NAVD 88) occurs at the end of inflow from the first 10-day storm. This elevation is used as the antecedent reservoir condition (ARC) for the second 10-day storm.

The purpose of Calculation Package 13 is to develop the ARC for routing of the probable maximum flood (PMF) and emergency spillway hydrograph (ESH) for the Future Condition (Principal Spillway Closed). The ARC for this condition is based on the water surface elevation

10 days following the peak reservoir elevation resulting from routing of the 100-year, 10-day storm. The resulting water surface level, and the ARC for this routing condition, was elevation 1,204.78 ft (NAVD 88). Reservoir ARCs were developed for the Interim Condition and Future Condition (Principal Spillway Open) in separate calculation packages.

2. *Section 10, Reservoir Routing, page 10.2, first bullet: the sentence "This criteria is required because the reservoir has gated outlets and no principal spillway" would seem to need revision.*

Section 10.2 of the Design Report has been revised to provide further clarification of the three routing conditions.

3. *Section 10, Reservoir Routing, top of page 10.5: the description of the ESH routing needs clarification.*

Section 10.5 of the Design Report has been revised to provide further clarification of the ESH routing results.

4. *At Calculations-7, the inclusion of a TR-20 schematic map showing drainage areas, CN's, Tc's and diversions would be helpful.*

A TR-20 schematic map showing drainage areas, CN's, Tc's and diversions has been developed and included in Calculation Package 7. The schematic map is provided as Figure 1.

5. *It is recommended that calculation package-23 include a graphical representation of the stage-discharge for the principal spillway.*

A graph showing the stage discharge relationship for the principal spillway has been included in Calculation Package 23. This graph was included in the 90 Percent Design Report as Figure 14-1.

6. *The method used in Calculations-28 for wave run-up is reasonable. It is recommended that the wave height be added to maximum elevation attained by the routed emergency spillway peak and not the maximum elevation attained by the routed freeboard storm. Please note the NRCS criteria for wave action freeboard contained in TR 60, Earth Dams and Reservoirs, page 5-1.*

Based on NRCS criteria, the design height of an earth embankment is to be sufficient to prevent overtopping of either the 1) freeboard hydrograph or 2) the emergency spillway hydrograph (ESH) plus the freeboard required for frost conditions or wave action, whichever is larger. It should be noted that White Tank FRS # 3 is a Class C dam based on dam classification criteria

outlined in NRCS's Manual TR-60 *"Earth Dams and Reservoir"*. Based on the criteria defined in Table 2-5 of TR-60 Manual, for a Class C dam, a freeboard hydrograph is a PMF storm and an emergency spillway hydrograph can be defined as follows:

$$ESH = P_{100} + 0.26(PMP-P_{100})$$

Where,

P_{100} = 100-yr 6-hr Precipitation

PMP = 6-hr Local PMP

Based on the reservoir routing results of the freeboard hydrographs (6-hour Local PMF) for all three conditions, the maximum reservoir stage occurs during the reservoir routing of the 6-hr Local PMF for the Future Condition (Principal Spillway Closed) at an elevation of 1,216.5 feet (NAVD 88). Based on the reservoir routing results of the ESH for all three conditions, the maximum reservoir stage occurs for the Future Condition (Principal Spillway Closed) at an elevation of 1,213.7 feet (NAVD 88). This latter assumption was used in the analysis due to the uncertainty involved with the downstream principal spillway outlet channel.

The wave runup calculation has been revised in response to ADWR comments using the procedures described in USBR's Manual ACER TM. No. 2 (1981). Wave runup was estimated to be 1.6 feet. The revised calculation package related to the wave runup calculations is included in Appendix A. During the meeting held on December 15, 2004, ADWR agreed that 1.0 foot of freeboard above the PMF would be acceptable for the soil cement embankment sections and 1.6 feet of freeboard would be acceptable for the earthen embankment sections. In addition, the 1.6 feet of freeboard would consist of 1.0 ft of embankment structural fill and 0.6 ft of aggregate base material used for the crest roadway.

The maximum pool elevation for the ESH plus wave runup is 1,215.3 ft (NAVD 88) which is below the design embankment crest elevation of 1,218.0 ft (NAVD 88) and the potential lowered crest elevation due to subsidence of 1,217.0 ft (NAVD 88).

The reservoir routing results of a single 100-year 10-day storm shows that the maximum water level for all three conditions is below the emergency spillway crest. In addition, for the conservative routing case of Future Condition (Principal Spillway Closed), the routing results indicated that back-to-back 100-year, 10-day storm events would be contained below the emergency spillway crest.

FIGURES

URS White Tanks FRS No. 3

DATE _____

PROJECT NO. _____

PAGE NO. _____ OF _____ BY _____

TR-20 Schematic Map

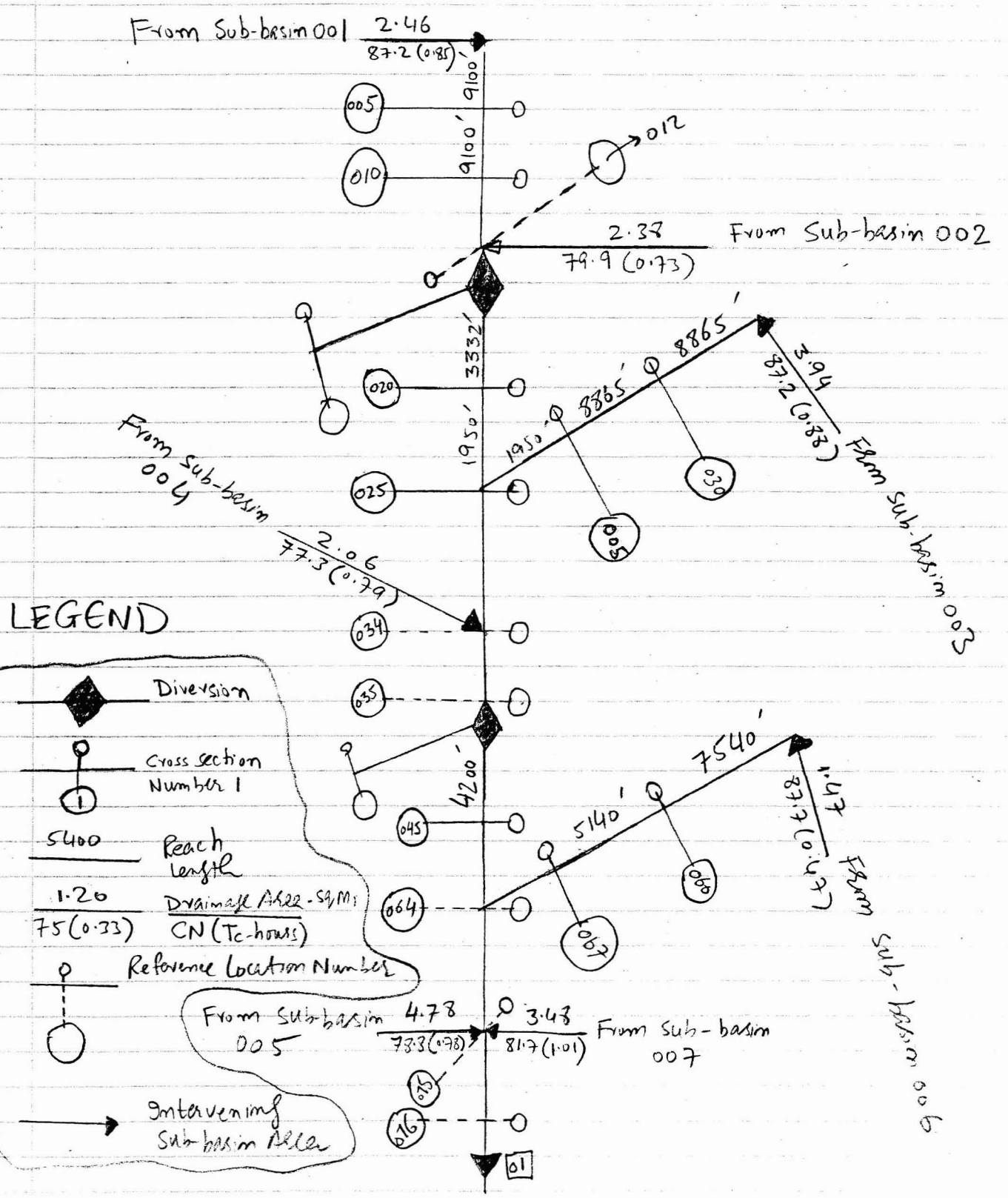


Figure 1

APPENDIX A

WAVE RUNUP CALCULATION

The calculation *Wave Runup and Freeboard Estimation at White Tanks Flood Retarding Structure (FRS) No. 3* is provided in Appendix C (Calculation C-15) of the Design Report.

Technical Memorandum

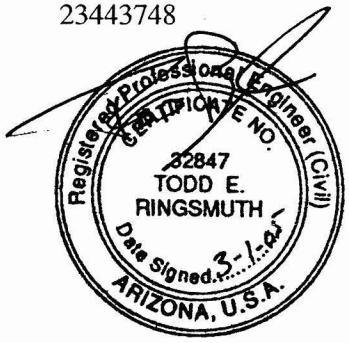
URS

7720 N. 16th Street
Suite 100
Phoenix, Arizona 85020
602.371.1100 Tel
602.371.1615 Fax

Action **Info** **File**

Larry Lambert - FCDMC
Ilde Chavez – NRCS
Ravi Murthy - ADWR

23443748



From Todd Ringsmuth

Date March 1, 2005

Subject Response to NRCS Design Comments (Phoenix)
White Tanks FRS No. 3 Remediation Project

Document Reviewed: White Tanks 3, Comments on URS Resubmittal of 90% Design. Dated November 12, 2004.

Comment Letter Date: December 2, 2004

The following text includes the comment (shown in italics) followed by the response. The response may include a discussion concerning the comment and/or reference to a section of the 100 Percent Design Report that includes revisions to text, tables, or figures. In some cases, references may be made to the 100 Percent plans or specifications.

RESPONSES

90% Design Report

1. *Section 7 and Soil Cement Issues.*

   The amount of fines (-200) in all of the borrow sites for the project will likely create mixing problems in the field conditions. An ideal amount of fines is around 25%. USACE recommends a maximum of 35%. Test results for the borrow areas have a very wide range (11 to 86%).

   In the very controlled conditions of the lab, soil cement tests using the borrow materials yielded adequate strength results. However, mixing production quantities in the field will likely become problematic with respect to clay balls. Also, there is a possibility of low

strength test results not only because of clay balls, but historic data on soil cement having high fines content yields substantially lower strength gain with time as compared to coarse grained soils. Other review comments follow in the construction specification comments later in this document.

Concur. The on-site borrow sources have an average percent fines of about 50 percent that exceeds the standard of practice, as noted in the Design Report. However, short-term (7-day) and long-term (90 day +) compressive strengths were adequate, as noted above and in the Design Report. Clay ball formation may occur on a limited basis in the field, but is not likely to be problematic due to the low plasticity of on-site soils. The average plasticity index (PI) for on-site plastic soils was 5.5, and a large percentage of tested soils were non-plastic (PI of 0). Clay balls tend to start forming when the PI is greater than 8. Maricopa County's criteria for plasticity is a maximum PI of 25.

To account for variation in field mixing and the high percent fines, a cement content increase is recommended in the Design Report. A Portland Cement Association (PCA) document titled "Soil-Cement for Water Control: Laboratory Tests", dated 1976, recommends using a cement content increase of 4 percentage points for erosion resistance if the soil contains more than 50 percent fines. The recommended 4-point increase applies mainly to structures that will be subjected to repeated wave action or freeze/thaw and wet/dry cycles, which is not the case with White Tanks Flood Retarding Structure (FRS) No. 3. However, we feel a moderate cement content increase is still warranted to account for variations in field mixing and the high fines content, and are therefore recommending a 9 percent cement content, which is 1.5, 3, and 4 points higher than the cement contents of 7.5, 6, and 5 percents that met the 7-day 750 pounds per square inch (psi) strength criteria, for the three borrow areas, respectively.

Although the background (bench scale laboratory test data) for the designer's recommended 9 percent cement content will be available to the Contractor, a 9 percent cement content will not be specified. The Special Provisions will be changed to a performance specification of a 7-day, 750-psi compressive strength.

