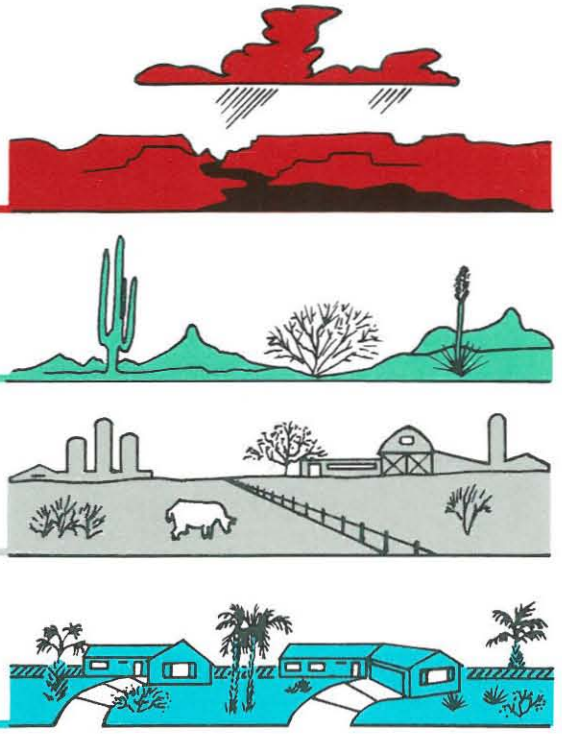

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

A HYDROLOGIC ANALYSIS
OF THE
POWERLINE F.R.S.

VOLUME II

Part II

OD CONTROL DISTRICT OF MARICOPA COUNTY

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

Report on

A HYDROLOGIC ANALYSIS OF THE POWERLINE F.R.S.

Prepared by

Flood Control District of Maricopa County
Hydrology Division
Watershed Management Branch

Valerie Rice, Hydrologist
Doug Plasencia, Hydrologist

Volume II

January 1989

A HYDROLOGIC ANALYSIS
OF THE
POWERLINE F.R.S.

VOLUME II

Part II

Appendix I

HEC-1 Output

Alternative B :
Raise the Powerline F.R.S.
by 1.5 Feet (PMF)

```
+2222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222+

                    $   $  $   $  $$$$           $   $   $$$   $   $
                    $   $  $   $  $   $          $   $  $   $  $$ $$
                    $   $   $ $   $   $          $   $  $      $ $ $
                    $$$$$    $    $   $          $ $ $   $$$   $ $ $
                    $   $    $    $   $          $ $ $      $  $   $
                    $   $    $    $   $    $$    $$ $$  $   $  $   $
                    $   $    $    $$$$     $$    $   $   $$$   $   $

                    DEST=HYD.WSM  USER=HYD.WSM  QUEUE=LPT  DEVICE=@LPB
                  SEQ=446  QPRI=128  CPL=132  LPP=66  COPIES=1  PAGES=70

                              CREATED:  05-JAN-89  11:03:12
                             ENQUEUED:  05-JAN-89  11:13:46
                             PRINTING:  05-JAN-89  11:13:46

       PATH=:SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:ALTB.OUT

                      $    $       $$$$$  $$$$           $$$   $   $  $$$$$
                     $ $   $         $    $   $         $   $  $   $    $
                    $   $  $         $    $   $         $   $  $   $    $
                    $   $  $         $    $$$$          $   $  $   $    $
                    $$$$$  $         $    $   $         $   $  $   $    $
                    $   $  $         $    $   $    $$   $   $  $   $    $
                    $   $  $$$$$     $    $$$$     $$    $$$    $$$     $

+2222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222222+


                                      AOS/VS REV 7.62.00.00


                                    AOS/VS REVISION 7.62.00.00
                                 AOS/VS XLPT-32 REVISION 7.62.00.00
```

```
**** AOS/VS REV 7.62.00.00 / BATCH OUTPUT FILE ****

AOS/VS 7.62.00.00 / EXEC-32 7.62.00.00    5-JAN-89        11:03:12
QPRI=128          SEQ=440
INPUT FILE -- :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:?48.CLI.00002.JOB (WILL BE DELETED AFTER PROCESSIN
LIST FILE  -- :QUEUE:HYD.WSM.LIST.440

--------
LAST MESSAGE CHANGE      17-NOV-88        14:55:52

               ***************          *******        ***********
                ************        ************        ***********
               ***                 ****      ***         ***      ***
              *******             ***                   ***      ***
             ******              ***                   ***      ***
            ***                 ***      ***          ***      ***
           ****                 ***********         ************
          ******                 *******           ************


--------
MOST RECENT LOGON         5-JAN-89        10:59:02

AOS/VS CLI   REV 07.62.00.00      5-JAN-89        11:03:14
) SEARCHLIST :UTIL,:MACROS,:UDD:HYD.WSM,:UDD:OP,:PER,:
) DIRECTORY :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR
) DEFACL HYD.WSM,OWARE
)
) LISTFILE ALTB.OUT
) DATAFILE ALTB.DAT
) SEA :UTIL:HEC1.DIR,[!SEA]
) X HEC1_START
```

```
*****************************************
*                                       *
*   FL[illegible] HYDROGRAPH PACKAGE  (HEC-1)   *
*              FEBRUARY 1981            *
*            REVISED 31 JAN 85          *
*                                       *
*  RUN DATE 1/ 5/1989   TIME11: 3:16 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*           609 SECOND STREET           *
*        DAVIS, CALIFORNIA 95616        *
*  (916) 440-3285 OR (FTS) 448-3285     *
*                                       *
*****************************************
```

```
X      X  XXXXXXX   XXXXX            X
X      X  X         X     X         XX
X      X  X         X                X
XXXXXXX   XXXX      X        XXXXX   X
X      X  X         X                X
X      X  X         X     X          X
X      X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THE VERSION RELEASED 31JAN85 CONTAINS NEW OPTIONS ON RL AND BA RECORDS, AND ADDS THE HL RECORD. SEE JANUARY 1985 INPUT DESCRIPTION FOR NEW DEFINITIONS.

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID     WEEKES WASH - POWERLINE F.R.S  ANALYSIS
  2           ID     CONVERSION OF MODEL FROM TR-20
  3           ID                  1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
  4           ID                  DEVELOPMENT, MUSKINGUM ROUTING
  5           ID     ALTERNATIVE B : RAISE POWERLINE F.R.S.
  6           ID        CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
  7           ID                         POINT OF WEEKES WASH AT JUNCTION ROAD.
  8           ID                      2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
  9           ID                         AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
 10           ID                         LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
 11           ID                      3: SUPERSTITION FREEWAY IN PLACE.
 12           ID                      4: ADJUSTED WATERSHED AREAS.
 13           ID                      5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
 14           ID                      6: MODIFICATIONS TO POWERLINE F.R.S. -  RAISE
 15           IT      10       0       0     400
 16           IO       5
 17           JR    FLOW      .5     1.0

 18           KK      15  WATERSHED 15
 19           KM      HYDROGRAPH FOR WATERSHED 15
 20           PB   11.08
 21           IN      60
 22           PI     .47     .81    7.02    1.71     .75     .32
 23           BA    1.76
 24           LS       0      80
 25           UD     .18

 26           KK     R15 ROUTE HYDROGRAPH FROM WS 15
 27           KM     ROUTE HYDROGRAPH FROM WATERSHED 15
 28           RM       1     .11      .3

 29           KK      14 WATERSHED 14
 30           KM     HYDROGRAPH FOR WATERSHED 14
 31           BA    1.11
 32           LS       0      79
 33           UD     .15

 34           KK      16 WATERSHED 16
 35           KM     HYDROGRAPH FOR WATERSHED 16
 36           BA    2.16
 37           LS       0      82
 38           UD     .35

 39           KK     114 CONCENTRATION PT. 114 (INCLUDES WATERSHEDS 14, 15, & 16)
 40           KM     COMBINE ALL THREE HYDROGRAPHS AT CP 114
 41           HC       3

 42           KK    R114 ROUTE CP 114
 43           KM     ROUTE HYDROGRAPH FROM CP114 TO CP 113
 44           RM       1     .17      .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 45           KK      13 WATERSHED 13
 46           KM     HYDROGRAPH FOR WATERSHED 13
 47           BA    1.29
 48           LS       0       83
 49           UD    .126

 50           KK     113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
 51           KM     COMBINE HYDROGRAPHS CP 114 AND WS 13
 52           HC       2

 53           KK    R113 ROUTE CP 113 TO CP 112
 54           KM     ROUTE HYDROGRAPH FOR CP 113
 55           RM       1      .19       .3

 56           KK      12 WATERSHED 12
 57           KM     HYDROGRAPH FOR WATERSHED 12
 58           BA    1.32
 59           LS       0       86
 60           UD     .27

 61           KK     112 CONCENTRATION PT. 112 FOR HYDROGRAPHS FROM CP 113 AND WS 12.
 62           KM     COMBINE HYDROGRAPH FROM CP 113 AND WS 12
 63           HC       2

 64           KK    R112 ROUTE CP 112 TO CP 111
 65           KM     ROUTE HYDROGRAPH CP 112 TO CP 111
 66           RM       1      .07       .3

 67           KK      11 WATERSHED 11
 68           KM     HYDROGRAPH FOR WATERSHED 11
 69           BA     .70
 70           LS       0       89
 71           UD    .186

 72           KK      17 WATERSHED 17
 73           KM     HYDROGRAPH FOR WATERSHED 17
 74           BA     .37
 75           LS       0       79
 76           UD    .138

 77           KK      10   WATERSHED 10
 78           KM     HYDROGRAPH FOR WATERSHED 10
 79           BA     .54
 80           LS       0       79
 81           UD     .14

 82           KK     111 CONCENTRATION PT. 111
 83           KM     COMBINE HYDROGRAPHS FROM CP 112, WS 11, AND WS 17
 84           HC       4
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.......10

 85           KK   RD111 ROUTE CP 111 TO PT AT WHICH BREAKOUT WOULD OCCUR.
 86           KM     ROUTE HYDROGRAPH CP111 TO THE POINT AT WHICH THE BREAKOUT OCCURS.
 87           RM       5      .64       .3

 88           KK      2A  WATERSHED 2A
 89           KM      HYDROGRAPH FOR WATERSHED 2A
 90           BA    1.09
 91           LS       0       82
 92           UD     .22

 93           KK    CP2A  CONCENTRATION POINT 2A
 94           KM    COMBINE ROUTED HYDROGRAPH FROM CP 111 AND WATERSHED 2A.
 95           HC       2

 96           KK    FLOW    POINT OF DIVERSION FOR WEEKES WASH
 97           KO       3
 98           DT  DIVERT
 99           DI       0    6500    7000    9000   10000   15000
100           DQ       0       0     260    1300    1880    4600

101           KK    RR2A ROUTE REMAINING HYDROGRAPH TO SUPERSTITION FREWAY
102           KM     ROUTE THE REMAINING HYDROGRAPH TO DETENTION NORTH OF SUPERSTITION FREEWAY
103           RM       2      .42       .3

104           KK     2BE WATERSHED 2B EAST
105           KM     HYDROGRAPH FOR WATERSHED 2B EAST
106           BA    1.22
107           LS       0       82
108           UD     .48

109           KK    102B  CONCENTRATION POINT NORTH OF FREEWAY
110           KM     CONCENTRATION POINT NORTH OF SUPERSTITION FREEWAY AT DETENTION AREA
111           HC       2

112           KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
113           KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
114           KM      PRINCIPLE OUTLET IS 2-12 X 12 (FOOT) BOX CULVERTS
115           KM      INVERT IS AT 1636; EMERGENCY SPILLWAY CREST IS AT 1650.
116           RS       1    ELEV    1636
117           SV       0     6.0    13.0    29.0    47.0    69.0    93.0   122.0   153.0   184.0
118           SV     217     239
119           SE    1636    1637    1638    1640    1642    1644    1646    1648    1650    1652
120           SE    1654    1655
121           SQ       0      22     194     584    1050    1604    2236    2900    3534    4108
122           SQ    4622    4860
123           ST    1650     320     2.2     1.5

124           KK   FRWAY
125           KM    DIVERT ALL FLOWS FROM EMERGENCY SPILLWAY
126           DT   SPILL
127           DI       0    3665    5000   10000   15000
128           DQ       0       0    1335    6335   11335
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 129          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
 130          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
 131          RM       1       .1       .3

 132          KK    WASH   ROUTE FLOWS THROUGH THE WASH
 133          KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
 134          RM       2      .50       .3

 135          KK  RSPILL
 136          KM    RETRIEVE FLOW DIVERTED FROM THE EMERGENCY SPILLWAY
 137          DR   SPILL

 138          KK   IDAHO
 139          KM    ROUTE THE RETRIEVED FLOW DOWN IDAHO RD.
 140          RM       1       .1       .3

 141          KK      WW
 142          KM     COMBINE ALL FLOWS FROM FREEWAY
 143          HC       2

 144          KK     RWW
 145          KM     ROUTE FLOWS TO POWERLINE F.R.S.
 146          RM       4      .98       .3

 147          KK    2BWW  WATERSHED 2B WEST, WEST
 148          KM      HYDROGRAPH FOR WATERSHED 2B WEST, WEST
 149          BA     .45
 150          LS       0       82
 151          UD      .4

 152          KK    2BWE  WATERSHED 2B WEST, EAST
 153          KM     RUNOFF FROM EAST OF IDAHO ROAD 2B WEST, EAST
 154          BA     .70
 155          LS       0       82
 156          UD      .3

 157          KK  DET2BW  ROUTE THROUGH THE DETENTION NORTH OF THE FREEWAY  (N. DIVERSION DAM)
 158          KM      ROUTE FLOWS THROUGH THE DETENTION NORTH OF THE SUPERSTITION FREEWAY
 159          RS       1    ELEV  1623.5
 160          SV       0      .6      8.3     17.5     28.2     36.0     48.6
 161          SE  1623.5  1624.0  1626.0  1628.0  1630.0  1632.0  1634.0
 162          SQ       0       0      31      93     135     169     208
 163          ST  1630.0     110     2.2     1.5

 164          KK    C004  COMBINE FLOWS JUST NORTH OF FREEWAY
 165          KM    COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
 166          HC       2

 167          KK    NDIV
 168          KM    DIVERSION OF FLOW OVER THE NORTH DIVERSION DAM.
 169          KO       3
 170          DT    EXIT
 171          DI       0    1218    5000   10000
 172          DQ       0       0    3782    8782
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 173          KK  NDRCUT  ROUTE THROUGH THE FREEWAY
 174          KM    RCUTE COMBINED FLOW THROUGH 2 - 10  X 8  BOX CULVERTS
 175          RS       1     ELEV  1622.6
 176          SV       0     0.02     0.16     1.12     4.17    25.42
 177          SE  1622.6  1623.0  1624.0  1626.0  1628.0  1630.0
 178          SQ       0        0      101      372      738     1111
 179          ST  1630.0     2875      2.2      1.5

 180          KK    R2BW  ROUTE TO CP102
 181          KM     ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
 182          RM       2      .40       .3

 183          KK     2BS  WATERSHED 2B SOUTH OF SUPERTITION FREEWAY
 184          KM     HYDROGRAPH FOR WATERSHED 2B SOUTH
 185          BA    1.91
 186          LS       0       80
 187          UD     .32

 188          KK     102 CONCENTRATION PT. 102, WEEKES WASH WATERSHED AT POWERLINE FRS.
 189          KM     COMBINE HYDROGRAPHS FROM CP D111 AND WS 2 (WE ARE NOW AT POWERLINE DAM)
 190          HC       3

 191          KK       5 WATERSHED 5 ( BEGINNING OF SIPHON DRAW WATERSHED)
 192          KM     HYDROGRAPH FOR WS 5 (BEGINNING OF THE WATERSHED FOR SIPHON DRAW TO THE DAM)
 193          BA    5.65
 194          LS       0       85
 195          UD     .71

 196          KK      R5 ROUTE HYDROGRAPH FROM WS 5 TO CP 104
 197          KM      ROUTE HYDROGRAPH FOR WS 5 TO CP 104
 198          RM       1      .07       .3

 199          KK       4 WATERSHED 4
 200          KM      HYDROGRAPH FOR WATERSHED 4
 201          BA   11.85
 202          LS       0       86
 203          UD    1.30

 204          KK     104  CONCENTRATION POINT 104
 205          KM     COMBINE HYDROGRAPHS AT CP 104
 206          HC       2

 207          KK    R104
 208          KM    RCUTE CP 104 TO 106
 209          RM       2      .50       .3

 210          KK       7  WATERSHED 7
 211          KM    HYDROGRAPH FOR WATERSHED 7
 212          BA     .61
 213          LS       0       86
 214          UD      .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 215          KK        6 WATERSHED 6
 216          KM       HYDROGRAPH FOR WATERSHED 6
 217          BA     7.86
 218          LS        0       83
 219          UD     1.08

 220          KK      106 CONCENTRATION PT. 106, HYDROGRAPHS FROM R 5, WS 4, & WS 6
 221          KM       COMBINE HYDROGRAPHS FROM R5, WS 4, AND WS 6
 222          HC        3

 223          KK     R106 ROUTE THE HYDROGRAPH FROM CP 106 TO WHERE NEXT WASH ENTERS.
 224          KM       ROUTE HYDROGRAPH FROM CP 104 TO WHERE OTHER WASH ENTERS
 225          RM        1      .27       .3

 226          KK       3N WATERSHED 3N
 227          KM       HYDROGRAPH FOR WATERSHED 3N
 228          BA     2.89
 229          LS        0       85
 230          UD      .41

 231          KK     CULV   ROUTE FLOWS THROUGH CULVERTS
 232          KM      ROUTE FLOWS THROUGH THE CULVERTS
 233          RS      1.0     ELEV     1665
 234          SV        0      .15      .60      1.5      3.1      5.6      9.1     13.7    19.45    26.35
 235          SE     1665   1665.5     1666   1666.5     1667   1667.5     1668   1668.5     1669   1669.5
 236          SQ        0      119      375      688     1063     1462     1938     2375     2875     3375

 237          KK    RCULV  ROUTE FLOWS TO W103
 238          KM      ROUTE THE FLOWS TO CONCENTRATION POINT W103
 239          RM        2       .5       .3

 240          KK       3S  WATERSHED 3 SOUTH
 241          KM       HYDROGRAPH FOR WATERSHED 3 SOUTH
 242          BA     2.39
 243          LS        0       85
 244          UD     .436

 245          KK      103
 246          HC        2

 247          KK       3A   WATERSHED 3A
 248          KM      HYDROGRAPH FOR WATERSHED 3A
 249          BA     1.20
 250          LS        0       86
 251          UD       .4

 252          KK    CP103
 253          KM      CONCENTRATION POINT FOR WEST FORK OF SIPHON DRAW
 254          HC        2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 255          KK     W103 CONCTRATION PT. W103 WHERE UNNAMED WASH ENTERS.
 256          KM       COMBINE HYDROGRAPHS FROM CP 104 AND WS 3 - SIPHON DRAW WATERSHED
 257          HC         2

 258          KK    RW103 ROUTE RESULTING HYDROGRAPH TO POWELINE DAM STRUCTURE
 259          KM       ROUTE THE HYDROGRAPH TO POWERLINE DAM
 260          RM         1      .16       .3

 261          KK      PLD CONCENTRATION PT. AT POWERLINE DAM
 262          KM      COMBINE HYDROGRAPHS FROM WEEKES WASH SUB-BASIN AND SIPHON DRAW SUB-BASIN
 263          HC         2

 264          KK      RES RESERVOIR ROUTING THROUGH THE STRUCTURE
 265          KM      RESERVOIR RATING CURVE
 266          PS         1     ELEV  1568.2
 267          SV         0      175      380      700     1100     1600     2175     2875     3675     4200
 268          SV      4600     5525     6725     7925    13200
 269          SQ         0       75       92      106      119      130      141      150      159      165
 270          SQ      1228     7360    16800    27280    39200
 271          SE    1568.1   1568.2   1570.0   1572.1   1574.1   1576.1   1578.1   1580.1   1582.1   1583.3
 272          SE    1584.1   1586.1   1588.1   1590.1   1590.6
 273          SS    1583.3        0        0        0
 274          ST    1590.6    13358      2.2      1.5
 275          ZZ
```

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 31 JAN 85           *
*                                       *
*  RUN DATE 1/ 5/1989   TIME11: 3:25 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285     *
*                                       *
*****************************************
```


```
                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                 1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
                                 DEVELOPMENT, MUSKINGUM ROUTING
                    ALTERNATIVE B : RAISE POWERLINE F.R.S.
                       CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION ROAD.
                                     2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     3: SUPERSTITION FREEWAY IN PLACE.
                                     4: ADJUSTED WATERSHED AREAS.
                                     5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
                                     6: MODIFICATIONS TO POWERLINE F.R.S. -  RAISE

 16 IO          OUTPUT CONTROL VARIABLES
                      IPRNT            5  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN           10  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1     0  STARTING DATE
                      ITIME         0000  STARTING TIME
                         NQ          400  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3     0  ENDING DATE
                     NDTIME         1830  ENDING TIME

                  COMPUTATION INTERVAL      .17 HOURS
                       TOTAL TIME BASE   66.50 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
                      NPLAN            1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF RUNOFF
                    .50      1.00

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

```
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNIN[illegible]* TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
  96 KK     *      FLOW  *          POINT OF DIVERSION FOR WEEKES WASH
            *            *
            **************

  97 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD      DIVERT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI              INFLOW         .00   6500.00   7000.00   9000.00  10000.00  15000.00

     DQ       DIVERTED FLOW         .00       .00    260.00   1300.00   1880.00   4600.00

                                                                  ***

      ***              ***              ***              ***              ***

                          DIVERSION HYDROGRAPH   DIVERT
                            FOR PLAN 1, RATIO =  .50

 PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR        24-HR        72-HR      66.50-HR
    4965.       3.83        (CFS)      829.         207.          75.          75.
                          (INCHES)     .745         .745         .745         .745
                           (AC-FT)     411.         411.         411.         411.

                           CUMULATIVE AREA =   10.34 SQ MI

      ***              ***              ***              ***              ***

                          HYDROGRAPH AT STATION      FLOW
                            FOR PLAN 1, RATIO =  .50

 PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR        24-HR        72-HR      66.50-HR
   10706.       3.83        (CFS)     4079.        1022.         369.         369.
```

```
                    (INCHES)      3.668        3.676        3.676        3.676
                     (AC-FT)      2023.        2027.        2027.        2027.

                    CUMULATIVE AREA =   10.34 SQ MI


    ***            ***            ***            ***            ***

                     DIVERSION HYDROGRAPH   DIVERT
                       FOR PLAN 1, RATIO = 1.00

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     66.50-HR
  13490.      3.83        (CFS)      2953.        738.        266.        266.
                       (INCHES)      2.656       2.656       2.656       2.656
                        (AC-FT)      1464.       1464.       1464.       1464.

                    CUMULATIVE AREA =   10.34 SQ MI


    ***            ***            ***            ***            ***

                     HYDROGRAPH AT STATION     FLOW
                       FOR PLAN 1, RATIO = 1.00

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     66.50-HR
  17852.      3.83        (CFS)      6862.       1720.        621.        621.
                       (INCHES)      6.170       6.187       6.187       6.187
                        (AC-FT)      3402.       3412.       3412.       3412.

                    CUMULATIVE AREA =   10.34 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 167 KK     *      NDIV  *
            *            *
            **************

 169 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD         EXIT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW          .00   1218.00   5000.00  10000.00

     DQ      DIVERTED FLOW          .00       .00   3782.00   8782.00
```

*** *** *** ***

DIVERSION HYDROGRAPH EXIT
FOR PLAN 1, RATIO = .50

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
927.	3.17	(CFS)	87.	22.	8.	8.
		(INCHES)	.705	.705	.705	.705
		(AC-FT)	43.	43.	43.	43.

CUMULATIVE AREA = 1.15 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION NDIV
FOR PLAN 1, RATIO = .50

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
1218.	2.83	(CFS)	431.	114.	41.	41.
		(INCHES)	3.483	3.696	3.698	3.698
		(AC-FT)	214.	227.	227.	227.

CUMULATIVE AREA = 1.15 SQ MI

*** *** *** *** ***

DIVERSION HYDROGRAPH EXIT
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
3105.	3.17	(CFS)	450.	112.	41.	41.
		(INCHES)	3.635	3.635	3.635	3.635
		(AC-FT)	223.	223.	223.	223.

CUMULATIVE AREA = 1.15 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION NDIV
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
1218.	2.67	(CFS)	607.	160.	58.	58.
		(INCHES)	4.911	5.180	5.182	5.182
		(AC-FT)	301.	318.	318.	318.

CUMULATIVE AREA = 1.15 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

```
*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO     1462.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO FLOWS RATIO 1 .50	RATIO 2 1.00
HYDROGRAPH AT	15	1.76	1	FLOW	3601.	7203.
				TIME	3.00	3.00
ROUTED TO	R15	1.76	1	FLOW	3502.	7003.
				TIME	3.00	3.00
HYDROGRAPH AT	14	1.11	1	FLOW	2274.	4548.
				TIME	3.00	3.00
HYDROGRAPH AT	16	2.16	1	FLOW	4079.	8157.
				TIME	3.00	3.00
3 COMBINED AT	114	5.03	1	FLOW	9855.	19709.
				TIME	3.00	3.00
ROUTED TO	R114	5.03	1	FLOW	9562.	19125.
				TIME	3.17	3.17
HYDROGRAPH AT	13	1.29	1	FLOW	2748.	5495.
				TIME	3.00	3.00
2 COMBINED AT	113	6.32	1	FLOW	11803.	23606.
				TIME	3.00	3.00
ROUTED TO	R113	6.32	1	FLOW	11365.	22730.
				TIME	3.17	3.17
HYDROGRAPH AT	12	1.32	1	FLOW	2743.	5485.
				TIME	3.00	3.00
2 COMBINED AT	112	7.64	1	FLOW	13857.	27714.
				TIME	3.17	3.17
ROUTED TO	R112	7.64	1	FLOW	13590.	27181.
				TIME	3.17	3.17
HYDROGRAPH AT	11	.70	1	FLOW	1531.	3061.
				TIME	3.00	3.00
HYDROGRAPH AT	17	.37	1	FLOW	761.	1521.
				TIME	3.00	3.00
HYDROGRAPH AT	10	.54	1	FLOW	1109.	2219.
				TIME	3.00	3.00
4 COMBINED AT	111	9.25	1	FLOW	15971.	31942.
				TIME	3.17	3.17
ROUTED TO	RD111	9.25	1	FLOW	15054.	30107.
				TIME	3.83	3.83
HYDROGRAPH AT	2A	1.09	1	FLOW	2236.	4471.

				TIME	3.00	3.00
2 COMBINED AT	CP2A	10.34	1	FLOW	15671.	31342.
				TIME	3.83	3.83
DIVERSION TO	DIVERT	10.34	1	FLOW	4965.	13490.
				TIME	3.83	3.83
HYDROGRAPH AT	FLOW	10.34	1	FLOW	10706.	17852.
				TIME	3.83	3.83
ROUTED TO	RR2A	10.34	1	FLOW	10396.	17236.
				TIME	4.17	4.17
HYDROGRAPH AT	2BE	1.22	1	FLOW	2150.	4299.
				TIME	3.17	3.17
2 COMBINED AT	1C2B	11.56	1	FLOW	11185.	18814.
				TIME	4.17	4.17
ROUTED TO	DET2BE	11.56	1	FLOW	11040.	18571.
				TIME	4.33	4.17
			** PEAK STAGES IN FEET **			
			1	STAGE	1654.33	1657.06
				TIME	4.33	4.17
DIVERSION TO	SPILL	11.56	1	FLOW	7375.	14906.
				TIME	4.33	4.17
HYDROGRAPH AT	FRWAY	11.56	1	FLOW	3665.	3665.
				TIME	3.33	3.00
ROUTED TO	CHAN	11.56	1	FLOW	3685.	3694.
				TIME	3.50	3.17
ROUTED TO	WASH	11.56	1	FLOW	3665.	3665.
				TIME	5.83	6.17
HYDROGRAPH AT	RSPILL	.00	1	FLOW	7375.	14906.
				TIME	4.33	4.17
ROUTED TO	IDAHO	.00	1	FLOW	7371.	14935.
				TIME	4.33	4.33
2 COMBINED AT	WW	11.56	1	FLOW	10998.	18592.
				TIME	4.33	4.33
ROUTED TO	RWW	11.56	1	FLOW	10296.	17380.
				TIME	5.33	5.33
HYDROGRAPH AT	2BWW	.45	1	FLOW	828.	1656.
				TIME	3.17	3.17
HYDROGRAPH AT	2BWE	.70	1	FLOW	1372.	2745.
				TIME	3.00	3.00
ROUTED TO	DET2BW	.70	1	FLOW	1317.	2667.
				TIME	3.17	3.17
			** PEAK STAGES IN FEET **			
			1	STAGE	1632.80	1634.67
				TIME	3.17	3.17

2 COMBINED AT	CC04	1.15	1	FLOW	2145.	[illegible].
				TIME	3.17	[illegible]17
DIVERSION TO	EXIT	1.15	1	FLOW	927.	3105.
				TIME	3.17	3.17
HYDROGRAPH AT	NDIV	1.15	1	FLOW	1218.	1218.
				TIME	2.83	2.67
ROUTED TO	NDROUT	1.15	1	FLOW	1070.	1218.
				TIME	3.67	3.83
			** PEAK STAGES IN FEET **			
			1	STAGE	1629.78	1630.06
				TIME	3.67	3.83
ROUTED TO	R2BW	1.15	1	FLOW	1049.	1210.
				TIME	4.00	4.33
HYDROGRAPH AT	2BS	1.91	1	FLOW	3600.	7200.
				TIME	3.00	3.00
3 COMBINED AT	102	14.62	1	FLOW	11009.	19069.
				TIME	5.33	5.17
HYDROGRAPH AT	5	5.65	1	FLOW	8877.	17753.
				TIME	3.33	3.33
ROUTED TO	R5	5.65	1	FLOW	8800.	17600.
				TIME	3.50	3.50
HYDROGRAPH AT	4	11.85	1	FLOW	13555.	27109.
				TIME	4.00	4.00
2 COMBINED AT	104	17.50	1	FLOW	20710.	41419.
				TIME	3.67	3.67
ROUTED TO	R104	17.50	1	FLOW	19890.	39781.
				TIME	4.17	4.17
HYDROGRAPH AT	7	.61	1	FLOW	1247.	2494.
				TIME	3.00	3.00
HYDROGRAPH AT	6	7.86	1	FLOW	9600.	19201.
				TIME	3.83	3.83
3 COMBINED AT	106	25.97	1	FLOW	28791.	57583.
				TIME	4.17	4.17
ROUTED TO	R106	25.97	1	FLOW	28308.	56615.
				TIME	4.33	4.33
HYDROGRAPH AT	3N	2.89	1	FLOW	5465.	10931.
				TIME	3.17	3.17
ROUTED TO	CULV	2.89	1	FLOW	5186.	10358.
				TIME	3.17	3.17
			** PEAK STAGES IN FEET **			
			1	STAGE	1671.31	1676.48
				TIME	3.17	3.17

ROUTED TO	RCULV	2.39	1	FLOW	4833.	9[illegible]3.
				TIME	3.67	[illegible]7
HYDROGRAPH AT	3S	2.39	1	FLOW	4469.	8939.
				TIME	3.17	3.17
2 COMBINED AT	103	5.28	1	FLOW	7372.	15586.
				TIME	3.33	3.33
HYDROGRAPH AT	3A	1.20	1	FLOW	2300.	4599.
				TIME	3.17	3.17
2 COMBINED AT	CP103	6.48	1	FLOW	9847.	19536.
				TIME	3.33	3.33
2 COMBINED AT	W103	32.45	1	FLOW	33359.	66720.
				TIME	4.17	4.17
ROUTED TO	RW103	32.45	1	FLOW	33166.	66343.
				TIME	4.33	4.33
2 COMBINED AT	PLD	47.07	1	FLOW	40324.	80002.
				TIME	4.67	4.50
ROUTED TO	RES	47.07	1	FLOW	20063.	36488.
				TIME	6.33	6.33

** PEAK STAGES IN FEET **

1	STAGE	1588.72	1590.49
	TIME	6.33	6.33

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1636.00	1650.00	1650.00
STORAGE	0.	153.	153.
OUTFLOW	0.	3534.	3534.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1654.33	4.33	224.	11040.	2.83	4.33	.00
1.00	1657.06	7.06	284.	18571.	3.83	4.17	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BW

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1623.50	1630.00	1630.00
STORAGE	0.	28.	28.
OUTFLOW	0.	135.	135.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1632.80	2.80	41.	1317.	3.00	3.17	.00
1.00	1634.67	4.67	53.	2667.	4.00	3.17	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1622.60	1630.00	1630.00
STORAGE	0.	25.	25.
OUTFLOW	0.	1111.	1111.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1629.78	.00	23.	1070.	.00	3.67	.00
1.00	1630.06	.06	26.	1218.	.83	3.83	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1590.60
STORAGE	175.	4200.	13200.
OUTFLOW	75.	165.	39200.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1588.72	.00	7099.	20063.	.00	6.33	.00
1.00	1590.49	.00	12000.	36488.	.00	6.33	.00

```
*** NORMAL END OF HEC-1 ***
STOP
)
)
END OF FILE
AOS/VS CLI   TERMINATING          5-JAN-89        11:03:58

PROCESS 80 TERMINATED

ELAPSED TIME  0:00:44, CPU TIME  00:00:00.089, I/O BLOCKS  55
(OTHER JOBS, SAME USERNAME:
    NUMBER OF CONSOLE JOBS, 1
    NUMBER OF BATCH JOBS, 0)
USER 'HYD.WSM' LOGGED OFF         5-JAN-89        11:03:58

****
*LIST FILE EMPTY, WILL NOT BE PRINTED
****
```

Appendix J

HEC-1 Output

Alternative C :
Combination of Raising and Excavating (PMF)

```
+3333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333+

$   $  $   $  $$$$          $   $   $$$   $   $
$   $  $   $  $   $         $   $  $   $  $$ $$
$   $   $ $   $   $         $   $  $      $ $ $
$$$$$    $    $   $         $ $ $   $$$   $ $ $
$   $    $    $   $         $ $ $      $  $   $
$   $    $    $   $    $$   $$ $$  $   $  $   $
$   $    $    $$$$     $$   $   $   $$$   $   $

 DEST=HYD.WSM  USER=HYD.WSM  QUEUE=LPT  DEVICE=@LPB
SEQ=447  QPRI=128  CPL=132  LPP=66  COPIES=1  PAGES=70

          CREATED:  05-JAN-89  11:12:02
         ENQUEUED:  05-JAN-89  11:13:46
         PRINTING:  05-JAN-89  11:15:17

PATH=:SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:ALTC.OUT

  $    $      $$$$$   $$$          $$$   $   $  $$$$$
 $ $   $        $    $   $        $   $  $   $    $
$   $  $        $    $            $   $  $   $    $
$   $  $        $    $            $   $  $   $    $
$$$$$  $        $    $            $   $  $   $    $
$   $  $        $    $   $   $$   $   $  $   $    $
$   $  $$$$$    $     $$$    $$    $$$    $$$     $

+3333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333333+

AOS/VS REV 7.62.00.00

AOS/VS REVISION 7.62.00.00
AOS/VS XLPT-32 REVISION 7.62.00.00
```

```
**** AOS/VS REV 7.62.00.00 / BATCH OUTPUT FILE ****

AOS/VS 7.62.00.00 / EXEC-32 7.62.00.00   5-JAN-89        11:12:04
QPRI=128        SEQ=444
INPUT FILE -- :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:?48.CLI.00003.JOB (WILL BE DELETED AFTER PROCESSIN
LIST FILE  -- :QUEUE:HYD.WSM.LIST.444

--------
LAST MESSAGE CHANGE     17-NOV-88        14:55:52


                ***************          *******        ***********
                ************        ************        ***********
               ***                 ****      ***         ***      ***
              *******             ***                   ***      ***
             ******              ***                   ***      ***
            ***                 ***       ***         ***      ***
           ****                 ***********        ************
         ******                  *******         ************


--------
MOST RECENT LOGON        5-JAN-89        11:03:14

AOS/VS CLI   REV 07.62.00.00     5-JAN-89        11:12:07
) SEARCHLIST :UTIL,:MACROS,:UDD:HYD.WSM,:UDD:OP,:PER,:
) DIRECTORY :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR
) DEFACL HYD.WSM,OWARE
)
) LISTFILE ALTC.OUT
) DATAFILE ALTC.DAT
) SEA :UTIL:HEC1.DIR,[!SEA]
) X HEC1_START
```

```
*****************************************
*                                       *
*   FL[illegible] HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*           REVISED 31 JAN 85           *
*                                       *
*  RUN DATE 1/ 5/1989   TIME11:12:11 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285   *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX            X
X     X  X        X     X          XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THE VERSION RELEASED 31JAN85 CONTAINS NEW OPTIONS ON RL AND BA RECORDS, AND ADDS THE HL RECORD. SEE JANUARY 1985 INPUT DESCRIPTION FOR NEW DEFINITIONS.