2. *Section 12.4.1.2*

The upstream slope of dam is designed at 2 to 1 slope. Slope stability calculations do not appear to address the potential of small slips on this slope. If it is not stable when saturated, it may create extra maintenance costs for the sponsor. Suggest proving the 2:1 upstream slope is stable.

The common fill upstream of the soil cement core's vertical face will be used for construction of the soil cement and provided a safe slope prior to completion of the Phase 2 embankment. Phase 2 construction activities include placement of additional aesthetic fill to flatten the upstream slope to 3:1 (horizontal:vertical) or flatter. The soil cement core was determined to be stable if the upstream and downstream fills were not present. Some maintenance may be required between Phase 1 and Phase 2, but it is anticipated to be minimal.

3. *Section 12.4.1.3*

   The design incorporates 2 cutoff walls that extend 40 feet below the original ground line. To our knowledge, there is not a flood control structure in the Phoenix area that has even half this level of protection.

   When comparing Phase I to the proposed Phase II of the White Tanks project, there is an extremely abrupt change in cutoff design. This implies there is a lot more knowledge of predicting fissure location than there really is.

The cutoff walls will be installed 30 feet below the base of the soil cement dam. The base of the soil cement dam beneath existing grade surface varies from 0 to 10 feet. The cutoff wall depth was selected based on the results of the geotechnical investigation and the Engineering and Hydrosystems (E&H) fissure erosion analysis. The basis for using two soil cement-bentonite (SCB) cutoff walls is largely related to the requirements of the Arizona Department of Water Resources (ADWR), especially as they relate to ADWR's review of the E&H fissure erosion modeling and the requirements that fissure flows be kept small, and eroded fissure widths also be kept small (much smaller than the fissure width capable of being spanned by the soil-cement core). Fissure erosion modeling results have also shown that two SCB walls are necessary to prevent significant erosion of the more erodible Upper Pleistocene material and create an adequate fissure flow path length that limits downstream discharge to levels that can be safely conveyed. In addition, the use of two cutoff walls is required to provide structural stability of the full width of the foundation of the soil cement dam section.

The Phase 1 Fissure Risk Zone (FRZ) design is largely based on the results of AMEC's Preliminary Geotechnical Investigation (2004), in which areas of elevated fissure risk are documented. Factors that indicate a greater fissure risk in the Phase 1 FRZ include a distinct break in the measured leveling profiles along the dam crest, possibly greater interferometric gradients, an increased density of prominent photolineaments, and the presence of deflation features in the Holocene alluvium. Please refer to AMEC's report if more detail is needed.

Construction Specifications 90% Submittal

General:

- *The style of the construction specifications is quite different from NRCS standard format. In some cases, they are difficult to follow.*

The Supplementary General Conditions and Special Provisions follow the Maricopa Association of Governments (MAG) standard format. This format is used for all Flood Control District of Maricopa County (District) projects.

- *Not all of the bid item numbers align with those shown on sheet 4 of the drawings. For example, Specification 728 for Controlled Low Strength Material is listed as 604 on sheet 4.*

The bid item numbers have been revised accordingly.

- *Specific comments follow:*

Section 205 Roadway Construction is vague. The drawings only show a cross hatched area for an O&M road. The specifications discuss measurement by the square yard and also by excavation quantity. The payment section only refers to square yards. It is unclear as to what is really expected of the contractor and the compensation method.

Operation and Maintenance (O&M) roadway construction will be measured and paid per square yard. Any required excavation is incidental to the activities listed in this section. The Special Provisions have been revised accordingly.

Section 206 Structure Excavation and Backfill is a single specification for two types of work as its title implies. There is another specification 211 Fill Construction that includes among others, structural fill. Section 206 sometimes refers to Section 211, but also calls out Incidental Structure Backfill that is not to be paid for, but is undefined as to what really constitutes incidental structure backfill. Recommend each specification focus on one subject, in this case Structural Excavation. Backfill should be handled in 211 Fill Construction.

This format follows the standard MAG standard format for specifications. Revisions have been incorporated into the Special Provisions to better differentiate these materials.

Section 211 Fill Construction Subsection 211.2.5 limits the loose lift thickness for common fill to 8-inches. The minimum density specified is 85% of standard proctor. Rock size is limited to 6-inches. A 6-inch rock in 8-inches of loose fill will bridge over the surrounding fill. Recommend a 9-inch loose lift thickness be specified.

The Special Provisions have been revised to specify a 12-inch loose lift thickness.

Subsection 211.6 calls out Bid Item 211-1 Sand Filter. It is called Graded Filter in the special provisions and on the drawings.

The Special Provisions and Drawings have been revised accordingly.

Section 221 Soil Cement Subsection 221.2.3 allows a PI up to 25, according to MCFCD specifications. MCFCD specifications also limit the fines content to 8% which cannot be achieved with the projects borrow sources. This contract allows fine content up to 45%, so recommend reducing the allowable PI to minimize clay ball formation in the soil cement mixing process. The 90% Design Report, page 7-10, reports that of 73 samples, zero to ten feet deep, the PI ranged from zero to 26%, with an average of 5.5%. Recommend maximum PI in the range of 8 to 10% to facilitate mixing in the field.

Concur. Section 221 of the Special Provisions will be revised to require that the aggregate stockpiles be tested for plasticity, and that a maximum PI of 10 shall be required.

Subsection 221.4.10 requires <u>permanently</u> exposed surfaces of soil cement to be kept moist 7 days. Does this apply? The contractor could argue the soil cement will be buried so moist curing is not applicable.

The entire crest of the soil cement core and areas located on the upstream side of both transition areas are exposed soil cement. The Drawings have been revised to show the exposed soil cement areas.

Subsection 221.6 refers to "dam extension embankment and apron." It is not clear what this is, as the same terminology is not used elsewhere.

The term "extension" was removed from the Special Provisions.

Subsection 221.7 provides that the engineer can increase cement content. There is a substantial amount of cement to be used for the project for both soil cement and the cutoff walls. Perhaps cement should be a separate bid item since the engineer can control the amount to be used.

During the December 15th and 16th, review meetings with the Natural Resources Conservation Service (NRCS), URS Corporation, the District and ADWR, it was determined that a performance specification would be used for soil cement and soil-cement-bentonite backfill used for the cutoff walls. All references for cement content were removed from soil cement (Sections 221) and cutoff wall (Section 606) Special Provisions. Separate bid items for cement content will not be added to the Special Provisions.

Subsection 221.10, paragraph M, references the soil cement as 0.6 to 1 slope per an earlier design, and neglects to call out the vertical slope upstream. This paragraph also states that earthfill is to come up with the soil cement lifts in order to maintain the steep soil cement slope. On the downstream side of the soil cement, it would appear the original dam fill section is the logical source of material to be used. However, this material is not allowed to be removed until after completion of the new section upstream. The cross sections on the drawings imply there is a substantial amount of material to be excavated from the original dam to be used as common fill, yet it is not available until the soil cement section is complete. The design report, section 12.4.1.2 states that the existing embankment can not be lowered 1213.5 until the new section is placed.

All slope references in the Special Provisions have been revised to match the current design. The common fill and structural fill placed simultaneously with the soil cement will not come from the portion of the existing dam to be removed below elevation 1,213.5 feet (NAVD88). The soil material from the existing dam below elevation 1,213.5 feet (NAVD88) will be used to construct the downstream common fill from the crest elevation of the new embankment (1218 feet) to the 1,200-foot elevation of the downstream side of the existing dam. Excavation of the existing dam below elevation 1213.5 feet (NAVD88) must not occur until construction of the entire soil cement embankment and structural fill transitions have been completed in order to maintain embankment integrity.

Section 225 Watering Subsection 225.1 reads as if the Engineer will direct (i.e., be responsible for) the application of water. Later in the text, the responsibility is appropriately placed on the contractor, but the first section is misleading.

The Special Provisions have been revised accordingly.

Section 310 Untreated Base is for 6-inch thick layer placed on O&M roads. The specification requires 95% compaction. QA and QC schedules numerous density, moisture and Atterberg limit tests. Recommend lab test for source material gradation and a method specification for the number of passes of a pneumatic tired or smooth drum vibratory roller required for compaction. This is a 6-inch thick gravel road on grade and left exposed to the elements. All the compaction tests are of no value to the quality of the project. The specification should also reference base material on top of dam, as it is not called out as an O&M road.

The Special Provisions have been revised accordingly.

Section 505 Concrete Structures Subsection 505.3.1 allows form removal in 24 hours. The riser and the impact basin both have slab spans. Forms supporting these slabs should be left in place 4 days according to NRCS standards.

The Special Provisions have been revised accordingly.

Section 520 Steel Handrails, the drawings do not show any handrails. Is this specification required?

Steel handrails are shown on the Drawings along the top of the impact basin.

Section 606 Vertical Cutoff Wall Construction Subsection 606.2.2.9.1 paragraphs A and B are unclear as to the values shown in parenthesis.

The values shown in parenthesis are cement and moisture content increases, but are no longer applicable, as the project specifications have been changed to a strength requirement. The Contractor will be required to produce SCB material that meets a 7-day compressive strength requirement of 80 psi and a 28-day compressive strength requirement in which 80 percent of the test cylinders are within a range of 150-200 psi.

Subsections 606.2.3 and 606.5.3 refer to guide walls. Do these need to be shown on drawings?

The Drawings have been revised to include details of the guide walls. The guide walls will be constructed along the inside edge of the SCB cutoff walls. The Drawings will detail dimensions and steel requirements.

Subsection 606.5.5 requires 24-inch minimum joint overlap for panels. Conflicts with Subsection 606.9.1 which requires 30-inches of joint contact.

Section 606.5.5 will be revised to match Section 606.9.1, which requires a minimum joint contact of 30 inches.

Section 725 provides for 3,000 psi concrete for the principle spillway riser and impact basin. NRCS would normally use 4,000 psi.

Class AA, 4,000 psi concrete was added to the Special Provisions and required for all reinforced concrete structures.

Section 727 specifies grade 40 steel reinforcement. Grade 60 is commonly available.

The Special Provisions have been revised accordingly.

Section 728. It appears the 700 series specifications are focused on materials. 728 is a material specification for the material to set the co-axial cables for the instrumentation, and also includes measurement and payment aspects. There is no "construction specification" for the installation of dam instrumentation.

The measurement and payment references in Section 728 were deleted. Measurement and payment for Controlled Low-Strength Material (CLSM) are included in Section 604 of the Special Provisions which has been added for the 100% submittal. Section 729: Time Domain Reflectometery (TDR) Instrumentation has been added to the specifications and will be included with the 100% submittal.

Construction Quality Assurance Quality Control Plan (90% Resubmittal)

- *The document as written is a Quality Assurance plan. As such it is incorrectly titled. There is little information concerning quality control activities by the contractor. In fact, the government should not really design a quality control plan for the contractor. It is the contractor's responsibility to develop such a plan, tailored to the contractor's experience. equipment, use of subcontractors, etcetera.*

The Construction Quality Assurance Quality Control (CQA/QC) Plan is a requirement of the ADWR application. The requirements for the Plan require that both the Contractor's quality control responsibilities and the CQA Consultant's quality assurance responsibilities be identified in the Plan. The focus of the Plan is to differentiate quality control and quality assurance and list the minimum requirements for both activities. Regardless of the testing frequencies outlined in the CQA/QC Plan, the Contractor is responsible for achieving the performance requirements listed in the Special Provisions.

The CQA/QC Plan, Section 2, was revised to define the General Contractor as being responsible for all QC activities. These activities include QC, conformance requirements and submittal requirements by any Subcontractor, Vendor, Manufacture, etc. used on the project and directly contracted through the General Contractor.

- *The purpose stated on page 4 of 36 should not state it is a QA/QC Plan.*

See previous response.

- *Page 6 of 36 identifies General/Earthwork Contractor, Subcontractors, and Geosynthetic Manufacturer. The general may not in fact be the earthwork contractor. The government has no contract with subcontractors or suppliers. There are other suppliers than the geosynthetic. The General Contractor is responsible for all quality on the project. Recommend only defining the quality assurance positions and entities rather than including the contractor side.*

The CQA/QC Plan is a requirement of the ADWR application. The requirements for the Plan require that both the Contractor's quality control responsibilities and the CQA Consultant's quality assurance responsibilities be identified in the Plan.

- *There is no bid item for Contractor Quality Control, yet the plan states the Construction Materials Testing Laboratory is independent of the General Contractor. Recommend a construction specification and bid item for quality control be developed. If this is done, the testing frequency's identified within the special provisions could be moved to the new quality control specification.*

The Contractor is required to provide unit costs associated with each bid item that is inclusive of Construction Quality Control (CQC) testing.

- *Tables for earthwork testing:*

    - *Recommend no field testing requirements for Untreated Base.*

The field testing requirements for the untreated base have been revised accordingly.

    - *Recommend In-place density by nuclear gage for graded filter at 1 test per lift be eliminated. The construction specification requires compaction by indeterminate number of passes of vibratory plate, passes as determined by the engineer in the field. One test per lift equates to one test per 2.9 CY of graded filter. The table references a modified test procedure in the special provisions, but this reviewer can not find such a procedure in the text. The graded filter is very sandy such that a Relative Density test is more appropriate. Recommend deleting any density test requirement for the graded filter.*

During the December 15th and 16th review meetings with NRCS, URS Corporation, FCDMC and ADWR, it was determined that a method specification be used for the construction of the graded filter. This specification will require the contractor to place 6-inch loose lifts and perform two passes on each lift with a medium-energy vibratory compactor for the construction of the graded filter. This compaction effort is based on URS' experience with filter material compaction, which has shown: (1) high-energy compaction methods can crush the grains, changing the gradation, and (2) there is potential for cracks to propagate through the filter zone if the filter material is compacted too dense.

Technical Memorandum

URS

7720 N. 16th Street
Suite 100
Phoenix, Arizona 85020
602.371.1100 Tel
602.371.1615 Fax

Action	Info	File
Larry Lambert - FCDMC Ilde Chavez – NRCS Ravi Murthy - ADWR		23443748

From Todd Ringsmuth

Date March 1, 2005

Subject Response to NRCS Design Comments (Albuquerque, New Mexico)
White Tanks FRS No. 3 Remediation Project

Document Reviewed: White Tanks 3, Comments on URS Resubmittal of 90% Design, dated November 12, 2004.

Comment Letter Date: December 8, 2004

The following text includes the comment (shown in italics) followed by the response. The response may include a discussion concerning the comment and/or reference to a section of the 100 Percent Design Report that includes revisions to text, tables, or figures. In some cases, references may be made to the 100 Percent plans or specifications.

RESPONSES

Design Engineer's Report

- *Different words have been used for Rehabilitation of the dam. For consistency it would be better to use the word Rehabilitation.*

The Flood Control District of Maricopa County (District) has used the term "Remediation" for this project as well as previous projects associated with the White Tanks Flood Retarding Structure (FRS) No. 3. For clarification purposes, the term "Remediation" will be defined in the Design Report and used interchangeably with the term "Rehabilitation."

- *In NRCS criteria, we use "auxiliary spillway" for "emergency spillway." Recommend using TR-65, to evaluate this project for Environmental Considerations.*

The term "emergency spillway" is used at the direction of the District. Emergency spillway is the preferred nomenclature for District structures.

The District, with assistance from the Natural Resources Conservation Service (NRCS), prepared a Draft Rehabilitation Plan/Environmental Assessment for the White Tanks No. 3 Project in March 2004.

- *In the separate sections for Construction Drawings, Bid Schedule, Cost Estimate, and Specifications, provide supporting documents describing the standards and methods on how each has been, or will be, prepared.*

The Construction Drawings have been prepared in accordance with the District CADD Standards. The Bid Schedule has not been prepared as part of the 90% submittal, but will be included with the final submittal. The Bid Schedule will be prepared in accordance with the Maricopa Association of Governments (MAG) standard format. The Cost Estimate and Specifications follow the MAG standard format.

- *Will the consultant or Maricopa County Flood Control District prepare any Notes to the Project Engineer (items that require the special attention and awareness during construction) for instruction of the CQA Consultant, Construction Manager, and CQA Project Engineer? The NRCS typically provides information in a condensed form, for its project engineering staff to look for and consider during their monitoring of the construction.*

The Construction Quality Assurance Quality Control (CQA/QC) Plan provides specific directions and requirements for the field activities and conformance tests required.

- *Section 12.6.3.4 Minimum Acceptable Factors of Safety, note that NRCS TR-60 requires an end of construction factor of safety of 1.4. This should be used as the controlling criteria for end of construction stability. The design report should reflect, and report whether NRCS criteria are met in regards to stability.*

Concur. In addition to the Arizona Department of Water Resources (ADWR) slope stability requirements referenced in Section 12.6.3.4, the NRCS slope stability requirements will also be referenced, and it will be reported that the NRCS criteria has been met.

- *Soil Cement Bentonite Cutoff Walls Holistically, the use of both an upstream and downstream SCB wall still seems overly conservative, after review of the total package. Engineering & Hydrosystems, Inc. comments that erosion of the Upper Pleistocene could occur if a fissure flow would rise beneath the soil cement dam after passing one cutoff is noted. However, the Design Report (12.6.4.1 page 12-21) notes that "the probability of*

having an undetected through-fissure ... with flood loading is greater than 10^{-8} for the PMF and 10^{-4} for the 200-year storm ..." Additionally, the soil-cement beam design has been stated to be able to span a fissure in the order of 60 to 70 feet wide. Furthermore, there is a considerable range of anticipated erodability of the Pleistocene soils, from high to low erodability. The design package indicates that the addition of an additional SCB cutoff wall materially adds little additional safety against an extremely low probability of a sequence of events causing a failure. It is noted on sheet 41 of the drawings that an additional SCB wall is located at the upstream inlet of the principal spillway. Here, we can see having two walls, one to potentially preserve the RCP conduit in the remote event of earth fissure flow beneath it, and the other at the upstream end of the soil-cement dam.

The basis for using two soil cement-bentonite (SCB) cutoff walls is largely related to the requirements of the ADWR, especially as they relate to ADWR's review of Engineering and Hydrosystems (E&H) fissure erosion modeling and the requirements that fissure flows be kept small, and eroded fissure widths also be kept small (much smaller than the fissure width capable of being spanned by the soil-cement core). Fissure erosion modeling results have shown that two SCB walls are necessary to prevent significant erosion of the more erodible Upper Pleistocene material and create an adequate fissure flow path length that limits downstream discharge to levels that can be safely conveyed. In addition, the use of two cutoff walls is required to provide structural stability of the full width of the foundation of the soil cement dam section.

Construction and Material Specifications

- *NRCS is required is to use National Engineering Handbook (NEH), part 642 in order to develop specifications and materials specifications. Has the NRCS and MCFCD agreed to use the format?*

The Supplementary General Conditions and Special Provisions follow the Maricopa Association of Governments (MAG) standard format. This format is used for all Flood Control District of Maricopa County (District) projects.

- *Section 206 Structure Excavation and Backfill Some clarity in the Specifications, and in the Construction Quality Assurance Plan, is necessary to clarify how the subgrade inspection will be performed, and who will be involved in the determination of an acceptable Pleistocene subgrade for soil cement or fill placement. Will one or more professional geologists and/or geotechnical engineers make the determination of an acceptable foundation for placement? Will the person or persons have the authority of, or advising, the CQA Director, Construction Manager, or Project Engineer? For the CQA plan, or other documents to the CQA team, a method of determination of acceptable Pleistocene subgrade should be explained. At this point, the subgrade inspection appears to be review and*

approval by committee without any hard procedure to determine acceptable subgrade. This could lead to confusion and disagreements during construction regarding when the contractor can begin fill or soil-cement placement. The method of inspection and approval of subgrade should also be discussed and clearly delineated during the pre-construction meeting.

During the December 15th and 16th review meetings with NRCS, URS Corporation, the District and ADWR, it was determined that there will be a single point of contact (Foundation Inspector) as part of the overall Construction Quality Assurance Team responsible for inspection and approval of the foundation condition prior to cutoff wall construction. This person will be an experienced Geologist or Geotechnical Engineer with specific knowledge of the soil conditions at the site. The Foundation Inspector will be on-site full time during the excavation and will determine when a suitable foundation exists. This determination will be made based on visual observations, nuclear density testing and seismic refraction survey testing. All parties listed above will have the opportunity to consult with the Foundation Inspector to confirm that a suitable foundation has been reached. The Foundation Inspector will be the overall authority on the foundation condition.

The Special Provisions and CQC/QA Plan have been revised to outline the inspection activities listed above. In addition, the foundation inspection and approval activities will be addressed during the pre-construction meeting.

Construction Quality Assurance Plan

- *10.3 Photographs Suggest that the photographic requirements are further clarified, such as whether photos shall be digital, or film, how stored and format they are provided in to the Engineer of Record. Also, suggest that at the beginning, or during a critical part of construction, that the CQA plan allows videos to be taken to document construction method and procedure.*

The CQA/QC Plan was revised accordingly.

- *Under drain rock, 6.5 and pipe installation, 8.2, it is noted that review and approval of the foundation or subgrade is required by CQA project engineer, ADWR, and NRCS. However, for Soil-Cement Bentonite, 7.2, approval is required by CQA project engineer and ADWR only. Explain the discrepancy in approval procedure for Soil-Cement Bentonite. Also, suggest that the plan describe how the approval will occur, i.e., shall a representative of each agency need to be on site to jointly approve these foundations or subgrades?*

Drain rock has been deleted from the design and replaced with geocomposite wall drain materials. Review and approval of foundation or subgrade is not a requirement for the geocomposite wall drain. The text was revised for the pipe installation and soil-cement-bentonite foundations requiring the foundations to be inspected by the CQA Project Engineer only. All requirements for agency approval of foundations have been removed from the Special Provisions and the CQA/QC Plan.

- *Bid Schedule – Has not been prepared.*

A Bid Schedule will be prepared for the final submittal.

- *Bid Schedule work sheet – Has not been prepared.*

A Bid Schedule will be prepared for the final submittal.

- *Engineer's Cost Estimate – Has not been prepared.*

The Engineer's Cost Estimate has been prepared, but was not submitted with the 90% submittal. An Engineer's Cost Estimate will be provided with the final submittal.

- *Operation and Maintenance Plan – Has not been prepared as part of this report. Does the MCFCD have and O&M plan developed for the new structure, or is this part of the remaining 10% design?*

An Operations and Maintenance Plan has been developed by the District and was submitted to NRCS (Phoenix) on February 16, 2005 for review and comment.

Construction Drawings

1. *Sheet 1 -3 – No comment*

2. *Sheet 4 (QS 1) -Quantity Summary, which is part of Bid Schedule, can be on the separate sheet not as a drawing.*

Drawing QS1 follows the District CADD standards. A separate Bid Schedule will be prepared for the final submittal.

3. *Sheets 5 through 14 (drawings number C l through C 10).*

   – *Check section labeling with the related plan. Some section labeling does not match with related plan.*

The Drawing references have been revised accordingly.

- *Sheet 7, on typical section of dam, downstream side, slope for the finished grade has not been labeled.*

The Drawings have been revised accordingly.

- *Construction Work Limit should be labeled, and make sure located in the Land Right limit.*

The Drawings have been revised accordingly.

- *Most slope indicator symbols on the drawings do not show the specific slope that is required, such as 2.5:1, 2:1, and 3:1. These should be provided for clarity, such as 2.5:1 Typical.*

The Drawings have been revised accordingly.

- *There is no consistency in the use of "Key Note" shown in three shapes.*

The key note symbol is shown as a diamond shape and is consistent throughout the Drawings. The circle and square shapes are not key notes; they denote construct and remove notes in accordance with District CADD standards.

- *The length of SCB Cutoff Wall located upstream has not been identified.*

The overall lengths of the cutoff walls have not been directly shown as a continuous dimension. However, stationing and dimensions associated with the beginning, end and each transition point of the cutoff walls has been shown on the Drawings. Additional detail has been included on the revised Drawing set.

4. *Sheets 15 through.31 (ST1 through DTI 7)*

- *On sheet 16 Section (B/16), opening should be 4-ft.*

The opening shown is in fact 4 feet. Refer to the section cut-line for clarification.