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID      WEEKES WASH - POWERLINE F.R.S  ANALYSIS
  2           ID      CONVERSION OF MODEL FROM TR-20
  3           ID                    1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
  4           ID      ALTERNATIVE C : COMBINE ALTERNATIVES A AND B.
  5           ID                    DEVELOPMENT, MUSKINGUM ROUTING
  6           ID         CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
  7           ID                          POINT OF WEEKES WASH AT JUNCTION ROAD.
  8           ID                       2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
  9           ID                          AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
 10           ID                          LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
 11           ID                       3: SUPERSTITION FREEWAY IN PLACE.
 12           ID                       4: ADJUSTED WATERSHED AREAS.
 13           ID                       5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
 14           ID                       6: MODIFICATIONS TO POWERLINE F.R.S. - RAISE AND STORAGE
 15           IT      10        0        0      400
 16           IO       5
 17           JR    FLOW       .5      1.0

 18           KK      15  WATERSHED 15
 19           KM      HYDROGRAPH FOR WATERSHED 15
 20           PB   11.08
 21           IN      60
 22           PI     .47      .81     7.02     1.71     0.75      .32
 23           BA    1.76
 24           LS       0       80
 25           UD     .18

 26           KK     R15 ROUTE HYDROGRAPH FROM WS 15
 27           KM     ROUTE HYDROGRAPH FROM WATERSHED 15
 28           RM       1      .11       .3

 29           KK      14 WATERSHED 14
 30           KM     HYDROGRAPH FOR WATERSHED 14
 31           BA    1.11
 32           LS       0       79
 33           UD     .15

 34           KK      16 WATERSHED 16
 35           KM     HYDROGRAPH FOR WATERSHED 16
 36           BA    2.16
 37           LS       0       82
 38           UD     .35

 39           KK     114 CONCENTRATION PT. 114 (INCLUDES WATERSHEDS 14, 15, & 16)
 40           KM     COMBINE ALL THREE HYDROGRAPHS AT CP 114
 41           HC       3

 42           KK    R114 ROUTE CP 114
 43           KM     ROUTE HYDROGRAPH FROM CP114 TO CP 113
 44           RM       1      .17       .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 45           KK      13 WATERSHED 13
 46           KM     HYDROGRAPH FOR WATERSHED 13
 47           BA    1.29
 48           LS       0       83
 49           UD    .126

 50           KK     113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
 51           KM     COMBINE HYDROGRAPHS CP 114 AND WS 13
 52           HC       2

 53           KK    R113 ROUTE CP 113 TO CP 112
 54           KM     ROUTE HYDROGRAPH FOR CP 113
 55           RM       1      .19       .3

 56           KK      12 WATERSHED 12
 57           KM     HYDROGRAPH FOR WATERSHED 12
 58           BA    1.32
 59           LS       0       86
 60           UD     .27

 61           KK     112 CONCENTRATION PT. 112 FOR HYDROGRAPHS FROM CP 113 AND WS 12.
 62           KM     COMBINE HYDROGRAPH FROM CP 113 AND WS 12
 63           HC       2

 64           KK    R112 ROUTE CP 112 TO CP 111
 65           KM     ROUTE HYDROGRAPH CP 112 TO CP 111
 66           RM       1      .07       .3

 67           KK      11 WATERSHED 11
 68           KM     HYDROGRAPH FOR WATERSHED 11
 69           BA     .70
 70           LS       0       89
 71           UD    .186

 72           KK      17 WATERSHED 17
 73           KM     HYDROGRAPH FOR WATERSHED 17
 74           BA     .37
 75           LS       0       79
 76           UD    .138

 77           KK      10   WATERSHED 10
 78           KM     HYDROGRAPH FOR WATERSHED 10
 79           BA     .54
 80           LS       0       79
 81           UD     .14

 82           KK     111 CONCENTRATION PT. 111
 83           KM     COMBINE HYDROGRAPHS FROM CP 112, WS 11, AND WS 17
 84           HC       4
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 85           KK   RD111 ROUTE CP 111 TO PT AT WHICH BREAKOUT WOULD OCCUR.
 86           KM     ROUTE HYDROGRAPH CP111 TO THE POINT AT WHICH THE BREAKOUT OCCURS.
 87           RM       5      .64       .3

 88           KK      2A  WATERSHED 2A
 89           KM      HYDROGRAPH FOR WATERSHED 2A
 90           BA    1.09
 91           LS       0       82
 92           UD     .22

 93           KK    CP2A  CONCENTRATION POINT 2A
 94           KM    COMBINE ROUTED HYDROGRAPH FROM CP 111 AND WATERSHED 2A.
 95           HC       2

 96           KK    FLOW    POINT OF DIVERSION FOR WEEKES WASH
 97           KO       3
 98           DT  DIVERT
 99           DI       0     6500     7000     9000    10000    15000
100           DQ       0        0      260     1300     1880     4600

101           KK    RR2A ROUTE REMAINING HYDROGRAPH TO SUPERSTITION FREWAY
102           KM     ROUTE THE REMAINING HYDPOGRAPH TO DETENTION NORTH OF SUPERSTITION FREEWAY
103           RM       2      .42       .3

104           KK     2BE WATERSHED 2B EAST
105           KM     HYDROGRAPH FOR WATERSHED 2B EAST
106           BA    1.22
107           LS       0       82
108           UD     .48

109           KK    1C2B  CONCENTRATION POINT NORTH OF FREEWAY
110           KM     CONCENTRATION POINT NORTH OF SUPERSTITION FREEWAY AT DETENTION AREA
111           HC       2

112           KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
113           KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
114           KM      PRINCIPLE OUTLET IS 2-12 X 12 (FOOT) BOX CULVERTS
115           KM      INVERT IS AT 1636; EMERGENCY SPILLWAY CREST IS AT 1650.
116           RS       1     ELEV     1636
117           SV       0      6.0     13.0     29.0     47.0     69.0     93.0    122.0    153.0    184.0
118           SV     217      239
119           SE    1636     1637     1638     1640     1642     1644     1646     1648     1650     1652
120           SE    1654     1655
121           SQ       0       22      194      584     1050     1604     2236     2900     3534     4108
122           SQ    4622     4860
123           ST    1650      320      2.2      1.5

124           KK   FRWAY
125           KM    DIVERT ALL FLOWS FROM EMERGENCY SPILLWAY
126           DT   SPILL
127           DI       0     3665     5000    10000    15000
128           DQ       0        0     1335     6335    11335
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 129          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
 130          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
 131          RM       1       .1       .3

 132          KK    WASH   ROUTE FLOWS THROUGH THE WASH
 133          KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
 134          RM       2      .50       .3

 135          KK  RSPILL
 136          KM    RETRIEVE FLOW DIVERTED FROM THE EMERGENCY SPILLWAY
 137          DR   SPILL

 138          KK   IDAHO
 139          KM    ROUTE THE RETRIEVED FLOW DOWN IDAHO RD.
 140          RM       1       .1       .3

 141          KK      WW
 142          KM     COMBINE ALL FLOWS FROM FREEWAY
 143          HC       2

 144          KK     RWW
 145          KM     ROUTE FLOWS TO POWERLINE F.R.S.
 146          RM       4      .98       .3

 147          KK    2BWW  WATERSHED 2B WEST, WEST
 148          KM      HYDROGRAPH FOR WATERSHED 2B WEST, WEST
 149          BA     .45
 150          LS       0       82
 151          UD      .4

 152          KK    2BWE  WATERSHED 2B WEST, EAST
 153          KM     RUNOFF FROM EAST OF IDAHO ROAD 2B WEST, EAST
 154          BA     .70
 155          LS       0       82
 156          UD      .3

 157          KK  DET2BW  ROUTE THROUGH THE DETENTION NORTH OF THE FREEWAY  (N. DIVERSION DAM)
 158          KM      ROUTE FLOWS THROUGH THE DETENTION NORTH OF THE SUPERSTITION FREEWAY
 159          RS       1    ELEV  1623.5
 160          SV       0      .6      8.3     17.5     28.2     36.0     48.6
 161          SE  1623.5  1624.0  1626.0  1628.0  1630.0  1632.0  1634.0
 162          SQ       0       0      31      93     135     169     208
 163          ST  1630.0     110     2.2     1.5

 164          KK    C004  COMBINE FLOWS JUST NORTH OF FREEWAY
 165          KM    COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
 166          HC       2

 167          KK    NDIV
 168          KM    DIVERSION OF FLOW OVER THE NORTH DIVERSION DAM.
 169          KO       3
 170          DT    EXIT
 171          DI       0    1218    5000   10000
 172          DQ       0       0    3782    8782
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

173           KK  NDROUT  ROUTE THROUGH THE FREEWAY
174           KM    ROUTE COMBINED FLOW THROUGH 2 - 10  X 8  BOX CULVERTS
175           RS       1     ELEV  1622.6
176           SV       0     0.02     0.16     1.12     4.17    25.42
177           SE  1622.6  1623.0  1624.0  1626.0  1628.0  1630.0
178           SQ       0       0      101      372      738    1111
179           ST  1630.0    2875      2.2      1.5

180           KK    R2BW  ROUTE TO CP102
181           KM     ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
182           RM       2     .40      .3

183           KK     2BS  WATERSHED 2B SOUTH OF SUPERTITION FREEWAY
184           KM     HYDROGRAPH FOR WATERSHED 2B SOUTH
185           BA    1.91
186           LS       0      80
187           UD     .32

188           KK     102 CONCENTRATION PT. 102, WEEKES WASH WATERSHED AT POWERLINE FRS.
189           KM     COMBINE HYDROGRAPHS FROM CP D111 AND WS 2 (WE ARE NOW AT POWERLINE DAM)
190           HC       3

191           KK       5 WATERSHED 5 ( BEGINNING OF SIPHON DRAW WATERSHED)
192           KM     HYDROGRAPH FOR WS 5 (BEGINNING OF THE WATERSHED FOR SIPHON DRAW TO THE DAM)
193           BA    5.65
194           LS       0      85
195           UD     .71

196           KK      R5 ROUTE HYDROGRAPH FROM WS 5 TO CP 104
197           KM      ROUTE HYDROGRAPH FOR WS 5 TO CP 104
198           RM       1     .07      .3

199           KK       4 WATERSHED 4
200           KM      HYDROGRAPH FOR WATERSHED 4
201           BA   11.85
202           LS       0      86
203           UD    1.30

204           KK     104  CONCENTRATION POINT 104
205           KM     COMBINE HYDROGRAPHS AT CP 104
206           HC       2

207           KK    R104
208           KM    ROUTE CP 104 TO 106
209           RM       2     .50      .3

210           KK       7  WATERSHED 7
211           KM    HYDROGRAPH FOR WATERSHED 7
212           BA     .61
213           LS       0      86
214           UD      .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

215           KK        6 WATERSHED 6
216           KM       HYDROGRAPH FOR WATERSHED 6
217           BA     7.86
218           LS        0       83
219           UD     1.08

220           KK      106 CONCENTRATION PT. 106, HYDROGRAPHS FROM R 5, WS 4, & WS 6
221           KM       COMBINE HYDROGRAPHS FROM R5, WS 4, AND WS 6
222           HC        3

223           KK     R106 ROUTE THE HYDROGRAPH FROM CP 106 TO WHERE NEXT WASH ENTERS.
224           KM       ROUTE HYDROGRAPH FROM CP 104 TO WHERE OTHER WASH ENTERS
225           RM        1      .27       .3

226           KK       3N WATERSHED 3N
227           KM       HYDROGRAPH FOR WATERSHED 3N
228           BA     2.89
229           LS        0       85
230           UD      .41

231           KK     CULV   ROUTE FLOWS THROUGH CULVERTS
232           KM      ROUTE FLOWS THROUGH THE CULVERTS
233           RS      1.0     ELEV     1665
234           SV        0      .15      .60      1.5      3.1      5.6      9.1     13.7    19.45    26.35
235           SE     1665   1665.5     1666   1666.5     1667   1667.5     1668   1668.5     1669   1669.5
236           SQ        0      119      375      688     1063     1462     1938     2375     2875     3375

237           KK    RCULV  ROUTE FLOWS TO W103
238           KM      ROUTE THE FLOWS TO CONCENTRATION POINT W103
239           RM        2       .5       .3

240           KK       3S  WATERSHED 3 SOUTH
241           KM       HYDROGRAPH FOR WATERSHED 3 SOUTH
242           BA     2.39
243           LS        0       85
244           UD     .436

245           KK      103
246           HC        2

247           KK       3A   WATERSHED 3A
248           KM      HYDROGRAPH FOR WATERSHED 3A
249           BA     1.20
250           LS        0       86
251           UD       .4

252           KK    CP103
253           KM      CONCENTRATION POINT FOR WEST FORK OF SIPHON DRAW
254           HC        2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 255          KK     W103 CONCTRATION PT. W103 WHERE UNNAMED WASH ENTERS.
 256          KM       COMBINE HYDROGRAPHS FROM CP 104 AND WS 3 - SIPHON DRAW WATERSHED
 257          HC         2

 258          KK    RW103 ROUTE RESULTING HYDROGRAPH TO POWELINE DAM STRUCTURE
 259          KM       ROUTE THE HYDROGRAPH TO POWERLINE DAM
 260          RM         1      .16       .3

 261          KK      PLD CONCENTRATION PT. AT POWERLINE DAM
 262          KM      COMBINE HYDROGRAPHS FROM WEEKES WASH SUB-BASIN AND SIPHON DRAW SUB-BASIN
 263          HC         2

 264          KK      RES RESERVOIR ROUTING THROUGH THE STRUCTURE
 265          KM      RESERVOIR RATING CURVE
 266          RS         1     ELEV  1568.2
 267          SV         0      175      380     1768     3465     5268     5941     7196     9465    14740
 268          SQ         0       75       92      119      141      159      165     7360    27280    39200
 269          SE    1568.1   1568.2   157C.0   1574.0   1578.0   1582.0   1583.3   1586.0   159C.0   1590.6
 270          SS    1583.3        0        0        0
 271          ST    159C.6    13358      2.2      1.5
 272          ZZ
```

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*            REVISED 31 JAN 85          *
*                                       *
*  RUN DATE 1/ 5/1989   TIME11:12:31 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285   *
*                                       *
*****************************************
```

```
                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                 1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
                    ALTERNATIVE C : COMBINE ALTERNATIVES A AND B.
                                 DEVELOPMENT, MUSKINGUM ROUTING
                       CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION ROAD.
                                     2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     3: SUPERSTITION FREEWAY IN PLACE.
                                     4: ADJUSTED WATERSHED AREAS.
                                     5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
                                     6: MODIFICATIONS TO POWERLINE F.R.S. - RAISE AND STORAGE

 16 IO          OUTPUT CONTROL VARIABLES
                      IPRNT            5  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN           10  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1     0  STARTING DATE
                      ITIME         0000  STARTING TIME
                         NQ          400  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3     0  ENDING DATE
                     NDTIME         1830  ENDING TIME

                  COMPUTATION INTERVAL      .17 HOURS
                       TOTAL TIME BASE   66.50 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
                      NPLAN            1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF RUNOFF
                    .50      1.00

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

```
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 96 KK      *      FLOW  *          POINT OF DIVERSION FOR WEEKES WASH
            *            *
            **************

 97 KO          OUTPUT CONTROL VARIABLES
                     IPRNT            3  PRINT CONTROL
                     IPLOT            0  PLOT CONTROL
                     QSCAL           0.  HYDROGRAPH PLOT SCALE

    DT          DIVERSION
                     ISTAD       DIVERT  DIVERSION HYDROGRAPH IDENTIFICATION

    DI              INFLOW         .00   6500.00   7000.00   9000.00  10000.00  15000.00

    DQ       DIVERTED FLOW         .00       .00    260.00   1300.00   1880.00   4600.00

                                                                  ***

     ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH   DIVERT
                          FOR PLAN 1, RATIO =  .50

PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                   6-HR        24-HR        72-HR      66.50-HR
   4965.       3.83        (CFS)      829.         207.          75.          75.
                         (INCHES)     .745         .745         .745         .745
                          (AC-FT)     411.         411.         411.         411.

                        CUMULATIVE AREA =   10.34 SQ MI

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION      FLOW
                          FOR PLAN 1, RATIO =  .50

PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                   6-HR        24-HR        72-HR      66.50-HR
  10706.       3.83        (CFS)     4079.        1022.         369.         369.
```

```
                    (INCHES)      3.668        3.676        3.67[illegible]        3.676
                     (AC-FT)      2023.        2027.        202[illegible]        2027.

                    CUMULATIVE AREA =    10.34 SQ MI


     ***          ***              ***              ***              ***

                      DIVERSION HYDROGRAPH   DIVERT
                        FOR PLAN 1, RATIO = 1.00

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                  6-HR        24-HR        72-HR      66.50-HR
   13490.       3.83          (CFS)   2953.         738.         266.         266.
                          (INCHES)   2.656        2.656        2.656        2.656
                           (AC-FT)   1464.        1464.        1464.        1464.

                    CUMULATIVE AREA =    10.34 SQ MI


     ***          ***              ***              ***              ***

                      HYDROGRAPH AT STATION      FLOW
                        FOR PLAN 1, RATIO = 1.00

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                  6-HR        24-HR        72-HR      66.50-HR
   17852.       3.83          (CFS)   6862.        1720.         621.         621.
                          (INCHES)   6.170        6.187        6.187        6.187
                           (AC-FT)   3402.        3412.        3412.        3412.

                    CUMULATIVE AREA =    10.34 SQ MI


WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 167 KK     *      NDIV  *
            *            *
            **************

 169 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD         EXIT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW          .00   1218.00   5000.00  10000.00

     DQ      DIVERTED FLOW          .00       .00   3782.00   8782.00
```

```
***              ***              ***              ***              ***

                 DIVERSION HYDROGRAPH      EXIT
                   FOR PLAN 1, RATIO =  .50

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
   927.       3.17        (CFS)      87.         22.          8.          8.
                        (INCHES)    .705        .705        .705        .705
                         (AC-FT)     43.         43.         43.         43.

                 CUMULATIVE AREA =    1.15 SQ MI


***              ***              ***              ***              ***

                 HYDROGRAPH AT STATION     NDIV
                   FOR PLAN 1, RATIO =  .50

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
  1218.       2.83        (CFS)     431.        114.         41.         41.
                        (INCHES)   3.483       3.696       3.698       3.698
                         (AC-FT)    214.        227.        227.        227.

                 CUMULATIVE AREA =    1.15 SQ MI


***              ***              ***              ***              ***

                 DIVERSION HYDROGRAPH      EXIT
                   FOR PLAN 1, RATIO = 1.00

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
  3105.       3.17        (CFS)     450.        112.         41.         41.
                        (INCHES)   3.635       3.635       3.635       3.635
                         (AC-FT)    223.        223.        223.        223.

                 CUMULATIVE AREA =    1.15 SQ MI


***              ***              ***              ***              ***

                 HYDROGRAPH AT STATION     NDIV
                   FOR PLAN 1, RATIO = 1.00

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
  1218.       2.67        (CFS)     607.        160.         58.         58.
                        (INCHES)   4.911       5.180       5.182       5.182
                         (AC-FT)    301.        318.        318.        318.

                 CUMULATIVE AREA =    1.15 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

```
*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO     1462.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO FLOWS RATIO 1 .50	RATIO 2 1.00
HYDROGRAPH AT	15	1.76	1	FLOW	3601.	7203.
				TIME	3.00	3.00
ROUTED TO	R15	1.76	1	FLOW	3502.	7003.
				TIME	3.00	3.00
HYDROGRAPH AT	14	1.11	1	FLOW	2274.	4548.
				TIME	3.00	3.00
HYDROGRAPH AT	16	2.16	1	FLOW	4079.	8157.
				TIME	3.00	3.00
3 COMBINED AT	114	5.03	1	FLOW	9855.	19709.
				TIME	3.00	3.00
ROUTED TO	R114	5.03	1	FLOW	9562.	19125.
				TIME	3.17	3.17
HYDROGRAPH AT	13	1.29	1	FLOW	2748.	5495.
				TIME	3.00	3.00
2 COMBINED AT	113	6.32	1	FLOW	11803.	23606.
				TIME	3.00	3.00
ROUTED TO	R113	6.32	1	FLOW	11365.	22730.
				TIME	3.17	3.17
HYDROGRAPH AT	12	1.32	1	FLOW	2743.	5485.
				TIME	3.00	3.00
2 COMBINED AT	112	7.64	1	FLOW	13857.	27714.
				TIME	3.17	3.17
ROUTED TO	R112	7.64	1	FLOW	13590.	27181.
				TIME	3.17	3.17
HYDROGRAPH AT	11	.70	1	FLOW	1531.	3061.
				TIME	3.00	3.00
HYDROGRAPH AT	17	.37	1	FLOW	761.	1521.
				TIME	3.00	3.00
HYDROGRAPH AT	10	.54	1	FLOW	1109.	2219.
				TIME	3.00	3.00
4 COMBINED AT	111	9.25	1	FLOW	15971.	31942.
				TIME	3.17	3.17
ROUTED TO	RD111	9.25	1	FLOW	15054.	30107.
				TIME	3.83	3.83
HYDROGRAPH AT	2A	1.09	1	FLOW	2236.	4471.

				TIME	3.00	3.00
2 COMBINED AT	CP2A	10.34	1	FLOW	15671.	31342.
				TIME	3.83	3.83
DIVERSION TO	DIVERT	10.34	1	FLOW	4965.	13490.
				TIME	3.83	3.83
HYDROGRAPH AT	FLOW	10.34	1	FLOW	10706.	17852.
				TIME	3.83	3.83
ROUTED TO	RR2A	10.34	1	FLOW	10396.	17236.
				TIME	4.17	4.17
HYDROGRAPH AT	2BE	1.22	1	FLOW	2150.	4299.
				TIME	3.17	3.17
2 COMBINED AT	102B	11.56	1	FLOW	11185.	18814.
				TIME	4.17	4.17
ROUTED TO	DET2BE	11.56	1	FLOW	11040.	18571.
				TIME	4.33	4.17
			** PEAK STAGES IN FEET **			
			1	STAGE	1654.33	1657.06
				TIME	4.33	4.17
DIVERSION TO	SPILL	11.56	1	FLOW	7375.	14906.
				TIME	4.33	4.17
HYDROGRAPH AT	FRWAY	11.56	1	FLOW	3665.	3665.
				TIME	3.33	3.00
ROUTED TO	CHAN	11.56	1	FLOW	3685.	3694.
				TIME	3.50	3.17
ROUTED TO	WASH	11.56	1	FLOW	3665.	3665.
				TIME	5.83	6.17
HYDROGRAPH AT	RSPILL	.00	1	FLOW	7375.	14906.
				TIME	4.33	4.17
ROUTED TO	IDAHO	.00	1	FLOW	7371.	14935.
				TIME	4.33	4.33
2 COMBINED AT	WW	11.56	1	FLOW	10998.	18592.
				TIME	4.33	4.33
ROUTED TO	RWW	11.56	1	FLOW	10296.	17380.
				TIME	5.33	5.33
HYDROGRAPH AT	2BWW	.45	1	FLOW	828.	1656.
				TIME	3.17	3.17
HYDROGRAPH AT	2BWE	.70	1	FLOW	1372.	2745.
				TIME	3.00	3.00
ROUTED TO	DET2BW	.70	1	FLOW	1317.	2667.
				TIME	3.17	3.17
			** PEAK STAGES IN FEET **			
			1	STAGE	1632.80	1634.67
				TIME	3.17	3.17

2 COMBINED AT	C004	1.15	1	FLOW	2145.	[illegible].
				TIME	3.17	3.17
DIVERSION TO	EXIT	1.15	1	FLOW	927.	3105.
				TIME	3.17	3.17
HYDROGRAPH AT	NDIV	1.15	1	FLOW	1218.	1218.
				TIME	2.83	2.67
ROUTED TO	NDROUT	1.15	1	FLOW	1070.	1218.
				TIME	3.67	3.83
			** PEAK STAGES IN FEET **			
			1	STAGE	1629.78	1630.06
				TIME	3.67	3.83
ROUTED TO	R2BW	1.15	1	FLOW	1049.	1210.
				TIME	4.00	4.33
HYDROGRAPH AT	2BS	1.91	1	FLOW	3600.	7200.
				TIME	3.00	3.00
3 COMBINED AT	102	14.62	1	FLOW	11009.	19069.
				TIME	5.33	5.17
HYDROGRAPH AT	5	5.65	1	FLOW	8877.	17753.
				TIME	3.33	3.33
ROUTED TO	R5	5.65	1	FLOW	8800.	17600.
				TIME	3.50	3.50
HYDROGRAPH AT	4	11.35	1	FLOW	13555.	27109.
				TIME	4.00	4.00
2 COMBINED AT	104	17.50	1	FLOW	20710.	41419.
				TIME	3.67	3.67
ROUTED TO	R104	17.50	1	FLOW	19890.	39781.
				TIME	4.17	4.17
HYDROGRAPH AT	7	.61	1	FLOW	1247.	2494.
				TIME	3.00	3.00
HYDROGRAPH AT	6	7.86	1	FLOW	9600.	19201.
				TIME	3.83	3.83
3 COMBINED AT	106	25.97	1	FLOW	28791.	57583.
				TIME	4.17	4.17
ROUTED TO	R106	25.97	1	FLOW	28308.	56615.
				TIME	4.33	4.33
HYDROGRAPH AT	3N	2.89	1	FLOW	5465.	10931.
				TIME	3.17	3.17
ROUTED TO	CULV	2.89	1	FLOW	5186.	10358.
				TIME	3.17	3.17
			** PEAK STAGES IN FEET **			
			1	STAGE	1671.31	1676.48
				TIME	3.17	3.17

ROUTED TO	RCULV	2.89	1	FLOW	4833.	9[illegible].
				TIME	3.67	[illegible]7
HYDROGRAPH AT	3S	2.39	1	FLOW	4469.	8939.
				TIME	3.17	3.17
2 COMBINED AT	103	5.28	1	FLOW	7872.	15586.
				TIME	3.33	3.33
HYDROGRAPH AT	3A	1.20	1	FLOW	2300.	4599.
				TIME	3.17	3.17
2 COMBINED AT	CP103	6.48	1	FLOW	9847.	19536.
				TIME	3.33	3.33
2 COMBINED AT	W103	32.45	1	FLOW	33359.	66720.
				TIME	4.17	4.17
ROUTED TO	RW103	32.45	1	FLOW	33166.	66343.
				TIME	4.33	4.33
2 COMBINED AT	PLD	47.07	1	FLOW	40324.	80002.
				TIME	4.67	4.50
ROUTED TO	RES	47.07	1	FLOW	15558.	34874.
				TIME	6.67	6.33

** PEAK STAGES IN FEET **

1	STAGE	1587.65	1590.38
	TIME	6.67	6.33

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET28E

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1636.00	1650.00	1650.00
STORAGE	0.	153.	153.
OUTFLOW	0.	3534.	3534.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1654.33	4.33	224.	11040.	2.83	4.33	.00
1.00	1657.06	7.06	284.	18571.	3.83	4.17	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BW

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1623.50	1630.00	1630.00
STORAGE	0.	28.	28.
OUTFLOW	0.	135.	135.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1632.80	2.80	41.	1317.	3.00	3.17	.00
1.00	1634.67	4.67	53.	2667.	4.00	3.17	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1622.60	1630.00	1630.00
STORAGE	0.	25.	25.
OUTFLOW	0.	1111.	1111.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1629.78	.00	23.	1070.	.00	3.67	.00
1.00	1630.06	.06	26.	1218.	.83	3.83	.00

SUMMARY OF DAM OVERTOPPING/BREAK ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1590.60
STORAGE	175.	5941.	14740.
OUTFLOW	75.	165.	39200.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1587.65	.00	8130.	15558.	.00	6.67	.00
1.00	1590.38	.00	12826.	34874.	.00	6.33	.00

```
*** NORMAL END OF HEC-1 ***
STOP
)
)
END OF FILE
AOS/VS CLI   TERMINATING          5-JAN-89        11:13:06

PROCESS 80 TERMINATED

ELAPSED TIME  0:01:00, CPU TIME  00:00:00.092, I/O BLOCKS  52
(OTHER JOBS, SAME USERNAME:
    NUMBER OF CONSOLE JOBS, 1
    NUMBER OF BATCH JOBS, 0)
USER 'HYD.WSM' LOGGED OFF         5-JAN-89        11:13:06

****
*LIST FILE EMPTY, WILL NOT BE PRINTED
****
```

Appendix L

HEC-1 Output

Alternative D:

Proposed Weekes Wash Dam in Place
(100 Year Storm)

```
+6666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666+

$   $  $   $  $$$$          $   $   $$$   $   $
$   $  $   $  $   $         $   $  $   $  $$ $$
$   $   $ $   $   $         $   $  $      $ $ $
$$$$$    $    $   $         $ $ $   $$$   $ $ $
$   $    $    $   $         $ $ $       $  $   $
$   $    $    $   $    $$   $$ $$  $   $  $   $
$   $    $    $$$$    $$   $   $   $$$   $   $

  DEST=HYD.WSM  USER=HYD.WSM  QUEUE=LPT  DEVICE=@LPB
SEQ=106  QPRI=128  CPL=132  LPP=66  COPIES=1  PAGES=78

              CREATED:  03-JAN-89  14:26:16
             ENQUEUED:  03-JAN-89  14:44:38
             PRINTING:  03-JAN-89  14:44:39

PATH=:SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:ALTD.OUT

  $    $      $$$$$  $$$$          $$$   $   $  $$$$$
 $ $   $        $    $   $        $   $  $   $    $
$   $  $        $    $   $        $   $  $   $    $
$   $  $        $    $   $        $   $  $   $    $
$$$$$  $        $    $   $        $   $  $   $    $
$   $  $        $    $   $   $$   $   $  $   $    $
$   $  $$$$$    $    $$$$   $$    $$$    $$$    $

+6666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666666+
```

AOS/VS REV 7.62.00.00

AOS/VS REVISION 7.62.00.00
AOS/VS XLPT-32 REVISION 7.62.00.00

```
**** AOS/VS REV 7.62.00.CO / BATCH OUTPUT FILE ****

AOS/VS 7.62.00.00 / EXEC-32 7.62.00.00   3-JAN-89       14:26:16
QPRI=128        SEQ=93
INPUT FILE -- :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:?33.CLI.00008.JOB (WILL BE DELETED AFTER PROCESSIN
LIST FILE  -- :QUEUE:HYD.WSM.LIST.93

--------
LAST MESSAGE CHANGE     17-NOV-88       14:55:52


               ***************          *******        ***********
                ************        *************       ***********
               ***                ****     ***         ***     ***
              *******            ***                  ***     ***
             ******             ***                  ***     ***
            ***                ***      ***         ***     ***
           ****                ***********        ************
         ******                 *******         ************


--------
MOST RECENT LOGON        3-JAN-89       14:22:18

AOS/VS CLI   REV 07.62.00.00     3-JAN-89       14:26:19
) SEARCHLIST :UTIL/:MACROS/:UDD:HYD.WSM/:UDD:OP/:PER/:
) DIRECTORY :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR
) DEFACL HYD.WSM/OWARE
)
) LISTFILE ALTD.CUT
) DATAFILE WWDAM.DAT
) SEA :UTIL:HEC1.DIR/[!SEA]
) X HEC1_START
```

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             FEBRUARY 1981            *
*           REVISED 31 JAN 85          *
*                                      *
*  RUN DATE 1/ 3/1989   TIME14:26:20 * 
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*  (916) 440-3285 OR (FTS) 448-3285    *
*                                      *
****************************************
```

```
X      X  XXXXXXX   XXXXX            X
X      X  X         X     X         XX
X      X  X         X                X
XXXXXXX   XXXX      X        XXXXX   X
X      X  X         X                X
X      X  X         X     X          X
X      X  XXXXXXX   XXXXX           XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THE VERSION RELEASED 31JAN85 CONTAINS NEW OPTIONS ON RL AND BA RECORDS, AND ADDS THE HL RECORD. SEE JANUARY 1985 INPUT DESCRIPTION FOR NEW DEFINITIONS.

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID      WEEKES WASH - POWERLINE F.R.S  ANALYSIS
  2           ID      CONVERSION OF MODEL FROM TR-20
  3           ID                  1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
  4           ID                  DEVELOPMENT, MUSKINGUM ROUTING
  5           ID      ALTERNATIVE D : PROPOSED WEEKES WASH DAM IN PLACE
  6           ID         CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
  7           ID                          POINT OF WEEKES WASH AT JUNCTION ROAD.
  8           ID                       2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
  9           ID                          AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
 10           ID                          LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
 11           ID                       3: SUPERSTITION FREEWAY IN PLACE.
 12           ID                       4: ADJUSTED WATERSHED AREAS.
 13           ID                       5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
 14           ID                       6: NO MODIFICATIONS TO POWERLINE F.R.S.
 15           ID                       7: WEEKES WASH DAM IN PLACE
 16           IT      10        0        0      400
 17           IO       5
 18           JR    FLOW       .5      1.0

 19           KK      15  WATERSHED 15
 20           KM      HYDROGRAPH FOR WATERSHED 15
 21           PB   11.08
 22           IN      60
 23           PI     .47      .81     7.02     1.71     0.75      .32
 24           BA    1.76
 25           LS       0       80
 26           UD     .18

 27           KK     R15 ROUTE HYDROGRAPH FROM WS 15
 28           KM     ROUTE HYDROGRAPH FROM WATERSHED 15
 29           RM       1      .11       .3

 30           KK      14 WATERSHED 14
 31           KM     HYDROGRAPH FOR WATERSHED 14
 32           BA    1.11
 33           LS       0       79
 34           UD     .15

 35           KK      16 WATERSHED 16
 36           KM     HYDROGRAPH FOR WATERSHED 16
 37           BA    2.16
 38           LS       0       82
 39           UD     .35

 40           KK     114 CONCENTRATION PT. 114 (INCLUDES WATERSHEDS 14, 15, & 16)
 41           KM     COMBINE ALL THREE HYDROGRAPHS AT CP 114
 42           HC       3

 43           KK    R114 ROUTE CP 114
 44           KM     ROUTE HYDROGRAPH FROM CP114 TO CP 113
 45           RM       1      .17       .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  46          KK      13 WATERSHED 13
  47          KM     HYDROGRAPH FOR WATERSHED 13
  48          BA    1.29
  49          LS       0       83
  50          UD    .126

  51          KK     113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
  52          KM     COMBINE HYDROGRAPHS CP 114 AND WS 13
  53          HC       2

  54          KK    R113 ROUTE CP 113 TO CP 112
  55          KM     ROUTE HYDROGRAPH FOR CP 113
  56          RM       1      .19       .3

  57          KK      12 WATERSHED 12
  58          KM     HYDROGRAPH FOR WATERSHED 12
  59          BA    1.32
  60          LS       0       86
  61          UD     .27

  62          KK     112 CONCENTRATION PT. 112 FOR HYDROGRAPHS FROM CP 113 AND WS 12.
  63          KM     COMBINE HYDROGRAPH FROM CP 113 AND WS 12
  64          HC       2

  65          KK    R112 ROUTE CP 112 TO CP 111
  66          KM     ROUTE HYDROGRAPH CP 112 TO CP 111
  67          RM       1      .07       .3

  68          KK      11 WATERSHED 11
  69          KM     HYDROGRAPH FOR WATERSHED 11
  70          BA     .70
  71          LS       0       89
  72          UD    .186

  73          KK      17 WATERSHED 17
  74          KM     HYDROGRAPH FOR WATERSHED 17
  75          BA     .37
  76          LS       0       79
  77          UD    .138

  78          KK      10   WATERSHED 10
  79          KM     HYDROGRAPH FOR WATERSHED 10
  80          BA     .54
  81          LS       0       79
  82          UD     .14

  83          KK     111 CONCENTRATION PT. 111
  84          KM     COMBINE HYDROGRAPHS FROM CP 112, WS 11, AND WS 17
  85          HC       4
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 86           KK   WWDAM
 87           KM    RESERVOIR ROUTING THROUGH THE PROPOSED WEEKES WASH DAM
 88           KO       3
 89           RS       1    ELEV    1967       0
 90           SV       0    16.2    32.5    49.7      65   129.3   212.9   421.9   545.9   641.5
 91           SV   686.7   734.3   789.7   830.1  1357.7  1774.7  2243.6  3357.8  4029.1
 92           SQ       0      16      46      87      88      91      94     100     103     105
 93           SQ     106     106     107     108  1292.5  5512.4 12053.4 31952.8 45388.2
 94           SE    1967  1967.5    1968  1968.5    1969  1970.5  1972.1  1975.2  1976.7  1677.8
 95           SE  1978.3  1978.8  1979.3  1979.8  1984.5  1987.6  1990.7  1996.9    2000

 96           KK   RD111 ROUTE CP 111 TO PT AT WHICH BREAKOUT WOULD OCCUR.
 97           KM     ROUTE HYDROGRAPH CP111 TO THE POINT AT WHICH THE BREAKOUT OCCURS.
 98           RM       5     .64      .3

 99           KK      2A  WATERSHED 2A
100           KM      HYDROGRAPH FOR WATERSHED 2A
101           BA    1.09
102           LS       0      82
103           UD     .22

104           KK    CP2A  CONCENTRATION POINT 2A
105           KM    COMBINE ROUTED HYDROGRAPH FROM CP 111 AND WATERSHED 2A.
106           HC       2

107           KK    FLOW    POINT OF DIVERSION FOR WEEKES WASH
108           KO       3
109           DT  DIVERT
110           DI       0    6500    7000    9000   10000   15000
111           DQ       0       0     260    1300    1880    4600

112           KK    RR2A ROUTE REMAINING HYDROGRAPH TO SUPERSTITION FREWAY
113           KM     ROUTE THE REMAINING HYDROGRAPH TO DETENTION NORTH OF SUPERSTITION FREEWAY
114           RM       2     .42      .3

115           KK     2BE WATERSHED 2B EAST
116           KM     HYDROGRAPH FOR WATERSHED 2B EAST
117           BA    1.22
118           LS       0      82
119           UD     .48

120           KK    1C2B  CONCENTRATION POINT NORTH OF FREEWAY
121           KM     CONCENTRATION POINT NORTH OF SUPERSTITION FREEWAY AT DETENTION AREA
122           HC       2

123           KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
124           KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
125           KM      PRINCIPLE OUTLET IS 2-12 X 12 (FOOT) BOX CULVERTS
126           KM      INVERT IS AT 1636; EMERGENCY SPILLWAY CREST IS AT 1650.
127           RS       1    ELEV    1636
128           SV       0     6.0    13.0    29.0    47.0    69.0    93.0   122.0   153.0   184.0
129           SV     217     239
130           SE    1636    1637    1638    1640    1642    1644    1646    1648    1650    1652
131           SE    1654    1655
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 132          SQ       0      22     194     584    1050    1604    2236    2900    3534    4108
 133          SQ    4622    4860
 134          ST    1650     320     2.2     1.5

 135          KK   FRWAY
 136          KM    DIVERT ALL FLOWS FROM EMERGENCY SPILLWAY
 137          DT   SPILL
 138          DI       0    3665    5000   10000   15000
 139          DQ       0       0    1335    6335   11335

 140          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
 141          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
 142          RM       1      .1      .3

 143          KK    WASH   ROUTE FLOWS THROUGH THE WASH
 144          KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
 145          RM       2     .50      .3

 146          KK  RSPILL
 147          KM    RETRIEVE FLOW DIVERTED FROM THE EMERGENCY SPILLWAY
 148          DR   SPILL

 149          KK   IDAHO
 150          KM    ROUTE THE RETRIEVED FLOW DOWN IDAHO RD.
 151          RM       1      .1      .3

 152          KK      WW
 153          KM     COMBINE ALL FLOWS FROM FREEWAY
 154          HC       2

 155          KK     RWW
 156          KM     ROUTE FLOWS TO POWERLINE F.R.S.
 157          RM       4     .98      .3

 158          KK    2BWW  WATERSHED 2B WEST, WEST
 159          KM      HYDROGRAPH FOR WATERSHED 2B WEST, WEST
 160          BA     .45
 161          LS       0      82
 162          UD      .4

 163          KK    2BWE  WATERSHED 2B WEST, EAST
 164          KM     RUNOFF FROM EAST OF IDAHO ROAD 2B WEST, EAST
 165          BA     .70
 166          LS       0      82
 167          UD      .3

 168          KK    16BW  ROUTE THROUGH THE DETENTION NORTH OF THE FREEWAY  (N. DIVERSION DAM)
 169          KM      ROUTE FLOWS THROUGH THE DETENTION NORTH OF THE SUPERSTITION FREEWAY
 170          RS       1    ELEV  1623.5
 171          SV       0      .6     8.3    17.5    28.2    36.0    48.6
 172          SE  1623.5  1624.0  1626.0  1628.0  1630.0  1632.0  1634.0
 173          SQ       0       0      31      93     135     169     208
 174          ST  1630.0     110     2.2     1.5
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 175          KK    CC04  COMBINE FLOWS JUST NORTH OF FREEWAY
 176          KM    COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
 177          HC       2

 178          KK    NDIV
 179          KM    DIVERSION OF FLOW OVER THE NORTH DIVERSION DAM.
 180          KO       3
 181          DT    EXIT
 182          DI       0     1218     5000    10000
 183          DQ       0        0     3782     8782

 184          KK  NDROUT  ROUTE THROUGH THE FREEWAY
 185          KM    ROUTE COMBINED FLOW THROUGH 2 - 10  X 8  BOX CULVERTS
 186          RS       1     ELEV  1622.6
 187          SV       0     0.02     0.16     1.12     4.17    25.42
 188          SE  1622.6  1623.0  1624.0  1626.0  1628.0  1630.0
 189          SQ       0        0      101      372      738     1111
 190          ST  1630.0     2875      2.2      1.5

 191          KK    R2BW  ROUTE TO CP102
 192          KM     ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
 193          RM       2      .40       .3

 194          KK     2BS  WATERSHED 2B SOUTH OF SUPERTITION FREEWAY
 195          KM     HYDROGRAPH FOR WATERSHED 2B SOUTH
 196          BA    1.91
 197          LS       0       80
 198          UD     .32

 199          KK     102 CONCENTRATION PT. 102, WEEKES WASH WATERSHED AT POWERLINE FRS.
 200          KM     COMBINE HYDROGRAPHS FROM CP D111 AND WS 2 (WE ARE NOW AT POWERLINE DAM)
 201          HC       3

 202          KK       5 WATERSHED 5 ( BEGINNING OF SIPHON DRAW WATERSHED)
 203          KM     HYDROGRAPH FOR WS 5 (BEGINNING OF THE WATERSHED FOR SIPHON DRAW TO THE DAM)
 204          BA    5.65
 205          LS       0       85
 206          UD     .71

 207          KK      R5 ROUTE HYDROGRAPH FROM WS 5 TO CP 104
 208          KM      ROUTE HYDROGRAPH FOR WS 5 TO CP 104
 209          RM       1      .07       .3

 210          KK       4 WATERSHED 4
 211          KM      HYDROGRAPH FOR WATERSHED 4
 212          BA   11.85
 213          LS       0       86
 214          UD    1.30
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 215          KK     104  CONCENTRATION POINT 104
 216          KM     COMBINE HYDROGRAPHS AT CP 104
 217          HC       2

 218          KK    R104
 219          KM    ROUTE CP 104 TO 106
 220          RM       2     .50      .3

 221          KK       7  WATERSHED 7
 222          KM    HYDROGRAPH FOR WATERSHED 7
 223          BA     .61
 224          LS       0      86
 225          UD      .3

 226          KK       6 WATERSHED 6
 227          KM      HYDROGRAPH FOR WATERSHED 6
 228          BA    7.86
 229          LS       0      83
 230          UD    1.08

 231          KK     106 CONCENTRATION PT. 106, HYDROGRAPHS FROM R 5, WS 4, & WS 6
 232          KM      COMBINE HYDROGRAPHS FROM R5, WS 4, AND WS 6
 233          HC       3

 234          KK    R106 ROUTE THE HYDROGRAPH FROM CP 106 TO WHERE NEXT WASH ENTERS.
 235          KM      ROUTE HYDROGRAPH FROM CP 104 TO WHERE OTHER WASH ENTERS
 236          RM       1     .27      .3

 237          KK      3N WATERSHED 3N
 238          KM      HYDROGRAPH FOR WATERSHED 3N
 239          BA    2.89
 240          LS       0      85
 241          UD     .41

 242          KK    CULV   ROUTE FLOWS THROUGH CULVERTS
 243          KM     ROUTE FLOWS THROUGH THE CULVERTS
 244          RS     1.0    ELEV    1665
 245          SV       0     .15     .60     1.5     3.1     5.6     9.1    13.7   19.45   26.35
 246          SE    1665  1665.5    1666  1666.5    1667  1667.5    1668  1668.5    1669  1669.5
 247          SQ       0     119     375     688    1063    1462    1938    2375    2875    3375

 248          KK   RCULV  ROUTE FLOWS TO W103
 249          KM     ROUTE THE FLOWS TO CONCENTRATION POINT W103
 250          RM       2      .5      .3

 251          KK      3S  WATERSHED 3 SOUTH
 252          KM      HYDROGRAPH FOR WATERSHED 3 SOUTH
 253          BA    2.39
 254          LS       0      85
 255          UD    .436
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 256          KK      103
 257          HC        2

 258          KK       3A   WATERSHED 3A
 259          KM      HYDROGRAPH FOR WATERSHED 3A
 260          BA     1.20
 261          LS        0       86
 262          UD       .4

 263          KK    CP103
 264          KM      CONCENTRATION POINT FOR WEST FORK OF SIPHON DRAW
 265          HC        2

 266          KK     W103 CONCTRATION PT. W103 WHERE UNNAMED WASH ENTERS.
 267          KM       COMBINE HYDROGRAPHS FROM CP 104 AND WS 3 - SIPHON DRAW WATERSHED
 268          HC        2

 269          KK    RW103 ROUTE RESULTING HYDROGRAPH TO POWELINE DAM STRUCTURE
 270          KM       ROUTE THE HYDROGRAPH TO POWERLINE DAM
 271          RM        1      .16       .3

 272          KK      PLD CONCENTRATION PT. AT POWERLINE DAM
 273          KM      COMBINE HYDROGRAPHS FROM WEEKES WASH SUB-BASIN AND SIPHON DRAW SUB-BASIN
 274          KO        3
 275          HC        2

 276          KK      RES RESERVOIR ROUTING THROUGH THE STRUCTURE
 277          KM      RESERVOIR RATING CURVE
 278          RS        1     ELEV  1568.2
 279          SV        0      175      380      700     1100     1600     2175     2875     3675     4200
 280          SV     4600     5525     6725     7925
 281          SQ        0       75       92      106      119      130      141      150      159      165
 282          SQ     1228     7360    16800    27280
 283          SE   1568.1   1568.2   1570.0   1572.1   1574.1   1576.1   1578.1   1580.1   1582.1   1583.3
 284          SE   1584.1   1586.1   1588.1   1590.1
 285          SS   1583.3        0        0        0
 286          ST   1589.1    13358      2.2      1.5
 287          ZZ
```

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 31 JAN 85           *
*                                       *
*  RUN DATE 1/ 3/1989   TIME14:26:32 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285     *
*                                       *
*****************************************
```

```
                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                 1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
                                 DEVELOPMENT, MUSKINGUM ROUTING
                    ALTERNATIVE D : PROPOSED WEEKES WASH DAM IN PLACE
                       CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION ROAD.
                                     2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     3: SUPERSTITION FREEWAY IN PLACE.
                                     4: ADJUSTED WATERSHED AREAS.
                                     5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
                                     6: NO MODIFICATIONS TO POWERLINE F.R.S.
                                     7: WEEKES WASH DAM IN PLACE

 17 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          10  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         400  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3    0  ENDING DATE
                     NDTIME       1830  ENDING TIME

                  COMPUTATION INTERVAL      .17 HOURS
                       TOTAL TIME BASE   66.50 HOURS

         ENGLISH UNITS
              DRAINAGE AREA          SQUARE MILES
              PRECIPITATION DEPTH    INCHES
              LENGTH, ELEVATION      FEET
              FLOW                   CUBIC FEET PER SECOND
              STORAGE VOLUME         ACRE-FEET
              SURFACE AREA           ACRES
              TEMPERATURE            DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
                      NPLAN           1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF RUNOFF
                    .50      1.00

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

```
WARNI*** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 86 KK      *     WWDAM  *
            *            *
            **************

 88 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

 89 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        ELEV  TYPE OF INITIAL CONDITION
                     PSVRIC     1967.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 90 SV            STORAGE          .0      16.2      32.5      49.7      65.0     129.3     212.9     421.9     545.9     641.5
                                686.7     734.3     789.7     830.1    1357.7    1774.7    2243.6    3357.8    4029.1

 92 SQ          DISCHARGE          0.       16.       46.       87.       88.       91.       94.      100.      103.      105.
                                 106.      106.      107.      108.     1292.     5512.    12053.    31953.    45388.

 94 SE          ELEVATION     1967.00   1967.50   1968.00   1968.50   1969.00   1970.50   1972.10   1975.20   1976.70   1677.80
                              1978.30   1978.80   1979.30   1979.80   1984.50   1987.60   1990.70   1996.90   2000.00
                                                                  ***

    ***             ***             ***             ***             ***

                     HYDROGRAPH AT STATION     WWDAM
                       FOR PLAN 1, RATIO =  .50

PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                  6-HR        24-HR        72-HR      66.50-HR
   7014.       4.00        (CFS)     3272.        1043.         443.         443.
                        (INCHES)     3.289        4.192        4.932        4.932
                         (AC-FT)     1623.        2068.        2433.        2433.

PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                  6-HR        24-HR        72-HR      66.50-HR
```

```
 19[illegible]      4.00                1529.       1063.       77[illegible]       773.

PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
  (FEET)       (HR)                 6-HR        24-HR       72-HR      66.50-HR
 1988.31       4.00               1985.73     1981.78     1941.09      1941.09

                        CUMULATIVE AREA =    9.25 SQ MI

    ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     WWDAM
                          FOR PLAN 1, RATIO = 1.00

PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                 6-HR        24-HR       72-HR      66.50-HR
 18820.        3.67       (CFS)     7514.       2139.        839.         839.
                        (INCHES)    7.552       8.602       9.342        9.342
                         (AC-FT)    3726.       4244.       4609.        4609.

PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                 6-HR        24-HR       72-HR      66.50-HR
   2622.       3.67                1858.       1163.        813.         813.

PEAK STAGE     TIME                          MAXIMUM AVERAGE STAGE
  (FEET)       (HR)                 6-HR        24-HR       72-HR      66.50-HR
 1992.81       3.67               1987.96     1982.50     1941.66      1941.66

                        CUMULATIVE AREA =    9.25 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 107 KK     *      FLOW  *          POINT OF DIVERSION FOR WEEKES WASH
            *            *
            **************

 108 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD       DIVERT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW          .00   6500.00   7000.00   9000.00  10000.00  15000.00

     DQ       DIVERTED FLOW         .00       .00    260.00   1300.00   1880.00   4600.00

                                                                  ***

     ***            ***            ***            ***            ***

                        DIVERSION HYDROGRAPH   DIVERT
                          FOR PLAN 1, RATIO =  .50
```

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
332.	4.67	(CFS)	29.	7.	3.	3.
		(INCHES)	.026	.026	.026	.026
		(AC-FT)	14.	14.	14.	14.

CUMULATIVE AREA = 10.34 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION FLOW
FOR PLAN 1, RATIO = .50

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
6807.	4.67	(CFS)	3551.	1165.	486.	486.
		(INCHES)	3.193	4.189	4.841	4.841
		(AC-FT)	1761.	2310.	2670.	2670.

CUMULATIVE AREA = 10.34 SQ MI

*** *** *** *** ***

DIVERSION HYDROGRAPH DIVERT
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
6754.	4.33	(CFS)	1703.	426.	154.	154.
		(INCHES)	1.532	1.532	1.532	1.532
		(AC-FT)	845.	845.	845.	845.

CUMULATIVE AREA = 10.34 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION FLOW
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
12206.	4.33	(CFS)	6594.	1972.	777.	777.
		(INCHES)	5.929	7.093	7.746	7.746
		(AC-FT)	3270.	3911.	4272.	4272.

CUMULATIVE AREA = 10.34 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** ***

****

```
178 K*              *
    *       NDIV    *
    *               *
    ***************

180 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    DT          DIVERSION
                      ISTAD       EXIT  DIVERSION HYDROGRAPH IDENTIFICATION

    DI             INFLOW        .00   1218.00   5000.00  10000.00

    DQ       DIVERTED FLOW       .00       .00   3782.00   8782.00

                                                              ***

     ***            ***            ***            ***            ***

                        DIVERSION HYDROGRAPH     EXIT
                          FOR PLAN 1, RATIO =  .50

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     66.50-HR
   927.       3.17        (CFS)      87.         22.          8.           8.
                        (INCHES)    .705        .705        .705         .705
                         (AC-FT)    43.         43.         43.          43.

                        CUMULATIVE AREA =    1.15 SQ MI

     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     NDIV
                          FOR PLAN 1, RATIO =  .50

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     66.50-HR
  1218.       2.83        (CFS)     431.        114.         41.          41.
                        (INCHES)   3.483       3.696       3.698        3.698
                         (AC-FT)   214.        227.        227.         227.

                        CUMULATIVE AREA =    1.15 SQ MI

     ***            ***            ***            ***            ***

                        DIVERSION HYDROGRAPH     EXIT
                          FOR PLAN 1, RATIO = 1.00

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     66.50-HR
  3105.       3.17        (CFS)     450.        112.         41.          41.
                        (INCHES)   3.635       3.635       3.635        3.635
                         (AC-FT)   223.        223.        223.         223.

                        CUMULATIVE AREA =    1.15 SQ MI

     ***            ***            ***            ***            ***
```

```
                    HYDROGRAPH AT STATION      NDIV
                      FOR PLAN 1, RATIO = 1.00

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                  6-HR        24-HR        72-HR      66.50-HR
   1218.        2.67        (CFS)     607.         160.          58.          58.
                          (INCHES)   4.911        5.180        5.182        5.182
                           (AC-FT)    301.         318.         318.         318.

                          CUMULATIVE AREA =    1.15 SQ MI


WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO     1462.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 272 KK     *       PLD  *      CONCENTRATION PT. AT POWERLINE DAM
            *            *
            **************

 274 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

 275 HC          HYDROGRAPH COMBINATION
                      ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

     ***             ***             ***             ***             ***

                       HYDROGRAPH AT STATION       PLD
                         FOR PLAN 1, RATIO =  .50

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                  6-HR        24-HR        72-HR      66.50-HR
   36363.       4.33        (CFS)   20212.        5648.        2103.        2103.
                          (INCHES)   3.992        4.463        4.604        4.604
                           (AC-FT)  10022.       11203.       11559.       11559.

                          CUMULATIVE AREA =   47.07 SQ MI

     ***             ***             ***             ***             ***
```

HYDROGRAPH AT STATION FLD
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
74819.	4.50	(CFS)	40192.	10881.	3992.	3992.
		(INCHES)	7.939	8.597	8.739	8.739
		(AC-FT)	19930.	21581.	21938.	21938.

CUMULATIVE AREA = 47.07 SQ MI

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO FLOWS RATIO 1 .50	RATIO 2 1.00
HYDROGRAPH AT	15	1.76	1	FLOW	3601.	7203.
				TIME	3.00	3.00
ROUTED TO	R15	1.76	1	FLOW	3502.	7003.
				TIME	3.00	3.00
HYDROGRAPH AT	14	1.11	1	FLOW	2274.	4548.
				TIME	3.00	3.00
HYDROGRAPH AT	16	2.16	1	FLOW	4079.	8157.
				TIME	3.00	3.00
3 COMBINED AT	114	5.03	1	FLOW	9855.	19709.
				TIME	3.00	3.00
ROUTED TO	R114	5.03	1	FLOW	9562.	19125.
				TIME	3.17	3.17
HYDROGRAPH AT	13	1.29	1	FLOW	2748.	5495.
				TIME	3.00	3.00
2 COMBINED AT	113	6.32	1	FLOW	11803.	23606.
				TIME	3.00	3.00
ROUTED TO	R113	6.32	1	FLOW	11365.	22730.
				TIME	3.17	3.17
HYDROGRAPH AT	12	1.32	1	FLOW	2743.	5485.
				TIME	3.00	3.00
2 COMBINED AT	112	7.64	1	FLOW	13857.	27714.
				TIME	3.17	3.17
ROUTED TO	R112	7.64	1	FLOW	13590.	27181.
				TIME	3.17	3.17
HYDROGRAPH AT	11	.70	1	FLOW	1531.	3061.
				TIME	3.00	3.00
HYDROGRAPH AT	17	.37	1	FLOW	761.	1521.
				TIME	3.00	3.00
HYDROGRAPH AT	10	.54	1	FLOW	1109.	2219.
				TIME	3.00	3.00
4 COMBINED AT	111	9.25	1	FLOW	15971.	31942.
				TIME	3.17	3.17
ROUTED TO	WWDAM	9.25	1	FLOW	7014.	18820.
				TIME	4.00	3.67

** PEAK STAGES IN FEET **

			1	STAGE	1988.31	199[illegible]1
				TIME	4.00	3.67
ROUTED TO	RD111	9.25	1	FLOW	6865.	18263.
				TIME	4.67	4.50
HYDROGRAPH AT	2A	1.09	1	FLOW	2236.	4471.
				TIME	3.00	3.00
2 COMBINED AT	CP2A	10.34	1	FLOW	7139.	18960.
				TIME	4.67	4.33
DIVERSION TO	DIVERT	10.34	1	FLOW	332.	6754.
				TIME	4.67	4.33
HYDROGRAPH AT	FLOW	10.34	1	FLOW	6807.	12206.
				TIME	4.67	4.33
ROUTED TO	RR2A	10.34	1	FLOW	6704.	11965.
				TIME	5.17	4.83
HYDROGRAPH AT	2BE	1.22	1	FLOW	2150.	4299.
				TIME	3.17	3.17
2 COMBINED AT	1C2B	11.56	1	FLOW	7027.	12752.
				TIME	5.00	4.83
ROUTED TO	DET2BE	11.56	1	FLOW	7009.	12663.
				TIME	5.17	4.83
			** PEAK STAGES IN FEET **			
			1	STAGE	1652.49	1654.97
				TIME	5.17	4.83
DIVERSION TO	SPILL	11.56	1	FLOW	3344.	8998.
				TIME	5.17	4.83
HYDROGRAPH AT	FRWAY	11.56	1	FLOW	3665.	3665.
				TIME	4.50	3.00
ROUTED TO	CHAN	11.56	1	FLOW	3670.	3713.
				TIME	4.67	3.17
ROUTED TO	WASH	11.56	1	FLOW	3665.	3665.
				TIME	6.83	6.00
HYDROGRAPH AT	RSPILL	.00	1	FLOW	3344.	8998.
				TIME	5.17	4.83
ROUTED TO	IDAHO	.00	1	FLOW	3333.	9008.
				TIME	5.33	5.00
2 COMBINED AT	WW	11.56	1	FLOW	6977.	12673.
				TIME	5.33	5.00
ROUTED TO	RWW	11.56	1	FLOW	6648.	12146.
				TIME	6.33	6.00
HYDROGRAPH AT	2BWW	.45	1	FLOW	828.	1656.
				TIME	3.17	3.17
HYDROGRAPH AT	2BWE	.70	1	FLOW	1372.	2745.
				TIME	3.00	3.00

ROUTED	16BW	.70	1	FLOW	1317.	2807.
				TIME	3.17	3.17
			** PEAK STAGES IN FEET **			
			1	STAGE	1632.80	1634.67
				TIME	3.17	3.17
2 COMBINED AT	CC04	1.15	1	FLOW	2145.	4323.
				TIME	3.17	3.17
DIVERSION TO	EXIT	1.15	1	FLOW	927.	3105.
				TIME	3.17	3.17
HYDROGRAPH AT	NDIV	1.15	1	FLOW	1218.	1218.
				TIME	2.83	2.67
ROUTED TO	NDROUT	1.15	1	FLOW	1070.	1218.
				TIME	3.67	3.83
			** PEAK STAGES IN FEET **			
			1	STAGE	1629.78	1630.06
				TIME	3.67	3.83
ROUTED TO	R2BW	1.15	1	FLOW	1049.	1210.
				TIME	4.00	4.33
HYDROGRAPH AT	2BS	1.91	1	FLOW	3600.	7200.
				TIME	3.00	3.00
3 COMBINED AT	102	14.62	1	FLOW	6949.	12993.
				TIME	6.33	6.00
HYDROGRAPH AT	5	5.65	1	FLOW	8877.	17753.
				TIME	3.33	3.33
ROUTED TO	R5	5.65	1	FLOW	8800.	17600.
				TIME	3.50	3.50
HYDROGRAPH AT	4	11.85	1	FLOW	13555.	27109.
				TIME	4.00	4.00
2 COMBINED AT	104	17.50	1	FLOW	20710.	41419.
				TIME	3.67	3.67
ROUTED TO	R104	17.50	1	FLOW	19890.	39781.
				TIME	4.17	4.17
HYDROGRAPH AT	7	.61	1	FLOW	1247.	2494.
				TIME	3.00	3.00
HYDROGRAPH AT	6	7.86	1	FLOW	9600.	19201.
				TIME	3.83	3.83
3 COMBINED AT	106	25.97	1	FLOW	28791.	57583.
				TIME	4.17	4.17
ROUTED TO	R106	25.97	1	FLOW	28308.	56615.
				TIME	4.33	4.33
HYDROGRAPH AT	3N	2.89	1	FLOW	5465.	10931.
				TIME	3.17	3.17

ROUTED [illegible]	CULV	2.89	1	FLOW	5186.	10[illegible].
				TIME	3.17	3.17
			** PEAK STAGES IN FEET **			
			1	STAGE	1671.31	1676.48
				TIME	3.17	3.17
ROUTED TO	RCULV	2.89	1	FLOW	4833.	9623.
				TIME	3.67	3.67
HYDROGRAPH AT	3S	2.39	1	FLOW	4469.	8939.
				TIME	3.17	3.17
2 COMBINED AT	103	5.28	1	FLOW	7872.	15586.
				TIME	3.33	3.33
HYDROGRAPH AT	3A	1.20	1	FLOW	2300.	4599.
				TIME	3.17	3.17
2 COMBINED AT	CP103	6.48	1	FLOW	9847.	19536.
				TIME	3.33	3.33
2 COMBINED AT	W103	32.45	1	FLOW	33359.	66720.
				TIME	4.17	4.17
ROUTED TO	RW103	32.45	1	FLOW	33166.	66343.
				TIME	4.33	4.33
2 COMBINED AT	PLD	47.07	1	FLOW	36363.	74819.
				TIME	4.33	4.50
ROUTED TO	RES	47.07	1	FLOW	17070.	68282.
				TIME	6.50	5.00
			** PEAK STAGES IN FEET **			
			1	STAGE	1588.15	1590.32
				TIME	6.50	5.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1636.00	1650.00	1650.00
STORAGE	0.	153.	153.
OUTFLOW	0.	3534.	3534.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1652.49	2.49	192.	7009.	2.83	5.17	.00
1.00	1654.97	4.97	238.	12663.	5.17	4.83	.00

SUMMARY OF DAM OVERTOPPING/BR[illegible] ANALYSIS FOR STATION 16BW

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1623.50	1630.00	1630.00
STORAGE	0.	28.	28.
OUTFLOW	0.	135.	135.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1632.80	2.80	41.	1317.	3.00	3.17	.00
1.00	1634.67	4.67	53.	2667.	4.00	3.17	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1622.60	1630.00	1630.00
STORAGE	0.	25.	25.
OUTFLOW	0.	1111.	1111.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1629.78	.00	23.	1070.	.00	3.67	.00
1.00	1630.06	.06	26.	1218.	.83	3.83	.00

SUMMARY OF DAM OVERTOPPING/BRE ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	22040.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1588.15	.00	6756.	17070.	.00	6.50	.00
1.00	1590.32	1.22	8060.	68282.	3.00	5.00	.00

```
*** NORMAL END OF HEC-1 ***
STOP
)
)
END OF FILE
AOS/VS CLI   TERMINATING          3-JAN-89        14:27:11

PROCESS 81 TERMINATED

ELAPSED TIME  0:00:52, CPU TIME  00:00:00.089, I/O BLOCKS  53
(OTHER JOBS, SAME USERNAME:
    NUMBER OF CONSOLE JOBS, 1
    NUMBER OF BATCH JOBS, 0)
USER 'HYD.WSM' LOGGED OFF         3-JAN-89        14:27:10

****
*LIST FILE EMPTY, WILL NOT BE PRINTED
****
```

Appendix K

HEC-1 Output

Alternative D :
Proposed Weekes Wash Dam in Place (PMF)

DEST=HYD.WSM USER=HYD.WSM QUEUE=LPT DEVICE=@LPB
SEQ=121 QPRI=128 CPL=132 LPP=66 COPIES=1 PAGES=88

CREATED: 03-JAN-89 14:48:44
ENQUEUED: 03-JAN-89 15:05:12
PRINTING: 03-JAN-89 15:05:23

PATH=:SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:ALTD100.OUT

AOS/VS REV 7.62.00.00

AOS/VS REVISION 7.62.00.00
AOS/VS XLPT-32 REVISION 7.62.00.00

```
**** AOS/VS REV 7.62.00.00 / BATCH OUTPUT FILE ****

AOS/VS 7.62.00.00 / EXEC-32 7.62.00.00   3-JAN-89        14:48:46
QPRI=128        SEQ=110
INPUT FILE -- :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:?33.CLI.00013.JOB (WILL BE DELETED AFTER PROCESSIN
LIST FILE  -- :QUEUE:HYD.WSM.LIST.110

--------
LAST MESSAGE CHANGE     17-NOV-88       14:55:52


              ***************          *******       ***********
               ************        ************       ***********
              ***                 ****     ***         ***     ***
             *******             ***                  ***     ***
            ******              ***                  ***     ***
           ***                 ***      ***         ***     ***
          ****                 ***********        ************
         ******                 *******          ************


--------
MOST RECENT LOGON        3-JAN-89       14:42:44

AOS/VS CLI   REV 07.62.00.00     3-JAN-89       14:48:50
) SEARCHLIST :UTIL/:MACROS/:UDD:HYD.WSM/:UDD:OP/:PER/:
) DIRECTORY :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR
) DEFACL HYD.WSM/OWARE
)
) LISTFILE ALTD100.OUT
) DATAFILE ALTD100.DAT
) SEA :UTIL:HEC1.DIR/[!SEA]
) X HEC1_START
```

```
****************************************
*                                      *
*   FL[illegible] HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981             *
*           REVISED 31 JAN 85          *
*                                      *
*  RUN DATE 1/ 3/1989   TIME14:48:53 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*  (916) 440-3285 OR (FTS) 448-3285    *
*                                      *
****************************************
```

```
X      X  XXXXXXX   XXXXX            X
X      X  X         X     X         XX
X      X  X         X               X
XXXXXXX   XXXX      X        XXXXX  X
X      X  X         X               X
X      X  X         X     X         X
X      X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THE VERSION RELEASED 31JAN85 CONTAINS NEW OPTIONS ON RL AND BA RECORDS, AND ADDS THE HL RECORD. SEE JANUARY 1985 INPUT DESCRIPTION FOR NEW DEFINITIONS.

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID      WEEKES WASH - POWERLINE F.R.S  ANALYSIS
  2           ID      CONVERSION OF MODEL FROM TR-20
  3           ID                   100-YEAR, 24-HOUR STORM; SCS EXCESS & HYDROGRAPH
  4           ID                   DEVELOPMENT, MUSKINGUM ROUTING
  5           ID      ALTERNATIVE D : PROPOSED WEEKES WASH DAM IN PLACE
  6           ID         CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
  7           ID                          POINT OF WEEKES WASH AT JUNCTION ROAD.
  8           ID                       2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
  9           ID                          AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
 10           ID                          LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
 11           ID                       3: SUPERSTITION FREEWAY IN PLACE.
 12           ID                       4: ADJUSTED WATERSHED AREAS.
 13           ID                       5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
 14           ID                       6: NO MODIFICATIONS TO POWERLINE F.R.S.
 15           ID                       7: PROPOSED WEEKES WASH DAM IN PLACE
 16           IT       10        0        0      200
 17           IO        5

 18           KK       15  WATERSHED 15
 19           KM       HYDROGRAPH FOR WATERSHED 15
 20           PB     3.85
 21           IN       15
 22           PC        0     .002     .005     .008     .011     .014     .017     .020     .023     .026
 23           PC     .029     .032     .035     .038     .041     .044     .048     .052     .056     .060
 24           PC     .064     .068     .072     .076     .080     .085     .090     .095     .100     .105
 25           PC     .110     .115     .120     .126     .133     .140     .147     .155     .163     .172
 26           PC     .181     .191     .203     .218     .236     .257     .283     .387     .663     .707
 27           PC     .735     .758     .766     .791     .804     .815     .825     .834     .842     .849
 28           PC     .856     .863     .869     .875     .881     .887     .893     .898     .903     .908
 29           PC     .913     .918     .922     .926     .930     .934     .938     .942     .946     .950
 30           PC     .953     .956     .959     .962     .965     .968     .971     .974     .977     .980
 31           PC     .983     .986     .992     .995     .998    1.000    1.000    1.000    1.000    1.000
 32           BA     1.76
 33           LS        0       80
 34           UD      .18

 35           KK      R15 ROUTE HYDROGRAPH FROM WS 15
 36           KM      ROUTE HYDROGRAPH FROM WATERSHED 15
 37           RM        1      .11       .3

 38           KK       14 WATERSHED 14
 39           KM      HYDROGRAPH FOR WATERSHED 14
 40           BA     1.11
 41           LS        0       79
 42           UD      .15

 43           KK       16 WATERSHED 16
 44           KM      HYDROGRAPH FOR WATERSHED 16
 45           BA     2.16
 46           LS        0       82
 47           UD      .35
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 48           KK     114 CONCENTRATION PT. 114 (INCLUDES WATERSHEDS 14, 15, & 16)
 49           KM     COMBINE ALL THREE HYDROGRAPHS AT CP 114
 50           HC       3

 51           KK    R114 ROUTE CP 114
 52           KM     ROUTE HYDROGRAPH FROM CP114 TO CP 113
 53           RM       1      .17       .3

 54           KK      13 WATERSHED 13
 55           KM     HYDROGRAPH FOR WATERSHED 13
 56           BA    1.29
 57           LS       0       83
 58           UD    .126

 59           KK     113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
 60           KM     COMBINE HYDROGRAPHS CP 114 AND WS 13
 61           HC       2

 62           KK    R113 ROUTE CP 113 TO CP 112
 63           KM     ROUTE HYDROGRAPH FOR CP 113
 64           RM       1      .19       .3

 65           KK      12 WATERSHED 12
 66           KM     HYDROGRAPH FOR WATERSHED 12
 67           BA    1.32
 68           LS       0       86
 69           UD     .27

 70           KK     112 CONCENTRATION PT. 112 FOR HYDROGRAPHS FROM CP 113 AND WS 12.
 71           KM     COMBINE HYDROGRAPH FROM CP 113 AND WS 12
 72           HC       2

 73           KK    R112 ROUTE CP 112 TO CP 111
 74           KM     ROUTE HYDROGRAPH CP 112 TO CP 111
 75           RM       1      .07       .3

 76           KK      11 WATERSHED 11
 77           KM     HYDROGRAPH FOR WATERSHED 11
 78           BA     .70
 79           LS       0       89
 80           UD    .186

 81           KK      17 WATERSHED 17
 82           KM     HYDROGRAPH FOR WATERSHED 17
 83           BA     .37
 84           LS       0       79
 85           UD    .138

 86           KK      10   WATERSHED 10
 87           KM     HYDROGRAPH FOR WATERSHED 10
 88           BA     .54
 89           LS       0       79
 90           UD     .14
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.......10

 91           KK     111 CONCENTRATION PT. 111
 92           KM     COMBINE HYDROGRAPHS FROM CP 112, WS 11, AND WS 17
 93           HC       4

 94           KK   WWDAM
 95           KM    RESERVOIR ROUTING THROUGH THE PROPOSED WEEKES WASH DAM
 96           KO       3
 97           RS       1     ELEV     1967        0
 98           SV       0     16.2     32.5     49.7       65    129.3    212.9    421.9    545.9    641.5
 99           SV   686.7    734.3    789.7    830.1   1357.7   1774.7   2243.6   3357.8   4029.1
100           SQ       0       16       46       87       88       91       94      100      103      105
101           SQ     106      106      107      108   1292.5   5512.4  12053.4  31952.8  45388.2
102           SE    1967   1967.5     1968   1968.5     1969   1970.5   1972.1   1975.2   1976.7   1977.8
103           SE  1978.3   1978.8   1979.3   1979.8   1984.5   1987.6   1990.7   1996.9     2000

104           KK   RD111 ROUTE CP 111 TO PT AT WHICH BREAKOUT WOULD OCCUR.
105           KM     ROUTE HYDROGRAPH CP111 TO THE POINT AT WHICH THE BREAKOUT OCCURS.
106           RM       5      .64       .3

107           KK      2A  WATERSHED 2A
108           KM      HYDROGRAPH FOR WATERSHED 2A
109           BA    1.09
110           LS       0       82
111           UD     .22

112           KK    CP2A  CONCENTRATION POINT 2A
113           KM    COMBINE ROUTED HYDROGRAPH FROM CP 111 AND WATERSHED 2A.
114           HC       2

115           KK  ~~DIVERT~~ Flow POINT OF DIVERSION FOR WEEKES WASH
116           KO       3
117           DT    ~~FLOW~~ Divert
118           DI       0    6500     7000     9000    10000    15000
119           DQ       0       0      260     1300     1880     4600

120           KK    RR2A ROUTE REMAINING HYDROGRAPH TO SUPERSTITION FREWAY
121           KM     ROUTE THE REMAINING HYDROGRAPH TO DETENTION NORTH OF SUPERSTITION FREEWAY
122           RM       2      .42       .3

123           KK     2BE WATERSHED 2B EAST
124           KM     HYDROGRAPH FOR WATERSHED 2B EAST
125           BA    1.22
126           LS       0       82
127           UD     .48

128           KK    102B  CONCENTRATION POINT NORTH OF FREEWAY
129           KM     CONCENTRATION POINT NORTH OF SUPERSTITION FREEWAY AT DETENTION AREA
130           HC       2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 131          KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
 132          KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
 133          RS       1    ELEV    1636
 134          SV       0     6.0    13.0    29.0    47.0    69.0    93.0   122.0   153.0   184.0
 135          SV     217     239
 136          SE    1636    1637    1638    1640    1642    1644    1646    1648    1650    1652
 137          SE    1654    1655
 138          SQ       0      22     194     584    1050    1604    2236    2900    3534    4408
 139          SQ    4622    4860
 140          ST    1650     320     2.2     1.5

 141          KK   FRWAY
 142          KM    DIVERT ALL FLOW THAT GO UNDER THE ROAD
 143          DT   SPILL
 144          DI       0    3665    5000   10000   15000
 145          DQ       0       0    1335    6335   11335

 146          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
 147          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
 148          RM       1      .1      .3

 149          KK    WASH   ROUTE FLOWS THROUGH THE WASH
 150          KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
 151          RM       2     .50      .3

 152          KK  RSPILL
 153          KM     RETRIEVE FLOW DEIVERTED FROM THE EMERGENCY SPILLWAY
 154          DR   SPILL

 155          KK   IDAHO
 156          KM    ROUTE THE RETRIEVED FLOW DOWN IDAYO ROAD.
 157          RM       1      .1      .3

 158          KK      WW
 159          KM    COMBINE ALL THE FLOW FROM THE FREEWAY
 160          HC       2

 161          KK     RWW
 162          KM    ROUTE THE FLOW TO POWERLINE F.R.S.
 163          RM       4     .98      .3

 164          KK    2BWW  WATERSHED 2B WEST, WEST
 165          KM      HYDROGRAPH FOR WATERSHED 2B WEST, WEST
 166          BA     .45
 167          LS       0      82
 168          UD      .4

 169          KK    2BWE  WATERSHED 2B WEST, EAST
 170          KM     RUNOFF FROM EAST OF IDAHO ROAD 2B WEST, EAST
 171          KO       1
 172          BA     .70
 173          LS       0      82
 174          UD      .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 175          KK  DET2BW  ROUTE THROUGH THE DETENTION NORTH OF THE FREEWAY  (N. DIVERSION DAM)
 176          KM      ROUTE FLOWS THRCUGH THE DETENTION NORTH OF THE SUPERSTITION FREEWAY
 177          RS       1     ELEV  1623.5
 178          SV       0       .6      8.3     17.5     28.2     36.0     48.6
 179          SE  1623.5  1624.0  1626.0  1628.0  1630.0  1632.0  1634.0
 180          SQ       0       0      31      93     135     169     208
 181          ST  1630.0     110     2.2     1.5

 182          KK    C004  COMBINE FLOWS JUST NORTH OF FREEWAY
 183          KM    COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
 184          HC       2

 185          KK    NDIV
 186          KO       3
 187          DT    EXIT
 188          DI       0    1218    5000   10000
 189          DQ       0       0    3782    8782

 190          KK  NDROUT  ROUTE THROUGH THE FREEWAY
 191          KM    ROUTE COMBINED FLOW THROUGH 3 BBL. 6 X 8 BOX CULVERTS
 192          RS       1     ELEV  1622.6
 193          SV       0     .02     .16    1.12    4.17   25.42
 194          SE  1622.6  1623.0  1624.0  1626.0  1628.0  1630.0
 195          SQ       0       0     101     372     738    1111
 196          ST  1630.0    2875     2.2     1.5

 197          KK    R2BW  ROUTE TO CP102
 198          KM     ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
 199          RM       2     .40      .3

 200          KK     2BS  WATERSHED 2B SOUTH OF SUPERTITION FREEWAY
 201          KM     HYDROGRAPH FOR WATERSHED 2B SOUTH
 202          BA    1.91
 203          LS       0      80
 204          UD     .32

 205          KK     102 CONCENTRATION PT. 102, WEEKES WASH WATERSHED AT POWERLINE FRS.
 206          KM     COMBINE HYDROGRAPHS FROM CP D111 AND WS 2 (WE ARE NOW AT POWERLINE DAM)
 207          HC       3

 208          KK       5 WATERSHED 5 ( BEGINNING OF SIPHON DRAW WATERSHED)
 209          KM     HYDROGRAPH FOR WS 5 (BEGINNING OF THE WATERSHED FOR SIPHON DRAW TO THE DAM)
 210          BA    5.65
 211          LS       0      85
 212          UD     .71

 213          KK      R5 ROUTE HYDROGRAPH FROM WS 5 TO CP 104
 214          KM      ROUTE HYDROGRAPH FOR WS 5 TO CP 104
 215          RM       1     .07      .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 216          KK        4 WATERSHED 4
 217          KM       HYDROGRAPH FOR WATERSHED 4
 218          BA    11.85
 219          LS        0       86
 220          UD     1.30

 221          KK      104  CONCENTRATION POINT 104
 222          KM      COMBINE HYDROGRAPHS AT CP 104
 223          HC        2

 224          KK     R104
 225          KM     ROUTE CP 104 TO 106
 226          RM        2      .50       .3

 227          KK        7  WATERSHED 7
 228          KM     HYDROGRAPH FOR WATERSHED 7
 229          BA      .61
 230          LS        0       86
 231          UD       .3

 232          KK        6 WATERSHED 6
 233          KM       HYDROGRAPH FOR WATERSHED 6
 234          BA     7.86
 235          LS        0       83
 236          UD     1.08

 237          KK      106 CONCENTRATION PT. 106, HYDROGRAPHS FROM R 5, WS 4, & WS 6
 238          KM       COMBINE HYDROGRAPHS FROM R5, WS 4, AND WS 6
 239          HC        3

 240          KK     R106 ROUTE THE HYDROGRAPH FROM CP 106 TO WHERE NEXT WASH ENTERS.
 241          KM       ROUTE HYDROGRAPH FROM CP 104 TO WHERE OTHER WASH ENTERS
 242          RM        1      .27       .3

 243          KK       3N WATERSHED 3N
 244          KM       HYDROGRAPH FOR WATERSHED 3N
 245          BA     2.89
 246          LS        0       85
 247          UD      .41

 248          KK     CULV   ROUTE FLOWS THROUGH CULVERTS
 249          KM      ROUTE FLOWS THROUGH THE CULVERTS
 250          RS      1.0    ELEV    1665
 251          SV        0      .15      .60      1.5      3.1      5.6      9.1     13.7    19.45    26.35
 252          SE     1665   1665.5     1666   1666.5     1667   1667.5     1668   1668.5     1669   1669.5
 253          SQ        0      119      375      688     1063     1462     1938     2375     2875     3375

 254          KK    RCULV  ROUTE FLOWS TO W103
 255          KM      ROUTE THE FLOWS TO CONCENTRATION POINT W103
 256          RM        2       .5       .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 257          KK       3S  WATERSHED 3 SOUTH
 258          KM       HYDROGRAPH FOR WATERSHED 3 SOUTH
 259          BA     2.39
 260          LS        0       85
 261          UD     .436

 262          KK      103
 263          HC        2

 264          KK       3A   WATERSHED 3A
 265          KM      HYDROGRAPH FOR WATERSHED 3A
 266          BA     1.20
 267          LS        0       86
 268          UD       .4

 269          KK    CP103
 270          KM      CONCENTRATION POINT FOR WEST FORK OF SIPHON DRAW
 271          HC        2

 272          KK     W103 CONCTRATION PT. W103 WHERE UNNAMED WASH ENTERS.
 273          KM       COMBINE HYDROGRAPHS FROM CP 104 AND WS 3 - SIPHON DRAW WATERSHED
 274          HC        2

 275          KK    RW103 ROUTE RESULTING HYDROGRAPH TO POWELINE DAM STRUCTURE
 276          KM       ROUTE THE HYDROGRAPH TO POWERLINE DAM
 277          RM        1      .16       .3

 278          KK      PLD CONCENTRATION PT. AT POWERLINE DAM
 279          KM      COMBINE HYDROGRAPHS FROM WEEKES WASH SUB-BASIN AND SIPHON DRAW SUB-BASIN
 280          KO        3
 281          HC        2

 282          KK      RES RESERVOIR ROUTING THROUGH THE STRUCTURE
 283          KM      RESERVOIR RATING CURVE
 284          RS        1     ELEV  1568.2
 285          SV        0      175      380      700     1100     1600     2175     2875     3675     4200
 286          SV     4600     5525     6725     7925
 287          SQ        0       75       92      106      119      130      141      150      159      165
 288          SQ     1228     7360    16800    27280
 289          SE   1568.1   1568.2   1570.0   1572.1   1574.1   1576.1   1578.1   1580.1   1582.1   1583.3
 290          SE   1584.1   1586.1   1588.1   1590.1
 291          SS   1583.3        0        0        0
 292          ST   1589.1    13358      2.2      1.5
 293          ZZ
```

```
****************************************
*                                      *
*   FL[illegible] HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981             *
*          REVISED 31 JAN 85           *
*                                      *
*  RUN DATE 1/ 3/1989   TIME14:49: 9 *
*                                      *
****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285     *
*                                       *
*****************************************
```

```
                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                 100-YEAR, 24-HOUR STORM; SCS EXCESS & HYDROGRAPH
                                 DEVELOPMENT, MUSKINGUM ROUTING
                    ALTERNATIVE D : PROPOSED WEEKES WASH DAM IN PLACE
                       CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION ROAD.
                                     2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     3: SUPERSTITION FREEWAY IN PLACE.
                                     4: ADJUSTED WATERSHED AREAS.
                                     5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
                                     6: NO MODIFICATIONS TO POWERLINE F.R.S.
                                     7: PROPOSED WEEKES WASH DAM IN PLACE

 17 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          10  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2    0  ENDING DATE
                     NDTIME        0910  ENDING TIME

                  COMPUTATION INTERVAL      .17 HOURS
                       TOTAL TIME BASE   33.17 HOURS

         ENGLISH UNITS
              DRAINAGE AREA          SQUARE MILES
              PRECIPITATION DEPTH    INCHES
              LENGTH, ELEVATION      FEET
              FLOW                   CUBIC FEET PER SECOND
              STORAGE VOLUME         ACRE-FEET
              SURFACE AREA           ACRES
              TEMPERATURE            DEGREES FAHRENHEIT

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

```
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  94 KK     *     WWDAM  *
            *            *
            **************

  96 KO          OUTPUT CONTROL VARIABLES
                       IPRNT            3  PRINT CONTROL
                       IPLOT            0  PLOT CONTROL
                       QSCAL           0.  HYDROGRAPH PLOT SCALE

               HYDROGRAPH ROUTING DATA

  97 RS          STORAGE ROUTING
                       NSTPS            1  NUMBER OF SUBREACHES
                        ITYP         ELEV  TYPE OF INITIAL CONDITION
                      RSVRIC      1967.00  INITIAL CONDITION
                           X          .00 WORKING R AND D COEFFICIENT

  98 SV            STORAGE           .0      16.2      32.5      49.7      65.0     129.3     212.9     421.9     545.9     641.5
                                  686.7     734.3     789.7     830.1    1357.7    1774.7    2243.6    3357.8    4029.1

 100 SQ          DISCHARGE           0.       16.       46.       87.       88.       91.       94.      100.      103.      105.
                                    106.      106.      107.      108.     1292.     5512.    12053.    31953.    45388.