- *On sheet 17 Detail (1/16) should be (B/17). In general, the section numbering is a little confusing. Possibly, the sections could use a three part symbol, where shown in the symbol is the section letter, sheet where the section is taken, and sheet where the section is displayed.*

The Drawing references have been revised accordingly. The section and detail bubbles follow the District CADD standards.

- *Show 2" clear distance between surface of bar and the neat line of finished concrete.*

The clearance requirements for all sizes of reinforcing bars are shown on Drawing No. ST1 under the heading: COVER.

- *On sheet 19 section (A/18). Vertical bar is ended to finished concrete.*

The Drawing has been revised accordingly.

- *Sheet 20, Plan of trash rack bracket has not been labeled.*

The Drawing has been revised accordingly.

- *Will a steel schedule be furnished which could be part of 100% drawings?*

During the December 15th and 16th review meetings with NRCS, URS Corporation, the District and ADWR, NRCS agreed that a steel schedule would not be required for this project.

- *The drawings (ST I through ST17) for steel reinforcement are not sufficient for the contractor to place an order for steel. If a steel schedule is not provided, the contractor will have to develop full scale drawings for each structure element in order to determine steel quantities and place order for the same.*

As previously stated, during the December 15th and 16th review meetings with NRCS, URS Corporation, FCDMC and ADWR, NRCS agreed that a steel schedule would not be required for this project. The NRCS representatives in attendance stated that NRCS usually requires steel schedules on the Construction Drawings, but because the reinforced concrete structures were relatively small scale, steel schedules would not be required.

5. *Sheets 32 through 44, (XS 1 through XS44) – Recommend that stationing each section and details are shown on the drawings. Some details and sections shown are not located by any stationing.*

The Drawings have been revised accordingly.

6. *Sheets 45 through 47, (Dl through D3) – No comment.*

No response necessary.

- *Construction Performance Time Estimate is not included the Construction Documents.*

A Performance Time Estimate will be developed and included in the Contract Documents.

Appendices

A. *Arizona Department of Water Resources (ADWR), Permit Application Checklist – No comment*

B. *Subsidence Evaluation – No comment*

C. *Hydrology and Hydraulics General – The calculation packages have not been included with the 90 percent design report – No comment*

D. *Calculation packages -- Hydrology and Hydraulics NRCS criteria – No comment*

E. *Calculation packages – Hydrology and Hydraulics ADWR criteria – No comment*

F. *Fissure Erosion Modeling Report: See general comment above on soil-cement bentonite cutoff walls.*

No response necessary.

G. *Calculation packages – Geotechnical Design:*

GI – Seepage Analysis – No comment.

G2 – Slope Stability Analysis – Instantaneous rapid drawdown stability will affect the soil embankment, a triangular wedge, upstream of the soil-cement section. Since the interface between the soil fill and soil-cement is vertical, this section of the embankment is more like stand alone triangular wedge. Will a rapid drawdown cause a circular or wedge failure of this upstream soil fill? Since the vertical contact between the soil fill and soil cement is likely to act like a water filled crack, or discontinuity, this would cause additional loading to instigate an upstream failure of the soil fill section. Although the "real" dam for this project is the soil cement section, a rapid drawdown failure of the upstream soil triangular wedge could become and operations and maintenance repair for the project owner.

As noted, the upstream fill is not a structural component of the dam. The upstream fill will be initially used as a form for the soil-cement core, and will subsequently be flattened to a 3:1 (Horizontal:Vertical) slope or flatter during Phase 2 construction activities. During an extreme flood event, the phreatic surface would only have limited penetration into the fill. Some

operation and maintenance may be required prior to completion of Phase 2. construction activities.

G3 – Sliding and Overturning Stability Analysis – No comment.

G4 – Settlement Analysis – No comment.

G5 – Seismic Analysis – No computations have been submitted in this package.

A review of the appropriate seismic load for the site was performed by a URS geologist familiar with Arizona seismology, and a PGA of 10 percent g, was judged to be appropriate, as documented in Section 12.6.6.1 of the Design Report. No computations were necessary for determining the seismic load.

G6 – Soil Cement Beam Analysis – No comment.

H. Calculation packages – Structural Design

- *Flexural Bond Stress, Flexural Cracking, Required Development should be computed for each element of structure.*

Flexural bond stress is no longer a required computation for reinforced concrete structures. The development lengths and splice lengths listed in Table 3 on Drawing No. ST1 take into account bond strength requirements. These values are in accordance with ACI 318 requirements and should be used for development and splice length requirements for this project.

Flexural cracking was checked using the requirements of NEH Sec 6, page 6.4-3c. These calculations are included in an attachment to Calculation Package H. Also, the use of an allowable steel stress of 20,000-psi for 60,000-psi yield strength steel would limit flexural cracking of the concrete.

H1 – Principal Spillway Structural Seismic Stability: Calculation of Base Shear based on NRCS, Technical Release 68 can be used. This computer program is based on the Uniform Building Code, and even though it has not been updated to Windows format, is still acceptable.

The base shear value from Calculation Package H-1 will be used to check shear capacity at the base of the tower and to compute sliding stability of the tower. The base shear computations consider lumped mass earthquake forces on the structural elements, as well as hydrodynamic (Westergaard) forces, using horizontal accelerations recommended by the District. The value of base shear is judged to be conservative because of the loading assumptions considered. The use

of conservative base shear values result in acceptable sliding stability factors for the structure and acceptable shear values at the base of the tower. Therefore, the methods and assumptions for the seismic structural and stability analysis are considered reasonable. Calculations for sliding stability are included in an attachment to Calculation Package No. H-1, and calculations for shear at the base of the tower are included in an attachment to Calculation Package No. H-2.

H2 – Principal Spillway Structure Wall Strength Design: NRCS, Technical Release 30, structural design of standard covered riser can be used. NRCS, Design Note 18, the procedure selection of Standard Detail Drawings can be used.

The design was based on computed moments resulting from structural analysis of a plate fixed on three sides and free at the top. This is an accepted method for analysis of a wall of this type. The vertical reinforcement in the sidewalls was checked using the earthquake overturning moment. Shear capacity in the sidewalls was also checked. These calculations are shown in an attachment to Calculation Package No. H-2.

Design note 18 refers to a list of standard drawings that can be used for different heights of risers. We have patterned the structures after drawing layouts from similar NRCS sponsored projects. Therefore, we feel that the use of standard drawings at this time would not significantly benefit the accomplishment of project objectives.

– *Check Flexural Bond Stress for Vertical Bars.*

See response above to "H. Calculation packages – Structural Design"

– *Check Flexural Cracking for Wall and other elements of structure*

See response above to "H. Calculation packages – Structural Design"

H3 – Principal Spillway Structure Trash rack sidewall strength design – No comment

H4 – Principal Spillway Structure covers slab design – No comment

H5 – Principal Spillway Structure trash rack design – No comment

H6 – Principal Spillway Structure footing strength design – Reference computation sheet by HKB for Moment should be attached.

The reference for the moment should have been Page 5 of the computations. This change is marked on Page 1 of 5, Calculation Package No. H-6. The referenced sheet is included now as Page 5 of 5 to Calculation Package No. H-6.

– *Missing stability analysis.*

The stability analysis for the base slab is shown in Calculation Package No. H-1.

– *It is recommended to follow TR-30 step by step for designing riser.*

The procedure presented in Calculation Package No. H-6 for the design of the base slab for the riser is considered an acceptable design approach and, as a result, redesigning the base slab step by step using TR-30 is not considered necessary.

H7 – Impact Basin, Hydraulic design – No comment.

H8 – Impact Basin, wall thickness and reinforcement – The followings comments

– *Stability analysis consisting of Uplift Pressure for no flow and full flow condition should be performed.*

Uplift stability calculations were completed for the no flow condition between the concrete and the soil cement. These calculations are included in an attachment to Calculation Package No. H-8. Uplift stability for full flow conditions between the concrete and the soil cement was not calculated. By inspection, it is judged that uplift stability would not be a problem for the full flow condition.

– *Check Sliding, no flow and full flow condition.*

Sliding calculations for the no flow condition between the concrete and the soil cement were completed and are included as an attachment to Calculation Package No. H-8. Sliding for the full flow condition between the concrete and the soil cement was not calculated since additional down load from the tail water would offset additional uplift under the structure. Also, the factor of safety for the no flow condition is high because the cutoffs are embedded in the soil cement. By inspection, it is judged that sliding stability would not be a problem for the full flow condition.

Sliding stability for the full flow condition was checked considering sliding along the interface between the soil cement and the soil. These calculations are included in an attachment to Calculation Package No. H-8.

– *Design should include: Headwall Design, Side Wall design, Wing Wall, Baffle, and Apron Design*

Headwall and sidewall designs are include on pages 1 through 5 in Calculation Package No. H-8. There is no wing wall on this impact basin. The apron design is include in Calculation Package

No. H-9. Calculations for the baffle design were completed and are included in an attachment to Calculation Package No. H-8.

– *Usually for lateral earth pressure, the at rest coefficient Ko is used by NRCS.*

The use of active earth pressures in combination with earthquake loadings is considered an acceptable design approach for hydraulic structures.

H9 – Impact Basin, design base slab – Need a computation for different hydraulic loadings on Baffle and Apron design. Also, require a computation for temperature and shrinkage steel.

Refer to the attachment to Calculation Package No. H-8 for computations related to the baffle wall. Calculations for the apron were included in calculation Package No. 9. Calculations for temperature reinforcement are included as an attachment to Calculation Package No. H-9.

H10 – Trash rack sizing – No comment.

I. *Hydraulics and Filter Design*

I1 – Site Modeling for emergency – No comment.

I2 – Outlet Channel design downstream of outlet structure – No comment.

I3 –Riprap sizing for outlet channel – No comment.

I4 – Gradation filter design – No comment.

J. *Preliminary Assessment of Soil Cement – No comment*

K. *Phase II Design Concept – The design report, and Appendix K, needs a brief narrative to explain drawings K1 through K7, identifying the extent of Phase II.*

Section 12.5 of the Design Report provides a detailed description of the Phase 2 Design Concept.

General As the 100% design nears completion, this may be the opportune time to consider a Value Engineering check of the design prior to contracting. It is noted that the true dam in the fissure risk zone is the soil cement dam, with the SCB cutoffs. Soil fill upstream, and downstream of the soil cement dam for purposes of design has generally been considered to not be effective or present. Since the soil fill upstream and downstream of the soil cement dam is sacrificial, modifications, reductions to the extent of its placement, (height, slope, etc.), or its elimination could provide a substantial cost savings to the owner.

A Brainstorming/Constructability workshop was conducted for the project at the 30% design phase. Representatives of URS, the District and NRCS attended this meeting. The key design components were discussed and design alternatives were formulated to achieve design stability and cost reductions for the project. In addition, review meetings were conducted for the 60% and 90% design with representatives of URS, the District, NRCS and ADWR in attendance. During both of these meetings, value-engineering exercises were conducted and decisions were made regarding the design. After Contractor selection, the Contractor, in accordance with the Supplementary General Conditions, Subsection 104.2.6 – Value Engineering, will prepare additional value engineering change proposals as appropriate.

The fill materials surrounding the soil cement dam are required for construction of the soil cement but not necessary for the long-term stability of the structure. The surrounding fill provides a safe slope that will ultimately be integrated into the aesthetic fill placed during the Phase 2 construction activities.

Technical Memorandum

URS

7720 N. 16th Street
Suite 100
Phoenix, Arizona 85020
602.371.1100 Tel
602.371.1615 Fax

Action	Info	File
Larry Lambert - FCDMC Ilde Chavez – NRCS Ravi Murthy - ADWR		23443748

From Todd Ringsmuth

Date March 1, 2005

Subject Response to NRCS Design Comments (Fort Worth, Texas)
White Tanks FRS No. 3 Remediation Project

Document Reviewed: White Tanks 3, Comments on URS Resubmittal of 90% Design, dated November 12, 2004.

Comment Letter Date: December 7, 2004

The following text includes the comment (shown in italics) followed by the response. The response may include a discussion concerning the comment and/or reference to a section of the 100 Percent Design Report that includes revisions to text, tables, or figures. In some cases, references may be made to the 100 Percent plans or specifications.

RESPONSES

General – Throughout the report, consider changing "emergency" spillway to "auxiliary" spillway for consistency with NRCS nomenclature.