 102 SE          ELEVATION      1967.00   1967.50   1968.00   1968.50   1969.00   1970.50   1972.10   1975.20   1976.70   1977.80
                                1978.30   1978.80   1979.30   1979.80   1984.50   1987.60   1990.70   1996.90   2000.00
                                                                   ***

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION    WWDAM

 PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR        24-HR        72-HR      33.17-HR
     217.      24.00        (CFS)      197.         126.          91.          91.
                          (INCHES)     .198         .507         .508         .508
                           (AC-FT)      98.         250.         251.         251.

PEAK STORAGE    TIME                           MAXIMUM AVERAGE STORAGE
  (AC-FT)       (HR)                   6-HR        24-HR        72-HR      33.17-HR
     879.      24.00                   870.         706.         511.         511.

 PEAK STAGE     TIME                            MAXIMUM AVERAGE STAGE
   (FEET)       (HR)                   6-HR        24-HR        72-HR      33.17-HR
  1980.23      23.83                1980.15      1978.01      1974.97      1974.97

                         CUMULATIVE AREA =     9.25 SQ MI
```

```
WARNIN[illegible]* TIME INTERVAL IS GREATER THAN .29*LAG

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 115 KK     *    DIVERT  *          POINT OF DIVERSION FOR WEEKES WASH
            *            *
            **************

 116 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSICN
                      ISTAD         FLOW  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLCW          .00   6500.00   7000.00   9000.00  10000.00  15000.00

     DQ      DIVERTED FLCW          .00       .00    260.00   1300.00   1880.00   4600.00
                                                                  ***

      ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH     FLOW

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR       24-HR       72-HR      33.17-HR
      0.         .17        (CFS)       0.          0.          0.          0.
                         (INCHES)      .000        .000        .000        .000
                          (AC-FT)       0.          0.          0.          0.

                        CUMULATIVE AREA =   10.34 SQ MI

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION   DIVERT

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR       24-HR       72-HR      33.17-HR
    1297.     12.17        (CFS)      292.        184.        133.        133.
                         (INCHES)      .262        .662        .663        .663
                          (AC-FT)      145.        365.        366.        366.

                        CUMULATIVE AREA =   10.34 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
                 **************
                 *            *
169 KK           *     2BWE   *        WATERSHED 2B WEST, EAST
                 *            *
                 **************

171 KO              OUTPUT CONTROL VARIABLES
                          IPRNT            1  PRINT CONTROL
                          IPLOT            0  PLOT CONTROL
                          QSCAL           0.  HYDROGRAPH PLOT SCALE

                  SUBBASIN RUNOFF DATA

172 BA              SUBBASIN CHARACTERISTICS
                          TAREA          .70  SUBBASIN AREA

                    PRECIPITATION DATA

 20 PB                    STORM         3.85  BASIN TOTAL PRECIPITATION

 22 PI                INCREMENTAL PRECIPITATION PATTERN
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .01       .01       .01       .01       .01       .01
                          .01       .01       .01       .01       .01       .01       .01       .02       .02       .07
                          .13       .18       .03       .02       .02       .02       .01       .01       .02       .01
                          .01       .01       .01       .01       .01       .01       .01       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00

173 LS              SCS LOSS RATE
                          STRTL          .44  INITIAL ABSTRACTION
                         CRVNBR        82.00  CURVE NUMBER
                          RTIMP          .00  PERCENT IMPERVIOUS AREA

174 UD              SCS DIMENSIONLESS UNITGRAPH
                           TLAG          .30  LAG

                                                                  ***

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

                                                    UNIT HYDROGRAPH
                                                 11 END-OF-PERIOD ORDINATES
                 325.      864.      762.      385.      193.       94.       46.       23.       11.        6.
                   2.
*************************************************************************************************************************

                                                HYDROGRAPH AT STATION     2BWE

*************************************************************************************************************************
                                                                  *
      DA MON HRMN  ORD     RAIN     LOSS  EXCESS      COMP Q      *      DA MON HRMN  ORD     RAIN     LOSS  EXCESS      COMP Q
                                                                  *
       1    0000    1      .00      .00      .00          0.       *       1    1640  101      .01      .00      .01         34.
```

1	0010	2	.01	.01	.00	0.	*	1	1650	102	.01	.00	.01	[illegible]
[illegible]	0020	3	.01	.01	.00	0.	[illegible]	1	1700	103	.01	.00	.01	[illegible]
[illegible]	0030	4	.01	.01	.00	0.	[illegible]	1	1710	104	.01	.00	.01	29.
1	0040	5	.01	.01	.00	0.	*	1	1720	105	.01	.00	.01	29.
1	0050	6	.01	.01	.00	0.	*	1	1730	106	.01	.00	.01	29.
1	0100	7	.01	.01	.00	0.	*	1	1740	107	.01	.00	.01	29.
1	0110	8	.01	.01	.00	0.	*	1	1750	108	.01	.00	.01	28.
1	0120	9	.01	.01	.00	0.	*	1	1800	109	.01	.00	.01	27.
1	0130	10	.01	.01	.00	0.	*	1	1810	110	.01	.00	.01	25.
1	0140	11	.01	.01	.00	0.	*	1	1820	111	.01	.00	.01	24.
1	0150	12	.01	.01	.00	0.	*	1	1830	112	.01	.00	.01	24.
1	0200	13	.01	.01	.00	0.	*	1	1840	113	.01	.00	.01	23.
1	0210	14	.01	.01	.00	0.	*	1	1850	114	.01	.00	.01	23.
1	0220	15	.01	.01	.00	0.	*	1	1900	115	.01	.00	.01	23.
1	0230	16	.01	.01	.00	0.	*	1	1910	116	.01	.00	.01	23.
1	0240	17	.01	.01	.00	0.	*	1	1920	117	.01	.00	.01	23.
1	0250	18	.01	.01	.00	0.	*	1	1930	118	.01	.00	.01	23.
1	0300	19	.01	.01	.00	0.	*	1	1940	119	.01	.00	.01	23.
1	0310	20	.01	.01	.00	0.	*	1	1950	120	.01	.00	.01	23.
1	0320	21	.01	.01	.00	0.	*	1	2000	121	.01	.00	.01	22.
1	0330	22	.01	.01	.00	0.	*	1	2010	122	.01	.00	.01	20.
1	0340	23	.01	.01	.00	0.	*	1	2020	123	.01	.00	.01	19.
1	0350	24	.01	.01	.00	0.	*	1	2030	124	.01	.00	.01	18.
1	0400	25	.01	.01	.00	0.	*	1	2040	125	.01	.00	.01	18.
1	0410	26	.01	.01	.00	0.	*	1	2050	126	.01	.00	.01	18.
1	0420	27	.01	.01	.00	0.	*	1	2100	127	.01	.00	.01	18.
1	0430	28	.01	.01	.00	0.	*	1	2110	128	.01	.00	.01	18.
1	0440	29	.01	.01	.00	0.	*	1	2120	129	.01	.00	.01	18.
1	0450	30	.01	.01	.00	0.	*	1	2130	130	.01	.00	.01	18.
1	0500	31	.01	.01	.00	0.	*	1	2140	131	.01	.00	.01	18.
1	0510	32	.01	.01	.00	0.	*	1	2150	132	.01	.00	.01	18.
1	0520	33	.01	.01	.00	0.	*	1	2200	133	.01	.00	.01	18.
1	0530	34	.01	.01	.00	0.	*	1	2210	134	.01	.00	.01	18.
1	0540	35	.01	.01	.00	0.	*	1	2220	135	.01	.00	.01	18.
1	0550	36	.01	.01	.00	0.	*	1	2230	136	.01	.00	.01	18.
1	0600	37	.01	.01	.00	0.	*	1	2240	137	.01	.00	.01	18.
1	0610	38	.01	.01	.00	0.	*	1	2250	138	.01	.00	.01	19.
1	0620	39	.01	.01	.00	0.	*	1	2300	139	.02	.00	.01	23.
1	0630	40	.01	.01	.00	0.	*	1	2310	140	.01	.00	.01	26.
1	0640	41	.01	.01	.00	0.	*	1	2320	141	.01	.00	.01	24.
1	0650	42	.01	.01	.00	0.	*	1	2330	142	.01	.00	.01	21.
1	0700	43	.01	.01	.00	0.	*	1	2340	143	.01	.00	.00	18.
1	0710	44	.01	.01	.00	0.	*	1	2350	144	.00	.00	.00	15.
1	0720	45	.01	.01	.00	0.	*	2	0000	145	.00	.00	.00	11.
1	0730	46	.01	.01	.00	0.	*	2	0010	146	.00	.00	.00	6.
1	0740	47	.01	.01	.00	0.	*	2	0020	147	.00	.00	.00	3.
1	0750	48	.01	.01	.00	0.	*	2	0030	148	.00	.00	.00	1.
1	0800	49	.01	.01	.00	0.	*	2	0040	149	.00	.00	.00	1.
1	0810	50	.02	.01	.00	0.	*	2	0050	150	.00	.00	.00	0.
1	0820	51	.02	.02	.00	1.	*	2	0100	151	.00	.00	.00	0.
1	0830	52	.02	.02	.00	1.	*	2	0110	152	.00	.00	.00	0.
1	0840	53	.02	.02	.00	2.	*	2	0120	153	.00	.00	.00	0.
1	0850	54	.02	.02	.00	3.	*	2	0130	154	.00	.00	.00	0.
1	0900	55	.02	.02	.00	3.	*	2	0140	155	.00	.00	.00	0.
1	0910	56	.02	.02	.00	4.	*	2	0150	156	.00	.00	.00	0.
1	0920	57	.02	.02	.00	5.	*	2	0200	157	.00	.00	.00	0.
1	0930	58	.02	.02	.00	6.	*	2	0210	158	.00	.00	.00	0.
1	0940	59	.02	.02	.00	7.	*	2	0220	159	.00	.00	.00	0.
1	0950	60	.02	.02	.00	9.	*	2	0230	160	.00	.00	.00	0.
1	1000	61	.02	.02	.00	10.	*	2	0240	161	.00	.00	.00	0.
1	1010	62	.03	.02	.01	11.	*	2	0250	162	.00	.00	.00	0.
1	1020	63	.03	.02	.01	13.	*	2	0300	163	.00	.00	.00	0.
1	1030	64	.03	.02	.01	15.	*	2	0310	164	.00	.00	.00	0.

1	1040	65	.04	.03	.01	18.	*	2	0320	165	.00	.00	.00	0.
1	1050	66	.04	.03	.01	23.	*	2	0330	166	.00	.00	.00	0.
1	1100	67	.05	.03	.01	28.	*	2	0340	167	.00	.00	.00	0.
1	1110	68	.05	.04	.02	34.	*	2	0350	168	.00	.00	.00	0.
1	1120	69	.06	.04	.02	41.	*	2	0400	169	.00	.00	.00	0.
1	1130	70	.07	.04	.03	50.	*	2	0410	170	.00	.00	.00	0.
1	1140	71	.27	.15	.12	90.	*	2	0420	171	.00	.00	.00	0.
1	1150	72	.49	.21	.28	230.	*	2	0430	172	.00	.00	.00	0.
1	1200	73	.71	.22	.49	509.	*	2	0440	173	.00	.00	.00	0.
1	1210	74	.11	.03	.08	716.	*	2	0450	174	.00	.00	.00	0.
1	1220	75	.09	.02	.07	602.	*	2	0500	175	.00	.00	.00	0.
1	1230	76	.07	.02	.06	398.	*	2	0510	176	.00	.00	.00	0.
1	1240	77	.06	.01	.05	275.	*	2	0520	177	.00	.00	.00	0.
1	1250	78	.04	.01	.03	197.	*	2	0530	178	.00	.00	.00	0.
1	1300	79	.02	.00	.02	140.	*	2	0540	179	.00	.00	.00	0.
1	1310	80	.06	.01	.05	108.	*	2	0550	180	.00	.00	.00	0.
1	1320	81	.05	.01	.04	107.	*	2	0600	181	.00	.00	.00	0.
1	1330	82	.03	.01	.03	105.	*	2	0610	182	.00	.00	.00	0.
1	1340	83	.03	.01	.02	91.	*	2	0620	183	.00	.00	.00	0.
1	1350	84	.03	.01	.02	76.	*	2	0630	184	.00	.00	.00	0.
1	1400	85	.03	.01	.02	67.	*	2	0640	185	.00	.00	.00	0.
1	1410	86	.02	.00	.02	61.	*	2	0650	186	.00	.00	.00	0.
1	1420	87	.02	.00	.02	56.	*	2	0700	187	.00	.00	.00	0.
1	1430	88	.02	.00	.02	52.	*	2	0710	188	.00	.00	.00	0.
1	1440	89	.02	.00	.01	48.	*	2	0720	189	.00	.00	.00	0.
1	1450	90	.02	.00	.01	44.	*	2	0730	190	.00	.00	.00	0.
1	1500	91	.02	.00	.01	42.	*	2	0740	191	.00	.00	.00	0.
1	1510	92	.02	.00	.01	41.	*	2	0750	192	.00	.00	.00	0.
1	1520	93	.02	.00	.01	40.	*	2	0800	193	.00	.00	.00	0.
1	1530	94	.02	.00	.01	38.	*	2	0810	194	.00	.00	.00	0.
1	1540	95	.02	.00	.01	36.	*	2	0820	195	.00	.00	.00	0.
1	1550	96	.02	.00	.01	35.	*	2	0830	196	.00	.00	.00	0.
1	1600	97	.02	.00	.01	35.	*	2	0840	197	.00	.00	.00	0.
1	1610	98	.02	.00	.01	34.	*	2	0850	198	.00	.00	.00	0.
1	1620	99	.02	.00	.01	34.	*	2	0900	199	.00	.00	.00	0.
1	1630	100	.02	.00	.01	34.	*	2	0910	200	.00	.00	.00	0.
							*							

****

TOTAL RAINFALL = 3.85, TOTAL LOSS = 1.77, TOTAL EXCESS = 2.08

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.17-HR
716.	12.17	(CFS)	127.	39.	28.	28.
		(INCHES)	1.682	2.075	2.075	2.075
		(AC-FT)	63.	77.	77.	77.

CUMULATIVE AREA = .70 SQ MI

*** ***

```
            **************
            *            *
185 KK      *     NDIV   *
            *            *
            **************
```

186 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL

```
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

     DT        DIVERSION
                    ISTAD       EXIT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI            INFLOW        .00   1218.00   5000.00  10000.00

     DQ      DIVERTED FLOW       .00       .00   3782.00   8782.00

                                                              ***

      ***           ***           ***           ***           ***

                      DIVERSION HYDROGRAPH     EXIT

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     33.17-HR
     0.         .17        (CFS)      0.          0.          0.          0.
                         (INCHES)    .000        .000        .000        .000
                          (AC-FT)      0.          0.          0.          0.

                        CUMULATIVE AREA =    1.15 SQ MI

      ***           ***           ***           ***           ***

                      HYDROGRAPH AT STATION     NDIV

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     33.17-HR
    537.      12.50        (CFS)    190.         64.         46.         46.
                         (INCHES)   1.539       2.060       2.061       2.061
                          (AC-FT)     94.        126.        126.        126.

                        CUMULATIVE AREA =    1.15 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO     1462.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 278 KK     *        PLD *      CONCENTRATION PT. AT POWERLINE DAM
            *            *
            **************
```

```
280 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

281 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

    ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION      PLD

PEAK FLOW     TIME                            MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR        24-HR       72-HR      33.17-HR
  14045.      13.67        (CFS)     7338.       2422.       1755.        1755.
                         (INCHES)    1.449       1.913       1.916        1.916
                          (AC-FT)    3639.       4804.       4810.        4810.

                        CUMULATIVE AREA =   47.07 SQ MI
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	15	1890.	12.00	295.	91.	66.	1.76		
ROUTED TO	R15	1886.	12.17	295.	91.	66.	1.76		
HYDROGRAPH AT	14	1280.	12.00	179.	55.	40.	1.11		
HYDROGRAPH AT	16	1979.	12.17	391.	121.	87.	2.16		
3 COMBINED AT	114	4890.	12.17	865.	266.	193.	5.03		
ROUTED TO	R114	4521.	12.33	865.	266.	193.	5.03		
HYDROGRAPH AT	13	1922.	12.00	242.	75.	54.	1.29		
2 COMBINED AT	113	5124.	12.33	1106.	341.	247.	6.32		
ROUTED TO	R113	4890.	12.50	1106.	341.	247.	6.32		
HYDROGRAPH AT	12	1646.	12.17	275.	86.	62.	1.32		
2 COMBINED AT	112	5838.	12.33	1379.	427.	309.	7.64		
ROUTED TO	R112	5795.	12.50	1379.	427.	309.	7.64		
HYDROGRAPH AT	11	1040.	12.00	161.	50.	37.	.70		
HYDROGRAPH AT	17	447.	12.00	60.	18.	13.	.37		
HYDROGRAPH AT	10	647.	12.00	87.	27.	19.	.54		
4 COMBINED AT	111	6621.	12.33	1684.	522.	378.	9.25		
ROUTED TO	WWDAM	217.	24.00	197.	126.	91.	9.25	1980.23	23.83
ROUTED TO	RD111	216.	24.50	197.	123.	89.	9.25		
HYDROGRAPH AT	2A	1227.	12.17	197.	61.	44.	1.09		
2 COMBINED AT	CP2A	1297.	12.17	292.	184.	133.	10.34		
DIVERSION TO	Divert ~~FLOW~~	0.	12.17	0.	0.	0.	10.34		
HYDROGRAPH AT	Flow ~~DIVERT~~	1297.	12.17	292.	184.	133.	10.34		
ROUTED TO	RR2A	1063.	12.50	291.	182.	132.	10.34		
HYDROGRAPH AT	2BE	957.	12.33	220.	68.	49.	1.22		
2 COMBINED AT	102B	1957.	12.50	508.	250.	181.	11.56		
ROUTED TO	DET2BE	1355.	12.83	501.	246.	178.	11.56	1643.10	12.83
DIVERSION TO	SPILL	0.	12.83	0.	0.	0.	11.56		
HYDROGRAPH AT	FRWAY	1355.	12.83	501.	246.	178.	11.56		

ROUTED TO	CHAN	1340.	12.83	501.	245.	177.	11.56		
ROUTED TO	WASH	1236.	13.50	499.	243.	176.	11.56		
HYDROGRAPH AT	RSPILL	0.	.17	0.	0.	0.	.00		
ROUTED TO	IDAHO	0.	.17	0.	0.	0.	.00		
2 COMBINED AT	WW	1236.	13.50	499.	243.	176.	11.56		
ROUTED TO	RWW	1111.	14.50	495.	239.	173.	11.56		
HYDROGRAPH AT	2BWW	387.	12.33	81.	25.	18.	.45		
HYDROGRAPH AT	2BWE	716.	12.17	127.	39.	28.	.70		
ROUTED TO	DET2BW	300.	12.67	111.	39.	28.	.70	1630.74	12.67
2 COMBINED AT	C004	537.	12.50	190.	64.	46.	1.15		
DIVERSION TO	EXIT	0.	12.50	0.	0.	0.	1.15		
HYDROGRAPH AT	NDIV	537.	12.50	190.	64.	46.	1.15		
ROUTED TO	NDROUT	530.	12.67	190.	64.	46.	1.15	1626.87	12.67
ROUTED TO	R2BW	506.	13.00	190.	64.	46.	1.15		
HYDROGRAPH AT	2BS	1724.	12.17	320.	99.	71.	1.91		
3 COMBINED AT	102	1843.	12.17	950.	401.	290.	14.62		
HYDROGRAPH AT	5	3882.	12.67	1134.	353.	256.	5.65		
ROUTED TO	R5	3907.	12.67	1134.	353.	256.	5.65		
HYDROGRAPH AT	4	5614.	13.17	2433.	768.	556.	11.85		
2 COMBINED AT	104	8660.	12.83	3564.	1121.	811.	17.50		
ROUTED TO	R104	8251.	13.50	3558.	1121.	811.	17.50		
HYDROGRAPH AT	7	727.	12.17	127.	40.	29.	.61		
HYDROGRAPH AT	6	3788.	13.00	1459.	456.	330.	7.86		
3 COMBINED AT	106	11740.	13.33	5127.	1617.	1170.	25.97		
ROUTED TO	R106	11406.	13.67	5120.	1617.	1170.	25.97		
HYDROGRAPH AT	3N	2763.	12.33	582.	181.	131.	2.89		
ROUTED TO	CULV	2537.	12.33	582.	181.	131.	2.89	1668.66	12.33
ROUTED TO	RCULV	2246.	12.83	581.	181.	131.	2.89		
HYDROGRAPH AT	3S	2227.	12.33	481.	149.	108.	2.39		
2 COMBINED AT	103	3399.	12.67	1061.	330.	239.	5.28		
HYDROGRAPH AT	3A	1197.	12.33	250.	78.	56.	1.20		

2 COMBINED AT	CP103	4327.	12.50	1311.	408.	295.	6.48		
2 COMBINED AT	W103	13110.	13.50	6394.	2024.	1465.	32.45		
ROUTED TO	RW103	13027.	13.67	6388.	2024.	1465.	32.45		
2 COMBINED AT	PLD	14045.	13.67	7338.	2422.	1755.	47.07		
ROUTED TO	RES	812.	25.33	712.	348.	270.	47.07	1583.79	25.33

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1636.00	1650.00	1650.00
STORAGE	0.	153.	153.
OUTFLOW	0.	3534.	3534.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1643.10	.00	59.	1355.	.00	12.83	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BW

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1623.50	1630.00	1630.00
STORAGE	0.	28.	28.
OUTFLOW	0.	135.	135.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1630.74	.74	31.	300.	1.00	12.67	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1622.60	1630.00	1630.00
STORAGE	0.	25.	25.
OUTFLOW	0.	1111.	1111.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1626.87	.00	2.	530.	.00	12.67	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	22040.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1583.79	.00	4443.	812.	.00	25.33	.00

```
*** NORMAL END OF HEC-1 ***
STOP
)
)
END OF FILE
AOS/VS CLI   TERMINATING          3-JAN-89        14:49:41

PROCESS 60 TERMINATED

ELAPSED TIME  0:00:54, CPU TIME  00:00:00.089, I/O BLOCKS  52
(OTHER JOBS, SAME USERNAME:
    NUMBER OF CONSOLE JOBS, 1
    NUMBER OF BATCH JOBS, 0)
USER 'HYD.WSM' LOGGED OFF         3-JAN-89        14:49:40

****
*LIST FILE EMPTY, WILL NOT BE PRINTED
****
```

Appendix M

Alternative E :

Diversion of 100 Year, 24 Hour Flows
at Apache Trail (Rt. 80)
to Apache F.R.S. (PMF)

```
+0000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000+

   $   $  $   $  $$$$        $   $   $$$   $   $
   $   $  $   $  $   $       $   $  $   $  $$ $$
   $   $   $ $   $   $       $   $  $      $ $ $
   $$$$$    $    $   $       $ $ $   $$$   $ $ $
   $   $    $    $   $       $ $ $      $  $   $
   $   $    $    $   $  $$   $$ $$  $   $  $   $
   $   $    $    $$$$   $$   $   $   $$$   $   $
```

DEST=HYD.WSM USER=HYD.WSM QUEUE=LPT DEVICE=@LPB
SEQ=429 QPRI=128 CPL=132 LPP=66 COPIES=1 PAGES=77

CREATED: 05-JAN-89 09:47:04
ENQUEUED: 05-JAN-89 10:22:56
PRINTING: 05-JAN-89 10:22:56

PATH=:SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:ALTE.OUT

```
     $    $      $$$$$  $$$$$       $$$   $   $  $$$$$
    $ $   $        $    $          $   $  $   $    $
   $   $  $        $    $          $   $  $   $    $
   $   $  $        $    $$$$       $   $  $   $    $
   $$$$$  $        $    $          $   $  $   $    $
   $   $  $        $    $      $$  $   $  $   $    $
   $   $  $$$$$    $    $$$$$  $$   $$$    $$$     $

+0000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000+
```

AOS/VS REV 7.62.00.00

AOS/VS REVISION 7.62.00.00
AOS/VS XLPT-32 REVISION 7.62.00.00

```
**** AOS/VS REV 7.62.00.00 / BATCH OUTPUT FILE ****

AOS/VS 7.62.00.00 / EXEC-32 7.62.00.00    5-JAN-89        9:47:06
QPRI=128        SEQ=410
INPUT FILE -- :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:?48.CLI.00001.JOB (WILL BE DELETED AFTER PROCESSIN
LIST FILE  -- :QUEUE:HYD.WSM.LIST.410

--------
LAST MESSAGE CHANGE     17-NOV-88       14:55:52

               ***************          *******       ***********
                ************        *************       ***********
               ***                 ****      ***         ***      ***
              *******             ***                   ***      ***
             ******              ***                   ***      ***
            ***                 ***       ***         ***      ***
           ****                 ***********        *************
          ******                 *******         *************

--------
MOST RECENT LOGON        5-JAN-89        8:59:46

AOS/VS CLI   REV 07.62.00.00     5-JAN-89        9:47:09
) SEARCHLIST :UTIL,:MACROS,:UDD:HYD.WSM,:UDD:OP,:PER,:
) DIRECTORY :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR
) DEFACL HYD.WSM,OWARE
)
) LISTFILE ALTE.OUT
) DATAFILE ALTE.DAT
) SEA :UTIL:HEC1.DIR,[!SEA]
) X HEC1_START
```

```
****************************************
*                                      *
*   FL[illegible] HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981             *
*           REVISED 31 JAN 85          *
*                                      *
*  RUN DATE 1/ 5/1989   TIME 9:47:10 *
*                                      *
****************************************
```


```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285     *
*                                       *
*****************************************
```


```
X      X  XXXXXXX   XXXXX          X
X      X  X        X     X        XX
X      X  X        X              X
XXXXXXX   XXXX     X        XXXXX  X
X      X  X        X              X
X      X  X        X     X        X
X      X  XXXXXXX   XXXXX        XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THE VERSION RELEASED 31JAN85 CONTAINS NEW OPTIONS ON RL AND BA RECORDS, AND ADDS THE HL RECORD. SEE JANUARY 1985 INPUT DESCRIPTION FOR NEW DEFINITIONS.

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID     WEEKES WASH - POWERLINE F.R.S  ANALYSIS
  2           ID     CONVERSION OF MODEL FROM TR-20
  3           ID                  1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
  4           ID                  DEVELOPMENT, MUSKINGUM ROUTING
  5           ID     ALTERNATIVE E : DIVERSION OF 100 YEAR, 24 HOUR STORM TO APACHE F.P.S. AT
  6           ID                     APACHE TRAIL (RT. 80)
  7           ID        CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
  8           ID                         POINT OF WEEKES WASH AT JUNCTION DRIVE.
  9           ID                      2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
 10           ID                         AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
 11           ID                         LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
 12           ID                      3: SUPERSTITION FREEWAY IN PLACE.
 13           ID                      4: ADJUSTED WATERSHED AREAS.
 14           ID                      5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
 15           ID                      6: NO MODIFICATIONS TO POWERLINE F.R.S.
 16           IT      10       0       0     400
 17           IO       5
 18           JR    FLOW      .5     1.0

 19           KK      15  WATERSHED 15
 20           KM      HYDROGRAPH FOR WATERSHED 15
 21           PB   11.08
 22           IN      60
 23           PI     .47     .81    7.02    1.71    0.75     .32
 24           BA    1.76
 25           LS       0      80
 26           UD     .18

 27           KK     R15 ROUTE HYDROGRAPH FROM WS 15
 28           KM     ROUTE HYDROGRAPH FROM WATERSHED 15
 29           RM       1     .11      .3

 30           KK      14 WATERSHED 14
 31           KM     HYDROGRAPH FOR WATERSHED 14
 32           BA    1.11
 33           LS       0      79
 34           UD     .15

 35           KK      16 WATERSHED 16
 36           KM     HYDROGRAPH FOR WATERSHED 16
 37           BA    2.16
 38           LS       0      82
 39           UD     .35

 40           KK     114 CONCENTRATION PT. 114 (INCLUDES WATERSHEDS 14, 15, & 16)
 41           KM     COMBINE ALL THREE HYDROGRAPHS AT CP 114
 42           HC       3

 43           KK    R114 ROUTE CP 114
 44           KM     ROUTE HYDROGRAPH FROM CP114 TO CP 113
 45           RM       1     .17      .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 46           KK      13 WATERSHED 13
 47           KM     HYDROGRAPH FOR WATERSHED 13
 48           BA    1.29
 49           LS       0       83
 50           UD    .126

 51           KK     113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
 52           KM     COMBINE HYDROGRAPHS CP 114 AND WS 13
 53           HC       2

 54           KK    R113 ROUTE CP 113 TO CP 112
 55           KM     ROUTE HYDROGRAPH FOR CP 113
 56           RM       1     .19      .3

 57           KK      12 WATERSHED 12
 58           KM     HYDROGRAPH FOR WATERSHED 12
 59           BA    1.32
 60           LS       0       86
 61           UD     .27

 62           KK     112 CONCENTRATION PT. 112 FOR HYDROGRAPHS FROM CP 113 AND WS 12.
 63           KM     COMBINE HYDROGRAPH FROM CP 113 AND WS 12
 64           HC       2

 65           KK    R112 ROUTE CP 112 TO CP 111
 66           KM     ROUTE HYDROGRAPH CP 112 TO CP 111
 67           RM       1     .07      .3

 68           KK      11 WATERSHED 11
 69           KM     HYDROGRAPH FOR WATERSHED 11
 70           BA     .70
 71           LS       0       89
 72           UD    .186

 73           KK      17 WATERSHED 17
 74           KM     HYDROGRAPH FOR WATERSHED 17
 75           BA     .37
 76           LS       0       79
 77           UD    .138

 78           KK      10   WATERSHED 10
 79           KM     HYDROGRAPH FOR WATERSHED 10
 80           BA     .54
 81           LS       0       79
 82           UD     .14

 83           KK     111 CONCENTRATION PT. 111
 84           KM     COMBINE HYDROGRAPHS FROM CP 112, WS 11, AND WS 17
 85           HC       4
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 86           KK    RT80
 87           KM    DIVERSION OF THE 100 YEAR, 24 HOUR STORM TO APACHE F.R.S.
 88           KO       3
 89           DT  APACHE
 90           DI       0     6621   10000   15000
 91           DQ       0     6621    6621    6621

 92           KK   RD111 ROUTE CP 111 TO PT AT WHICH BREAKOUT WOULD OCCUR.
 93           KM     ROUTE HYDROGRAPH CP111 TO THE POINT AT WHICH THE BREAKOUT OCCURS.
 94           RM       5      .64      .3

 95           KK      2A  WATERSHED 2A
 96           KM      HYDROGRAPH FOR WATERSHED 2A
 97           BA    1.09
 98           LS       0       82
 99           UD     .22

100           KK    CP2A  CONCENTRATION POINT 2A
101           KM    COMBINE ROUTED HYDROGRAPH FROM CP 111 AND WATERSHED 2A.
102           HC       2

103           KK    FLOW    POINT OF DIVERSION FOR WEEKES WASH
104           KO       3
105           DT  DIVERT
106           DI       0     6500    7000    9000   10000   15000
107           DQ       0        0     260    1300    1880    4600

108           KK    RR2A ROUTE REMAINING HYDROGRAPH TO SUPERSTITION FREWAY
109           KM     ROUTE THE REMAINING HYDROGRAPH TO DETENTION NORTH OF SUPERSTITION FREEWAY
110           RM       2      .42      .3

111           KK     2BE WATERSHED 2B EAST
112           KM     HYDROGRAPH FOR WATERSHED 2B EAST
113           BA    1.22
114           LS       0       82
115           UD     .48

116           KK    102B  CONCENTRATION POINT NORTH OF FREEWAY
117           KM     CONCENTRATION POINT NORTH OF SUPERSTITION FREEWAY AT DETENTION AREA
118           HC       2

119           KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
120           KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
121           KM      PRINCIPLE OUTLET IS 2-12 X 12 (FOOT) BOX CULVERTS
122           KM      INVERT IS AT 1636; EMERGENCY SPILLWAY CREST IS AT 1650.
123           RS       1    ELEV    1636
124           SV       0     6.0    13.0    29.0    47.0    69.0    93.0   122.0   153.0   184.0
125           SV     217     239
126           SE    1636    1637    1638    1640    1642    1644    1646    1648    1650    1652
127           SE    1654    1655
128           SQ       0      22     194     584    1050    1604    2236    2900    3534    4108
129           SQ    4622    4860
130           ST    1650     320     2.2     1.5
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 131          KK   FRWAY
 132          KM    DIVERT ALL FLOWS FROM EMERGENCY SPILLWAY
 133          DT   SPILL
 134          DI       0     3665     5000    10000    15000
 135          DQ       0        0     1335     6335    11335

 136          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
 137          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
 138          RM       1       .1       .3

 139          KK    WASH   ROUTE FLOWS THROUGH THE WASH
 140          KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
 141          RM       2      .50       .3

 142          KK  RSPILL
 143          KM    RETRIEVE FLOW DIVERTED FROM THE EMERGENCY SPILLWAY
 144          DR   SPILL

 145          KK   IDAHO
 146          KM    ROUTE THE RETRIEVED FLOW DOWN IDAHO RD.
 147          RM       1       .1       .3

 148          KK      WW
 149          KM     COMBINE ALL FLOWS FROM FREEWAY
 150          HC       2

 151          KK     RWW
 152          KM     ROUTE FLOWS TO POWERLINE F.R.S.
 153          RM       4      .98       .3

 154          KK    2BWW  WATERSHED 2B WEST, WEST
 155          KM      HYDROGRAPH FOR WATERSHED 2B WEST, WEST
 156          BA     .45
 157          LS       0       82
 158          UD      .4

 159          KK    2BWE  WATERSHED 2B WEST, EAST
 160          KM     RUNOFF FROM EAST OF IDAHO ROAD 2B WEST, EAST
 161          BA     .70
 162          LS       0       82
 163          UD      .3

 164          KK    16BW  ROUTE THROUGH THE DETENTION NORTH OF THE FREEWAY  (N. DIVERSION DAM)
 165          KM      ROUTE FLOWS THROUGH THE DETENTION NORTH OF THE SUPERSTITION FREEWAY
 166          RS       1    ELEV  1623.5
 167          SV       0       .6      8.3     17.5     28.2     36.0     48.6
 168          SE  1623.5  1624.0  1626.0  1628.0  1630.0  1632.0  1634.0
 169          SQ       0       0       31      93      135      169      208
 170          ST  1630.0     110      2.2     1.5
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 171          KK    C004  COMBINE FLOWS JUST NORTH OF FREEWAY
 172          KM    COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
 173          HC       2

 174          KK    NDIV
 175          KM    DIVERSION OF FLOW OVER THE NORTH DIVERSION DAM.
 176          KO       3
 177          DT    EXIT
 178          DI       0    1218    5000   10000
 179          DQ       0       0    3782    8782

 180          KK  NDROUT  ROUTE THROUGH THE FREEWAY
 181          KM    ROUTE COMBINED FLOW THROUGH 2 - 10  X 8  BOX CULVERTS
 182          RS       1    ELEV  1622.6
 183          SV       0    0.02    0.16    1.12    4.17   25.42
 184          SE  1622.6  1623.0  1624.0  1626.0  1628.0  1630.0
 185          SQ       0       0     101     372     738    1111
 186          ST  1630.0    2875     2.2     1.5

 187          KK    R2BW  ROUTE TO CP102
 188          KM     ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
 189          RM       2     .40      .3

 190          KK     2BS  WATERSHED 2B SOUTH OF SUPERTITION FREEWAY
 191          KM     HYDROGRAPH FOR WATERSHED 2B SOUTH
 192          BA    1.91
 193          LS       0      80
 194          UD     .32

 195          KK     102 CONCENTRATION PT. 102, WEEKES WASH WATERSHED AT POWERLINE FRS.
 196          KM     COMBINE HYDROGRAPHS FROM CP D111 AND WS 2 (WE ARE NOW AT POWERLINE DAM)
 197          HC       3

 198          KK       5 WATERSHED 5 ( BEGINNING OF SIPHON DRAW WATERSHED)
 199          KM     HYDROGRAPH FOR WS 5 (BEGINNING OF THE WATERSHED FOR SIPHON DRAW TO THE DAM)
 200          BA    5.65
 201          LS       0      85
 202          UD     .71

 203          KK      R5 ROUTE HYDROGRAPH FROM WS 5 TO CP 104
 204          KM      ROUTE HYDROGRAPH FOR WS 5 TO CP 104
 205          RM       1     .07      .3

 206          KK       4 WATERSHED 4
 207          KM      HYDROGRAPH FOR WATERSHED 4
 208          BA   11.85
 209          LS       0      86
 210          UD    1.30
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 211          KK      104  CONCENTRATION POINT 104
 212          KM      COMBINE HYDROGRAPHS AT CP 104
 213          HC        2

 214          KK     R104
 215          KM     ROUTE CP 104 TO 106
 216          RM        2      .50       .3

 217          KK        7  WATERSHED 7
 218          KM     HYDROGRAPH FOR WATERSHED 7
 219          BA      .61
 220          LS        0       86
 221          UD       .3

 222          KK        6 WATERSHED 6
 223          KM       HYDROGRAPH FOR WATERSHED 6
 224          BA     7.86
 225          LS        0       83
 226          UD     1.08

 227          KK      106 CONCENTRATION PT. 106, HYDROGRAPHS FROM R 5, WS 4, & WS 6
 228          KM       COMBINE HYDROGRAPHS FROM R5, WS 4, AND WS 6
 229          HC        3

 230          KK     R106 ROUTE THE HYDROGRAPH FROM CP 106 TO WHERE NEXT WASH ENTERS.
 231          KM       ROUTE HYDROGRAPH FROM CP 104 TO WHERE OTHER WASH ENTERS
 232          RM        1      .27       .3

 233          KK       3N WATERSHED 3N
 234          KM       HYDROGRAPH FOR WATERSHED 3N
 235          BA     2.89
 236          LS        0       85
 237          UD      .41

 238          KK     CULV   ROUTE FLOWS THROUGH CULVERTS
 239          KM      ROUTE FLOWS THROUGH THE CULVERTS
 240          RS      1.0     ELEV     1665
 241          SV        0      .15      .60      1.5      3.1      5.6      9.1     13.7    19.45    26.35
 242          SE     1665   1665.5     1666   1666.5     1667   1667.5     1668   1668.5     1669   1669.5
 243          SQ        0      119      375      688     1063     1462     1938     2375     2875     3375

 244          KK    RCULV  ROUTE FLOWS TO W103
 245          KM      ROUTE THE FLOWS TO CONCENTRATION POINT W103
 246          RM        2       .5       .3

 247          KK       3S  WATERSHED 3 SOUTH
 248          KM       HYDROGRAPH FOR WATERSHED 3 SOUTH
 249          BA     2.39
 250          LS        0       85
 251          UD     .436
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 252          KK      103
 253          HC        2

 254          KK       3A   WATERSHED 3A
 255          KM      HYDROGRAPH FOR WATERSHED 3A
 256          BA     1.20
 257          LS        0       86
 258          UD       .4

 259          KK    CP103
 260          KM      CONCENTRATION POINT FOR WEST FORK OF SIPHON DRAW
 261          HC        2

 262          KK     W103 CONCTRATION PT. W103 WHERE UNNAMED WASH ENTERS.
 263          KM       COMBINE HYDROGRAPHS FROM CP 104 AND WS 3 - SIPHON DRAW WATERSHED
 264          HC        2

 265          KK    RW103 ROUTE RESULTING HYDROGRAPH TO POWELINE DAM STRUCTURE
 266          KM       ROUTE THE HYDROGRAPH TO POWERLINE DAM
 267          RM        1      .16       .3

 268          KK      PLD CONCENTRATION PT. AT POWERLINE DAM
 269          KM      COMBINE HYDROGRAPHS FROM WEEKES WASH SUB-BASIN AND SIPHON DRAW SUB-BASIN
 270          KO        3
 271          HC        2

 272          KK      RES RESERVOIR ROUTING THROUGH THE STRUCTURE
 273          KM      RESERVOIR RATING CURVE
 274          RS        1     ELEV  1568.2
 275          SV        0      175      380      700     1100     1600     2175     2875     3675     4200
 276          SV     4600     5525     6725     7925
 277          SQ        0       75       92      106      119      130      141      150      159      165
 278          SQ     1228     7360    16800    27280
 279          SE   1568.1   1568.2   1570.0   1572.1   1574.1   1576.1   1578.1   1580.1   1582.1   1583.3
 280          SE   1584.1   1586.1   1588.1   1590.1
 281          SS   1583.3        0        0        0
 282          ST   1589.1    13358      2.2      1.5
 283          ZZ
```

```
****************************************
*                                      *
*   FL[illegible] HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981             *
*          REVISED 31 JAN 85           *
*                                      *
*  RUN DATE 1/ 5/1989   TIME 9:47:23 *
*                                      *
****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285     *
*                                       *
*****************************************
```

```
                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
                                DEVELOPMENT, MUSKINGUM ROUTING
                    ALTERNATIVE E : DIVERSION OF 100 YEAR, 24 HOUR STORM TO APACHE F.R.S. AT
                                    APACHE TRAIL (RT. 80)
                       CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION DRIVE.
                                     2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     3: SUPERSTITION FREEWAY IN PLACE.
                                     4: ADJUSTED WATERSHED AREAS.
                                     5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
                                     6: NO MODIFICATIONS TO POWERLINE F.R.S.

 17 IO          OUTPUT CONTROL VARIABLES
                      IPRNT            5  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN           10  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1     0  STARTING DATE
                      ITIME         0000  STARTING TIME
                         NQ          400  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3     0  ENDING DATE
                     NDTIME         1830  ENDING TIME

                  COMPUTATION INTERVAL      .17 HOURS
                       TOTAL TIME BASE   66.50 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
                      NPLAN            1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF RUNOFF
                    .50      1.00

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

```
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 86 KK      *     RT80   *
            *            *
            **************

 88 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

    DT          DIVERSION
                     ISTAD      APACHE  DIVERSION HYDROGRAPH IDENTIFICATION

    DI             INFLOW        .00   6621.00  10000.00  15000.00

    DQ      DIVERTED FLOW        .00   6621.00   6621.00   6621.00
                                                                 ***

     ***            ***            ***            ***            ***

                       DIVERSION HYDROGRAPH   APACHE
                         FOR PLAN 1, RATIO =  .50

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
   6621.      2.50        (CFS)     3046.       763.        275.        275.
                        (INCHES)    3.062      3.066       3.066       3.066
                         (AC-FT)    1510.      1512.       1512.       1512.

                       CUMULATIVE AREA =    9.25 SQ MI

     ***            ***            ***            ***            ***

                       HYDROGRAPH AT STATION     RT80
                         FOR PLAN 1, RATIO =  .50

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
   9350.      3.17        (CFS)     1350.       337.        122.        122.
                        (INCHES)    1.357      1.357       1.357       1.357
```

```
                    (AC-FT)      669.        669.        669.        669.

                    CUMULATIVE AREA =     9.25 SQ MI

     ***            ***            ***            ***            ***

                      DIVERSION HYDROGRAPH   APACHE
                        FOR PLAN 1, RATIO = 1.00

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
    6621.      2.33        (CFS)     3965.       993.        358.        358.
                         (INCHES)    3.985      3.993       3.993       3.993
                         (AC-FT)     1966.      1970.       1970.       1970.

                      CUMULATIVE AREA =     9.25 SQ MI

     ***            ***            ***            ***            ***

                      HYDROGRAPH AT STATION     RT80
                        FOR PLAN 1, RATIO = 1.00

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
   25321.      3.17        (CFS)     4828.      1207.        436.        436.
                         (INCHES)    4.852      4.852       4.852       4.852
                         (AC-FT)     2394.      2394.       2394.       2394.

                      CUMULATIVE AREA =     9.25 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 103 KK     *      FLOW  *          POINT OF DIVERSION FOR WEEKES WASH
            *            *
            **************

 104 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                      ISTAD      DIVERT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW         .00   6500.00   7000.00   9000.00  10000.00  15000.00

     DQ      DIVERTED FLOW         .00       .00    260.00   1300.00   1880.00   4600.00

                                                                  ***

     ***            ***            ***            ***            ***

                      DIVERSION HYDROGRAPH   DIVERT
```

FOR PLAN 1, RATIO = .50

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
1329.	3.83	(CFS)	103.	26.	9.	9.
		(INCHES)	.093	.093	.093	.093
		(AC-FT)	51.	51.	51.	51.

CUMULATIVE AREA = 10.34 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION FLOW
FOR PLAN 1, RATIO = .50

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
7721.	3.83	(CFS)	1764.	441.	159.	159.
		(INCHES)	1.586	1.586	1.586	1.586
		(AC-FT)	875.	875.	875.	875.

CUMULATIVE AREA = 10.34 SQ MI

*** *** *** *** ***

DIVERSION HYDROGRAPH DIVERT
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
9888.	3.83	(CFS)	1661.	415.	150.	150.
		(INCHES)	1.494	1.494	1.494	1.494
		(AC-FT)	824.	824.	824.	824.

CUMULATIVE AREA = 10.34 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION FLOW
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
14833.	3.83	(CFS)	4201.	1050.	379.	379.
		(INCHES)	3.777	3.777	3.777	3.777
		(AC-FT)	2083.	2083.	2083.	2083.

CUMULATIVE AREA = 10.34 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** ***

```
                 **************
                 *            *
174 KK           *     NDIV   *
                 *            *
                 **************

176 KO              OUTPUT CONTROL VARIABLES
                          IPRNT            3  PRINT CONTROL
                          IPLOT            0  PLOT CONTROL
                          QSCAL           0.  HYDROGRAPH PLOT SCALE

    DT              DIVERSION
                          ISTAD         EXIT  DIVERSION HYDROGRAPH IDENTIFICATION

    DI                 INFLOW          .00   1218.00   5000.00  10000.00

    DQ          DIVERTED FLOW          .00       .00   3782.00   8782.00

                                                                   ***

     ***              ***              ***              ***              ***

                          DIVERSION HYDROGRAPH      EXIT
                            FOR PLAN 1, RATIO =  .50

PEAK FLOW      TIME                              MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                     6-HR        24-HR        72-HR      66.50-HR
   927.        3.17          (CFS)       87.          22.           8.           8.
                          (INCHES)      .705         .705         .705         .705
                           (AC-FT)       43.          43.          43.          43.

                          CUMULATIVE AREA =    1.15 SQ MI


     ***              ***              ***              ***              ***

                          HYDROGRAPH AT STATION     NDIV
                            FOR PLAN 1, RATIO =  .50

PEAK FLOW      TIME                              MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                     6-HR        24-HR        72-HR      66.50-HR
  1218.        2.83          (CFS)      431.         114.          41.          41.
                          (INCHES)     3.483        3.696        3.698        3.698
                           (AC-FT)      214.         227.         227.         227.

                          CUMULATIVE AREA =    1.15 SQ MI


     ***              ***              ***              ***              ***

                          DIVERSION HYDROGRAPH      EXIT
                            FOR PLAN 1, RATIO = 1.00

PEAK FLOW      TIME                              MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                     6-HR        24-HR        72-HR      66.50-HR
  3105.        3.17          (CFS)      450.         112.          41.          41.
                          (INCHES)     3.635        3.635        3.635        3.635
                           (AC-FT)      223.         223.         223.         223.

                          CUMULATIVE AREA =    1.15 SQ MI
```

```
***              ***              ***              ***              ***

                    HYDROGRAPH AT STATION      NDIV
                      FOR PLAN 1, RATIO = 1.00

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR       24-HR       72-HR      66.50-HR
   1218.        2.67        (CFS)      607.        160.         58.          58.
                          (INCHES)    4.911       5.180       5.182        5.182
                           (AC-FT)    301.        318.        318.         318.

                         CUMULATIVE AREA =    1.15 SQ MI


WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO     1462.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 268 KK     *       PLD  *      CONCENTRATION PT. AT POWERLINE DAM
            *            *
            **************

 270 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

 271 HC          HYDROGRAPH COMBINATION
                      ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

     ***              ***              ***              ***              ***

                    HYDROGRAPH AT STATION      PLD
                      FOR PLAN 1, RATIO =  .50

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR       24-HR       72-HR      66.50-HR
   36813.       4.50        (CFS)    19314.       4935.       1781.        1781.
                          (INCHES)    3.815       3.899       3.899        3.899
                           (AC-FT)    9577.       9788.       9788.        9788.

                         CUMULATIVE AREA =   47.07 SQ MI
```

*** *** *** *** ***

HYDROGRAPH AT STATION PLD
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
77505.	4.50	(CFS)	39049.	9970.	3598.	3598.
		(INCHES)	7.713	7.878	7.878	7.878
		(AC-FT)	19363.	19776.	19776.	19776.

CUMULATIVE AREA = 47.07 SQ MI

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO FLOWS RATIO 1 .50	RATIO 2 1.00
HYDROGRAPH AT	15	1.76	1	FLOW	3601.	7203.
				TIME	3.00	3.00
ROUTED TO	R15	1.76	1	FLOW	3502.	7003.
				TIME	3.00	3.00
HYDROGRAPH AT	14	1.11	1	FLOW	2274.	4548.
				TIME	3.00	3.00
HYDROGRAPH AT	16	2.16	1	FLOW	4079.	8157.
				TIME	3.00	3.00
3 COMBINED AT	114	5.03	1	FLOW	9855.	19709.
				TIME	3.00	3.00
ROUTED TO	R114	5.03	1	FLOW	9562.	19125.
				TIME	3.17	3.17
HYDROGRAPH AT	13	1.29	1	FLOW	2748.	5495.
				TIME	3.00	3.00
2 COMBINED AT	113	6.32	1	FLOW	11803.	23606.
				TIME	3.00	3.00
ROUTED TO	R113	6.32	1	FLOW	11365.	22730.
				TIME	3.17	3.17
HYDROGRAPH AT	12	1.32	1	FLOW	2743.	5485.
				TIME	3.00	3.00
2 COMBINED AT	112	7.64	1	FLOW	13857.	27714.
				TIME	3.17	3.17
ROUTED TO	R112	7.64	1	FLOW	13590.	27181.
				TIME	3.17	3.17
HYDROGRAPH AT	11	.70	1	FLOW	1531.	3061.
				TIME	3.00	3.00
HYDROGRAPH AT	17	.37	1	FLOW	761.	1521.
				TIME	3.00	3.00
HYDROGRAPH AT	10	.54	1	FLOW	1109.	2219.
				TIME	3.00	3.00
4 COMBINED AT	111	9.25	1	FLOW	15971.	31942.
				TIME	3.17	3.17
DIVERSION TO	APACHE	9.25	1	FLOW	6621.	6621.
				TIME	2.50	2.33
HYDROGRAPH AT	RT80	9.25	1	FLOW	9350.	25321.

				TIME	3.17	3.17
ROUTED	RD111	9.25	1	FLOW	8433.	23486.
				TIME	3.83	3.83
HYDROGRAPH AT	2A	1.09	1	FLOW	2236.	4471.
				TIME	3.00	3.00
2 COMBINED AT	CP2A	10.34	1	FLOW	9050.	24721.
				TIME	3.83	3.83
DIVERSION TO	DIVERT	10.34	1	FLOW	1329.	9888.
				TIME	3.83	3.83
HYDROGRAPH AT	FLOW	10.34	1	FLOW	7721.	14833.
				TIME	3.83	3.83
ROUTED TO	RR2A	10.34	1	FLOW	7357.	14221.
				TIME	4.17	4.17
HYDROGRAPH AT	2BE	1.22	1	FLOW	2150.	4299.
				TIME	3.17	3.17
2 COMBINED AT	102B	11.56	1	FLOW	8146.	15799.
				TIME	4.17	4.17
ROUTED TO	DET2BE	11.56	1	FLOW	7995.	15525.
				TIME	4.33	4.17
			** PEAK STAGES IN FEET **			
			1	STAGE	1652.99	1656.03
				TIME	4.33	4.17
DIVERSION TO	SPILL	11.56	1	FLOW	4330.	11860.
				TIME	4.33	4.17
HYDROGRAPH AT	FRWAY	11.56	1	FLOW	3665.	3665.
				TIME	3.67	3.00
ROUTED TO	CHAN	11.56	1	FLOW	3673.	3718.
				TIME	3.83	3.17
ROUTED TO	WASH	11.56	1	FLOW	3662.	3665.
				TIME	5.00	5.50
HYDROGRAPH AT	RSPILL	.00	1	FLOW	4330.	11860.
				TIME	4.33	4.17
ROUTED TO	IDAHO	.00	1	FLOW	4319.	11900.
				TIME	4.33	4.33
2 COMBINED AT	WW	11.56	1	FLOW	7871.	15554.
				TIME	4.33	4.33
ROUTED TO	RWW	11.56	1	FLOW	6910.	14392.
				TIME	5.33	5.33
HYDROGRAPH AT	2BWW	.45	1	FLOW	828.	1656.
				TIME	3.17	3.17
HYDROGRAPH AT	2BWE	.70	1	FLOW	1372.	2745.
				TIME	3.00	3.00

ROUTED TO	16BW	.70	1	FLOW	1317.	[illegible]
				TIME	3.17	[illegible]
			** PEAK STAGES IN FEET **			
			1	STAGE	1632.80	1634.67
				TIME	3.17	3.17
2 COMBINED AT	C004	1.15	1	FLOW	2145.	4323.
				TIME	3.17	3.17
DIVERSION TO	EXIT	1.15	1	FLOW	927.	3105.
				TIME	3.17	3.17
HYDROGRAPH AT	NDIV	1.15	1	FLOW	1218.	1218.
				TIME	2.83	2.67
ROUTED TO	NDRCUT	1.15	1	FLOW	1070.	1218.
				TIME	3.67	3.83
			** PEAK STAGES IN FEET **			
			1	STAGE	1629.78	1630.06
				TIME	3.67	3.83
ROUTED TO	R2BW	1.15	1	FLOW	1049.	1210.
				TIME	4.00	4.33
HYDROGRAPH AT	2BS	1.91	1	FLOW	3600.	7200.
				TIME	3.00	3.00
3 COMBINED AT	102	14.62	1	FLOW	7623.	16091.
				TIME	5.33	5.17
HYDROGRAPH AT	5	5.65	1	FLOW	8877.	17753.
				TIME	3.33	3.33
ROUTED TO	R5	5.65	1	FLOW	8800.	17600.
				TIME	3.50	3.50
HYDROGRAPH AT	4	11.35	1	FLOW	13555.	27109.
				TIME	4.00	4.00
2 COMBINED AT	104	17.50	1	FLOW	20710.	41419.
				TIME	3.67	3.67
ROUTED TO	R104	17.50	1	FLOW	19890.	39781.
				TIME	4.17	4.17
HYDROGRAPH AT	7	.61	1	FLOW	1247.	2494.
				TIME	3.00	3.00
HYDROGRAPH AT	6	7.86	1	FLOW	9600.	19201.
				TIME	3.83	3.83
3 COMBINED AT	106	25.97	1	FLOW	28791.	57583.
				TIME	4.17	4.17
ROUTED TO	R106	25.97	1	FLOW	28308.	56615.
				TIME	4.33	4.33
HYDROGRAPH AT	3N	2.89	1	FLOW	5465.	10931.
				TIME	3.17	3.17
ROUTED TO	CULV	2.89	1	FLOW	5186.	10358.

				TIME	3.17	[illegible]7
			** PEAK STAGES IN FEET **			
			1	STAGE	1671.31	1676.48
				TIME	3.17	3.17
ROUTED TO	RCULV	2.89	1	FLOW	4833.	9623.
				TIME	3.67	3.67
HYDROGRAPH AT	3S	2.39	1	FLOW	4469.	8939.
				TIME	3.17	3.17
2 COMBINED AT	103	5.28	1	FLOW	7872.	15586.
				TIME	3.33	3.33
HYDROGRAPH AT	3A	1.20	1	FLOW	2300.	4599.
				TIME	3.17	3.17
2 COMBINED AT	CP103	6.48	1	FLOW	9847.	19536.
				TIME	3.33	3.33
2 COMBINED AT	W103	32.45	1	FLOW	33359.	66720.
				TIME	4.17	4.17
ROUTED TO	RW103	32.45	1	FLOW	33166.	66343.
				TIME	4.33	4.33
2 COMBINED AT	PLD	47.07	1	FLOW	36813.	77505.
				TIME	4.50	4.50
ROUTED TO	RES	47.07	1	FLOW	17243.	73215.
				TIME	6.17	5.00
			** PEAK STAGES IN FEET **			
			1	STAGE	1588.18	1590.41
				TIME	6.17	5.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1636.00	1650.00	1650.00
STORAGE	0.	153.	153.
OUTFLOW	0.	3534.	3534.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1652.99	2.99	200.	7995.	1.33	4.33	.00
1.00	1656.03	6.03	262.	15525.	2.67	4.17	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 16BW

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1623.50	1630.00	1630.00
STORAGE	0.	28.	28.
OUTFLOW	0.	135.	135.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1632.80	2.80	41.	1317.	3.00	3.17	.00
1.00	1634.67	4.67	53.	2667.	4.00	3.17	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1622.60	1630.00	1630.00
STORAGE	0.	25.	25.
OUTFLOW	0.	1111.	1111.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1629.78	.00	23.	1070.	.00	3.67	.00
1.00	1630.06	.06	26.	1218.	.83	3.83	.00

SUMMARY OF DAM OVERTOPPING/BRE ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	22040.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1588.18	.00	6776.	17243.	.00	6.17	.00
1.00	1590.41	1.31	8114.	73215.	2.67	5.00	.00

```
*** NORMAL END OF HEC-1 ***
STOP
)
)
END OF FILE
AOS/VS CLI   TERMINATING          5-JAN-89        9:48:12

PROCESS 57 TERMINATED

ELAPSED TIME  0:01:04, CPU TIME  00:00:00.089, I/O BLOCKS  61
(OTHER JOBS, SAME USERNAME:
    NUMBER OF CONSOLE JOBS, 1
    NUMBER OF BATCH JOBS, 0)
USER 'HYD.WSM' LOGGED OFF         5-JAN-89        9:48:12

****
*LIST FILE EMPTY, WILL NOT BE PRINTED
****
```

Appendix N

Alternative E :

Diversion of 100 Year, 24 Hour Flows
at Apache Trail (Rt. 80)
to Apache F.R.S. (100 Year Storm)

```
+?????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????+

$   $  $   $  $$$$          $   $   $$$   $   $
$   $  $   $  $   $         $   $  $   $  $$ $$
$   $   $ $   $   $         $   $  $      $ $ $
$$$$$    $    $   $         $ $ $   $$$   $ $ $
$   $    $    $   $         $ $ $      $  $   $
$   $    $    $   $    $$   $$ $$  $   $  $   $
$   $    $    $$$$     $$   $   $   $$$   $   $

 DEST=HYD.WSM  USER=HYD.WSM  QUEUE=LPT  DEVICE=@LPB
SEQ=422  QPRI=128  CPL=132  LPP=66  COPIES=1  PAGES=87

CREATED:   05-JAN-89  09:56:16
ENQUEUED:  05-JAN-89  10:11:02
PRINTING:  05-JAN-89  10:11:04

PATH=:SMCKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:ALTE100.OUT

  $    $      $$$$$  $$$$$    $     $$$    $$$          $$$   $   $  $$$$$
 $ $   $        $    $      $$    $   $  $   $        $   $  $   $    $
$   $  $        $    $     $ $    $  $$  $  $$        $   $  $   $    $
$   $  $        $    $$$$    $    $ $ $  $ $ $        $   $  $   $    $
$$$$$  $        $    $       $    $$  $  $$  $        $   $  $   $    $
$   $  $        $    $       $    $   $  $   $   $$   $   $  $   $    $
$   $  $$$$$    $    $$$$$  $$$$$  $$$   $$$    $$    $$$    $$$     $

+?????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????????+

AOS/VS REV 7.62.00.00

AOS/VS REVISION 7.62.00.00
AOS/VS XLPT-32 REVISION 7.62.00.00
```

```
**** /VS REV 7.62.00.CO / BATCH OUTPUT FILE ****

AOS/VS 7.62.00.00 / EXEC-32 7.62.00.00   5-JAN-89        9:56:18
QPRI=128        SEQ=413
INPUT FILE -- :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:?48.CLI.00002.JOB (WILL BE DELETED AFTER PROCESSIN
LIST FILE  -- :QUEUE:HYD.WSM.LIST.413

--------
LAST MESSAGE CHANGE     17-NOV-88       14:55:52


              ***************          *******       ***********
               ************        ************       ************
              ***                 ****     ***        ***     ***
             *******             ***                 ***     ***
            ******              ***                 ***     ***
           ***                 ***      ***        ***     ***
         ****                  ***********        ************
       ******                   *******          ************


--------
MOST RECENT LOGON        5-JAN-89        9:47:08

AOS/VS CLI   REV 07.62.00.00     5-JAN-89        9:56:19
) SEARCHLIST :UTIL/:MACROS/:UDD:HYD.WSM/:UDD:OP/:PER/:
) DIRECTORY :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR
) DEFACL HYD.WSM/OWARE
)
) LISTFILE ALTE100.OUT
) DATAFILE ALTE100.DAT
) SEA :UTIL:HEC1.DIR/[!SEA]
) X HEC1_START
```

```
*****************************************
*                                       *
*   FL[illegible] HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*           REVISED 31 JAN 85           *
*                                       *
*  RUN DATE 1/ 5/1989   TIME 9:56:21 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285   *
*                                       *
*****************************************
```


```
X      X  XXXXXXX   XXXXX            X
X      X  X         X     X         XX
X      X  X         X               X
XXXXXXX   XXXX      X        XXXXX  X
X      X  X         X               X
X      X  X         X     X         X
X      X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THE VERSION RELEASED 31JAN85 CONTAINS NEW OPTIONS ON RL AND BA RECORDS, AND ADDS THE HL RECORD. SEE JANUARY 1985 INPUT DESCRIPTION FOR NEW DEFINITIONS.

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID      WEEKES WASH - POWERLINE F.R.S  ANALYSIS
  2           ID      CONVERSION OF MODEL FROM TR-20
  3           ID                    100-YEAR, 24-HOUR STORM; SCS EXCESS & HYDROGRAPH
  4           ID                    DEVELOPMENT, MUSKINGUM ROUTING
  5           ID      ALTERNATIVE E : DIVERSION OF 100 YEAR, 24 HOUR FLOWS AT APACHE TRAIL
  6           ID                      (RT 80), TO APACHE F.R.S.
  7           ID         CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
  8           ID                          POINT OF WEEKES WASH AT JUNCTION ROAD.
  9           ID                       2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
 10           ID                          AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
 11           ID                          LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
 12           ID                       3: SUPERSTITION FREEWAY IN PLACE.
 13           ID                       4: ADJUSTED WATERSHED AREAS.
 14           ID                       5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
 15           ID                       6: NO MODIFICATIONS TO POWERLINE F.R.S.
 16           IT       10        0        0      200
 17           IO        5

 18           KK       15  WATERSHED 15
 19           KM       HYDROGRAPH FOR WATERSHED 15
 20           PB     3.85
 21           IN       15
 22           PC        0     .002     .005     .008     .011     .014     .017     .020     .023     .026
 23           PC     .029     .032     .035     .038     .041     .044     .048     .052     .056     .060
 24           PC     .064     .068     .072     .076     .080     .085     .090     .095     .100     .105
 25           PC     .110     .115     .120     .126     .133     .140     .147     .155     .163     .172
 26           PC     .181     .191     .203     .218     .236     .257     .283     .387     .663     .707
 27           PC     .735     .758     .766     .791     .804     .815     .825     .834     .842     .849
 28           PC     .856     .863     .869     .875     .881     .887     .893     .898     .903     .908
 29           PC     .913     .918     .922     .926     .930     .934     .938     .942     .946     .950
 30           PC     .953     .956     .959     .962     .965     .968     .971     .974     .977     .980
 31           PC     .983     .986     .992     .995     .998    1.000    1.000    1.000    1.000    1.000
 32           BA     1.76
 33           LS        0       80
 34           UD      .18

 35           KK      R15 ROUTE HYDROGRAPH FROM WS 15
 36           KM      ROUTE HYDROGRAPH FROM WATERSHED 15
 37           RM        1      .11       .3

 38           KK       14 WATERSHED 14
 39           KM      HYDROGRAPH FOR WATERSHED 14
 40           BA     1.11
 41           LS        0       79
 42           UD      .15

 43           KK       16 WATERSHED 16
 44           KM      HYDROGRAPH FOR WATERSHED 16
 45           BA     2.16
 46           LS        0       82
 47           UD      .35
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

48            KK     114 CONCENTRATION PT. 114 (INCLUDES WATERSHEDS 14, 15, & 16)
49            KM     COMBINE ALL THREE HYDROGRAPHS AT CP 114
50            HC       3

51            KK    R114 ROUTE CP 114
52            KM     ROUTE HYDROGRAPH FROM CP114 TO CP 113
53            RM       1      .17       .3

54            KK      13 WATERSHED 13
55            KM     HYDROGRAPH FOR WATERSHED 13
56            BA    1.29
57            LS       0       83
58            UD    .126

59            KK     113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
60            KM     COMBINE HYDROGRAPHS CP 114 AND WS 13
61            HC       2

62            KK    R113 ROUTE CP 113 TO CP 112
63            KM     ROUTE HYDROGRAPH FOR CP 113
64            RM       1      .19       .3

65            KK      12 WATERSHED 12
66            KM     HYDROGRAPH FOR WATERSHED 12
67            BA    1.32
68            LS       0       86
69            UD     .27

70            KK     112 CONCENTRATION PT. 112 FOR HYDROGRAPHS FROM CP 113 AND WS 12.
71            KM     COMBINE HYDROGRAPH FROM CP 113 AND WS 12
72            HC       2

73            KK    R112 ROUTE CP 112 TO CP 111
74            KM     ROUTE HYDROGRAPH CP 112 TO CP 111
75            RM       1      .07       .3

76            KK      11 WATERSHED 11
77            KM     HYDROGRAPH FOR WATERSHED 11
78            BA     .70
79            LS       0       89
80            UD    .186

81            KK      17 WATERSHED 17
82            KM     HYDROGRAPH FOR WATERSHED 17
83            BA     .37
84            LS       0       79
85            UD    .138

86            KK      10   WATERSHED 10
87            KM     HYDROGRAPH FOR WATERSHED 10
88            BA     .54
89            LS       0       79
90            UD     .14
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 91           KK     111 CONCENTRATION PT. 111
 92           KM     COMBINE HYDROGRAPHS FROM CP 112, WS 11, AND WS 17
 93           HC       4

 94           KK    RT80
 95           KM    DIVERT 100 YEAR, 24 HOUR FLOWS AT RT. 80 TO APACHE F.R.S.
 96           KO       3
 97           DT  APACHE
 98           DI       0    6621   10000   15000
 99           DQ       0    6621    6621    6621

100           KK   RD111 ROUTE CP 111 TO PT AT WHICH BREAKOUT WOULD OCCUR.
101           KM     ROUTE HYDROGRAPH CP111 TO THE POINT AT WHICH THE BREAKOUT OCCURS.
102           RM       5     .64      .3

103           KK      2A  WATERSHED 2A
104           KM      HYDROGRAPH FOR WATERSHED 2A
105           BA    1.09
106           LS       0      82
107           UD     .22

108           KK    CP2A  CONCENTRATION POINT 2A
109           KM    COMBINE ROUTED HYDROGRAPH FROM CP 111 AND WATERSHED 2A.
110           HC       2

111           KK  DIVERT    POINT OF DIVERSION FOR WEEKES WASH
112           KO       3
113           DT    FLOW
114           DI       0    6500    7000    9000   10000   15000
115           DQ       0       0     260    1300    1880    4660

116           KK    RR2A ROUTE REMAINING HYDROGRAPH TO SUPERSTITION FREWAY
117           KM     ROUTE THE REMAINING HYDROGRAPH TO DETENTION NORTH OF SUPERSTITION FREEWAY
118           RM       2     .42      .3

119           KK     2BE WATERSHED 2B EAST
120           KM     HYDROGRAPH FOR WATERSHED 2B EAST
121           BA    1.22
122           LS       0      82
123           UD     .48

124           KK    102B  CONCENTRATION POINT NORTH OF FREEWAY
125           KM     CONCENTRATION POINT NORTH OF SUPERSTITION FREEWAY AT DETENTION AREA
126           HC       2

127           KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
128           KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
129           RS       1    ELEV    1636
130           SV       0     6.0    13.0    29.0    47.0    69.0    93.0   122.0   153.0   184.0
131           SV     217     239
132           SE    1636    1637    1638    1640    1642    1644    1646    1648    1650    1652
133           SE    1654    1655
134           SQ       0      22     194     584    1050    1604    2236    2900    3534    4408
135           SQ    4622    4860
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 136          ST    1650     320     2.2     1.5

 137          KK   FRWAY
 138          KM    DIVERT ALL FLOW THAT GO UNDER THE ROAD
 139          DT   SPILL
 140          DI       0    3665    5000   10000   15000
 141          DQ       0       0    1335    6335   11335

 142          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
 143          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
 144          RM       1      .1      .3

 145          KK    WASH   ROUTE FLOWS THROUGH THE WASH
 146          KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
 147          RM       2     .50      .3

 148          KK  RSPILL
 149          KM     RETRIEVE FLOW DEIVERTED FROM THE EMERGENCY SPILLWAY
 150          DR   SPILL

 151          KK   IDAHO
 152          KM    ROUTE THE RETRIEVED FLOW DOWN IDAYO ROAD.
 153          RM       1      .1      .3

 154          KK      WW
 155          KM    COMBINE ALL THE FLOW FROM THE FREEWAY
 156          HC       2

 157          KK     RWW
 158          KM    ROUTE THE FLOW TO POWERLINE F.R.S.
 159          RM       4     .98      .3

 160          KK    2BWW  WATERSHED 2B WEST, WEST
 161          KM      HYDROGRAPH FOR WATERSHED 2B WEST, WEST
 162          BA     .45
 163          LS       0      82
 164          UD      .4

 165          KK    2BWE  WATERSHED 2B WEST, EAST
 166          KM     RUNOFF FROM EAST OF IDAHO ROAD 2B WEST, EAST
 167          KO       1
 168          BA     .70
 169          LS       0      82
 170          UD      .3

 171          KK  DET2BW  ROUTE THROUGH THE DETENTION NORTH OF THE FREEWAY  (N. DIVERSION DAM)
 172          KM      ROUTE FLOWS THROUGH THE DETENTION NORTH OF THE SUPERSTITION FREEWAY
 173          RS       1    ELEV  1623.5
 174          SV       0      .6     8.3    17.5    28.2    36.0    48.6
 175          SE  1623.5  1624.0  1626.0  1628.0  1630.0  1632.0  1634.0
 176          SQ       0       0      31      93     135     169     208
 177          ST  1630.0     110     2.2     1.5
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 178          KK     C004  COMBINE FLOWS JUST NORTH OF FREEWAY
 179          KM     COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
 180          HC        2

 181          KK     NDIV
 182          KO        3
 183          DT     EXIT
 184          DI        0     1218     5000    10000
 185          DQ        0        0     3782     8782

 186          KK   NDROUT  ROUTE THROUGH THE FREEWAY
 187          KM     ROUTE COMBINED FLOW THROUGH 3 BBL. 6 X 8 BOX CULVERTS
 188          RS        1     ELEV  1622.6
 189          SV        0      .02      .16     1.12     4.17    25.42
 190          SE   1622.6   1623.0   1624.0   1626.0   1628.0   1630.0
 191          SQ        0        0      101      372      738     1111
 192          ST   1630.0     2875      2.2      1.5

 193          KK     R2BW  ROUTE TO CP102
 194          KM      ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
 195          RM        2      .40       .3

 196          KK      2BS  WATERSHED 2B SOUTH OF SUPERTITION FREEWAY
 197          KM      HYDROGRAPH FOR WATERSHED 2B SOUTH
 198          BA     1.91
 199          LS        0       80
 200          UD      .32

 201          KK      102 CONCENTRATION PT. 102, WEEKES WASH WATERSHED AT POWERLINE FRS.
 202          KM      COMBINE HYDROGRAPHS FROM CP D111 AND WS 2 (WE ARE NOW AT POWERLINE DAM)
 203          HC        3

 204          KK        5 WATERSHED 5 ( BEGINNING OF SIPHON DRAW WATERSHED)
 205          KM      HYDROGRAPH FOR WS 5 (BEGINNING OF THE WATERSHED FOR SIPHON DRAW TO THE DAM)
 206          BA     5.65
 207          LS        0       85
 208          UD      .71

 209          KK       R5 ROUTE HYDROGRAPH FROM WS 5 TO CP 104
 210          KM       ROUTE HYDROGRAPH FOR WS 5 TO CP 104
 211          RM        1      .07       .3

 212          KK        4 WATERSHED 4
 213          KM       HYDROGRAPH FOR WATERSHED 4
 214          BA    11.85
 215          LS        0       86
 216          UD     1.30

 217          KK      104  CONCENTRATION POINT 104
 218          KM      COMBINE HYDROGRAPHS AT CP 104
 219          HC        2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 220          KK     R104
 221          KM     ROUTE CP 104 TO 106
 222          RM        2      .50       .3

 223          KK        7  WATERSHED 7
 224          KM     HYDROGRAPH FOR WATERSHED 7
 225          BA      .61
 226          LS        0       86
 227          UD       .3

 228          KK        6 WATERSHED 6
 229          KM       HYDROGRAPH FOR WATERSHED 6
 230          BA     7.86
 231          LS        0       83
 232          UD     1.08

 233          KK      106 CONCENTRATION PT. 106, HYDROGRAPHS FROM R 5, WS 4, & WS 6
 234          KM       COMBINE HYDROGRAPHS FROM R5, WS 4, AND WS 6
 235          HC        3

 236          KK     R106 ROUTE THE HYDROGRAPH FROM CP 106 TO WHERE NEXT WASH ENTERS.
 237          KM       ROUTE HYDROGRAPH FROM CP 104 TO WHERE OTHER WASH ENTERS
 238          RM        1      .27       .3

 239          KK       3N WATERSHED 3N
 240          KM       HYDROGRAPH FOR WATERSHED 3N
 241          BA     2.89
 242          LS        0       85
 243          UD      .41

 244          KK     CULV   ROUTE FLOWS THROUGH CULVERTS
 245          KM      ROUTE FLOWS THROUGH THE CULVERTS
 246          RS      1.0     ELEV     1665
 247          SV        0      .15      .60      1.5      3.1      5.6      9.1     13.7    19.45    26.35
 248          SE     1665   1665.5     1666   1666.5     1667   1667.5     1668   1668.5     1669   1669.5
 249          SQ        0      119      375      688     1063     1462     1938     2375     2875     3375

 250          KK    RCULV  ROUTE FLOWS TO W103
 251          KM      ROUTE THE FLOWS TO CONCENTRATION POINT W103
 252          RM        2       .5       .3

 253          KK       3S  WATERSHED 3 SOUTH
 254          KM       HYDROGRAPH FOR WATERSHED 3 SOUTH
 255          BA     2.39
 256          LS        0       85
 257          UD     .436

 258          KK      103
 259          HC        2
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 260          KK      3A   WATERSHED 3A
 261          KM     HYDROGRAPH FOR WATERSHED 3A
 262          BA    1.20
 263          LS       0       86
 264          UD      .4

 265          KK   CP103
 266          KM     CONCENTRATION POINT FOR WEST FORK OF SIPHON DRAW
 267          HC       2

 268          KK    W103 CONCTRATION PT. W103 WHERE UNNAMED WASH ENTERS.
 269          KM      COMBINE HYDROGRAPHS FROM CP 104 AND WS 3 - SIPHON DRAW WATERSHED
 270          HC       2

 271          KK   RW103 ROUTE RESULTING HYDROGRAPH TO POWELINE DAM STRUCTURE
 272          KM      ROUTE THE HYDROGRAPH TO POWERLINE DAM
 273          RM       1     .16      .3

 274          KK     PLD CONCENTRATION PT. AT POWERLINE DAM
 275          KM     COMBINE HYDROGRAPHS FROM WEEKES WASH SUB-BASIN AND SIPHON DRAW SUB-BASIN
 276          KO       3
 277          HC       2

 278          KK     RES RESERVOIR ROUTING THROUGH THE STRUCTURE
 279          KM     RESERVOIR RATING CURVE
 280          RS       1    ELEV  1568.2
 281          SV       0     175     380     700    1100    1600    2175    2875    3675    4200
 282          SV    4600    5525    6725    7925
 283          SQ       0      75      92     106     119     130     141     150     159     165
 284          SQ    1228    7360   16800   27280
 285          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
 286          SE  1584.1  1586.1  1588.1  1590.1
 287          SS  1583.3       0       0       0
 288          ST  1589.1   13358     2.2     1.5
 289          ZZ
```

```
****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED 31 JAN 85           *
*                                      *
*  RUN DATE 1/ 5/1989   TIME 9:56:35 * 
*                                      *
****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285     *
*                                       *
*****************************************
```

```
                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                 100-YEAR, 24-HOUR STORM; SCS EXCESS & HYDROGRAPH
                                 DEVELOPMENT, MUSKINGUM ROUTING
                    ALTERNATIVE E : DIVERSION OF 100 YEAR, 24 HOUR FLOWS AT APACHE TRAIL
                                    (RT 80), TO APACHE F.R.S.
                       CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION ROAD.
                                     2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     3: SUPERSTITION FREEWAY IN PLACE.
                                     4: ADJUSTED WATERSHED AREAS.
                                     5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
                                     6: NO MODIFICATIONS TO POWERLINE F.R.S.