The term "emergency spillway" is used at the direction of the Flood Control District of Maricopa County (District). Emergency spillway is the preferred nomenclature for District structures.

Design Report – 90 Percent first submittal and 90 Percent resubmittal

1. *Page 7-6 – Were the shear tests performed on saturated specimens and if they were, is that appropriate considering the samples will never be saturated?*

Consolidated undrained triaxial tests with pore pressure measurements and permeability calculations (thus saturated conditions) were performed on two embankment soil specimens.

During an extreme flood event, the phreatic surface from impounded floodwater could extend a limited distance through the upstream portion of the embankment, resulting in saturated embankment soils. The results of triaxial tests conducted on the two saturated specimens are therefore applicable. Use of shear strength parameters obtained from testing saturated specimens in project stability analysis is conservative, considering that shear strength parameters obtained from testing partially saturated specimens typically have greater values due to capillary stresses and higher effective stresses.

2. *Section 9.1.1 – and following sections need renumbering Section 9.3, pages 9-2 through 9-4, to read 9.3.2 through 9.3.4.*

The Design Report has been corrected accordingly.

3. *Section 10.3.1 – The sentence, "The results also show that the maximum water level resulting from routing of the ESH is below the* ***(something is missing here)*** *was also routed through the reservoir" needs clarification. Section 10, top of page 10-5.*

Section 10.3.1 of the Design Report was revised accordingly.

4. *Section 12.5.4 – Aesthetic Fill, second paragraph: A random backfill material (common fill) is called for. The designer may need to clarify and state that the aesthetic fill will need to be tested to ensure it will support vegetation (hydroseeding).*

The common fill placed during Phase 1 construction activities will not be required to support vegetation (hydroseeding). The aesthetic fill placed during Phase 2 will consist of common fill and will be vegetated. The aesthetic fill will be evaluated for revegetation as needed.

5. *Section 12.6.7 – This section on Dispersive Soil Evaluation has poor rationale for not testing for dispersive clay in proposed embankment soils. Dispersive clays are potentially a problem for embankments without regard to the potential for phreatic line development or saturated intergranular seepage. Most failures of earthen dams constructed of dispersive clays have occurred along hydraulic fracture features on first filling of the reservoir. This section definitely needs to be rewritten to demonstrate good reasons for not performing dispersion tests. Are no crumb test values available in all of the prior testing done?*

We concur that dispersive clays are potentially a problem for homogeneous earthfill embankments. However, the potential impacts of dispersive clays in the Fissure Risk Zone (FRZ) embankment or foundation are negated by the following defensive design features that would retard erosive flows through potential hydraulic fractures or cracks in the embankment or foundation: (1) the proposed independently stable soil-cement core, (2) two proposed soil-cement-bentonite cutoff walls constructed to a depth of 40 feet below existing grade, (3) and

removal of the suspect foundation Holocene material beneath the embankment. A review of previous studies revealed that no crumb tests or other tests for dispersive clays have been performed. Pinole tests, Sodium Adsorption Ratio tests, and/or crumb tests were conducted as part of historic investigations at several other dams in the Phoenix area: Powerline Flood Retarding Structure (FRS) (~1978), Vineyard FRS (~1978 and ~2000), Rittenhouse FRS (~1978), McMicken Dam (1982), and Adobe Dam (1978). Results indicated that encountered soils at all these dams are non-dispersive, except for one test at Vineyard FRS that showed some potential for dispersion. Soil dispersion tests will be performed as part of the Phase 2 geotechnical investigation to verify that dispersive soils are not a concern at White Tanks FRS No. 3.

6. *Section 12.7.2, Graded Filter Design – Segregation is identified as a concern with the broadly graded filter material, and special care is recommended during placement and spreading. However, segregation is not specifically mentioned in either the specifications or the CQA/CQC Plan. It is suggested that additional language be included in the specifications to require that the graded filter, in place, be effectively free of segregation.*

A statement was added to the "Placement" section of the Special Provisions for the graded filter stating that the placement methods shall prevent segregation. Also, the Contractor is required to submit a work plan outlining the proposed graded filter construction.

7. *Page 12, 7th bullet – what does the phrase mean "Based on the gradation of the soils used for the soil cement, it is anticipated that compacted soil or other mechanical methods will be required to compact the soil cement lifts during construction"? Clarification is needed.*

The sentence will be reworded for clarity. The text describes the need for formwork (either compacted soil or wood formwork) to contain the soil-cement during construction, depending on the stiffness or slump of the soil-cement, which in turn are dependent on the soil gradation in the soil cement mix.

8. *Section 12.8.1.1 page 12-31 – The cost of the TDR instrumentation may not be justified considering the likely short life of the instrumentation. Documentation for acceptability of CU value of 20 is not clear. Recommend adding to this including information from Milligan or other justification.*

With respect to the Time Domain Reflectometery (TDR) system, the current conceptual design is to place the TDR upstream of the dam structure in a buried trench at the top of the Pleistocene layer, i.e., about 8 to 10 feet below grade. We have consulted with Jim Hummert, P.E., URS' leading practitioner in geo-civil field instrumentation. Mr. Hummert is the lead of the URS effort with the Army Corp of Engineers (ACOE) on using the TDR Technology on the Tuttle Creek

Dam project. Mr. Hummert also has a working relationship with Mr. Kevin O'Conner, the instrumentation specialist who worked with AMEC on the TDR program for the District's McMicken Dam.

The TDR System was originally designed for use in monitoring the status of underground main trunk cabling for the telecommunication industry. Based upon Hummert's experience and his consultation with Mr. O'Conner, his conclusions regarding TDR application to strain monitoring in the FRZ of White Tank No. 3 remediation project, with respect to longevity and price are as follows:

- TDR have been used in geo-civil applications for up to 10 years without failures and obviously have been used in the cable industry for much longer periods.
- Placing the system in the upstream toe area buried in the top of the Pleistocene layer will permit relatively easy replacement of the inexpensive cabling (less than $1.00 per foot) if a system failure should occur during the life of the project.

It appears that the second part of the Natural Resources Conservation Service (NRCS) comment regarding the Cu value of 20 refers to the graded filter design, and not TDR instrumentation (Section 12.7.2). Currently, the District is evaluating alternatives for the graded filter with input from NRCS and the Arizona Department of Water Resources (ADWR).

9. Section 13.4.2 and Calculation Package I-1 – *It is recommended that the selection of the spillway profile used in SITES modeling be discussed in Section 13.4.2 or in the detailed Calculation Package I-1 (to be provided in the 100 percent submittal).*

Concur. Additional discussion of selection of the spillway profile used in SITES modeling will be included as part of the 100 percent submittal.

10. Section 13.4.2 – *Emergency Spillway Erosion Modeling, Model Parameters indicates a PMF hydrograph with a peak flow of 30,000 cfs was used in SITES modeling. However, the outflow hydrograph shown in Calculation Package I-1 has a peak flow of 26,000 cfs. The difference in peak flow should be resolved.*

The outflow hydrograph shown in calculation package I-1 lists the actual calculated peak flow of 26,000 cubic feet per second (cfs). The SITES modeling used a generalized, conservative peak flow of 30,000 cfs.

11. Section 13.4.2.3 Surface conditions – *The cover factor and maintenance code entered in the SSEA model would have been for a well vegetated condition. For this site, if a CF = 0 and a MC = 2 were entered, it would not have made much difference in the answer. Also the potential rooting depth only applies if vegetation is present.*

The cover factor and maintenance codes entered in the SSEA model were selected as the most representative of the near future condition. We concur that the factors listed in the NRCS comment would have made little difference in the model results.

Appendix A, Construction QA/QC Plan, Section 6.0 Earthwork

1. *The only moisture content test mentioned on page CQA p 18 of 36 is ASTM 4643, the microwave method. The oven-dry method, ASTM 2216, should also be added.*

The Construction Quality Assurance Quality Control (CQA/QC) Plan has been revised accordingly.

2. *It is recommended that relative density testing not be performed, but that a special one point D698A Proctor test be used to control placement of C-33 sands.*

During the December 15th and 16th review meetings with NRCS, URS Corporation, the District and ADWR, it was determined that a method specification be used for the construction of the graded filter. This specification will require the contractor to place 6-inch loose lifts and perform two passes on each lift with a medium-energy vibratory compactor for the construction of the graded filter. This compaction effort is based on URS' experience with filter material compaction, which has shown: (1) high-energy compaction methods can crush the grains, changing the gradation, and (2) there is potential for cracks to propagate through the filter zone if the filter material is compacted too dense. With respect to a special one-point ASTM Method D698A, we were not able to locate this method in the 2003 ASTM standards, nor was this method referenced in Danny McCook's paper "Correlations between a Simple Field Test and Relative Density Test Values."

3. *This is at least one place that guidance should be provided on separation of the Holocene and Pleistocene contact in the excavation for the structure.*

Text has been added to the Special Provisions and CQA/QC Plan outlining the procedures, testing requirements and personnel required to identify this contact.

4. *Note that Table 1, page 34 of 36 shows the ASTM D4643 test to be an oven-dry water content test – it is the microwave method. It is recommended that ASTM D2216, the Oven Dry Method, be added to the table.*

The CQA/QC Plan has been revised accordingly.

5. *The table lists Test D3017 as a "field test for moisture content." It is recommended to change this to "Nuclear gage test for moisture content." Note that some of these tests are also referred to as water content, not moisture content tests.*

The CQA/QC Plan has been revised accordingly.

Appendix C to the Draft Geotechnical Data Report

1. *The plotted compaction tests do not satisfy a basic requirement of ASTM D698, that each data point be clearly identified on the plot. It is recommended these be added to three tests shown as being performed by Terracon in June 2004.*

Concur. URS will add the requested data on the three compaction curves.

2. *The recommendation to excavate the "collapsible" soils under the embankment has not been adequately justified in the opinion of this Reviewer. The collapse tests performed on 8 samples had a relatively low collapse pattern, with only half of the samples collapsing as much as 4 percent, and half collapsing less than 2 percent. Previously, an additional 7 samples had been tested and they also showed less than severe collapse potential. See Page 7-13 of Volume I of the Design Report.*

Concur that the results of collapse tests alone may not provide adequate justification to excavate foundation material to an average depth of 10 feet along the entire length of the Phase 1 FRZ alignment. However, we do not concur that adequate justification for excavation to a 10-foot depth has not been provided, as discussed in our response to Comment No. 5 below. The high erodibility of shallow Holocene material in the FRZ is the primary basis for excavation of such foundation material.

3. *Note that the collapse tests were not performed according to the accepted standard method, ASTM D5333. The tests should be saturated at 4,000 psf, and most of the tests on samples from this site were saturated at 2,000 psf. Soils are not judged to be moderately severe or worse unless the collapse at 4,000 psf is greater than 6 percent. It is doubtful whether any of the 8 samples tested would have collapsed more than 6 percent even if they had been saturated at 4,000 psf, based on extrapolation of curves.*

Do not concur. Although ASTM D 5333 specifies wetting at 4,000 pounds per square foot (psf) as a means of calculating the collapse index, I_e, it also allows wetting at other applied vertical stresses as a means of calculating the collapse potential I_c. ASTM D 5333 states: "Procedures for estimating potential for collapse are uncertain because no single criterion can be applied to all collapsible soils." It is our understanding that the "standard" 4,000 psf wetting load minimizes the potential for swelling upon wetting prior to collapse at subsequent greater applied loads.

Soils at White Tanks FRS No. 3 have low plasticity and have low swelling potential, negating the rational for wetting at 4,000 psf to limit pre-collapse swelling. The estimated maximum surcharge load range for potentially collapsible Holocene soils 0 to 10 feet below ground surface (bgs) is about 2,800 to 4,000 psf. During the collapse tests, the soil specimens were wetted at 2,000 psf, and loading was increased to 4,000 to 5,000 psf, which we consider to be conservative, but also representative of actual loading conditions. It is questionable whether or not any of the samples would have collapsed more than 6 percent had they been wetted at 4,000 psf rather than 2,000 psf, but we feel that even a moderate collapse potential (2.1 to 6.0 percent) may provide some justification for removal of such Holocene soils, keeping in mind that the primary justification for Holocene soils removal is the high erodibility of the material.