  17 IO          OUTPUT CONTROL VARIABLES
                       IPRNT            5  PRINT CONTROL
                       IPLOT            0  PLOT CONTROL
                       QSCAL           0.  HYDROGRAPH PLOT SCALE

     IT          HYDROGRAPH TIME DATA
                        NMIN           10  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME         0000  STARTING TIME
                          NQ          200  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      2    0  ENDING DATE
                      NDTIME         0910  ENDING TIME

                  COMPUTATION INTERVAL     .17 HOURS
                       TOTAL TIME BASE   33.17 HOURS

          ENGLISH UNITS
               DRAINAGE AREA          SQUARE MILES
               PRECIPITATION DEPTH    INCHES
               LENGTH, ELEVATION      FEET
               FLOW                   CUBIC FEET PER SECOND
               STORAGE VOLUME         ACRE-FEET
               SURFACE AREA           ACRES
               TEMPERATURE            DEGREES FAHRENHEIT

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

```
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  94 KK     *      RT80  *
            *            *
            **************

  96 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           3  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD      APACHE  DIVERSION HYDROGRAPH IDENTIFICATION

     DI              INFLOW         .00   6621.00  10000.00  15000.00

     DQ       DIVERTED FLOW         .00   6621.00   6621.00   6621.00

                                                                  ***

      ***             ***             ***             ***             ***

                          DIVERSION HYDROGRAPH   APACHE

 PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                    6-HR       24-HR       72-HR      33.17-HR
    6621.      12.33          (CFS)    1684.        522.        378.         378.
                           (INCHES)    1.693       2.100       2.100        2.100
                            (AC-FT)     835.       1036.       1036.        1036.

                          CUMULATIVE AREA =    9.25 SQ MI


      ***             ***             ***             ***             ***

                          HYDROGRAPH AT STATION     RT80

 PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                    6-HR       24-HR       72-HR      33.17-HR
       0.      12.33          (CFS)      0.          0.          0.           0.
                           (INCHES)    .000        .000        .000         .000
                            (AC-FT)      0.          0.          0.           0.

                          CUMULATIVE AREA =    9.25 SQ MI


WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
111 KK    *   DIVERT   *       POINT OF DIVERSION FOR WEEKES WASH
          *            *
          **************

112 KO          OUTFUT CONTROL VARIABLES
                     IPRNT           3  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL           0.  HYDROGRAPH PLOT SCALE

    DT          DIVERSION
                     ISTAD         FLOW  DIVERSION HYDROGRAPH IDENTIFICATION

    DI             INFLOW           .00   6500.00   7000.00   9000.00  10000.00  15000.00

    DQ        DIVERTED FLOW         .00       .00    260.00   1300.00   1880.00   4660.00
                                                                   ***

    ***          ***          ***          ***          ***

                      DIVERSION HYDROGRAPH     FLOW

PEAK FLOW      TIME                               MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                      6-HR        24-HR        72-HR      33.17-HR
     0.         .17          (CFS)         0.           0.           0.            0.
                           (INCHES)      .000         .000         .000          .000
                            (AC-FT)        0.           0.           0.            0.

                      CUMULATIVE AREA =    10.34 SQ MI

    ***          ***          ***          ***          ***

                      HYDROGRAPH AT STATION   DIVERT

PEAK FLOW      TIME                               MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                      6-HR        24-HR        72-HR      33.17-HR
   1227.      12.17          (CFS)       197.          61.          44.           44.
                           (INCHES)      .177         .219         .219          .219
                            (AC-FT)       98.         121.         121.          121.

                      CUMULATIVE AREA =    10.34 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
165 KK    *     2BWE   *       WATERSHED 2B WEST, EAST
          *            *
          **************
```

```
167 K          OUTPUT CONTROL VARIABLES
                     IPRNT          1  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

             SUBBASIN RUNOFF DATA

168 BA         SUBBASIN CHARACTERISTICS
                     TAREA        .70  SUBBASIN AREA

               PRECIPITATION DATA

 20 PB                STORM       3.85  BASIN TOTAL PRECIPITATION

 22 PI           INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .02       .02       .07
                    .13       .18       .03       .02       .02       .02       .01       .01       .02       .01
                    .01       .01       .01       .01       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00
169 LS         SCS LOSS RATE
                     STRTL        .44  INITIAL ABSTRACTION
                    CRVNBR      82.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

170 UD         SCS DIMENSIONLESS UNITGRAPH
                      TLAG        .30  LAG

                                                    ***

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

                                                UNIT HYDROGRAPH
                                          11 END-OF-PERIOD ORDINATES
             325.      864.      762.      385.      193.       94.       46.       23.       11.        6.
               2.
```

****

HYDROGRAPH AT STATION 2BWE

****

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
								*								
1		0000	1	.00	.00	.00	0.	*	1		1640	101	.01	.00	.01	34.
1		0010	2	.01	.01	.00	0.	*	1		1650	102	.01	.00	.01	32.
1		0020	3	.01	.01	.00	0.	*	1		1700	103	.01	.00	.01	30.
1		0030	4	.01	.01	.00	0.	*	1		1710	104	.01	.00	.01	29.
1		0040	5	.01	.01	.00	0.	*	1		1720	105	.01	.00	.01	29.
1		0050	6	.01	.01	.00	0.	*	1		1730	106	.01	.00	.01	29.

1	0100	7	.01	.01	.00	0.	*	1	1740	107	.01	.00	.01	28.
1	0110	8	.01	.01	.00	0.	*	1	1750	108	.01	.00	.01	27.
1	0120	9	.01	.01	.00	0.	*	1	1800	109	.01	.00	.01	27.
1	0130	10	.01	.01	.00	0.	*	1	1810	110	.01	.00	.01	25.
1	0140	11	.01	.01	.00	0.	*	1	1820	111	.01	.00	.01	24.
1	0150	12	.01	.01	.00	0.	*	1	1830	112	.01	.00	.01	24.
1	0200	13	.01	.01	.00	0.	*	1	1840	113	.01	.00	.01	23.
1	0210	14	.01	.01	.00	0.	*	1	1850	114	.01	.00	.01	23.
1	0220	15	.01	.01	.00	0.	*	1	1900	115	.01	.00	.01	23.
1	0230	16	.01	.01	.00	0.	*	1	1910	116	.01	.00	.01	23.
1	0240	17	.01	.01	.00	0.	*	1	1920	117	.01	.00	.01	23.
1	0250	18	.01	.01	.00	0.	*	1	1930	118	.01	.00	.01	23.
1	0300	19	.01	.01	.00	0.	*	1	1940	119	.01	.00	.01	23.
1	0310	20	.01	.01	.00	0.	*	1	1950	120	.01	.00	.01	23.
1	0320	21	.01	.01	.00	0.	*	1	2000	121	.01	.00	.01	22.
1	0330	22	.01	.01	.00	0.	*	1	2010	122	.01	.00	.01	20.
1	0340	23	.01	.01	.00	0.	*	1	2020	123	.01	.00	.01	19.
1	0350	24	.01	.01	.00	0.	*	1	2030	124	.01	.00	.01	18.
1	0400	25	.01	.01	.00	0.	*	1	2040	125	.01	.00	.01	18.
1	0410	26	.01	.01	.00	0.	*	1	2050	126	.01	.00	.01	18.
1	0420	27	.01	.01	.00	0.	*	1	2100	127	.01	.00	.01	18.
1	0430	28	.01	.01	.00	0.	*	1	2110	128	.01	.00	.01	18.
1	0440	29	.01	.01	.00	0.	*	1	2120	129	.01	.00	.01	18.
1	0450	30	.01	.01	.00	0.	*	1	2130	130	.01	.00	.01	18.
1	0500	31	.01	.01	.00	0.	*	1	2140	131	.01	.00	.01	18.
1	0510	32	.01	.01	.00	0.	*	1	2150	132	.01	.00	.01	18.
1	0520	33	.01	.01	.00	0.	*	1	2200	133	.01	.00	.01	18.
1	0530	34	.01	.01	.00	0.	*	1	2210	134	.01	.00	.01	18.
1	0540	35	.01	.01	.00	0.	*	1	2220	135	.01	.00	.01	18.
1	0550	36	.01	.01	.00	0.	*	1	2230	136	.01	.00	.01	18.
1	0600	37	.01	.01	.00	0.	*	1	2240	137	.01	.00	.01	18.
1	0610	38	.01	.01	.00	0.	*	1	2250	138	.01	.00	.01	19.
1	0620	39	.01	.01	.00	0.	*	1	2300	139	.02	.00	.01	23.
1	0630	40	.01	.01	.00	0.	*	1	2310	140	.01	.00	.01	26.
1	0640	41	.01	.01	.00	0.	*	1	2320	141	.01	.00	.01	24.
1	0650	42	.01	.01	.00	0.	*	1	2330	142	.01	.00	.01	21.
1	0700	43	.01	.01	.00	0.	*	1	2340	143	.01	.00	.00	18.
1	0710	44	.01	.01	.00	0.	*	1	2350	144	.00	.00	.00	15.
1	0720	45	.01	.01	.00	0.	*	2	0000	145	.00	.00	.00	11.
1	0730	46	.01	.01	.00	0.	*	2	0010	146	.00	.00	.00	6.
1	0740	47	.01	.01	.00	0.	*	2	0020	147	.00	.00	.00	3.
1	0750	48	.01	.01	.00	0.	*	2	0030	148	.00	.00	.00	1.
1	0800	49	.01	.01	.00	0.	*	2	0040	149	.00	.00	.00	1.
1	0810	50	.02	.01	.00	0.	*	2	0050	150	.00	.00	.00	0.
1	0820	51	.02	.02	.00	1.	*	2	0100	151	.00	.00	.00	0.
1	0830	52	.02	.02	.00	1.	*	2	0110	152	.00	.00	.00	0.
1	0840	53	.02	.02	.00	2.	*	2	0120	153	.00	.00	.00	0.
1	0850	54	.02	.02	.00	3.	*	2	0130	154	.00	.00	.00	0.
1	0900	55	.02	.02	.00	3.	*	2	0140	155	.00	.00	.00	0.
1	0910	56	.02	.02	.00	4.	*	2	0150	156	.00	.00	.00	0.
1	0920	57	.02	.02	.00	5.	*	2	0200	157	.00	.00	.00	0.
1	0930	58	.02	.02	.00	6.	*	2	0210	158	.00	.00	.00	0.
1	0940	59	.02	.02	.00	7.	*	2	0220	159	.00	.00	.00	0.
1	0950	60	.02	.02	.00	9.	*	2	0230	160	.00	.00	.00	0.
1	1000	61	.02	.02	.00	10.	*	2	0240	161	.00	.00	.00	0.
1	1010	62	.03	.02	.01	11.	*	2	0250	162	.00	.00	.00	0.
1	1020	63	.03	.02	.01	13.	*	2	0300	163	.00	.00	.00	0.
1	1030	64	.03	.02	.01	15.	*	2	0310	164	.00	.00	.00	0.
1	1040	65	.04	.03	.01	18.	*	2	0320	165	.00	.00	.00	0.
1	1050	66	.04	.03	.01	23.	*	2	0330	166	.00	.00	.00	0.
1	1100	67	.05	.03	.01	28.	*	2	0340	167	.00	.00	.00	0.
1	1110	68	.05	.04	.02	34.	*	2	0350	168	.00	.00	.00	0.
1	1120	69	.06	.04	.02	41.	*	2	0400	169	.00	.00	.00	0.

1	1130	70	.07	.04	.03	50.	*	2	0410	170	.00	.00	.00	0.
	1140	71	.27	.15	.12	90.	*	2	0420	171	.00	.00	.00	0.
	1150	72	.49	.21	.28	230.	*	2	0430	172	.00	.00	.00	0.
1	1200	73	.71	.22	.49	509.	*	2	0440	173	.00	.00	.00	0.
1	1210	74	.11	.03	.08	716.	*	2	0450	174	.00	.00	.00	0.
1	1220	75	.09	.02	.07	602.	*	2	0500	175	.00	.00	.00	0.
1	1230	76	.07	.02	.06	398.	*	2	0510	176	.00	.00	.00	0.
1	1240	77	.06	.01	.05	275.	*	2	0520	177	.00	.00	.00	0.
1	1250	78	.04	.01	.03	197.	*	2	0530	178	.00	.00	.00	0.
1	1300	79	.02	.00	.02	140.	*	2	0540	179	.00	.00	.00	0.
1	1310	80	.06	.01	.05	108.	*	2	0550	180	.00	.00	.00	0.
1	1320	81	.05	.01	.04	107.	*	2	0600	181	.00	.00	.00	0.
1	1330	82	.03	.01	.03	105.	*	2	0610	182	.00	.00	.00	0.
1	1340	83	.03	.01	.02	91.	*	2	0620	183	.00	.00	.00	0.
1	1350	84	.03	.01	.02	76.	*	2	0630	184	.00	.00	.00	0.
1	1400	85	.03	.01	.02	67.	*	2	0640	185	.00	.00	.00	0.
1	1410	86	.02	.00	.02	61.	*	2	0650	186	.00	.00	.00	0.
1	1420	87	.02	.00	.02	56.	*	2	0700	187	.00	.00	.00	0.
1	1430	88	.02	.00	.02	52.	*	2	0710	188	.00	.00	.00	0.
1	1440	89	.02	.00	.01	48.	*	2	0720	189	.00	.00	.00	0.
1	1450	90	.02	.00	.01	44.	*	2	0730	190	.00	.00	.00	0.
1	1500	91	.02	.00	.01	42.	*	2	0740	191	.00	.00	.00	0.
1	1510	92	.02	.00	.01	41.	*	2	0750	192	.00	.00	.00	0.
1	1520	93	.02	.00	.01	40.	*	2	0800	193	.00	.00	.00	0.
1	1530	94	.02	.00	.01	38.	*	2	0810	194	.00	.00	.00	0.
1	1540	95	.02	.00	.01	36.	*	2	0820	195	.00	.00	.00	0.
1	1550	96	.02	.00	.01	35.	*	2	0830	196	.00	.00	.00	0.
1	1600	97	.02	.00	.01	35.	*	2	0840	197	.00	.00	.00	0.
1	1610	98	.02	.00	.01	34.	*	2	0850	198	.00	.00	.00	0.
1	1620	99	.02	.00	.01	34.	*	2	0900	199	.00	.00	.00	0.
1	1630	100	.02	.00	.01	34.	*	2	0910	200	.00	.00	.00	0.
							*							

****

TOTAL RAINFALL = 3.85, TOTAL LOSS = 1.77, TOTAL EXCESS = 2.08

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.17-HR
716.	12.17	(CFS)	127.	39.	28.	28.
		(INCHES)	1.682	2.075	2.075	2.075
		(AC-FT)	63.	77.	77.	77.

CUMULATIVE AREA = .70 SQ MI

*** ***

```
            **************
            *            *
181 KK      *     NDIV   *
            *            *
            **************

182 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

    DT          DIVERSION
                      ISTAD       EXIT  DIVERSION HYDROGRAPH IDENTIFICATION
```

```
D                INFLOW          .00   1218.00   5000.00   1000[illegible]0

DQ        DIVERTED FLOW          .00       .00   3782.00   8732.00

                                                                 ***

 ***            ***            ***            ***            ***

                    DIVERSION HYDROGRAPH     EXIT

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR      33.17-HR
    0.         .17        (CFS)      0.          0.          0.          0.
                        (INCHES)    .000        .000        .000        .000
                         (AC-FT)     0.          0.          0.          0.

                    CUMULATIVE AREA =    1.15 SQ MI

 ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION     NDIV

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR      33.17-HR
   537.      12.50        (CFS)    190.         64.         46.         46.
                        (INCHES)   1.539       2.060       2.061       2.061
                         (AC-FT)    94.        126.        126.        126.

                    CUMULATIVE AREA =    1.15 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO     1462.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 274 KK     *       PLD  *      CONCENTRATION PT. AT POWERLINE DAM
            *            *
            **************

 276 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
```

277 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS COMBINE

***

*** *** *** *** ***

HYDROGRAPH AT STATION PLD

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	33.17-HR
14018.	13.67	(CFS)	7276.	2315.	1675.	1675.
		(INCHES)	1.437	1.829	1.829	1.829
		(AC-FT)	3608.	4591.	4592.	4592.

CUMULATIVE AREA = 47.07 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	15	1890.	12.00	295.	91.	66.	1.76		
ROUTED TO	R15	1886.	12.17	295.	91.	66.	1.76		
HYDROGRAPH AT	14	1280.	12.00	179.	55.	40.	1.11		
HYDROGRAPH AT	16	1979.	12.17	391.	121.	87.	2.16		
3 COMBINED AT	114	4890.	12.17	865.	266.	193.	5.03		
ROUTED TO	R114	4521.	12.33	865.	266.	193.	5.03		
HYDROGRAPH AT	13	1922.	12.00	242.	75.	54.	1.29		
2 COMBINED AT	113	5124.	12.33	1106.	341.	247.	6.32		
ROUTED TO	R113	4890.	12.50	1106.	341.	247.	6.32		
HYDROGRAPH AT	12	1646.	12.17	275.	86.	62.	1.32		
2 COMBINED AT	112	5838.	12.33	1379.	427.	309.	7.64		
ROUTED TO	R112	5795.	12.50	1379.	427.	309.	7.64		
HYDROGRAPH AT	11	1040.	12.00	161.	50.	37.	.70		
HYDROGRAPH AT	17	447.	12.00	60.	18.	13.	.37		
HYDROGRAPH AT	10	647.	12.00	87.	27.	19.	.54		
4 COMBINED AT	111	6621.	12.33	1684.	522.	378.	9.25		
DIVERSION TO	APACHE	6621.	12.33	1684.	522.	378.	9.25		
HYDROGRAPH AT	RT80	0.	12.33	0.	0.	0.	9.25		
ROUTED TO	RD111	0.	13.00	0.	0.	0.	9.25		
HYDROGRAPH AT	2A	1227.	12.17	197.	61.	44.	1.09		
2 COMBINED AT	CP2A	1227.	12.17	197.	61.	44.	10.34		
DIVERSION TO	FLOW	0.	12.17	0.	0.	0.	10.34		
HYDROGRAPH AT	DIVERT	1227.	12.17	197.	61.	44.	10.34		
ROUTED TO	RR2A	1000.	12.50	197.	61.	44.	10.34		
HYDROGRAPH AT	2BE	957.	12.33	220.	68.	49.	1.22		
2 COMBINED AT	102B	1894.	12.50	418.	129.	93.	11.56		
ROUTED TO	DET2BE	1298.	12.83	414.	129.	93.	11.56	1642.90	12.83
DIVERSION TO	SPILL	0.	12.83	0.	0.	0.	11.56		

HYDROGRAPH AT	FRWAY	1298.	12.83	414.	129.	93.	11.56		
ROUTED TO	CHAN	1288.	12.83	413.	129.	93.	11.56		
ROUTED TO	WASH	1180.	13.33	412.	129.	93.	11.56		
HYDROGRAPH AT	RSPILL	0.	.17	0.	0.	0.	.00		
ROUTED TO	IDAHO	0.	.17	0.	0.	0.	.00		
2 COMBINED AT	WW	1180.	13.33	412.	129.	93.	11.56		
ROUTED TO	RWW	1051.	14.50	410.	128.	93.	11.56		
HYDROGRAPH AT	2BWW	387.	12.33	81.	25.	18.	.45		
HYDROGRAPH AT	2BWE	716.	12.17	127.	39.	28.	.70		
ROUTED TO	DET2BW	300.	12.67	111.	39.	28.	.70	1630.74	12.67
2 COMBINED AT	C004	537.	12.50	190.	64.	46.	1.15		
DIVERSION TO	EXIT	0.	12.50	0.	0.	0.	1.15		
HYDROGRAPH AT	NDIV	537.	12.50	190.	64.	46.	1.15		
ROUTED TO	NDROUT	530.	12.67	190.	64.	46.	1.15	1626.87	12.67
ROUTED TO	R2BW	506.	13.00	190.	64.	46.	1.15		
HYDROGRAPH AT	2BS	1724.	12.17	320.	99.	71.	1.91		
3 COMBINED AT	102	1841.	12.17	891.	291.	210.	14.62		
HYDROGRAPH AT	5	3882.	12.67	1134.	353.	256.	5.65		
ROUTED TO	R5	3907.	12.67	1134.	353.	256.	5.65		
HYDROGRAPH AT	4	5614.	13.17	2433.	768.	556.	11.85		
2 COMBINED AT	104	8660.	12.83	3564.	1121.	811.	17.50		
ROUTED TO	R104	8251.	13.50	3558.	1121.	811.	17.50		
HYDROGRAPH AT	7	727.	12.17	127.	40.	29.	.61		
HYDROGRAPH AT	6	3788.	13.00	1459.	456.	330.	7.86		
3 COMBINED AT	106	11740.	13.33	5127.	1617.	1170.	25.97		
ROUTED TO	R106	11406.	13.67	5120.	1617.	1170.	25.97		
HYDROGRAPH AT	3N	2763.	12.33	582.	181.	131.	2.89		
ROUTED TO	CULV	2537.	12.33	582.	181.	131.	2.89	1668.66	12.33
ROUTED TO	RCULV	2246.	12.83	581.	181.	131.	2.89		
HYDROGRAPH AT	3S	2227.	12.33	481.	149.	108.	2.39		
2 COMBINED AT	103	3399.	12.67	1061.	330.	239.	5.28		

HYDROGRAPH AT	3A	1197.	12.33	250.	78.	56.	1.20		
2 COMBINED AT	CP103	4327.	12.50	1311.	408.	295.	6.48		
2 COMBINED AT	W103	13110.	13.50	6394.	2024.	1465.	32.45		
ROUTED TO	RW103	13027.	13.67	6388.	2024.	1465.	32.45		
2 COMBINED AT	PLD	14018.	13.67	7276.	2315.	1675.	47.07		
ROUTED TO	RES	641.	25.33	540.	264.	209.	47.07	1583.66	25.33

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1636.00	1650.00	1650.00
STORAGE	0.	153.	153.
OUTFLOW	0.	3534.	3534.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1642.90	.00	57.	1298.	.00	12.83	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BW

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1623.50	1630.00	1630.00
STORAGE	0.	28.	28.
OUTFLOW	0.	135.	135.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1630.74	.74	31.	300.	1.00	12.67	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1622.60	1630.00	1630.00
STORAGE	0.	25.	25.
OUTFLOW	0.	1111.	1111.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1626.87	.00	2.	530.	.00	12.67	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	22040.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1583.66	.00	4379.	641.	.00	25.33	.00

```
*** NORMAL END OF HEC-1 ***
STOP
)
)
END OF FILE
AOS/VS CLI   TERMINATING          5-JAN-89        9:57:27

PROCESS 81 TERMINATED

ELAPSED TIME  0:01:08, CPU TIME  00:00:00.088, I/O BLOCKS  56
(OTHER JOBS, SAME USERNAME:
    NUMBER OF CONSOLE JOBS, 1
    NUMBER OF BATCH JOBS, 0)
USER 'HYD.WSM' LOGGED OFF         5-JAN-89        9:57:26

****
*LIST FILE EMPTY, WILL NOT BE PRINTED
****
```

Appendix O

Alternative F :

Diversion of All Flows at Apache Trail (Rt. 80)
to Apache F.R.S. (PMF)

```
$   $  $   $  $$$$          $   $   $$$   $   $
$   $  $   $  $   $         $   $  $   $  $$ $$
$   $   $ $   $   $         $   $  $      $ $ $
$$$$$    $    $   $         $ $ $   $$$   $ $ $
$   $    $    $   $         $ $ $      $  $   $
$   $    $    $   $    $$   $$ $$  $   $  $   $
$   $    $    $$$$     $$   $   $   $$$   $   $

 DEST=HYD.WSM  USER=HYD.WSM  QUEUE=LPT  DEVICE=@LPB
SEQ=423  QPRI=128  CPL=132  LPP=66  COPIES=1  PAGES=76

          CREATED:  05-JAN-89  10:03:36
         ENQUEUED:  05-JAN-89  10:11:04
         PRINTING:  05-JAN-89  10:12:43

PATH=:SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:ALTF.OUT

  $    $      $$$$$  $$$$$          $$$   $   $  $$$$$
 $ $   $        $    $             $   $  $   $    $
$   $  $        $    $             $   $  $   $    $
$   $  $        $    $$$$          $   $  $   $    $
$$$$$  $        $    $             $   $  $   $    $
$   $  $        $    $        $$   $   $  $   $    $
$   $  $$$$$    $    $        $$    $$$    $$$     $
```

AOS/VS REV 7.62.00.00

AOS/VS REVISION 7.62.00.00
AOS/VS XLPT-32 REVISION 7.62.00.00

```
****[illegible]/VS REV 7.62.00.00 / BATCH OUTPUT FILE ****

AOS/VS 7.62.00.00 / EXEC-32 7.62.00.00    5-JAN-89        10:03:38
QPRI=128          SEQ=419
INPUT FILE -- :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:?48.CLI.00003.JOB (WILL BE DELETED AFTER PROCESSIN
LIST FILE  --:QUEUE:HYD.WSM.LIST.419

--------
LAST MESSAGE CHANGE      17-NOV-88        14:55:52

--------
MOST RECENT LOGON        5-JAN-89         9:56:18

AOS/VS CLI    REV 07.62.00.00      5-JAN-89        10:03:40
) SEARCHLIST :UTIL,:MACROS,:UDD:HYD.WSM,:UDD:OP,:PER,:
) DIRECTORY :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR
) DEFACL HYD.WSM,OWARE
)
) LISTFILE ALTF.OUT
) DATAFILE ALTF.DAT
) SEA :UTIL:HEC1.DIR,[!SEA]
) X HEC1_START
```

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 31 JAN 85           *
*                                       *
*  RUN DATE 1/ 5/1989   TIME10: 3:41 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285   *
*                                       *
*****************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX        XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE. THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THE VERSION RELEASED 31JAN85 CONTAINS NEW OPTIONS ON RL AND BA RECORDS, AND ADDS THE HL RECORD. SEE JANUARY 1985 INPUT DESCRIPTION FOR NEW DEFINITIONS.

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID      WEEKES WASH - POWERLINE F.R.S  ANALYSIS
  2           ID      CONVERSION OF MODEL FROM TR-20
  3           ID                    1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
  4           ID                    DEVELOPMENT, MUSKINGUM ROUTING
  5           ID      ALTERNATIVE F : DIVERSION OF ALL FLOWS AT APACHE TRAIL (RT. 80)
  6           ID         CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
  7           ID                          POINT OF WEEKES WASH AT JUNCTION ROAD.
  8           ID                       2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
  9           ID                          AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
 10           ID                          LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
 11           ID                       3: SUPERSTITION FREEWAY IN PLACE.
 12           ID                       4: ADJUSTED WATERSHED AREAS.
 13           ID                       5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
 14           ID                       6: NO MODIFICATIONS TO POWERLINE F.R.S.
 15           IT       10        0        0      400
 16           IO        5
 17           JR     FLOW       .5      1.0

 18           KK       15  WATERSHED 15
 19           KM       HYDROGRAPH FOR WATERSHED 15
 20           PB    11.08
 21           IN       60
 22           PI      .47      .81     7.02     1.71     0.75      .32
 23           BA     1.76
 24           LS        0       80
 25           UD      .18

 26           KK      R15 ROUTE HYDROGRAPH FROM WS 15
 27           KM      ROUTE HYDROGRAPH FROM WATERSHED 15
 28           RM        1      .11       .3

 29           KK       14 WATERSHED 14
 30           KM      HYDROGRAPH FOR WATERSHED 14
 31           BA     1.11
 32           LS        0       79
 33           UD      .15

 34           KK       16 WATERSHED 16
 35           KM      HYDROGRAPH FOR WATERSHED 16
 36           BA     2.16
 37           LS        0       82
 38           UD      .35

 39           KK      114 CONCENTRATION PT. 114 (INCLUDES WATERSHEDS 14, 15, & 16)
 40           KM      COMBINE ALL THREE HYDROGRAPHS AT CP 114
 41           HC        3

 42           KK     R114 ROUTE CP 114
 43           KM      ROUTE HYDROGRAPH FROM CP114 TO CP 113
 44           RM        1      .17       .3
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 45           KK      13 WATERSHED 13
 46           KM     HYDROGRAPH FOR WATERSHED 13
 47           BA    1.29
 48           LS       0       83
 49           UD    .126

 50           KK     113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
 51           KM     COMBINE HYDROGRAPHS CP 114 AND WS 13
 52           HC       2

 53           KK    R113 ROUTE CP 113 TO CP 112
 54           KM     ROUTE HYDROGRAPH FOR CP 113
 55           RM       1      .19       .3

 56           KK      12 WATERSHED 12
 57           KM     HYDROGRAPH FOR WATERSHED 12
 58           BA    1.32
 59           LS       0       86
 60           UD     .27

 61           KK     112 CONCENTRATION PT. 112 FOR HYDROGRAPHS FROM CP 113 AND WS 12.
 62           KM     COMBINE HYDROGRAPH FROM CP 113 AND WS 12
 63           HC       2

 64           KK    R112 ROUTE CP 112 TO CP 111
 65           KM     ROUTE HYDROGRAPH CP 112 TO CP 111
 66           RM       1      .07       .3

 67           KK      11 WATERSHED 11
 68           KM     HYDROGRAPH FOR WATERSHED 11
 69           BA     .70
 70           LS       0       89
 71           UD    .186

 72           KK      17 WATERSHED 17
 73           KM     HYDROGRAPH FOR WATERSHED 17
 74           BA     .37
 75           LS       0       79
 76           UD    .138

 77           KK      10   WATERSHED 10
 78           KM     HYDROGRAPH FOR WATERSHED 10
 79           BA     .54
 80           LS       0       79
 81           UD     .14

 82           KK     111 CONCENTRATION PT. 111
 83           KM     COMBINE HYDROGRAPHS FROM CP 112, WS 11, AND WS 17
 84           HC       4
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 85           KK    RT80
 86           KM    DIVERT ALL FLOWS AT APACHE TRAIL (RT. 80) TO APACHE F.R.S.
 87           KO       3
 88           DT  APACHE
 89           DI       0   10000   20000
 90           DQ       0   10000   20000

 91           KK      2A  WATERSHED 2A
 92           KM      HYDROGRAPH FOR WATERSHED 2A
 93           BA    1.09
 94           LS       0      82
 95           UD     .22

 96           KK    CP2A  CONCENTRATION POINT 2A
 97           KM    COMBINE ROUTED HYDROGRAPH FROM CP 111 AND WATERSHED 2A.
 98           HC       2

 99           KK    FLOW    POINT OF DIVERSION FOR WEEKES WASH
100           KO       3
101           DT  DIVERT
102           DI       0    6500    7000    9000   10000   15000
103           DQ       0       0     260    1300    1880    4600

104           KK    RR2A ROUTE REMAINING HYDROGRAPH TO SUPERSTITION FREWAY
105           KM     ROUTE THE REMAINING HYDROGRAPH TO DETENTION NORTH OF SUPERSTITION FREEWAY
106           RM       2     .42      .3

107           KK     2BE WATERSHED 2B EAST
108           KM     HYDROGRAPH FOR WATERSHED 2B EAST
109           BA    1.22
110           LS       0      82
111           UD     .48

112           KK    102B  CONCENTRATION POINT NORTH OF FREEWAY
113           KM     CONCENTRATION POINT NORTH OF SUPERSTITION FREEWAY AT DETENTION AREA
114           HC       2

115           KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
116           KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
117           KM      PRINCIPLE OUTLET IS 2-12 X 12 (FOOT) BOX CULVERTS
118           KM      INVERT IS AT 1636; EMERGENCY SPILLWAY CREST IS AT 1650.
119           RS       1    ELEV    1636
120           SV       0     6.0    13.0    29.0    47.0    69.0    93.0   122.0   153.0   184.0
121           SV     217     239
122           SE    1636    1637    1638    1640    1642    1644    1646    1648    1650    1652
123           SE    1654    1655
124           SQ       0      22     194     584    1050    1604    2236    2900    3534    4108
125           SQ    4622    4860
126           ST    1650     320     2.2     1.5
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 127          KK   FRWAY
 128          KM    DIVERT ALL FLOWS FROM EMERGENCY SPILLWAY
 129          DT   SPILL
 130          DI       0    3665    5000   10000   15000
 131          DQ       0       0    1335    6335   11335

 132          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
 133          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
 134          RM       1      .1      .3

 135          KK    WASH   ROUTE FLOWS THROUGH THE WASH
 136          KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
 137          RM       2     .50      .3

 138          KK  RSPILL
 139          KM    RETRIEVE FLOW DIVERTED FROM THE EMERGENCY SPILLWAY
 140          DR   SPILL

 141          KK   IDAHO
 142          KM    ROUTE THE RETRIEVED FLOW DOWN IDAHO RD.
 143          RM       1      .1      .3

 144          KK      WW
 145          KM     COMBINE ALL FLOWS FROM FREEWAY
 146          HC       2

 147          KK     RWW
 148          KM     ROUTE FLOWS TO POWERLINE F.R.S.
 149          RM       4     .98      .3

 150          KK    2BWW  WATERSHED 2B WEST, WEST
 151          KM      HYDROGRAPH FOR WATERSHED 2B WEST, WEST
 152          BA     .45
 153          LS       0      82
 154          UD      .4

 155          KK    2BWE  WATERSHED 2B WEST, EAST
 156          KM     RUNOFF FROM EAST OF IDAHO ROAD 2B WEST, EAST
 157          BA     .70
 158          LS       0      82
 159          UD      .3

 160          KK    16BW  ROUTE THROUGH THE DETENTION NORTH OF THE FREEWAY  (N. DIVERSION DAM)
 161          KM      ROUTE FLOWS THROUGH THE DETENTION NORTH OF THE SUPERSTITION FREEWAY
 162          RS       1    ELEV  1623.5
 163          SV       0      .6     8.3    17.5    28.2    36.0    48.6
 164          SE  1623.5  1624.0  1626.0  1628.0  1630.0  1632.0  1634.0
 165          SQ       0       0      31      93     135     169     208
 166          ST  1630.0     110     2.2     1.5
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 167          KK    CC04  COMBINE FLOWS JUST NORTH OF FREEWAY
 168          KM    COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
 169          HC       2

 170          KK    NDIV
 171          KM    DIVERSION OF FLOW OVER THE NORTH DIVERSION DAM.
 172          KO       3
 173          DT    EXIT
 174          DI       0    1218    5C00   10000
 175          DQ       0       0    3782    8782

 176          KK  NDROUT  ROUTE THROUGH THE FREEWAY
 177          KM    ROUTE COMBINED FLOW THROUGH 2 - 10  X 8  BOX CULVERTS
 178          RS       1    ELEV  1622.6
 179          SV       0    0.02    0.16    1.12    4.17   25.42
 180          SE  1622.6  1623.0  1624.0  1626.0  1628.0  1630.0
 181          SQ       0       0     101     372     738    1111
 182          ST  163C.0    2875     2.2     1.5

 183          KK    R2BW  ROUTE TO CP102
 184          KM     ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
 185          RM       2     .40      .3

 186          KK     2BS  WATERSHED 2B SOUTH OF SUPERTITION FREEWAY
 187          KM     HYDROGRAPH FOR WATERSHED 2B SOUTH
 188          BA    1.91
 189          LS       0      80
 190          UD     .32

 191          KK     102 CONCENTRATION PT. 102, WEEKES WASH WATERSHED AT POWERLINE FRS.
 192          KM     COMBINE HYDROGRAPHS FROM CP D111 AND WS 2 (WE ARE NOW AT POWERLINE DAM)
 193          HC       3

 194          KK       5 WATERSHED 5 ( BEGINNING OF SIPHON DRAW WATERSHED)
 195          KM     HYDROGRAPH FOR WS 5 (BEGINNING OF THE WATERSHED FOR SIPHON DRAW TO THE DAM)
 196          BA    5.65
 197          LS       0      85
 198          UD     .71

 199          KK      R5 ROUTE HYDROGRAPH FROM WS 5 TO CP 104
 200          KM      ROUTE HYDROGRAPH FOR WS 5 TO CP 104
 201          RM       1     .07      .3

 202          KK       4 WATERSHED 4
 203          KM      HYDROGRAPH FOR WATERSHED 4
 204          BA   11.85
 205          LS       0      86
 206          UD    1.30
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 207          KK     104  CONCENTRATION POINT 104
 208          KM     COMBINE HYDROGRAPHS AT CP 104
 209          HC       2

 210          KK    R104
 211          KM    ROUTE CP 104 TO 106
 212          RM       2     .50      .3

 213          KK       7  WATERSHED 7
 214          KM    HYDROGRAPH FOR WATERSHED 7
 215          BA     .61
 216          LS       0      86
 217          UD      .3

 218          KK       6 WATERSHED 6
 219          KM      HYDROGRAPH FOR WATERSHED 6
 220          BA    7.86
 221          LS       0      83
 222          UD    1.08

 223          KK     106 CONCENTRATION PT. 106, HYDROGRAPHS FROM R 5, WS 4, & WS 6
 224          KM      COMBINE HYDROGRAPHS FROM R5, WS 4, AND WS 6
 225          HC       3

 226          KK    R106 ROUTE THE HYDROGRAPH FROM CP 106 TO WHERE NEXT WASH ENTERS.
 227          KM      ROUTE HYDROGRAPH FROM CP 104 TO WHERE OTHER WASH ENTERS
 228          RM       1     .27      .3

 229          KK      3N WATERSHED 3N
 230          KM      HYDROGRAPH FOR WATERSHED 3N
 231          BA    2.89
 232          LS       0      85
 233          UD     .41

 234          KK    CULV   ROUTE FLOWS THROUGH CULVERTS
 235          KM     ROUTE FLOWS THROUGH THE CULVERTS
 236          RS     1.0    ELEV    1665
 237          SV       0     .15     .60     1.5     3.1     5.6     9.1    13.7   19.45   26.35
 238          SE    1665  1665.5    1666  1666.5    1667  1667.5    1668  1668.5    1669  1669.5
 239          SQ       0     119     375     688    1063    1462    1938    2375    2875    3375

 240          KK   RCULV  ROUTE FLOWS TO W103
 241          KM     ROUTE THE FLOWS TO CONCENTRATION POINT W103
 242          RM       2      .5      .3

 243          KK      3S  WATERSHED 3 SOUTH
 244          KM      HYDROGRAPH FOR WATERSHED 3 SOUTH
 245          BA    2.39
 246          LS       0      85
 247          UD    .436
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 248          KK     103
 249          HC       2

 250          KK      3A   WATERSHED 3A
 251          KM     HYDROGRAPH FOR WATERSHED 3A
 252          BA    1.20
 253          LS       0       86
 254          UD      .4

 255          KK   CP103
 256          KM     CONCENTRATION POINT FOR WEST FORK OF SIPHON DRAW
 257          HC       2

 258          KK    W103 CONCTRATION PT. W103 WHERE UNNAMED WASH ENTERS.
 259          KM      COMBINE HYDROGRAPHS FROM CP 104 AND WS 3 - SIPHON DRAW WATERSHED
 260          HC       2

 261          KK   RW103 ROUTE RESULTING HYDROGRAPH TO POWELINE DAM STRUCTURE
 262          KM      ROUTE THE HYDROGRAPH TO POWERLINE DAM
 263          RM       1     .16      .3

 264          KK     PLD CONCENTRATION PT. AT POWERLINE DAM
 265          KM     COMBINE HYDROGRAPHS FROM WEEKES WASH SUB-BASIN AND SIPHON DRAW SUB-BASIN
 266          KO       3
 267          HC       2

 268          KK     RES RESERVOIR ROUTING THROUGH THE STRUCTURE
 269          KM     RESERVOIR RATING CURVE
 270          RS       1    ELEV  1568.2
 271          SV       0     175     380     700    1100    1600    2175    2875    3675    4200
 272          SV    4600    5525    6725    7925
 273          SQ       0      75      92     106     119     130     141     150     159     165
 274          SQ    1228    7360   16800   27280
 275          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
 276          SE  1584.1  1586.1  1588.1  1590.1
 277          SS  1583.3       0       0       0
 278          ST  1589.1   13358     2.2     1.5
 279          ZZ
```

```
*****************************************
*                                       *
*   FLO HYDROGRAPH PACKAGE  (HEC-1)     *
*            FEBRUARY 1981              *
*          REVISED 31 JAN 85            *
*                                       *
*  RUN DATE 1/ 5/1989   TIME10: 3:52 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*  (916) 440-3285 OR (FTS) 448-3285     *
*                                       *
*****************************************
```

```
                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                1/2 PMF, & FULL PMF ;SCS EXCESS & HYDROGRAPH
                                DEVELOPMENT, MUSKINGUM ROUTING
                    ALTERNATIVE F : DIVERSION OF ALL FLOWS AT APACHE TRAIL (RT. 80)
                       CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION ROAD.
                                     2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     3: SUPERSTITION FREEWAY IN PLACE.
                                     4: ADJUSTED WATERSHED AREAS.
                                     5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
                                     6: NO MODIFICATIONS TO POWERLINE F.R.S.