4. *The preliminary design recommendation for soil cement suggests a content of 9 percent cement. Based on review of the test data, this appears overly conservative and represents the cement content required to get the desired strength for the very worst of conditions, the dirtiest soil with the most plasticity of any of the borrow sources. It appears likely that about 7.5 percent cement is likely to be effective and special effort should be given to encourage the Contractor to minimize the cement content by screening borrow sources. The cost savings could be substantial.*

Do not concur. However, the specification for soil cement has been changed to a performance specification that requires a 7-day compressive strength of 750 pound per square inch (psi), leaving the cement content to the contractor so long he meets this criteria. With regard to NRCS' statement that 7.5 percent may be effective, mix design test results show that cement contents of 5, 6, and 7.5 percent for the three borrow sources meet the District's 750 psi 7-day strength requirement, indeed suggesting that 7.5 percent may be effective. However, a recommended 9 percent cement content will still be documented in the Design Report and referenced in the Specifications as background information for the Contractor, based on the following considerations. First, soil cement mixing in the field using a pug mill or mixing in a pit with an excavator are likely to produce non-homogeneous and spatially non-uniform mixes, compared to mixes produced in the carefully-controlled mixing conditions in the test laboratory. Therefore, up to a 2 percent cement increase is warranted to account for variations in field mixes. Secondly, a minimum cement content of 7.5 (plus a 1.5 percent increase to account for field mixing variability), would provide maximum flexibility during construction, so that borrow from any of the three potential borrow sources could be used and still meet the 7-day 750 psi criteria. Selective use of borrow sources may reduce costs associated with cement purchase, but are likely to be offset by the increased material handling costs (screening, hauling, stockpiling, etc.). Thirdly, a Portland Cement Association (PCA) document titled "Soil-Cement for Water Control: Laboratory Tests", dated 1976, recommends using a cement content increase of 4 percentage points for erosion resistance if the soil contains more than 50 percent fines. The average on-site

soil fines content is about 45 to 50 percent, and soil used in mix design tests from the three borrow areas had 40 percent, 49 percent, and 63 percent fines. Therefore a cement increase based on high fines content is also warranted. The recommended 4-point increase applies mainly to structures that will be subjected to repeated wave action or freeze/thaw and wet/dry cycles, which is not the case with White Tanks FRS No. 3. However, we feel a moderate cement content increase is still warranted to account for the high fines content of on-site soils. Based on the foregoing discussion, use of 9 percent cement content appears be a balanced, yet not overly conservative component of mix design.

5. *The Design Report has recommended a relatively uniform excavation of the Holocene deposits of about 10 feet, with some excavations proposed to be in the 15- to 25-foot range. Significant additional effort is recommended to provide quantifiable parameters to aid in identifying the extent of removal of foundation soils and characterizing the Holocene and Pleistocene deposits. Parameters such as dry density and natural water content, together with other physical observations, should be identified and quantified to allow inspectors to establish the limits for the required excavation without so much discretionary judgment type of approval.*

Partially concur. The basis for selection of the 10 foot excavation depth is discussed in the URS Geotechnical Data report in detail. Significant effort has already been expended in correlating observed blow counts, collapse potential, low seismic velocities, visual observations, and VJT test results to highly erodible Holocene material that extends, on average, to a 10 foot depth, with some potential for Holocene or Paleochannels at greater depths. While the "Summary of In-Situ Density" table in Section 7.2.2.4 of the Design report suggests that on average, dry density and moisture content are greater at depths in excess of 10 feet, in-situ density and moisture content are highly variable locally, both vertically and horizontally, for both Holocene and Pleistocene soils. Moisture content is judged to not be a reliable indicator of the Holocene-Pleistocene contact. Dry density is a better indicator, but should not be used as a "quantifiable parameter" from QA/QC testing to establish the contact, due to highly localized density variations. Rather, the visual observations of a trained geologist, along with the results of a seismic refraction survey, will be used to determine if the depth of excavation should go deeper than 10 feet. Although several quantifiable parameters discussed above were used to establish the 10 foot excavation depth, the only quantifiable parameter, from a QA/QC standpoint, that should be used to determine if the depth of excavation should go deeper than 10 feet (along with visual observations), are seismic velocities that are less than approximately 1,100 feet per second (fps). The seismic refraction survey will be performed along the bottom of the excavated foundation trench in the subject South FRZ.

Appendix F Fissure Modeling

1. *On page 19 of the Fissure Modeling Study, it is stated: "It is assumed that all fill material upstream and downstream of the embankment will be eroded for the purposes of fissure modeling." It is not clear here whether the complete erosion of the fill is considered a realistically possible condition to be designed for or whether the fill is neglected simply for the ease of the fissure modeling calculations. However, in other sections of the design folder, such as the seepage analysis, the slope stability analysis, and the sliding and overturning analysis, one or both of the shells of fill are assumed to be absent, implying that the designers consider this scenario likely enough to make it the design condition. The mechanism by which the fill could be eroded away without affecting the foundation is not described.*

URS does not consider complete erosion of the fill to be a realistically possible scenario. Complete erosion of the fill is a conservative assumption and was required by the ADWR for fissure erosion modeling and geotechnical analyses.

2. *The only two conceivable mechanisms for the loss of all the fill upstream and downstream of the soil cement core are: 1) erosion due to flow through a crack in the soil cement core; or 2) erosion due to flow through a fissure in the foundation. The first scenario could possibly explain a loss of all the fill without any damage to the foundation. In that regard, on page 43 of the Fissure Modeling Study, it is stated that "a small crack in the embankment material would further erode due to a full reservoir." The amount of erosion is not given. However, in Appendix F to the Fissure Modeling Study, on page 139 of the calculations, it is stated that "erosion will not occur in the fissure." Clarification of this point is recommended. If the safety of the structure could be threatened by a crack in the soil cement core, then other defensive measures, such as a filter layer between the soil cement core and the downstream fill, should be considered.*

Loss of soil fill upstream and downstream of the soil cement section through a crack in the section is not a realistic scenario. Even if a crack passes completely through the soil cement section, this material has been designed to be nonerodible, so the crack will not enlarge nor will it be able to pass a significant quantity of soil particles. In reality, any migration of soil fill will most likely tend to plug these small cracks. On the downstream side, although there may be some seepage into the downstream fill from an open crack, the width of the downstream fill is so large relative to the exit gradient and the old embankment is compacted, so it is hard to imagine that this small seepage flow could erode any of the downstream fill. Furthermore, even if all of the fill is somehow eroded, the soil cement embankment section is designed to remain stable without any fill present upstream or downstream.

3. *If, on the other hand, it is considered possible that all the embankment fill could be lost through a fissure in the foundation, this could have serious implications regarding the overall integrity of the structure. It is difficult to imagine how the embankment shells could be lost through a fissure in the foundation without first losing the Holocene alluvium on which they rest. If such catastrophic erosion occurred, then a significant threat to the integrity of the structure would likely exist.*

The second fill erosion scenario is more plausible and has served as the principal design criteria for the structure. In this case the foundation earth fissure erodes under the flood flow in the reservoir. Depending on the rate of erosion in the lower Pleistocene material and duration of the flood flow, the fissure could enlarge allowing migration of upstream earth fill into the fissure. Depending on the turbulence of the flow conditions, the earth materials could pass through the eroding fissure beneath the cutoff walls, and then migrate downstream and deeper into the fissure. Depending on the size of the eroded fissure, the soil particles could tend to plug the fissure or they could blow out along the downstream surface exposure of the fissure. On the downstream side, the erosive action of the fissure flow could cause erosion of the soil fill. This risk is reduced by the long seepage path provided by the cutoff walls and extent of fill upstream and downstream providing a gradient of less then 0.1. Fissure modeling to date has conservatively assumed that all the upstream and downstream fill along the fissure has been eroded leaving only the soil cement section. This is an extremely conservative assumption, but prudent for design.

The soil cement section has been designed such that all upstream and downstream fill is lost through fissure flow and the section remains stable. Firstly, the stability factors of safety for the soil cement section with eroded fill are satisfactory. Secondly, the soil cement section is capable of spanning the largest estimated eroded fissure width, even with a typical spacing of cracks passing entirely through the section. Thirdly, the overexcavation of the erodible Holocene and the containment of the Upper Pleistocene between the two cutoff walls provides a stable foundation beneath the soil cement section. Therefore, the risk of instability or settlement-induced overtopping is diminished to a tolerable level. Furthermore, even if the soil cement section were to overtop, the soil cement material is nonerodible so a catastrophic breach is not possible. Therefore the integrity of the structure is maintained even in the most severe set of conditions imaginable.

4. *In summary, further consideration should be given to possible failure mechanisms for the proposed structure to either verify that they could not occur or identify where additional defensive measures are needed.*

These failure modes in fact were considered in the risk assessment and were judged by the expert panel to produce a tolerable level of risk. In each case, the defensive design features such as the long seepage path, two cutoff walls, excavation of the highly erodible Holocene beneath the soil cement section, and strength and non erodibility of the soil cement provide multiple levels of design redundancy that comfortably handle all conceivable failure scenarios. Originally, a crack filling zone of filter material was considered in the design upstream of the soil cement section, but was deleted in light of the latest round of erosion modeling which produced a worst case eroded fissure width that could be spanned by the cracked soil cement section.

Structural Design – Appendix H

1. *The concrete strength used for structural analysis was not documented although the computations indicated that 4,000 psi was used. It is recommended that the strength parameters assumed for design be documented in the design report.*

Strength parameters will be documented in the design report.

2. *A seismic analysis was run on the riser.*

Comment noted. No response necessary.

3. *It appears that a NRCS standard riser is used for the riser on this job. There is no documentation to this fact in the design folder.*

The standard riser design was modified to reduce the overall height of the structure. The Design Report will be modified to document this modification.

4. *The velocity was not checked through the trash rack for the limit of 2 fps with the water surface 5 feet above the trash rack, see comments on H-5 and H-10.*

The flow rate at an elevation 5 feet above the principal spillway is approximately 240 cfs. The open area through the trashracks in the principal spillway is 138 square feet (sf). Therefore, the resultant flow velocity through the trashrack is approximately 1.7 fps.

5. *The riser was designed for static loading conditions.*

Earthquake loads were used in computing stability of the tower. All of the structural elements, except the cover slab, were designed using earthquake loadings.

6. *Documentation was not included that check the riser steel for the seismic analysis. The height of the riser of 9.5 feet from the invert to the crest is less than 3D. If this is assumed to be an NRCS standard riser, the hydraulics may not function as assumed.*

The riser design was based on computed moments resulting from structural analysis of a plate fixed on three sides and free at the top. This is an accepted method for analysis of a wall of this type. The vertical reinforcement in the sidewalls was checked using the earthquake overturning moment. Shear capacity in the sidewalls was also checked. These calculations are shown in an attachment to Calculation Package No. H-2.

Technical Release No. 29 provides guidance for the hydraulic design of two-way covered risers. Flow through a riser is delineated as weir flow and pipe flow, depending on the head over the riser inlet. As per TR-29, flow criteria for an NRCS standard riser is controlled by weir flow for heads over the inlet up to one-half the pipe diameter and controlled by pipe flow for heads exceeding that level. The height of the riser inlet above the pipe invert is 9 feet, which is less than the 3D limiting value provide by TR-29. However, The reduced height should cause the flow through the riser to transition from weir flow to pipe flow sooner and thus increase the riser capacity at the corresponding elevation. This modification does not impact the overall design of the riser or embankment.

7. *The seismic analysis includes a table of contents indicating that the report is 19 pages long. Only five pages were included with this report. Please consider including the entire report.*

A portion of the Seismic Exposure Evaluation report has been included in Calculation H-1 due to the size of the original document. The entire report is available from the District if a more thorough review by NRCS is determined to be necessary.

Appendix I Hydraulic Design

1. *The stability design of the auxiliary spillway constructed outlet channel was not documented in this section.*

The stability design of the outlet channel consists of riprap calculations that are included in the Structural Calculations – Appendix H of the Design Report. Calculation number H-7: Impact Basin – Hydraulic Design, includes a section on riprap sizing. The riprap erosion protection for the outlet channel was included for the areas of the outlet channel within the footprint of the existing White Tanks FRS No. 3 as shown on the Drawings. Beyond that point, the effects of erosion were not considered to be a concern. The outlet channel was designed with 3:1 (horizontal:vertical) sideslopes for stability and it was anticipated that any erosion that occurred in the portions of the channel that are not protected by riprap would be repaired as part of the operation and maintenance program.

2. *The integrity design was documented using a 72-hour storm and using the SSEA version 01.0.0. The spillway analysis was run without a barrier. It is recommended that a run*

be made with a barrier included to document the depth of erosion at the barrier. This allows the estimation of the depth required for the barrier design.

The depth of erosion determined by the integrity design is the worst-case scenario. The required depth of barriers (if incorporated in the final spillway design) would be based on these erosion depths.

3. *The geologic profile that exists was not used in the integrity analysis. The weakest soil within that profile should then be used to estimate the erosion in the integrity analysis. It is recommended that the spillway be analyzed with the weakest soil within the geologic profile to document the erosion that could possibly occur from the design flow event.*

The geologic profile through the spillway consists of varying depths of Holocene soil at the surface with an underlying Pleistocene soil. At the right abutment, the Pleistocene soil was near existing surface. At the left abutment, the depth of Holocene was minor. The integrity analysis was run for the Holocene soil (weakest soil within the profile), which showed that the Holocene soil would essentially be washed away. Therefore, the analysis was run on the underlying Pleistocene soil assuming the overlying Holocene soil had washed away. This approach is the worst-case scenario for the integrity design.

4. *Current policy requires that splitter dikes be included in the outlet of spillways when the width exceeds 200 feet. Was a waiver requested for this auxiliary spillway that is 800 feet wide with no separation dikes?*

During the December 15th and 16th review meetings with NRCS, URS Corporation, the District and ADWR, it was determined that the splitter dikes would not be required for this structure. A request for waiver will be prepared and submitted to NRCS.

5. *Appendix I-4 references Appendix VII of the NRCS Technical Assistance Report furnished in support of the design of the filter at the Florence FWRS. After reviewing comments received from the ADWR, NRCS considered it prudent to revise their recommendations slightly from that shown in Appendix VII, based on additional evaluation of segregation factors. It is recommended that URS review this supplemental discussion, which can be furnished to them in electronic format, before finalizing the design of the filter on White Tanks. That review may or may not change their recommendations, but the information should be made available to them anyway.*

The District is currently evaluating graded filter alternatives with input from NRCS and ADWR.

Geology

1. *OLD: Page 1-1. The NRCS is spelled Natural Resources Conservation Service. An "s" needs to be added to Resource. This is also repeated on page 1-3.*

The Design Report has been revised accordingly.

2. *OLD: Page 11-7. There is a repeated paragraph on either side of the line that says* ***11.2.2.1 Cause(s) of Transverse Cracking****.*

The Design Report has been revised accordingly.

3. *Figure 7-2 and Figure 3-2. "Erodible" is misspelled several times.*

The Design Report has been revised accordingly.

4. *Figure 7-3. The Legend contains an entry for "geologic contact," however there is no symbol shown. In addition, no geologic contacts between the Holocene and Pleistocene alluvium are shown on the cross sections themselves. These lines are filled in on Sheets 3-3 through 3-7 in the Geotechnical Data Report.*

Concur. Figure 7-3 in the Design Report will be revised to match Figure 3-3 in the Geotechnical Data Report.

5. *Figures 7-1 through 7-7. The Unified Soil Classification System describes soils classifications, not "lithologic" ("rock") classifications. The same is true of Sheets 3-2 though 3-7 in the Geotechnical Data Report.*

Concur. The legends in the above-referenced figures will be corrected to read "U.S.C.S. Soil Classifications" rather than "U.S.C.S Lithologic Classifications."

6. *Figure 3, Seismic Refraction Survey Lines. Change "retraction" to "refraction" in the legend.*

Appendix E, Figure 3 has been revised accordingly.

Geotechnical Data Report and accompanying logs; and Design Report, Geologic Setting, pages 6-1 to 6-3. The logs very clearly indicate a contact between the Holocene Alluvium and the underlying Pleistocene Alluvium, however, in some cases the descriptions are quite similar particularly in TP-21 and higher. Consider including an explanation in the Geologic Setting Section of the Design Report on how to differentiate between the two deposits, and why it can be important.

Concur. Although Holocene and Pleistocene can often have similar material classifications, the Holocene-Pleistocene contacts in Logs TP-21 through TP-33 were unedited to preserve the raw field descriptions and Holocene-Pleistocene contact interpretations made by the field geologist. The Geologic Setting Section of the Design Report, along with the Special Provisions Division in the Specifications, will be revised to include guidance on differentiating Holocene and Pleistocene. Generally, from a visual standpoint, the Holocene-Pleistocene contact may be indicated by appearance and density changes. Holocene material may appear more loosely-consolidated and younger-looking than Pleistocene, and Pleistocene may have a more oxidized appearance than Holocene. Pleistocene material also may appear more competent and have a greater level of cementation, although cementation is often not a reliable indicator because Pleistocene zones have been identified that have weak cementation. During construction, a geologist experienced with differentiating Holocene and Pleistocene will be used to make field determinations of the Holocene-Pleistocene, along with the results of a seismic refraction survey, as discussed previously.

Layout

The auxiliary spillway is not divided into 200-foot bays as required by NRCS policy. It is recommended that NRCS policy be met.

During the December 15th and 16th review meetings with NRCS, URS Corporation, the District and ADWR, it was determined that the splitter dikes would not be required for this structure. A request for waiver will be prepared and submitted to NRCS.

Quantities

Appendix K – Quantities to be included with the 100 percent submittal.

Quantities have been provided on the Engineer's cost estimate and on Drawing QS1 in previous submittals. These quantities will be revised and provided with the 100% submittal.

Specifications

1. *Section 201.3, last paragraph. Specification calls for topsoil to be either stockpiled or wasted. It is recommended that consideration be given to stockpiling the topsoil to preserve the presence of mycorrhizal fungi.*

All references to wasting stripped material have been removed from the Special Provisions and Drawings.

2. *Section 206.2, Special Provisions, page 8 and 9 of 137. Methods for Foundation Material Treatment (Section206.2) – The section indicates that Holocene soils will be removed before placing the soil cement embankment and transition embankment section. The preliminary limits are shown on the drawings, and listed in narrative form here as 10 to 12 feet typically, and up to 15 to 25 feet in limited areas.*

No response necessary here. See comments 3, 4, and 5 below.

3. *There is no guidance provided for identifying the boundary between Holocene and Pleistocene materials. Some parameters should be available to provide guidance on delineating this boundary. Dry density, cementation, or other quantifiable parameters should be provided to assist field engineers in this determination.*

See previous URS responses to NRCS Comment No. 7 under the "Geology" heading and NRCS Comment No. 5 under the "Appendix C to the Draft Geotechnical Data Report" heading above.

4. *The specification indicates that the adequacy of the foundation excavation must be approved by the ADWR prior to placing embankment soils. It seems unusual that a reviewing agency should be responsible for this sort of field review and approval. If quantifiable parameters satisfactory to the ADWR are used to identify this boundary, then there should be no need for further approval, other than determining that an adequate quality control (QC) program is being implemented. It is recommended that more effort be given to identifying quantifiable parameters that are acceptable for parties involved to delineate the extent of required removal.*

During the December 15th and 16th review meetings with NRCS, URS Corporation, the District and ADWR, it was determined that there will be a single point of contact (Foundation Inspector) as part of the overall Construction Quality Assurance Team responsible for inspection and approval the foundation condition prior to cutoff wall construction. This person will be an experienced Geologist or Geotechnical Engineer with specific knowledge of the soil conditions at the site. The Foundation Inspector will be on-site full time during the excavation and will determine when a suitable foundation exists. This determination will be made based on visual observations, nuclear density testing and seismic refraction survey testing. All parties listed above will have the opportunity to consult with the Foundation Inspector to confirm that a suitable foundation has been reached. The Foundation Inspector will be the overall authority on the foundation condition.

The Special Provisions and CQC/QA Plan have been revised to outline the inspection activities listed above. In addition, the foundation inspection and approval activities will be addressed during the pre-construction meeting.

5. *The excavation required for the area between the two cutoff walls is specified to be two feet below the Pleistocene contact, and again there is a strong need for quantifiable parameters to define this boundary.*

See previous URS responses to NRCS Comment No. 7 under the "Geology" heading and NRCS Comment No. 5 under the "Appendix C to the Draft Geotechnical Data Report" heading above. The 10 foot excavation depth is considered to be conservative, considering that the Holocene-Pleistocene contact is shallower in some locations.

6. *Section 206.4. Incidental Structure Backfill. This section requires the incidental structural fill to be compacted to 95 percent of the maximum D698A maximum dry density at a water content in a range of 2 percent dry of optimum to optimum. This is too narrow a range of water content to specify. Allowing a 4 percent spread in water content is usually considered advisable to allow sufficient leeway in contractor's operations. It seems that the requirement should be the same. This specification should be changed to 2 percent dry to 2 percent wet of optimum.*

The Special Provisions have been revised accordingly.

7. *Section 211 Fill Construction. Should the title of this section be changed to reflect more accurately that it pertains to placement of drain gravel and sand and not other types of fill? This section refers to a "certified commercial material supplier" in several places. It is not clear what is required for a supplier to be considered "certified" besides submitting certifications of compliance or test results for the various materials. Further clarification of the intent is suggested.*

Section 211 (Fill Construction) of the Special Provisions includes all fill materials used on the project with the exception of Soil Cement and Soil-Cement-Bentonite backfill. The title of this section follows the Maricopa Association of Governments (MAG) format.

The term "certified" has been removed from Section 211 of the Special Provisions.

8. *Subsection 211.1.1 Graded Filter. Table 211-1 shows the range of permissible gradations for the filter. No purpose is served by specifying a percentage of C-33 and # 57 gravel mix. It is the duty of the contractor to determine how to meet the specification. All of the wording specific to suggested mixes should be deleted.*

All references to a mixture of C-33 and No. 57 gravel have been removed from Section 211 of the Special Provisions.

9. *Section 211 Fill Construction. Subsection 211.1.3 Drain Sand. The Table 211-3 shows sieve requirements down to the No. 100 sieve, but no requirements for percent finer than the No. 200 sieve. Usually, a standard requirement is less than 5 percent passing the No. 200 sieve. It is recommended this be added to the table.*

Drain sand is no longer being used for this project.

10. *Subsection 211.2 Placing. Placement specifications for the graded filter, drain rock and drain sand are not specific enough. The language used is "Placement shall be conducted using the appropriate combination of heavy equipment, small equipment, and labor." Specifications should spell out the type, size, and mode of operation of acceptable equipment, including number of passes.*

Placement and compaction specifications for graded filter material have been changed to a method specification, as discussed in URS' response to NRCS Comment No. 2 under the "Appendix A, CQA/QC Plan, Section 6.0 Earthwork" heading above. The drain rock and drain sand are no longer being used for this project.

11. *Subsection 211.2 Placing. Section 211.2.1 Graded Filter. This section has several other occurrences of imprecise specifications that should be tightened up. Examples are: "The graded filter shall be moisture conditioned as approved by the Engineer to enable proper compaction." The specifications should clearly state what the acceptable placement water content is. Note that later sections (Subsection 211.3) contain some more specific language on requirements, and that this wording is not needed if the requirements are met. In other words, specifications should be either of a method placement or an end-result type, and not both.*

A method specification for graded filter material will be used, as discussed in URS' response to NRCS Comment No. 2 under the "Appendix A, CQA/QC Plan, Section 6.0 Earthwork" heading above. Moisture contents have been stated in the appropriate sections of the Special Provisions.

12. *Another instance of imprecise wording in this section is "Each lift shall be compacted using multiple passes of vibratory plate compaction equipment. The level of compaction shall be determined and verified by the Engineer during placement operations." As detailed below, more precise wording is needed for compaction of the materials.*

The Special Provisions have been revised to a method specification for the graded filter materials.

13. *Section 211.2.4 Structural Fill. The phrase, "Nesting of coarse particles will not be permitted" is also imprecise and would be difficult to enforce. It is recommended that more*

specific language for placement methods that are effective in preventing segregation be included or this phrase should be eliminated. The phrase that "Clods ... shall be broken up and moisture conditioned before compacting the material in embankment." is imprecise and without clear definition would not be enforceable. It is recommended to either specify an acceptable range of placement water or leave out.