 16 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                       NMIN          10  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         400  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3    0  ENDING DATE
                     NDTIME       1830  ENDING TIME

                  COMPUTATION INTERVAL      .17 HOURS
                       TOTAL TIME BASE   66.50 HOURS

         ENGLISH UNITS
              DRAINAGE AREA          SQUARE MILES
              PRECIPITATION DEPTH    INCHES
              LENGTH, ELEVATION      FEET
              FLOW                   CUBIC FEET PER SECOND
              STORAGE VOLUME         ACRE-FEET
              SURFACE AREA           ACRES
              TEMPERATURE            DEGREES FAHRENHEIT

    JP          MULTI-PLAN OPTION
                      NPLAN           1  NUMBER OF PLANS

    JR          MULTI-RATIO OPTION
                    RATIOS OF RUNOFF
                    .50      1.00

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
```

```
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
  85 KK     *      RT80  *
            *            *
            **************

  87 KO          OUTPUT CONTROL VARIABLES
                       IPRNT            3  PRINT CONTROL
                       IPLOT            0  PLOT CONTROL
                       QSCAL           0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSION
                       ISTAD      APACHE  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLOW         .00  10000.00  20000.00

     DQ       DIVERTED FLOW        .00  10000.00  20000.00

                                                          ***

      ***            ***            ***            ***            ***

                        DIVERSION HYDROGRAPH   APACHE
                          FOR PLAN 1, RATIO =  .50

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
   15971.      3.17        (CFS)     4396.       1100.       397.        397.
                         (INCHES)    4.419       4.423      4.423       4.423
                          (AC-FT)    2180.       2182.      2182.       2182.

                        CUMULATIVE AREA =    9.25 SQ MI

      ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION     RT80
                          FOR PLAN 1, RATIO =  .50

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     66.50-HR
      0.        .17        (CFS)       0.          0.          0.          0.
                         (INCHES)     .000        .000        .000        .000
                          (AC-FT)       0.          0.          0.          0.
```

```
                    CUMULATIVE AREA =     9.25 SQ MI

     ***              ***              ***              ***              ***

                      DIVERSICN HYDROGRAPH   APACHE
                        FOR PLAN 1, RATIO = 1.00

 PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                    6-HR        24-HR        72-HR      66.50-HR
   31942.       3.17        (CFS)       8792.        2200.         794.         794.
                          (INCHES)      8.837        8.845        8.845        8.845
                           (AC-FT)      4360.        4364.        4364.        4364.

                    CUMULATIVE AREA =     9.25 SQ MI

     ***              ***              ***              ***              ***

                      HYDROGRAPH AT STATION      RT80
                        FOR PLAN 1, RATIO = 1.00

 PEAK FLOW      TIME                            MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                    6-HR        24-HR        72-HR      66.50-HR
       0.       3.17        (CFS)         0.           0.           0.           0.
                          (INCHES)      .000         .000         .000         .000
                           (AC-FT)        0.           0.           0.           0.

                    CUMULATIVE AREA =     9.25 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  99 KK     *      FLOW  *          POINT OF DIVERSION FOR WEEKES WASH
            *            *
            **************

 100 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            3  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE

     DT          DIVERSICN
                      ISTAD       DIVERT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI             INFLCW          .00   6500.00   7000.00   9000.00  10000.00  15000.00

     DQ       DIVERTED FLCW         .00       .00    260.00   1300.00   1880.00   4600.00

                                                                  ***

     ***              ***              ***              ***              ***

                      DIVERSION HYDROGRAPH   DIVERT
                        FOR PLAN 1, RATIO =  .50
```

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
0.	.17	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 10.34 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION FLOW
FOR PLAN 1, RATIO = .50

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
2236.	3.00	(CFS)	517.	129.	47.	47.
		(INCHES)	.465	.465	.465	.465
		(AC-FT)	256.	256.	256.	256.

CUMULATIVE AREA = 10.34 SQ MI

*** *** *** *** ***

DIVERSICN HYDROGRAPH DIVERT
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
0.	.17	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 10.34 SQ MI

*** *** *** *** ***

HYDROGRAPH AT STATION FLOW
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
4471.	3.00	(CFS)	1034.	259.	93.	93.
		(INCHES)	.930	.930	.930	.930
		(AC-FT)	513.	513.	513.	513.

CUMULATIVE AREA = 10.34 SQ MI

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** ***

```
                **************
                *            *
170 KK          *     NDIV   *
                *            *
                **************

172 KO            OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

    DT            DIVERSION
                        ISTAD       EXIT  DIVERSION HYDROGRAPH IDENTIFICATION

    DI              INFLOW         .00   1218.00   5000.00  10000.00

    DQ       DIVERTED FLOW         .00       .00   3782.00   8782.00

                                                                  ***

     ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH     EXIT
                          FOR PLAN 1, RATIO =  .50

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR        72-HR      66.50-HR
   927.       3.17        (CFS)        87.          22.           8.           8.
                        (INCHES)      .705         .705         .705         .705
                         (AC-FT)       43.          43.          43.          43.

                        CUMULATIVE AREA =    1.15 SQ MI

     ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     NDIV
                          FOR PLAN 1, RATIO =  .50

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR        72-HR      66.50-HR
  1218.       2.83        (CFS)       431.         114.          41.          41.
                        (INCHES)     3.483        3.696        3.698        3.698
                         (AC-FT)      214.         227.         227.         227.

                        CUMULATIVE AREA =    1.15 SQ MI

     ***             ***             ***             ***             ***

                        DIVERSION HYDROGRAPH     EXIT
                          FOR PLAN 1, RATIO = 1.00

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR        72-HR      66.50-HR
  3105.       3.17        (CFS)       450.         112.          41.          41.
                        (INCHES)     3.635        3.635        3.635        3.635
                         (AC-FT)      223.         223.         223.         223.

                        CUMULATIVE AREA =    1.15 SQ MI

     ***             ***             ***             ***             ***
```

```
                    HYDROGRAPH AT STATION      NDIV
                      FOR PLAN 1, RATIO = 1.00

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR       24-HR       72-HR     66.50-HR
   1218.        2.67        (CFS)      607.        160.         58.          58.
                         (INCHES)     4.911       5.180       5.182        5.182
                          (AC-FT)      301.        318.        318.         318.

                          CUMULATIVE AREA =    1.15 SQ MI


WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO     1462.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 264 KK     *     PLD    *      CONCENTRATION PT. AT POWERLINE DAM
            *            *
            **************

 266 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

 267 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

     ***             ***             ***             ***             ***

                    HYDROGRAPH AT STATION      PLD
                      FOR PLAN 1, RATIO =  .50

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR       24-HR       72-HR     66.50-HR
   36247.       4.33        (CFS)    18078.       4623.       1668.        1668.
                         (INCHES)     3.571       3.653       3.653        3.653
                          (AC-FT)     8964.       9170.       9170.        9170.

                          CUMULATIVE AREA =   47.07 SQ MI

     ***             ***             ***             ***             ***
```

HYDROGRAPH AT STATION PLD
FOR PLAN 1, RATIO = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	66.50-HR
74241.	4.33	(CFS)	35916.	9178.	3312.	3312.
		(INCHES)	7.094	7.251	7.251	7.251
		(AC-FT)	17810.	18204.	18204.	18204.

CUMULATIVE AREA = 47.07 SQ MI

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO FLOWS RATIO 1 .50	RATIO 2 1.00
HYDROGRAPH AT	15	1.76	1	FLOW	3601.	7203.
				TIME	3.00	3.00
ROUTED TO	R15	1.76	1	FLOW	3502.	7003.
				TIME	3.00	3.00
HYDROGRAPH AT	14	1.11	1	FLOW	2274.	4548.
				TIME	3.00	3.00
HYDROGRAPH AT	16	2.16	1	FLOW	4079.	8157.
				TIME	3.00	3.00
3 COMBINED AT	114	5.03	1	FLOW	9855.	19709.
				TIME	3.00	3.00
ROUTED TO	R114	5.03	1	FLOW	9562.	19125.
				TIME	3.17	3.17
HYDROGRAPH AT	13	1.29	1	FLOW	2748.	5495.
				TIME	3.00	3.00
2 COMBINED AT	113	6.32	1	FLOW	11803.	23606.
				TIME	3.00	3.00
ROUTED TO	R113	6.32	1	FLOW	11365.	22730.
				TIME	3.17	3.17
HYDROGRAPH AT	12	1.32	1	FLOW	2743.	5485.
				TIME	3.00	3.00
2 COMBINED AT	112	7.64	1	FLOW	13857.	27714.
				TIME	3.17	3.17
ROUTED TO	R112	7.64	1	FLOW	13590.	27181.
				TIME	3.17	3.17
HYDROGRAPH AT	11	.70	1	FLOW	1531.	3061.
				TIME	3.00	3.00
HYDROGRAPH AT	17	.37	1	FLOW	761.	1521.
				TIME	3.00	3.00
HYDROGRAPH AT	10	.54	1	FLOW	1109.	2219.
				TIME	3.00	3.00
4 COMBINED AT	111	9.25	1	FLOW	15971.	31942.
				TIME	3.17	3.17
DIVERSION TO	APACHE	9.25	1	FLOW	15971.	31942.
				TIME	3.17	3.17
HYDROGRAPH AT	RT80	9.25	1	FLOW	0.	0.

				TIME	.17	[illegible]
HYDROGRAPH AT	2A	1.09	1	FLOW	2236.	4471.
				TIME	3.00	3.00
2 COMBINED AT	CP2A	10.34	1	FLOW	2236.	4471.
				TIME	3.00	3.00
DIVERSION TO	DIVERT	10.34	1	FLOW	0.	0.
				TIME	.17	.17
HYDROGRAPH AT	FLOW	10.34	1	FLOW	2236.	4471.
				TIME	3.00	3.00
ROUTED TO	RR2A	10.34	1	FLOW	2081.	4163.
				TIME	3.33	3.33
HYDROGRAPH AT	2BE	1.22	1	FLOW	2150.	4299.
				TIME	3.17	3.17
2 COMBINED AT	1C2B	11.56	1	FLOW	4121.	8242.
				TIME	3.17	3.17
ROUTED TO	DET2BE	11.56	1	FLOW	3169.	8116.
				TIME	3.67	3.33
			** PEAK STAGES IN FEET **			
			1	STAGE	1648.85	1653.04
				TIME	3.67	3.33
DIVERSION TO	SPILL	11.56	1	FLOW	0.	4451.
				TIME	.17	3.33
HYDROGRAPH AT	FRWAY	11.56	1	FLOW	3169.	3665.
				TIME	3.67	3.00
ROUTED TO	CHAN	11.56	1	FLOW	3176.	3719.
				TIME	3.67	3.17
ROUTED TO	WASH	11.56	1	FLOW	3007.	3653.
				TIME	4.17	4.33
HYDROGRAPH AT	RSPILL	.00	1	FLOW	0.	4451.
				TIME	.17	3.33
ROUTED TO	IDAHO	.00	1	FLOW	0.	4353.
				TIME	.17	3.50
2 COMBINED AT	WW	11.56	1	FLOW	3007.	7251.
				TIME	4.17	3.50
ROUTED TO	RWW	11.56	1	FLOW	2761.	5615.
				TIME	5.17	4.50
HYDROGRAPH AT	2BWW	.45	1	FLOW	828.	1656.
				TIME	3.17	3.17
HYDROGRAPH AT	2BWE	.70	1	FLOW	1372.	2745.
				TIME	3.00	3.00
ROUTED TO	16BW	.70	1	FLOW	1317.	2667.
				TIME	3.17	3.17

			** PEAK STAGES IN FEET **			
			1	STAGE	1632.80	16[illegible]7
				TIME	3.17	3.17
2 COMBINED AT	CC04	1.15	1	FLOW	2145.	4323.
				TIME	3.17	3.17
DIVERSION TO	EXIT	1.15	1	FLOW	927.	3105.
				TIME	3.17	3.17
HYDROGRAPH AT	NDIV	1.15	1	FLOW	1218.	1218.
				TIME	2.83	2.67
ROUTED TO	NDROUT	1.15	1	FLOW	1070.	1218.
				TIME	3.67	3.83
			** PEAK STAGES IN FEET **			
			1	STAGE	1629.78	1630.06
				TIME	3.67	3.83
ROUTED TO	R2BW	1.15	1	FLOW	1049.	1210.
				TIME	4.00	4.33
HYDROGRAPH AT	2BS	1.91	1	FLOW	3600.	7200.
				TIME	3.00	3.00
3 COMBINED AT	102	14.62	1	FLOW	4189.	8093.
				TIME	3.17	4.50
HYDROGRAPH AT	5	5.65	1	FLOW	8877.	17753.
				TIME	3.33	3.33
ROUTED TO	R5	5.65	1	FLOW	8800.	17600.
				TIME	3.50	3.50
HYDROGRAPH AT	4	11.85	1	FLOW	13555.	27109.
				TIME	4.00	4.00
2 COMBINED AT	104	17.50	1	FLOW	20710.	41419.
				TIME	3.67	3.67
ROUTED TO	R104	17.50	1	FLOW	19890.	39781.
				TIME	4.17	4.17
HYDROGRAPH AT	7	.61	1	FLOW	1247.	2494.
				TIME	3.00	3.00
HYDROGRAPH AT	6	7.86	1	FLOW	9600.	19201.
				TIME	3.83	3.83
3 COMBINED AT	106	25.97	1	FLOW	28791.	57583.
				TIME	4.17	4.17
ROUTED TO	R106	25.97	1	FLOW	28308.	56615.
				TIME	4.33	4.33
HYDROGRAPH AT	3N	2.89	1	FLOW	5465.	10931.
				TIME	3.17	3.17
ROUTED TO	CULV	2.89	1	FLOW	5186.	10358.
				TIME	3.17	3.17
			** PEAK STAGES IN FEET **			

			1	STAGE	1671.31	167[illegible].48
				TIME	3.17	[illegible]7
ROUTED TO	RCULV	2.89	1	FLOW	4833.	9623.
				TIME	3.67	3.67
HYDROGRAPH AT	3S	2.39	1	FLOW	4469.	8939.
				TIME	3.17	3.17
2 COMBINED AT	103	5.28	1	FLOW	7872.	15586.
				TIME	3.33	3.33
HYDROGRAPH AT	3A	1.20	1	FLOW	2300.	4599.
				TIME	3.17	3.17
2 COMBINED AT	CP103	6.48	1	FLOW	9847.	19536.
				TIME	3.33	3.33
2 COMBINED AT	W103	32.45	1	FLOW	33359.	66720.
				TIME	4.17	4.17
ROUTED TO	RW103	32.45	1	FLOW	33166.	66343.
				TIME	4.33	4.33
2 COMBINED AT	PLD	47.07	1	FLOW	36247.	74241.
				TIME	4.33	4.33
ROUTED TO	RES	47.07	1	FLOW	15137.	65811.
				TIME	6.17	4.83

** PEAK STAGES IN FEET **

1	STAGE	1587.75	1590.28
	TIME	6.17	4.83

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1636.00	1650.00	1650.00
STORAGE	0.	153.	153.
OUTFLOW	0.	3534.	3534.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1648.85	.00	135.	3169.	.00	3.67	.00
1.00	1653.04	3.04	201.	8116.	1.33	3.33	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 16BW

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1623.50	1630.00	1630.00
STORAGE	0.	28.	28.
OUTFLOW	0.	135.	135.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1632.80	2.80	41.	1317.	3.00	3.17	.00
1.00	1634.67	4.67	53.	2667.	4.00	3.17	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1622.60	1630.00	1630.00
STORAGE	0.	25.	25.
OUTFLOW	0.	1111.	1111.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1629.78	.00	23.	1070.	.00	3.67	.00
1.00	1630.06	.06	26.	1218.	.83	3.83	.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	22040.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1587.75	.00	6514.	15137.	.00	6.17	.00
1.00	1590.28	1.18	8032.	65811.	2.50	4.83	.00

```
*** NORMAL END OF HEC-1 ***
STOP
)
)
END OF FILE
AOS/VS CLI   TERMINATING          5-JAN-89        10:04:36

PROCESS 65 TERMINATED

ELAPSED TIME  0:00:58, CPU TIME  00:00:00.089, I/O BLOCKS  55
(OTHER JOBS, SAME USERNAME:
    NUMBER OF CONSOLE JOBS, 1
    NUMBER OF BATCH JOBS, 0)
USER 'HYD.WSM' LOGGED OFF         5-JAN-89        10:04:36

****
*LIST FILE EMPTY, WILL NOT BE PRINTED
****
```

Appendix P

HEC-2 Output

Powerline F.R.S.
Emergency Spillway Rating Curve

```
$   $  $   $  $$$$          $   $   $$$   $   $
$   $  $   $  $   $         $   $  $   $  $$ $$
$   $   $ $   $   $         $   $  $      $ $ $
$$$$$    $    $   $         $ $ $   $$$   $ $ $
$   $    $    $   $         $ $ $       $  $   $
$   $    $    $   $    $$   $$ $$  $   $  $   $
$   $    $    $$$$     $$   $   $   $$$   $   $

DEST=HYD.WSM  USER=HYD.WSM  QUEUE=LPT  DEVICE=@LP8
SEQ=2101  QPRI=128  CPL=132  LPP=66  COPIES=1  PAGES=76

CREATED:  21-NOV-88  14:36:36
ENQUEUED:  18-JAN-89  07:57:04
PRINTING:  18-JAN-89  07:57:05

PATH=:SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:SPILL.OUT

 $$$   $$$$   $$$$$  $      $            $$$   $   $  $$$$$
$   $ $   $    $    $      $           $   $ $   $    $
$     $   $    $    $      $           $   $ $   $    $
 $$$  $$$$     $    $      $           $   $ $   $    $
    $ $        $    $      $           $   $ $   $    $
$   $ $        $    $      $       $$  $   $ $   $    $
 $$$  $      $$$$$ $$$$$  $$$$$   $$   $$$    $$$     $

AOS/VS REV 7.62.00.00

AOS/VS REVISION 7.62.00.00
AOS/VS XLPT-32 REVISION 7.62.00.00
```

```
AOS/VS 7.62.00.00 / EXEC-32 7.62.00.00  21-NOV-88          14:36:36
QPRI=128          SEQ=414
INPUT [illegible] -- :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES[illegible]:POWERLINE.DIR:?53.CLI.00001.JOB (WILL BE DELETED AFTE[illegible]ROCESSIN
LIST F[illegible] -- :QUEUE:HYD.WSM.LIST.414

--------
LAST MESSAGE CHANGE      17-NOV-88        14:55:52

                ***************          *******        ***********
                ************        ************        ***********
                ***                 ****      ***         ***     ***
               *******             ***                   ***     ***
              ******              ***                   ***     ***
             ***                 ***      ***         ***     ***
           ****                  ***********        ************
         ******                   *******         ************

--------
MOST RECENT LOGON        21-NOV-88        14:34:36

AOS/VS CLI    REV 07.62.00.00     21-NOV-88        14:36:39
) SEARCHLIST :UTIL/:MACROS/:UDD:HYD.WSM/:PER/:
) DIRECTORY :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR
) DEFACL HYD.WSM/OWARE
)
) LISTFILE SPILL.OUT
) DATAFILE SPILL.DAT
)
) X :UTIL:HEC2.NEW.DIR:MAIN.PR
```

```
*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1978                         *
```

```
*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
```

THE HYDROLOGIC ENGINEERING CENTER
609 SECOND STREET, SUITE D
DAVIS, CALIFORNIA 95616
(916) 440-2105 (FTS) 448-2105

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*************************************************
```

```
T1   POWERLINE F.R.S. SPILLWAY ANALYSIS
T2   BY MARICOPA COUNTY FCD  VALERIE RICE  JULY 11, 1988
T3       POWERLINE SPILLWAY

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       2.        0.        0.   .006030       .00       1.5        0.  1576.500     .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    1.000     .000    -1.000      .000      .000      .000      .000      .000      .000      .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

  150.000     .000      .000      .000      .000      .000      .000      .000      .000      .000

QT      8.000  1000.000  3000.000  6000.000  9000.000 13000.000 18000.000 23000.000 29000.000      .000
NC       .000     .000      .000      .100      .300      .000      .000      .000      .000      .000
NH      3.000     .022   700.000     .025  1300.000     .022  1301.300      .000      .000      .000
X1      1.000    4.000   698.700  1301.300      .000      .000      .000      .000      .000      .000
GR   1579.900  698.700  1575.900   700.000  1575.900  1300.000  1579.900  1301.300      .000      .000

NH      3.000     .022   700.000     .025  1300.000     .022  1301.400      .000      .000      .000
X1      2.000    4.000   698.600  1301.400   385.000   385.000   385.000      .000      .000      .000
GR   1582.500  698.600  1578.200   700.000  1578.200  1300.000  1582.500  1301.400      .000      .000

NH      3.000     .022   700.000     .025  1300.000     .022  1301.600      .000      .000      .000
X1      3.000    4.000   698.400  1301.600   500.000   500.000   500.000      .000      .000      .000
GR   1585.900  698.400  1581.200   700.000  1581.200  1300.000  1585.900  1301.600      .000      .000

NH      3.000     .022   700.000     .025  1300.000     .022  1301.600      .000      .000      .000
X1      4.000    4.000   698.400  1301.600   350.000   350.000   350.000      .000      .000      .000
GR   1588.200  698.400  1583.300   700.000  1583.300  1300.000  1588.200  1301.600      .000      .000

NH      3.000     .022   700.000     .025  1300.000     .022  1301.600      .000      .000      .000
X1      4.500     .000      .000      .000    50.000    50.000    50.000      .000      .000      .000

X1      4.700     .000      .000      .000    50.000    50.000    50.000      .000     -1.000      .000

NH      3.000     .022   700.000     .025  1300.000     .022  1302.000      .000      .000      .000
X1      5.000    4.000   698.000  1302.000   120.000    1.000    50.000      .000      .000      .000
GR   1588.300  698.000  1582.200   700.000  1582.200  1300.000  1588.300  1302.000      .000      .000
```

NH	[illegible].000	.022	700.000	.025	1300.000	[illegible].022	1302.100	.000	.000	.000
X1	[illegible].000	4.000	697.900	1302.100	430.000	250.000	80.000	.000	.000	.000
GR	1588.400	697.900	1582.200	700.000	1582.200	1300.000	1588.400	1302.100	.000	.000
NH	3.000	.025	700.000	.025	1300.000	.022	1302.100	.000	.000	.000
X1	7.000	4.000	697.900	1302.100	550.000	310.000	100.000	.000	.000	.000
GR	1588.600	697.900	1582.200	700.000	1582.200	1300.000	1588.600	1302.100	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

```
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        [illegible]       OLOSS    BANK ELEV
   Q          GLOB      CCH       CRCB      ALOB      ACH       AROB      [illegible]OL     TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
     1.00       .55  1576.45       .00  1576.50  1576.59       .15       .00       .00  1579.90
    1000.        0.    1000.        0.       0.     327.        0.        0.        0.  1579.90
      .00       .00      3.06       .00      .000     .022      .000      .000  1575.90   699.82
  .005940        0.        0.        0.         0        0         4       .00    600.35  1300.18

1490 NH CARD USED
*SECNO 2.000
     2.00       .54  1578.74       .00       .00  1578.89       .15      2.30       .00  1582.50
    1000.        0.    1000.        0.        0.     326.        0.        3.        5.  1582.50
      .03       .00      3.07       .00      .000     .022      .000      .000  1578.20   699.82
  .006002       385.      385.      385.         2        0         0       .00    600.35  1300.18

1490 NH CARD USED
*SECNO 3.000
     3.00       .55  1581.75       .00       .00  1581.89       .15      3.00       .00  1585.90
    1000.        0.    1000.        0.        0.     326.        0.        7.       12.  1585.90
      .08       .00      3.07       .00      .000     .022      .000      .000  1581.20   699.81
  .006011       500.      500.      500.         0        0         0       .00    600.37  1300.19

1490 NH CARD USED
*SECNO 4.000
     4.00       .54  1583.84       .00       .00  1583.99       .15      2.10       .00  1588.20
    1000.        0.    1000.        0.        0.     327.        0.        9.       17.  1588.20
      .11       .00      3.06       .00      .000     .022      .000      .000  1583.30   699.82
  .005975       350.      350.      350.         2        0         0       .00    600.36  1300.18

1490 NH CARD USED
*SECNO 4.500
     4.50       .78  1584.08       .00       .00  1584.15       .07       .15       .01  1588.20
    1000.        0.    1000.        0.        0.     464.        0.       10.       18.  1588.20
      .12       .00      2.16       .00      .000     .022      .000      .000  1583.30   699.75
  .001655        50.       50.       50.         2        0         0       .00    600.50  1300.25
```

```
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         [illegible]L       OLOSS     BANK ELEV
   Q          GLOB       QCH        QROB       ALOB       ACH        AROB       [illegible]OL      TWA    LEFT/RIGHT
   TIM[illegible]        VLOB       VCH        VROB       XNL        XNCH       XNR        [illegible]TN      ELMIN        SSTA
   SLOPE      XLOBL      XLCH       XLCRR      ITRIAL     IDC        ICONT      CORAR      TCPWID       ENDST

*SECNO 4.700
     4.70       1.86   1584.16        .00        .00   1584.17        .01        .01        .01   1587.20
    1000.         0.     1000.         0.         0.     1115.         0.        11.        18.   1587.20
      .13        .00        .90        .00       .000       .022       .000       .000   1582.30    699.39
  .000100        50.        50.        50.          3          0          0        .00    601.21   1300.61

1490 NH CARD USED
*SECNO 5.000
     5.00       1.96   1584.16        .00        .00   1584.17        .01        .00        .00   1588.30
    1000.         0.     1000.         0.         0.     1179.         0.        12.        19.   1588.30
      .15        .00        .85        .00       .000       .022       .000       .000   1582.20    699.36
  .000083       120.        50.         1.          2          0          0        .00    601.29   1300.64

1490 NH CARD USED
*SECNO 6.000
     6.00       1.97   1584.17        .00        .00   1584.18        .01        .01        .00   1588.40
    1000.         0.     1000.         0.         0.     1179.         0.        14.        20.   1588.40
      .16        .00        .85        .00       .000       .022       .000       .000   1582.20    699.34
  .000083       430.        80.       250.          0          0          0        .00    601.33   1300.66

1490 NH CARD USED
*SECNO 7.000
     7.00       1.98   1584.18        .00        .00   1584.19        .01        .01        .00   1588.60
    1000.         0.     1000.         0.         0.     1183.         0.        17.        22.   1588.60
      .21        .00        .85        .00       .000       .022       .000       .000   1582.20    699.35
  .000082       550.       100.       310.          0          0          0        .00    601.29   1300.65
```

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*****************************************************
```

T1
T2 POWERLINE SPILLWAY
T3 3000 CFS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	.006030	.00	1.5	0.	1577.000	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        [illegible]L      OLOSS    BANK ELEV
   Q          GLOB      ICH       PROF      ALOB      ACH       AROB      [illegible]DL     TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 2

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
     1.00      1.05  1576.95       .00  1577.00  1577.30       .35       .00       .00  1579.90
    3000.        0.    3000.        0.       0.      629.        0.        0.        0.  1579.90
      .00       .00     4.77       .00      .000      .022      .000      .000  1575.90   699.66
  .006044        0.       0.        0.        0         0         3       .00    600.68  1300.34

1490 NH CARD USED
*SECNO 2.000
     2.00      1.06  1579.26       .00       .00  1579.60       .35      2.30       .00  1582.50
    3000.        0.    3000.        0.        0.      633.        0.        6.        5.  1582.50
      .02       .00     4.74       .00      .000      .022      .000      .000  1579.20   699.66
  .005915      385.     385.      385.         2         0         0       .00    600.69  1300.34

1490 NH CARD USED
*SECNO 3.000
     3.00      1.05  1582.25       .00       .00  1582.60       .35      3.00       .00  1585.90
    3000.        0.    3000.        0.        0.      629.        0.       13.       12.  1585.90
      .05       .00     4.77       .00      .000      .022      .000      .000  1581.20   699.64
  .006068      500.     500.      500.         2         0         0       .00    600.71  1300.36

1490 NH CARD USED
*SECNO 4.000
     4.00      1.05  1584.35       .00       .00  1584.70       .35      2.10       .00  1588.20
    3000.        0.    3000.        0.        0.      633.        0.       18.       17.  1588.20
      .07       .00     4.74       .00      .000      .022      .000      .000  1583.30   699.66
  .005942      350.     350.      350.         2         0         0       .00    600.69  1300.34

1490 NH CARD USED
*SECNO 4.500
     4.50      1.39  1584.69       .00       .00  1584.89       .20       .18       .01  1588.20
    3000.        0.    3000.        0.        0.      837.        0.       19.       18.  1588.20
      .08       .00     3.58       .00      .000      .022      .000      .000  1583.30   699.54
  .002237       50.      50.       50.         3         0         0       .00    600.91  1300.46
```

```
   SECNO          DEPTH     CWSEL     CRIWS     WSELK      EG        HV                 OLOSS    BANK ELEV
   Q              GLOB      QCH       QRCR      ALOB       ACH       AROB       OL      TWA    LEFT/RIGHT
   TIME           VLOB      VCH       VRCR      XNL        XNCH      XNR        WTN     ELMIN      SSTA
   SLOPE          XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT      CORAR   TOPWID     ENDST

*SECNO 4.700
     4.70         2.58   1584.85       .00       .00   1584.94       .06       .03       .01   1587.20
    3000.           0.     3000.        0.        0.     1552.        0.       20.       18.   1587.20
      .08          .00      1.93       .00      .000      .022      .000      .000   1582.30    699.16
  .000299          50.       50.       50.         3         0         0       .00    601.69   1300.84

1490 NH CARD USED
*SECNO 5.000
     5.00         2.70   1584.90       .00       .00   1584.96       .05       .01       .00   1588.30
    3000.           0.     3000.        0.        0.     1624.        0.       22.       19.   1588.30
      .09          .00      1.83       .00      .000      .022      .000      .000   1582.20    699.11
  .000257         120.       50.        1.         2         0         0       .00    601.77   1300.89

1490 NH CARD USED
*SECNO 6.000
     6.00         2.72   1584.92       .00       .00   1584.98       .05       .02       .00   1588.40
    3000.           0.     3000.        0.        0.     1637.        0.       25.       20.   1588.40
      .10          .00      1.83       .00      .000      .022      .000      .000   1582.20    699.08
  .000251         430.       80.      250.         2         0         0       .00    601.85   1300.92

1490 NH CARD USED
*SECNO 7.000
     7.00         2.75   1584.95       .00       .00   1585.00       .05       .02       .00   1588.60
    3000.           0.     3000.        0.        0.     1652.        0.       29.       22.   1588.60
      .12          .00      1.82       .00      .000      .022      .000      .000   1582.20    699.10
  .000244         550.      100.      310.         2         0         0       .00    601.80   1300.90
```

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*****************************************************
```

T1
T2 POWERLINE SPILLWAY
T3 6000 CFS

J1	ICHECK	ING	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	.006030	.00	1.5	0.	1577.500	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SEC[illegible]   DEPTH    CWSEL    CRIWS    WSELK    EG       HV       [illegible]      OLOSS    BANK ELEV
   Q        GLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

*PROF 3

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
     1.00     1.59  1577.49      .00  1577.50  1578.10      .61      .00      .00  1579.90
    6000.       C.    6000.       0.       0.     954.       0.       0.       0.  1579.90
      .00      .00     6.29      .00     .000     .022     .000     .000  1575.90   699.48
  .006048       C.       C.       0.        0        0        3      .00   601.03  1300.52

1490 NH CARD USED
*SECNO 2.000
     2.00     1.59  1579.79      .00      .00  1580.40      .60     2.29      .00  1582.50
    6000.       C.    6000.       0.       0.     963.       0.       8.       5.  1582.50
      .02      .00     6.23      .00     .000     .022     .000     .000  1578.20   699.48
  .005872      385.     385.     385.        1        0        0      .00   601.04  1300.52

1490 NH CARD USED
*SECNO 3.000
     3.00     1.58  1582.78      .00      .00  1583.40      .62     3.00      .00  1585.90
    6000.       0.    6000.       0.       0.     950.       0.      19.      12.  1585.90
      .04      .00     6.31      .00     .000     .022     .000     .000  1581.20   699.46
  .006126      500.     500.     500.        2        0        0      .00   601.08  1300.54

1490 NH CARD USED
*SECNO 4.000
     4.00     1.60  1584.90      .00      .00  1585.50      .60     2.09      .00  1588.20
    6000.       0.    6000.       0.       0.     964.       0.      27.      17.  1588.20
      .05      .00     6.23      .00     .000     .022     .000     .000  1583.30   699.48
  .005848      350.     350.     350.        1        0        0      .00   601.05  1300.52

1490 NH CARD USED
*SECNO 4.500
     4.50     2.03  1585.33      .00      .00  1585.71      .38      .19      .02  1588.20
    6000.       C.    6000.       0.       0.    1218.       0.      28.      18.  1588.20
      .06      .00     4.92      .00     .000     .022     .000     .000  1583.30   699.34
  .002678       50.      50.      50.        3        0        0      .00   601.32  1300.66
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	[illegible]	OLOSS	BANK ELEV
Q	GLOB	QCH	QRCR	ALOB	ACH	AROB	[illegible]OL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VRCR	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLCRR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 4.700

4.70	3.35	1585.65	.00	.00	1585.78	.14	.05	.02	1587.20
6000.	0.	6000.	0.	0.	2009.	0.	30.	18.	1587.20
.06	.00	2.99	.00	.000	.022	.000	.000	1582.30	698.91
.000507	50.	50.	50.	3	0	0	.00	602.18	1301.09

1490 NH CARD USED
*SECNO 5.000

5.00	3.48	1585.68	.00	.00	1585.81	.13	.02	.00	1588.30
6000.	0.	6000.	0.	0.	2093.	0.	33.	19.	1588.30
.07	.00	2.87	.00	.000	.022	.000	.000	1582.20	698.86
.000442	120.	50.	1.	2	0	0	.00	602.28	1301.14

1490 NH CARD USED
*SECNO 6.000

6.00	3.52	1585.72	.00	.00	1585.84	.12	.03	.00	1588.40
6000.	0.	6000.	0.	0.	2115.	0.	36.	20.	1588.40
.07	.00	2.84	.00	.000	.022	.000	.000	1582.20	698.81
.000427	430.	80.	250.	2	0	0	.00	602.38	1301.19

1490 NH CARD USED
*SECNO 7.000

7.00	3.56	1585.76	.00	.00	1585.89	.12	.04	.00	1588.60
6000.	0.	6000.	0.	0.	2143.	0.	41.	22.	1588.60
.08	.00	2.80	.00	.000	.022	.000	.000	1582.20	698.83
.000411	550.	100.	310.	2	0	0	.00	602.34	1301.17

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*************************************************
```

```
T1
T2      POWERLINE SPILLWAY
T3      9000 CFS

J1  ICHECK    ING       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.       5.        0.        0.   .006030       .00       1.5        0.  1578.000     .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     4.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000
```

```
   SECN      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        L         OLOSS     BANK ELEV
   Q         GLOB      QCH       QRCB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 4

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
     1.00      2.03  1577.93       .00  1578.00  1578.78       .85       .00       .00  1579.90
    9000.        0.    9000.        0.        0.    1218.        0.        0.        0.  1579.90
      .00       .00     7.39       .00      .000      .022      .000      .000  1575.90   699.34
  .006031        0.       0.        0.         0         0         5       .00    601.32  1300.66

1490 NH CARD USED
*SECNO 2.000
     2.00      2.04  1580.24       .00       .00  1581.08       .84      2.30       .00  1582.50
    9000.        0.    9000.        0.        0.    1225.        0.       11.        5.  1582.50
      .01       .00     7.35       .00      .000      .022      .000      .000  1578.20   699.34
  .005924      385.     385.      385.         1         0         0       .00    601.33  1300.66

1490 NH CARD USED
*SECNO 3.000
     3.00      2.03  1583.23       .00       .00  1584.08       .85      2.99       .00  1585.90
    9000.        0.    9000.        0.        0.    1217.        0.       25.       12.  1585.90
      .03       .00     7.40       .00      .000      .022      .000      .000  1581.20   699.31
  .006055      500.     500.      500.         2         0         0       .00    601.38  1300.69

1490 NH CARD USED
*SECNO 4.000
     4.00      2.04  1585.34       .00       .00  1586.18       .84      2.10       .00  1588.20
    9000.        0.    9000.        0.        0.    1222.        0.       35.       17.  1588.20
      .05       .00     7.36       .00      .000      .022      .000      .000  1583.30   699.34
  .005962      350.     350.      350.         1         0         0       .00    601.33  1300.66

1490 NH CARD USED
*SECNO 4.500
     4.50      2.58  1585.86       .00       .00  1586.40       .52       .19       .03  1588.20
    9000.        0.    9000.        0.        0.    1550.        0.       36.       18.  1588.20
      .05       .00     5.81       .00      .000      .022      .000      .000  1583.30   699.16
  .002705       50.      50.       50.         4         0         0       .00    601.68  1300.84
```

```
   SECN[illegible]   DEPTH     CWSEL     CRIWS     WSELK     EG        HV        [illegible]       OLOSS    BANK ELEV
   Q         GLOB      GCH       QRCB      ALOB      ACH       AROB      [illegible]OL     TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICCNT     CORAR     TOPWID      ENDST

*SECNO 4.700
     4.70      3.97  1586.27       .00       .00  1586.49       .22       .06       .03  1587.20
    9000.        0.    9000.        0.        0.    2384.        0.       38.       18.  1587.20
      .05       .00     3.77       .00      .000      .022      .000      .000  1582.30   698.71
  .000645       50.      50.       50.         3         0         0       .00   602.59  1301.29

1490 NH CARD USED
*SECNO 5.000
     5.00      4.12  1586.32       .00       .00  1586.52       .20       .03       .00  1588.30
    9000.        0.    9000.        0.        0.    2477.        0.       41.       19.  1588.30
      .06       .00     3.63       .00      .000      .022      .000      .000  1582.20   698.65
  .000568      120.      50.        1.         2         0         0       .00   602.70  1301.35

1490 NH CARD USED
*SECNO 6.000
     6.00      4.17  1586.37       .00       .00  1586.57       .20       .04       .00  1588.40
    9000.        0.    9000.        0.        0.    2507.        0.       46.       20.  1588.40
      .06       .00     3.59       .00      .000      .022      .000      .000  1582.20   698.59
  .000546      430.      80.      250.         2         0         0       .00   602.82  1301.41

1490 NH CARD USED
*SECNO 7.000
     7.00      4.23  1586.43       .00       .00  1586.62       .19       .05       .00  1588.60
    9000.        0.    9000.        0.        0.    2543.        0.       52.       22.  1588.60
      .07       .00     3.54       .00      .000      .022      .000      .000  1582.20   698.61
  .000524      550.     100.      310.         2         0         0       .00   602.78  1301.39
```

```
*****************************************************
  HEC2 RELEASE DATED NOV 75 UPDATED MARC 1982
  ERROR CORR -  C1,C2,C3,C4,C5
  MODIFICATION -  50,51,52,53,54,55
*****************************************************
```

T1
T2 POWERLINE SPILLWAY
T3 13,000 CFS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	6.	0.	0.	.006030	.00	1.5	0.	1578.500	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	5.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECN        DEPTH     CWSEL     CRIWS     WSELK     EG        HV                  OLOSS   BANK ELEV
   Q           QLOB      QCH       QROB      ALOB      ACH       AROB      [illegible]OL     TWA   LEFT/RIGHT
   TIME        VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE       XLOBL     XLCH      XLCRR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 5