Nesting of coarse particles does not refer to segregation of soil particles. More so, it refers to lenses or pockets of coarse particle excavated from the borrow areas and then placed in fill areas. The nesting of coarse particles cannot be prevented by any particular construction method. Therefore, visual inspection would be the only means to detect particle nesting.

The acceptable moisture range for structural fill is listed in Section 211.3.4 of the Special Provisions. This follows the MAG format.

14. *Section 211.2.5 Common Fill. The requirement that "Common fill shall be moisture conditioned prior to spreading ..." is imprecise and without clear definition would not be enforceable. Either specify an acceptable range of placement water or leave out. The phrase, "Nesting of coarse particles will not be permitted" is also imprecise and would be difficult to enforce. It is recommended that more specific language for placement methods that are effective in preventing segregation be included or this phrase should be eliminated.*

The acceptable moisture range for common fill is listed in Section 211.3.5 of the Special Provisions. This follows the MAG format.

Nesting of coarse particles does not refer to segregation of soil particles. More so, it refers to lenses or pockets of coarse particle excavated from the borrow areas and then placed in fill areas. The nesting of coarse particles cannot be prevented by any particular construction method. Therefore, visual inspection would be the only means to detect particle nesting.

15. *Subsection 211.3 Compacting. Section 211.3.2 Graded Filter requires the graded filter to be compacted to "a minimum of 95 percent of the maximum relative density." The term maximum relative density is not a standard term, and this needs to be reworded.*

Concur that the term "maximum relative density" is not a standard term and warrants rewording. However, after further consideration, URS feels that a method specification for graded filter compaction is more appropriate than the 95 percent maximum dry density requirement, as discussed in URS' response to NRCS Comment No. 2 under the "Appendix A, CQA/QC Plan, Section 6.0 Earthwork" heading above. Subsection 211.3 will therefore be revised accordingly.

16. *Section 211.3 Compacting. Subsection 211.3.1 Graded Filter. The specification needs to be more precise. Presently it reads "The graded filter shall be thoroughly compacted and shall*

be achieved by multiple passes using vibratory compaction equipment suitable for trench compaction. The level of compaction shall be determined and verified by the Engineer during placement and compaction operations."

The specification will be reworded to reflect the requirements of the method specification for the graded filter discussed in URS' response to NRCS Comment No. 2 under the "Appendix A, CQA/QC Plan, Section 6.0 Earthwork" heading above.

17. *The revised specification should be either a method specification or an "end-result" specification. A method specification should state the minimum size of equipment related to weight and vibratory requirements and the minimum number of passes over each loose lift. For an "end-result" type of specification, requiring placement of graded filter using a special one point ASTM D698A test on air-dried filter as a reference test is recommended. We suggest requiring 95 percent of the one point air dry D698A dry density.*

The specification will be reworded to reflect the requirements of the method specification for the graded filter discussed in URS' response to NRCS Comment No. 2 under the "Appendix A, CQA/QC Plan, Section 6.0 Earthwork" heading above.

18. *Subsection 211.3.5 Common Fill. The requirement shown is compaction to 85 percent of the maximum D698A maximum dry density in a range of water content between 4 percent dry to 2 percent wet of optimum. We recommend changing this requirement to 90 percent, or else using a method specification. The 85 percent requirement is almost no requirement at all, and if that is all the compaction needed, it may be easier to specify acceptable methods and let it go at that. It would require much less QC effort.*

The Special Provisions, Subsection 211.3.5 was revised to state a compaction of 90 percent of the maximum dry density per ASTM D 698 for common fill materials.

19. *Subsection 211.4 Tests. In several places in the specifications, acceptable density test methods listed are the nuclear gage ASTM D2922 and the sand cone test ASTM D1556. But, acceptable water content methods are not referenced, and they should be. It is recommended that language be added to this section and other applicable sections that require water contents be measured for QC tests using either or all of the following water content tests: oven-dry method ASTM 2216, the microwave method ASTM D4643, or the nuclear method ASTM D3017. Note that water content testing should also be added to the soil cement section 221.4.8.*

The Special Provisions have been revised accordingly.

20. *This section alludes to making rock corrections but the ASTM test standard for this should be referenced here, ASTM D4718, Standard Practice for Correction of Unit Weight and Water Content for Soils Containing Oversize Particles.*

The Special Provisions have been revised accordingly.

21. *Table 211-5 shows requirements for the Structural fill. Available soils will not meet the requirements of the table. The table should be changed to reflect soils available for construction. If the intent is to compact soils to a relative density condition, 95 percent relative density is much too high a requirement. Usually, a placement condition of 70 percent relative density is considered adequate for almost any conceivable purpose. However, using relative density for specifying fill placement is discouraged because of the difficulty in performing minimum and maximum index density tests in the field. We recommend specifying placement of graded filter using a special one point ASTM D698A test on air-dried filter. Either require 95 percent or 100 percent of the one point air dry D698A dry density.*

The gradation requirements for structural fill contained in Table 211-5 of the original 90 percent Specifications were replaced with a revised, non gradation-based material description requirement in the Revised 90 percent submission, with the exception that the fill shall be free of rocks in excess of 3 inches in size. The compaction specification for structural fill contained in Paragraph 211.3.4 requires compaction to 95 percent of maximum dry density.

During the December 15th and 16th review meetings with NRCS, URS Corporation, the District and the Arizona Department of Water Resources (ADWR), it was determined that a method specification be used for the construction of the graded filter. This specification will require the contractor to place 6-inch loose lifts and perform two passes on each lift with a medium-energy vibratory compactor for the construction of the graded filter. This compaction effort is based on URS' experience with filter material compaction, which has shown: (1) high-energy compaction methods can crush the grains, changing the gradation, and (2) there is potential for cracks to propagate through the filter zone if the filter material is compacted too dense. With respect to a special one-point ASTM Method D698A, we were not able to locate this method in the 2003 ASTM standards, nor was this method referenced in Danny McCook's paper "Correlations between a Simple Field Test and Relative Density Test Values."

22. *Construction Quality Assurance Quality Control Plan. In Section 2, Parties to the Work and Responsibilities, the only QC parties identified are the General/Earthwork Contractor and the Construction Materials Testing Laboratory. It is suggested that consideration be given to designating one specific individual to be the responsible party for QC. Identifying such an individual will provide a critical point of contact for the flow of communication and will facilitate overall coordination of the QC work.*

The CQA/QC Plan has been revised accordingly.

23. *Presumably the intent of this plan is that the Owner's CQA Consultant and the Contractor's Construction Materials Testing Laboratory be different, totally independent firms, although this is not specifically stated. It is essential that two separate companies be used.*

Concur. Revisions will be made specifically require two separate, independent testing laboratories.

24. *Section 220 Riprap Construction. Subsection 220.4 Plain Riprap required "Stone shall be placed to provide a minimum of voids." This is not an enforceable provision, and it is recommended that this be substituted with a method specification that includes required height of drop, equipment compaction, or whatever other requirements are considered necessary. Several phrases in this sub-section don't appear useful, including requiring "Riprap may initially be placed by dumping from loader-type equipment in a careful, methodical manner." The phrase careful, methodical manner is again probably not an enforceable specification. Then, the next sentence requires hand repositioning "shall be conducted to the Engineer's satisfaction in the field." All of this section should be reworded to only include specifications that are quantifiable and enforceable.*

This language follows the standard MAG format. The District has used this specification for similar projects.

25. *The wording of this paragraph is unclear as to whether a cushion layer of sand and gravel is always required, or if it is only required if tearing of the geotextile is observed. This should be clarified.*

The paragraph states that if tearing of the fabric is observed, a cushioning will be required.

26. *Subsection 221.4.6 Handling: (Soil Cement). The paragraph includes a requirement that the total elapsed time between the addition of water to the mixture and the start of compaction "shall be the minimum possible." Then, it goes on to say that the maximum permissible elapsed time is 30 minutes, but that this time may be reduced by the Engineer when the air temperature exceeds 90 degrees Fahrenheit or when there is a breeze or wind which promotes rapid drying of the soil cement mixture. It is recommended that permissible limits be established here and clearly stated with no qualifiers added.*

Guidance from the PCA Soil Cement Construction Handbook (1995) states that the maximum elapsed time between wetting in the pugmill and start of compaction should be one hour. However, in hot weather conditions (sustained air temperatures above 90 degrees Fahrenheit), the maximum time between mixing and start of compaction should be less than 30 minutes,

based on discussion with Ken Hansen, formerly with PCA. Furthermore, all haul vehicles should have protective covers. The specification will be revised accordingly.

27. *Subsection 221.7 Mix Design for this Project. This section includes a provision that the cement content may be increased at any time by the Engineer if, in the Engineer's opinion, increased cement content is needed to assure design strength. It is recommended that a provision be added that the cement content may be reduced from the initially estimated value of 9 percent if, in the Engineer's opinion and based on 7 day compressive strength tests, the required strength can be met with lesser cement content.*

See URS' response to NRCS Comment No. 4 under the "Appendix C to the Draft Geotechnical Data Report" heading above.

28. *Section 231 Geotextile. In Table 231-1 the reference to "Average Opening Size" should read "Apparent Opening Size." It is recommended that additional provisions be added that the geotextile shall be needle-punched (not heat bonded). The required permittivity in Table 231.1 is higher than normally recommended. Refer to AASHTO specification M288 for typical requirements. The requirements should not be more stringent than those required in M288. The wording of this paragraph is unclear as to whether a cushion layer of sand and gravel is always required, or if it is only required if tearing of the geotextile is observed. This should be clarified.*

The Special Provisions have been revised accordingly.

29. *Section 460. Aesthetic Treatments applies to concrete and paint. Sections 460 should be cross-reference in Section 505.*

The Special Provisions have been revised accordingly.

30. *Section 460.1.4 Painted Metal Fabrications. "Provide and install painted aesthetic treatment ... per Section 530." Section 530 provides instructions for painting, but does not provide color names. Section 790 PAINT MATERIALS does not provide paint color for railings. This specification calls for painting metal trashracks, sluice gate and appurtenances, and impact basin steel railing ... "as noted on the Plans and Specifications." Notes to this effect do not appear on the Plans nor is a color for the paint indicated.*

The Special Provisions have been revised accordingly.

31. *Section 460.1.4 Painted Metal Fabrications. "The color for the paint shall be as noted on the plans and specifications." Drawing ST9 does not instruct the contractor to paint the railing, nor does it provide the paint color.*

The Special Provisions have been revised accordingly.

32. *Section 516.5 Painting: Typo on first line--replace the word "pain" with "paint."*

The Special Provisions have been revised accordingly.

33. *Section 703 Riprap. Designer may want to consider the color of the stones used and the visual impact the riprap will have. Earth colored stones will blend more readily with the overall landscape.*

If an alternative color is selected for the riprap, the riprap will be stained/colored as part of the Phase 2 construction activities.

34. *Section 725 Portland Cement Concrete. Table 725-1 Class A Concrete is specified as 3,000 psi at 28 days. The minimum concrete strength for an NRCS service hydraulic structure should be 4,000 psi.*

The Special Provisions have been revised accordingly.

Drawings

1. *It is suggested that consideration be given to showing some geology information on the drawings, such as selected boring logs.*

The Supplementary General Conditions and Special Provisions refer to the geotechnical report (separate document) being available upon request from the District.

2. *Sheet 2 of 55 – OLD. Consider adding "FRS," "FRZ," and "NFRZ" to the list of abbreviations on sheet 3 of 47.*

The Drawing legend has been revised accordingly.

3. *Sheet 7 of 47. In the drawing for Step 3 of "Typical Dam Section Development." the upstream SCB cutoff wall is not positioned correctly in relation to the soil cement core.*

This Drawing has been revised accordingly.

4. *Sheet 12 of 47. It is suggested that the individual drawings be labeled "Step 1," "Step 2," etc., for clarity, similar to what was done on Sheet 7 of 47.*

This Drawing has been revised accordingly.

5. *Drawings C1, C4-C7. Reference Note 2. The Note on the drawings instructs the contractor to "strip and waste" the 6 inches of topsoil striped from the site. Specification 201.3 gives the contractor the option to either stock-pile or waste. These items need to be coordinated.*

The term "waste" has been removed from the Drawings and Special Provisions and replaced with "stockpile."