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
     1.00      2.54  1578.44       .00  1578.50  1579.57      1.13       .00       .00  1579.90
   13000.        0.   13000.        0.        0.    1526.       0.        0.        0.  1579.90
      .00       .00      8.52      .00      .000      .022     .000      .000  1575.90   699.17
  .005941        0.        0.        0.         0         0        4       .00    601.65  1300.83

1490 NH CARD USED
*SECNO 2.000
     2.00      2.53  1580.73       .00       .00  1581.87      1.13      2.30       .00  1582.50
   13000.        0.   13000.        0.        0.    1522.       0.       13.        5.  1582.50
      .01       .00      8.54      .00      .000      .022     .000      .000  1578.20   699.18
  .005991      385.      385.      385.         1         0        0       .00    601.65  1300.82

1490 NH CARD USED
*SECNO 3.000
     3.00      2.53  1583.73       .00       .00  1584.86      1.13      3.00       .00  1585.90
   13000.        0.   13000.        0.        0.    1522.       0.       31.       12.  1585.90
      .03       .00      8.54      .00      .000      .022     .000      .000  1581.20   699.14
  .005997      500.      500.      500.         0         0        0       .00    601.72  1300.86

1490 NH CARD USED
*SECNO 4.000
     4.00      2.53  1585.83       .00       .00  1586.97      1.14      2.10       .00  1588.20
   13000.        0.   13000.        0.        0.    1520.       0.       43.       17.  1588.20
      .04       .00      8.55      .00      .000      .022     .000      .000  1583.30   699.17
  .006024      350.      350.      350.         0         0        0       .00    601.65  1300.83

1490 NH CARD USED
*SECNO 4.500
     4.50      3.19  1586.49       .00       .00  1587.21       .72       .20       .04  1588.20
   13000.        0.   13000.        0.        0.    1915.       0.       45.       18.  1588.20
      .04       .00      6.79      .00      .000      .022     .000      .000  1583.30   698.96
  .002789       50.       50.       50.         4         0        0       .00    602.08  1301.04
```

```
   SECNO      DEPTH     CWSEL     CPIWS     WSELK      EG        HV        L       OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB       ACH       AROB      OL      TWA   LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN     ELMIN      SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR   TOPWID     ENDST

*SECNO 4.700
     4.70      4.68   1586.98       .00       .00   1587.31       .33       .07      .04   1587.20
   13000.        C.   13000.        0.        0.     2815.        0.       48.      18.   1587.20
      .05       .00      4.62       .00      .000      .022      .000      .000  1582.30    698.47
  .000774       50.       50.       50.         4         0         0       .00   603.06   1301.53

1490 NH CARD USED
*SECNO 5.000
     5.00      4.84   1587.04       .00       .00   1587.35       .31       .04      .00   1588.30
   13000.        C.   13000.        0.        0.     2912.        0.       51.      19.   1588.30
      .05       .00      4.46       .00      .000      .022      .000      .000  1582.20    698.41
  .000692      120.       50.        1.         2         0         0       .00   603.17   1301.59

1490 NH CARD USED
*SECNO 6.000
     6.00      4.90   1587.10       .00       .00   1587.40       .30       .05      .00   1588.40
   13000.        0.   13000.        0.        0.     2950.        0.       57.      20.   1588.40
      .05       .00      4.41       .00      .000      .022      .000      .000  1582.20    698.34
  .000663      430.       80.      250.         2         0         0       .00   603.32   1301.66

1490 NH CARD USED
*SECNO 7.000
     7.00      4.98   1587.18       .00       .00   1587.47       .29       .06      .00   1588.60
   13000.        C.   13000.        0.        0.     2995.        0.       63.      22.   1588.60
      .06       .00      4.34       .00      .000      .022      .000      .000  1582.20    698.37
  .000635      550.      100.      310.         2         0         0       .00   603.27   1301.63
```

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*****************************************************
```

T1
T2 POWERLINE SPILLWAY
T3 18000 CFS

J1	ICHECK	ING	NINV	IDIP	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	7.	0.	0.	.006030	.00	1.5	C.	1579.000	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	6.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECN        DEPTH     CWSEL     CRIWS     WSELK     EG        HV        [illegible]       CLOSS    BANK ELEV
   Q           QLOB      QCH       QRCB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME        VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE       XLOBL     XLCH      XLCRB     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 6

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
     1.00      3.07  1578.97  1578.93  1579.00  1580.45      1.48       .00       .00  1579.90
   18000.        C.   18000.       0.       0.    1842.        0.        0.        0.   1579.90
      .00       .00      9.77      .00     .000     .022      .000      .000   1575.90    699.00
  .006082        C.        C.       0.        0        8         0       .00    601.99   1301.00

1490 NH CARD USED
*SECNO 2.000
     2.00      3.10  1581.30       .00       .00  1582.75      1.45      2.30       .00  1582.50
   18000.        0.   18000.       0.       0.    1863.        0.       16.        5.   1582.50
      .01       .00      9.66      .00     .000     .022      .000      .000   1578.20    698.99
  .005862      385.      385.     385.        2        0         0       .00    602.02   1301.01

1490 NH CARD USED
*SECNO 3.000
     3.00      3.06  1584.26  1584.23       .00  1585.75      1.48      2.99       .01  1585.90
   18000.        C.   18000.       0.       0.    1842.        0.       38.       12.   1585.90
      .03       .00      9.77      .00     .000     .022      .000      .000   1581.20    698.96
  .006085      500.      500.     500.        2        8         0       .00    602.09   1301.04

1490 NH CARD USED
*SECNO 4.000
     4.00      3.09  1586.39  1586.32       .00  1587.85      1.46      2.10       .00  1588.20
   18000.        C.   18000.       0.       0.    1857.        0.       53.       17.   1588.20
      .04       .00      9.69      .00     .000     .022      .000      .000   1583.30    698.99
  .005927      350.      350.     350.        4        5         0       .00    602.02   1301.01

1490 NH CARD USED
*SECNO 4.500
     4.50      3.87  1587.17       .00       .00  1588.10       .93       .20       .05  1588.20
   18000.        C.   18000.       0.       0.    2327.        0.       55.       18.   1588.20
      .04       .00      7.73      .00     .000     .022      .000      .000   1583.30    698.74
  .002796       50.       50.      50.        5        0         0       .00    602.53   1301.26
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        E         OLOSS     BANK ELEV
Q         GLOB      GCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 4.700
3260 CROSS SECTION      4.70 EXTENDED       .55 FEET

     4.70      5.45  1587.75       .00       .00  1588.22       .47       .07       .05  1587.20
   18000.        0.  18000.        0.        0.    3279.        0.       58.       18.   1587.20
      .04       .00     5.49       .00      .000      .022      .000      .000  1582.30    698.40
  .000893       50.      50.       50.         4         0         0       .00    603.20  1301.60

1490 NH CARD USED
*SECNO 5.000
     5.00      5.62  1587.82       .00       .00  1588.26       .44       .04       .00  1588.30
   18000.        0.  18000.        0.        0.    3385.        0.       62.       19.   1588.30
      .04       .00     5.32       .00      .000      .022      .000      .000  1582.20    698.16
  .000804      120.      50.        1.         2         0         0       .00    603.69  1301.84

1490 NH CARD USED
*SECNO 6.000
     6.00      5.70  1587.90       .00       .00  1588.33       .43       .06       .00  1588.40
   18000.        0.  18000.        0.        0.    3430.        0.       68.       20.   1588.40
      .05       .00     5.25       .00      .000      .022      .000      .000  1582.20    698.07
  .000770      430.      80.      250.         2         0         0       .00    603.86  1301.93

1490 NH CARD USED
*SECNO 7.000
     7.00      5.79  1587.99       .00       .00  1588.40       .41       .08       .00  1588.60
   18000.        0.  18000.        0.        0.    3484.        0.       76.       22.   1588.60
      .05       .00     5.17       .00      .000      .022      .000      .000  1582.20    698.10
  .000737      550.     100.      310.         2         0         0       .00    603.80  1301.90
```

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*****************************************************
```

T1
T2 POWERLINE SPILLWAY
T3 23,000 CFS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	8.	0.	0.	.006030	.00	1.5	0.	1579.500	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	7.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SEC[illegible]   DEPTH    CWSEL    CRIWS    WSELK    EG       HV       [illegible]      OLOSS   BANK ELEV
   Q [illegible]    GLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME             VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE            XLOBL    XLCH     XLCHR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

*PROF 7

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.00      3.55  1579.45  1579.45  1579.50  1581.25     1.80      .00      .00  1579.90
   23000.        C.   23000.       0.       0.    2137.       0.       0.       0.   1579.90
      .00       .00    10.76      .00     .000     .022     .000     .000  1575.90   698.84
  .006066        0.       0.       0.        0        5        0      .00   602.31  1301.16

1490 NH CARD USED
*SECNO 2.000
     2.00      3.59  1581.79  1581.76      .00  1583.55     1.76     2.30      .00  1582.50
   23000.        C.   23000.       0.       0.    2158.       0.      19.       5.   1582.50
      .01       .00    10.66      .00     .000     .022     .000     .000  1578.20   698.83
  .005866      385.     385.     385.        4        5        0      .00   602.34  1301.17

1490 NH CARD USED
*SECNO 3.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.00      3.56  1584.76  1584.76      .00  1586.55     1.80     2.98      .01  1585.90
   23000.        C.   23000.       0.       0.    2138.       0.      44.      12.   1585.90
      .02       .00    10.76      .00     .000     .022     .000     .000  1581.20   698.79
  .006054      500.     500.     500.        2        5        0      .00   602.42  1301.21

1490 NH CARD USED
*SECNO 4.000
     4.00      3.58  1586.88  1586.86      .00  1588.66     1.79     2.11      .00  1588.20
   23000.        C.   23000.       0.       0.    2145.       0.      61.      17.   1588.20
      .03       .00    10.72      .00     .000     .022     .000     .000  1583.30   698.83
  .005990      350.     350.     350.        2        5        0      .00   602.33  1301.17

1490 NH CARD USED
*SECNO 4.500
     4.50      4.51  1587.81      .00      .00  1588.92     1.12      .19      .07  1588.20
   23000.        C.   23000.       0.       0.    2713.       0.      64.      18.   1588.20
      .03       .00     8.48      .00     .000     .022     .000     .000  1583.30   698.53
  .002740       50.      50.      50.        5        0        0      .00   602.95  1301.47
```

```
   SEC[illegible]   DEPTH    CWSEL    CPIWS    WSELK    EG       HV       [illegible]      OLOSS    BANK ELEV
   Q        GLOB     QCH      QROB     ALOB     ACH      AROB     [illegible]OL     TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST

*SECNO 4.700
3280 CROSS SECTION      4.70 EXTENDED      1.25 FEET

     4.70     6.15  1588.45      .00      .00  1589.05      .60      .08      .05  1587.20
   23000.       C.  23000.       0.       0.    3704.       0.      67.      18.   1587.20
      .04      .00     6.21      .00     .000     .022     .000     .000  1582.30   698.40
  .000972      50.      50.      50.        4        0        0      .00   603.20  1301.60

1490 NH CARD USED
*SECNO 5.000
3280 CROSS SECTION      5.00 EXTENDED      .24 FEET

     5.00     6.34  1588.54      .00      .00  1589.10      .56      .05      .00  1588.30
   23000.       C.  23000.       0.       0.    3817.       0.      72.      19.   1588.30
      .04      .00     6.03      .00     .000     .022     .000     .000  1582.20   698.00
  .000680     120.      50.       1.        2        0        0      .00   604.00  1302.00

1490 NH CARD USED
*SECNO 6.000
3280 CROSS SECTION      6.00 EXTENDED      .22 FEET

     6.00     6.42  1588.62      .00      .00  1589.17      .55      .07      .00  1588.40
   23000.       C.  23000.       0.       0.    3868.       0.      79.      20.   1588.40
      .04      .00     5.95      .00     .000     .022     .000     .000  1582.20   697.90
  .000842     430.      80.     250.        2        0        0      .00   604.20  1302.10

1490 NH CARD USED
*SECNO 7.000
3280 CROSS SECTION      7.00 EXTENDED      .12 FEET

     7.00     6.52  1588.72      .00      .00  1589.26      .53      .08      .00  1588.60
   23000.       C.  23000.       0.       0.    3929.       0.      88.      22.   1588.60
      .05      .00     5.85      .00     .000     .022     .000     .000  1582.20   697.90
  .000808     550.     100.     310.        2        0        0      .00   604.20  1302.10
```

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*****************************************************
```

T1
T2 POWERLINE SPILLWAY
T3 29,000 CFS

J1	ICHECK	ING	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	9.	0.	0.	.006030	.00	1.5	0.	1579.900	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        [illegible]     OLOSS    BANK ELEV
   Q         GLOB      QCH       QROB      ALOB      ACH       AROB      [illegible]DL     TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*PROF 8

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED        .15 FEET

3720 CRITICAL DEPTH ASSUMED
     1.00      4.15  1580.05  1580.05  1579.90  1582.15      2.09       .00       .00  1579.90
   29000.        0.   29000.       0.       0.    2498.       0.        0.        0.   1579.90
      .00       .00    11.61      .00     .000     .022      .000      .000  1575.90   698.70
  .005732        0.       0.       0.        0        8         0       .00    602.60  1301.30


1490 NH CARD USED
*SECNO 2.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.00      4.16  1582.36  1582.36      .00  1584.45      2.09      2.20       .00  1582.50
   29000.        0.   29000.       0.       0.    2501.       0.       22.        5.   1582.50
      .01       .00    11.60      .00     .000     .022      .000      .000  1578.20   698.65
  .005711      385.     385.     385.        2        5         0       .00    602.71  1301.35


1490 NH CARD USED
*SECNO 3.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.00      4.16  1585.35  1585.35      .00  1587.45      2.09      2.86       .00  1585.90
   29000.        0.   29000.       0.       0.    2499.       0.       51.       12.   1585.90
      .02       .00    11.61      .00     .000     .022      .000      .000  1581.20   698.59
  .005728      500.     500.     500.        2        5         0       .00    602.83  1301.41


1490 NH CARD USED
*SECNO 4.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     4.00      4.16  1587.46  1587.46      .00  1589.55      2.09      2.00       .00  1588.20
   29000.        0.   29000.       0.       0.    2500.       0.       71.       17.   1588.20
      .03       .00    11.60      .00     .000     .022      .000      .000  1583.30   698.64
  .005716      350.     350.     350.        2        5         0       .00    602.72  1301.36
```

```
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        E         OLOSS    BANK ELEV
   Q          GLOB      GCH       QRCB      ALOB      ACH       AROB      OL        TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 4.500
3280 CROSS SECTION       4.50 EXTENDED        .27 FEET

     4.50      5.16  1588.46       .00       .00  1589.81      1.35       .19       .07  1588.20
   29000.        0.  29000.        0.        0.    3109.        0.       74.       18.   1588.20
      .03       .00      9.33      .00      .000      .022     .000      .000  1583.30   698.40
  .002766       50.       50.      50.         5         0        0       .00    603.20  1301.60

*SECNO 4.700
3280 CROSS SECTION       4.70 EXTENDED       1.99 FEET

     4.70      6.89  1589.19       .00       .00  1589.95       .76       .08       .06  1587.20
   29000.        0.  29000.        0.        0.    4151.        0.       78.       18.   1587.20
      .03       .00      6.99      .00      .000      .022     .000      .000  1582.30   698.40
  .001058       50.       50.      50.         4         0        0       .00    603.20  1301.60

1490 NH CARD USED
*SECNO 5.000
3280 CROSS SECTION       5.00 EXTENDED        .99 FEET

     5.00      7.09  1589.29       .00       .00  1590.01       .72       .05       .00  1588.30
   29000.        0.  29000.        0.        0.    4272.        0.       83.       19.   1588.30
      .04       .00      6.79      .00      .000      .022     .000      .000  1582.20   698.00
  .000962      120.       50.       1.         2         0        0       .00    604.00  1302.00

1490 NH CARD USED
*SECNO 6.000
3280 CROSS SECTION       6.00 EXTENDED        .99 FEET

     6.00      7.19  1589.39       .00       .00  1590.08       .70       .08       .00  1588.40
   29000.        0.  29000.        0.        0.    4331.        0.       91.       20.   1588.40
      .04       .00      6.70      .00      .000      .022     .000      .000  1582.20   697.90
  .000919      430.       50.     250.         2         0        0       .00    604.20  1302.10

1490 NH CARD USED
*SECNO 7.000
3280 CROSS SECTION       7.00 EXTENDED        .90 FEET
```

SEC	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	L	OLOSS	BANK ELEV
Q	GLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
7.00	7.30	1589.50	.00	.00	1590.18	.68	.09	.00	1588.60
29000.	0.	29000.	0.	0.	4398.	0.	101.	22.	1588.60
.04	.00	6.59	.00	.000	.022	.000	.000	1582.20	697.90
.000883	550.	100.	310.	2	0	0	.00	604.20	1302.10

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*****************************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

POWERLINE SPILLWAY

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	1.000	.00	.00	.00	1575.90	1000.00	1576.45	.00	1576.59	59.40	3.06	327.20	129.76
	1.000	.00	.00	.00	1575.90	3000.00	1576.95	.00	1577.30	60.44	4.77	629.36	385.87
	1.000	.00	.00	.00	1575.90	6000.00	1577.49	.00	1578.10	60.48	6.29	953.99	771.49
	1.000	.00	.00	.00	1575.90	9000.00	1577.93	.00	1578.78	60.31	7.39	1218.04	1158.88
	1.000	.00	.00	.00	1575.90	13000.00	1578.44	.00	1579.57	59.41	8.52	1525.97	1686.58
	1.000	.00	.00	.00	1575.90	18000.00	1578.97	1578.93	1580.45	60.82	9.77	1842.46	2308.03
*	1.000	.00	.00	.00	1575.90	23000.00	1579.45	1579.45	1581.25	60.66	10.76	2136.63	2953.17
*	1.000	.00	.00	.00	1575.90	29000.00	1580.05	1580.05	1582.15	57.32	11.61	2497.59	3830.27
	2.000	385.00	.00	.00	1578.20	1000.00	1578.74	.00	1578.89	60.02	3.07	326.17	129.08
	2.000	385.00	.00	.00	1578.20	3000.00	1579.26	.00	1579.60	59.15	4.74	633.47	390.07
	2.000	385.00	.00	.00	1578.20	6000.00	1579.79	.00	1580.40	58.72	6.23	962.51	782.99
	2.000	385.00	.00	.00	1578.20	9000.00	1580.24	.00	1581.08	59.24	7.35	1224.64	1169.36
	2.000	385.00	.00	.00	1578.20	13000.00	1580.73	.00	1581.87	59.91	8.54	1522.16	1679.56
	2.000	385.00	.00	.00	1578.20	18000.00	1581.30	.00	1582.75	58.62	9.66	1863.04	2351.08
	2.000	385.00	.00	.00	1578.20	23000.00	1581.79	1581.76	1583.55	58.66	10.66	2158.25	3003.05
*	2.000	385.00	.00	.00	1578.20	29000.00	1582.36	1582.36	1584.45	57.11	11.60	2500.99	3837.50
	3.000	500.00	.00	.00	1581.20	1000.00	1581.75	.00	1581.89	60.11	3.07	326.03	128.98
	3.000	500.00	.00	.00	1581.20	3000.00	1582.25	.00	1582.60	60.68	4.77	628.64	385.12
	3.000	500.00	.00	.00	1581.20	6000.00	1582.78	.00	1583.40	61.26	6.31	950.36	766.57
	3.000	500.00	.00	.00	1581.20	9000.00	1583.23	.00	1584.08	60.55	7.40	1216.63	1156.57
	3.000	500.00	.00	.00	1581.20	13000.00	1583.73	.00	1584.86	59.97	8.54	1521.81	1678.77
	3.000	500.00	.00	.00	1581.20	18000.00	1584.26	1584.23	1585.75	60.85	9.77	1842.31	2307.46
*	3.000	500.00	.00	.00	1581.20	23000.00	1584.76	1584.76	1586.55	60.54	10.76	2138.00	2955.94
*	3.000	500.00	.00	.00	1581.20	29000.00	1585.35	1585.35	1587.45	57.28	11.61	2498.90	3831.60

[illegible]O	XLCH	ELTRD	ELLC	ELMIN	Q	[illegible]WSEL	CRIWS	EG	10K*S	VCH	AREA [illegible]	.01K
4.000	350.00	.00	.00	1583.30	1000.00	1583.84	.00	1583.99	59.75	3.06	326.61	129.37
4.000	350.00	.00	.00	1583.30	3000.00	1584.35	.00	1584.70	59.42	4.74	632.59	389.17
4.000	350.00	.00	.00	1583.30	6000.00	1584.90	.00	1585.50	58.48	6.23	963.63	784.58
4.000	350.00	.00	.00	1583.30	9000.00	1585.34	.00	1586.18	59.62	7.36	1222.30	1165.63
4.000	350.00	.00	.00	1583.30	13000.00	1585.83	.00	1586.97	60.24	8.55	1519.67	1674.97
4.000	350.00	.00	.00	1583.30	18000.00	1586.39	1586.32	1587.85	59.27	9.69	1856.83	2338.14
4.000	350.00	.00	.00	1583.30	23000.00	1586.88	1586.86	1588.66	59.90	10.72	2144.73	2971.80
* 4.000	350.00	.00	.00	1583.30	29000.00	1587.46	1587.46	1589.55	57.16	11.60	2500.27	3835.63
4.500	50.00	.00	.00	1583.30	1000.00	1584.08	.00	1584.15	18.55	2.16	463.96	232.19
4.500	50.00	.00	.00	1583.30	3000.00	1584.69	.00	1584.89	23.37	3.58	837.06	620.51
4.500	50.00	.00	.00	1583.30	6000.00	1585.33	.00	1585.71	26.78	4.92	1218.34	1159.35
4.500	50.00	.00	.00	1583.30	9000.00	1585.88	.00	1586.40	27.05	5.81	1549.78	1730.59
4.500	50.00	.00	.00	1583.30	13000.00	1586.49	.00	1587.21	27.89	6.79	1915.23	2461.68
4.500	50.00	.00	.00	1583.30	18000.00	1587.17	.00	1588.10	27.96	7.73	2327.26	3404.33
4.500	50.00	.00	.00	1583.30	23000.00	1587.81	.00	1588.92	27.40	8.48	2713.24	4394.20
4.500	50.00	.00	.00	1583.30	29000.00	1588.46	.00	1589.81	27.66	9.33	3109.19	5513.80
4.700	50.00	.00	.00	1582.30	1000.00	1584.16	.00	1584.17	1.00	.90	1114.99	1000.26
4.700	50.00	.00	.00	1582.30	3000.00	1584.88	.00	1584.94	2.99	1.93	1551.54	1733.86
4.700	50.00	.00	.00	1582.30	6000.00	1585.65	.00	1585.78	5.07	2.99	2009.02	2665.53
4.700	50.00	.00	.00	1582.30	9000.00	1586.27	.00	1586.49	6.45	3.77	2384.19	3543.98
4.700	50.00	.00	.00	1582.30	13000.00	1586.98	.00	1587.31	7.74	4.62	2815.11	4671.96
4.700	50.00	.00	.00	1582.30	18000.00	1587.75	.00	1588.22	8.93	5.49	3279.28	6024.59
4.700	50.00	.00	.00	1582.30	23000.00	1588.45	.00	1589.05	9.72	6.21	3703.55	7376.14
4.700	50.00	.00	.00	1582.30	29000.00	1589.19	.00	1589.95	10.58	6.99	4150.80	8916.75
5.000	50.00	.00	.00	1582.20	1000.00	1584.16	.00	1584.17	.83	.85	1179.29	1098.14
5.000	50.00	.00	.00	1582.20	3000.00	1584.90	.00	1584.96	2.57	1.85	1624.12	1870.95
5.000	50.00	.00	.00	1582.20	6000.00	1585.68	.00	1585.81	4.42	2.87	2092.99	2853.43
5.000	50.00	.00	.00	1582.20	9000.00	1586.32	.00	1586.52	5.68	3.63	2477.34	3777.24
5.000	50.00	.00	.00	1582.20	13000.00	1587.04	.00	1587.35	6.92	4.46	2912.32	4943.22
5.000	50.00	.00	.00	1582.20	18000.00	1587.82	.00	1588.26	8.04	5.32	3385.08	6347.69
5.000	50.00	.00	.00	1582.20	23000.00	1588.54	.00	1589.10	8.80	6.03	3816.92	7753.91
5.000	50.00	.00	.00	1582.20	29000.00	1589.29	.00	1590.01	9.62	6.79	4272.13	9351.33
6.000	80.00	.00	.00	1582.20	1000.00	1584.17	.00	1584.18	.83	.85	1179.04	1097.69
6.000	80.00	.00	.00	1582.20	3000.00	1584.92	.00	1584.98	2.51	1.83	1636.84	1895.26
6.000	80.00	.00	.00	1582.20	6000.00	1585.72	.00	1585.84	4.27	2.84	2115.18	2903.69
6.000	80.00	.00	.00	1582.20	9000.00	1586.37	.00	1586.57	5.46	3.59	2507.40	3853.38
6.000	80.00	.00	.00	1582.20	13000.00	1587.10	.00	1587.40	6.63	4.41	2949.99	5049.35
6.000	80.00	.00	.00	1582.20	18000.00	1587.90	.00	1588.33	7.70	5.25	3430.39	6488.60
6.000	80.00	.00	.00	1582.20	23000.00	1588.62	.00	1589.17	8.42	5.95	3868.41	7927.49
6.000	80.00	.00	.00	1582.20	29000.00	1589.39	.00	1590.08	9.19	6.70	4330.70	9563.91

[illegible]O	XLCH	ELTRD	ELLC	ELMIN	Q	[illegible]WSEL	CRIWS	EG	10K*S	VCH	AREA	[illegible].01K
7.000	100.00	.00	.00	1582.20	1000.00	1584.18	.00	1584.19	.82	.85	1182.96	1102.09
7.000	100.00	.00	.00	1582.20	3000.00	1584.95	.00	1585.00	2.44	1.82	1651.89	1920.26
7.000	100.00	.00	.00	1582.20	6000.00	1585.76	.00	1585.89	4.11	2.80	2142.55	2958.27
7.000	100.00	.00	.00	1582.20	9000.00	1586.43	.00	1586.62	5.24	3.54	2543.12	3932.20
7.000	100.00	.00	.00	1582.20	13000.00	1587.18	.00	1587.47	6.35	4.34	2994.65	5157.18
7.000	100.00	.00	.00	1582.20	18000.00	1587.99	.00	1588.40	7.37	5.17	3483.99	6628.22
7.000	100.00	.00	.00	1582.20	23000.00	1588.72	.00	1589.26	8.08	5.85	3928.61	8092.46
7.000	100.00	.00	.00	1582.20	29000.00	1589.50	.00	1590.18	8.83	6.59	4398.28	9757.64

POWER[illegible] SPILLWAY

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	1000.00	1576.45	.00	.00	-.05	600.35	.00
	1.000	3000.00	1576.95	.50	.00	-.05	600.68	.00
	1.000	6000.00	1577.49	.54	.00	-.01	601.03	.00
	1.000	9000.00	1577.93	.44	.00	-.07	601.32	.00
	1.000	13000.00	1578.44	.51	.00	-.06	601.65	.00
	1.000	18000.00	1578.97	.53	.00	-.03	601.99	.00
*	1.000	23000.00	1579.45	.49	.00	-.05	602.31	.00
*	1.000	29000.00	1580.05	.60	.00	.15	602.60	.00
	2.000	1000.00	1578.74	.00	2.30	.00	600.35	385.00
	2.000	3000.00	1579.26	.51	2.31	.00	600.69	385.00
	2.000	6000.00	1579.79	.54	2.31	.00	601.04	385.00
	2.000	9000.00	1580.24	.44	2.31	.00	601.33	385.00
	2.000	13000.00	1580.73	.49	2.29	.00	601.65	385.00
	2.000	18000.00	1581.30	.57	2.33	.00	602.02	385.00
	2.000	23000.00	1581.79	.49	2.34	.00	602.34	385.00
*	2.000	29000.00	1582.36	.57	2.31	.00	602.71	385.00
	3.000	1000.00	1581.75	.00	3.00	.00	600.37	500.00
	3.000	3000.00	1582.25	.50	2.99	.00	600.71	500.00
	3.000	6000.00	1582.78	.54	2.99	.00	601.08	500.00
	3.000	9000.00	1583.23	.44	2.99	.00	601.38	500.00
	3.000	13000.00	1583.73	.50	3.00	.00	601.72	500.00
	3.000	18000.00	1584.26	.53	2.96	.00	602.09	500.00
*	3.000	23000.00	1584.76	.49	2.97	.00	602.42	500.00
*	3.000	29000.00	1585.35	.60	3.00	.00	602.83	500.00
	4.000	1000.00	1583.84	.00	2.10	.00	600.36	350.00
	4.000	3000.00	1584.35	.51	2.11	.00	600.69	350.00
	4.000	6000.00	1584.90	.54	2.11	.00	601.05	350.00
	4.000	9000.00	1585.34	.44	2.11	.00	601.33	350.00
	4.000	13000.00	1585.83	.49	2.10	.00	601.65	350.00
	4.000	18000.00	1586.39	.56	2.13	.00	602.02	350.00
	4.000	23000.00	1586.88	.49	2.12	.00	602.33	350.00
*	4.000	29000.00	1587.46	.58	2.10	.00	602.72	350.00
	4.500	1000.00	1584.08	.00	.23	.00	600.50	50.00
	4.500	3000.00	1584.69	.62	.34	.00	600.91	50.00
	4.500	6000.00	1585.33	.64	.44	.00	601.32	50.00
	4.500	9000.00	1585.88	.55	.54	.00	601.68	50.00
	4.500	13000.00	1586.49	.61	.66	.00	602.08	50.00
	4.500	18000.00	1587.17	.68	.78	.00	602.53	50.00
	4.500	23000.00	1587.81	.64	.93	.00	602.95	50.00
	4.500	29000.00	1588.46	.65	1.00	.00	603.20	50.00

O	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	PWID	XLCH
4.700	1000.00	1584.16	.00	.08	.00	601.21	50.00
4.700	3000.00	1584.38	.73	.19	.00	601.69	50.00
4.700	6000.00	1585.65	.76	.31	.00	602.18	50.00
4.700	9000.00	1586.27	.63	.39	.00	602.59	50.00
4.700	13000.00	1586.98	.71	.49	.00	603.06	50.00
4.700	18000.00	1587.75	.77	.58	.00	603.20	50.00
4.700	23000.00	1588.45	.70	.65	.00	603.20	50.00
4.700	29000.00	1589.19	.74	.73	.00	603.20	50.00
5.000	1000.00	1584.16	.00	.01	.00	601.29	50.00
5.000	3000.00	1584.90	.74	.02	.00	601.77	50.00
5.000	6000.00	1585.68	.78	.04	.00	602.28	50.00
5.000	9000.00	1586.32	.64	.05	.00	602.70	50.00
5.000	13000.00	1587.04	.72	.06	.00	603.17	50.00
5.000	18000.00	1587.82	.78	.07	.00	603.69	50.00
5.000	23000.00	1588.54	.71	.08	.00	604.00	50.00
5.000	29000.00	1589.29	.75	.10	.00	604.00	50.00
6.000	1000.00	1584.17	.00	.01	.00	601.33	80.00
6.000	3000.00	1584.92	.75	.02	.00	601.85	80.00
6.000	6000.00	1585.72	.80	.04	.00	602.38	80.00
6.000	9000.00	1586.37	.65	.05	.00	602.82	80.00
6.000	13000.00	1587.10	.73	.06	.00	603.32	80.00
6.000	18000.00	1587.90	.80	.08	.00	603.86	80.00
6.000	23000.00	1588.62	.72	.09	.00	604.20	80.00
6.000	29000.00	1589.39	.76	.10	.00	604.20	80.00
7.000	1000.00	1584.18	.00	.01	.00	601.29	100.00
7.000	3000.00	1584.95	.77	.03	.00	601.80	100.00
7.000	6000.00	1585.76	.81	.05	.00	602.34	100.00
7.000	9000.00	1586.43	.66	.06	.00	602.78	100.00
7.000	13000.00	1587.18	.75	.07	.00	603.27	100.00
7.000	18000.00	1587.99	.81	.09	.00	603.80	100.00
7.000	23000.00	1588.72	.74	.10	.00	604.20	100.00
7.000	29000.00	1589.50	.78	.11	.00	604.20	100.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION   SECNO=     1.000   PROFILE= 7   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=     1.000   PROFILE= 8   CRITICAL DEPTH ASSUMED

CAUTION   SECNO=     2.000   PROFILE= 8   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=     2.000   PROFILE= 8   MINIMUM SPECIFIC ENERGY

CAUTION   SECNO=     3.000   PROFILE= 7   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=     3.000   PROFILE= 7   MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=     3.000   PROFILE= 8   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=     3.000   PROFILE= 8   MINIMUM SPECIFIC ENERGY

CAUTION   SECNO=     4.000   PROFILE= 8   CRITICAL DEPTH ASSUMED
CAUTION   SECNO=     4.000   PROFILE= 8   MINIMUM SPECIFIC ENERGY
```

THIS RUN EXECUTED 11/21/88 14:36:57

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*************************************************
```

```
STOP
)
)
END OF FILE
AOS/VS CLI   TERMINATING        21-NOV-88        14:36:58

PROCESS 57 TERMINATED

ELAPSED TIME  0:00:20, CPU TIME  00:00:00.084, I/O BLOCKS  52
(OTHER JOBS, SAME USERNAME:
    NUMBER OF CONSOLE JOBS, 1
    NUMBER OF BATCH JOBS, 0)
USER 'HYD.WSM' LOGGED OFF       21-NOV-88        14:36:58

****
*LIST FILE EMPTY, WILL NOT BE PRINTED
****
```

Appendix Q

HEC-2 Output

Upper Weekes Wash Breakout Rating Curve

DEST=HYD.WSM USER=HYD.WSM QUEUE=LPT DEVICE=@LPB
SEQ=2108 QPRI=128 CPL=132 LPP=66 COPIES=1 PAGES=92

CREATED: 22-NOV-88 11:03:16
ENQUEUED: 18-JAN-89 08:12:52
PRINTING: 18-JAN-89 08:12:53

PATH=:SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:WWBOUT.OUT

AOS/VS REV 7.62.00.00

AOS/VS REVISION 7.62.00.00
AOS/VS XLPT-32 REVISION 7.62.00.00

```
**** AOS/VS REV 7.62.00.00 / BATCH OUTPUT FILE ****

AOS/VS 7.62.00.00 / EXEC-32 7.62.00.00  22-NOV-88        11:03:18
QPRI=128          SEQ=580
INPUT FILE -- :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR:?36.CLI.00001.JOB (WILL BE DELETED AFTER PROCESSIN
LIST FILE  -- :QUEUE:HYD.WSM.LIST.580

--------
LAST MESSAGE CHANGE      17-NOV-88        14:55:52

               ***************          *******        ***********
                ************        ************        ***********
               ***                 ****     ***         ***     ***
              *******              ***                  ***     ***
             ******                ***                  ***     ***
            ***                   ***      ***         ***     ***
           ****                   ***********        ************
          ******                   *******          ************

--------
MOST RECENT LOGON        22-NOV-88        11:00:42

AOS/VS CLI   REV 07.62.00.00     22-NOV-88        11:03:20
) SEARCHLIST :UTIL,:MACROS,:UDD:HYD.WSM,:PER,:
) DIRECTORY :SMOKE:USER:HYDRO.DIR:WATERSHED.DIR:32.DIR:WEEKES.DIR:POWERLINE.DIR
) DEFACL HYD.WSM,OWARE
)
) LISTFILE WWBOUT.OUT
) DATAFILE WWBOUT.DAT
)
) X :UTIL:HEC2.NEW.DIR:MAIN.PR
```

```
*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE 11/22/1998    TIME11: 3:26 *
*****************************************************
```

```
*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616              *
*  (916) 440-2105 (FTS) 448-2105        *
*****************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X           XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

THIS RUN EXECUTED 11/22/88 11: 3:28

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*************************************************
```

SPLIT FLOW BEING PERFORMED

SF BREAKOUT AREA

```
JC
JP

TW WEIR OVERFLOW BETWEEN 1 AND 2, ROAD WIDTH OF 30 FT MODELED AS A WEIR.
WS      4        1        2       -1      2.7
WC      0     1005        5     1002       35     1002      255     1006

TW WEIR OVERFLOW BETWEEN 2 AND 3
WS      2        2        3       -1      2.7
WC      0     1006      400     1011

TW WEIR OVERFLOW BETWEEN 3 AND 4
WS      2        3        4       -1      2.7
WC      0     1011      400     1015

TW WEIR OVERFLOW BETWEEN 4 AND 5
WS      2        4        5       -1      2.7
WC      0     1015      215   1017.5

TW WEIR OVERFLOW BETWEEN 5 AND 6
WS      2        5        6       -1      2.7
WC      0   1017.5      170     1020
```

```
C
T1          WEEKES WASH BREAKOUT - CROSS SECTIONS SURVEYED BY Z&H ENGINEERING
T2          IN-HOUSE STUDY BY AMIR MOTAMEDI AND VALERIE RICE
T3          MARCH 1988, 100 YEAR FLOW

J1  ICHECK    ING       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
    -10.      2.        0.        0. -1.000000        .00       1.5       0.  1005.000      .000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    38.000    1.000    39.000    42.000     8.000     4.000    27.000    28.000    21.000    22.000

    53.000   54.000    50.000    38.000     5.000     1.000     3.000    61.000    11.000    12.000

    10.000   55.000    26.000    56.000    51.000    33.000    38.000    43.000    13.000    14.000

    15.000   35.000    60.000    59.000    16.000    17.000    18.000    58.000      .000      .000
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      QCH       QRCB      ALOB      ACH       AROE      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     COPAR     TOPWID      ENDST

*PROF 1


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3260 CROSS SECTION       1.00 EXTENDED       3.57 FEET

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     8150.0   10300.0  TYPE=      1  TARGET=     2150.000
         THIS STUDY WAS DONE TO ESTIMATE THE BREAKOUT FOR THE WEEKES WASH AREA
         THE CROSS SECTIONS ARE FROM THE SURVEY BY THE Z & H COMPANY #88044
         THE CROSS SECTIONS WERE CODED AS THE CENTER OF 10,000
         THE MOST DOWN STREAM CROSS SECTION IS #1
         THE RIGHT BANK WAS ASSUMED TO BE THE CREST FOR THE BREAKOUT
         ET CARDS WERE USED TO ADJUST THE HEAD FOR THE WEIR OVER FLOW
         JUNCTION DR.
     1.00      1.57  1003.57  1003.57  1003.57  1003.95       .38       .00       .00  1008.00
     592.        0.     592.       0.       0.     119.        0.        0.        0.   1002.00
      .00       .00     4.96      .00     .000     .035      .000      .000   1002.00 10065.39
  .005054        0.       0.       0.        0       10         0       .00    159.61 10225.00


1490 NH CARD USED
*SECNO 2.000

3265 DIVIDED FLOW

3280 CROSS SECTION       2.00 EXTENDED       3.63 FEET


3470 ENCROACHMENT STATIONS=     9400.0   10300.0  TYPE=      1  TARGET=      900.000
     2.00      3.63  1004.13       .00  1004.13  1004.16       .02       .17       .04  1008.50
    1000.        0.    1000.       0.       0.     862.        0.        3.        2.   1006.30
      .06       .00     1.16      .00     .000     .035      .000      .000   1000.50  9537.80
  .000339      245.     260.     290.        5        0         0       .00    475.90 10202.48


1490 NH CARD USED
*SECNO 3.000
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3265 DIVIDED FLOW

3280 CROSS SECTION       3.00 EXTENDED       4.28 FEET

3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9200.0    10119.0  TYPE=      1  TARGET=      919.000
     3.00      2.58  1010.58  1010.58  1010.58  1010.94      .36       .36       .10  1011.20
    1000.        0.     1000.       0.       0.     209.       0.        7.        5.  1011.00
      .08       .33      4.79      .00     .070     .035     .000      .000   1008.00  9354.51
  .017689      320.      345.     400.       20       14        0       .00    277.51 10114.65


1490 NH CARD USED
*SECNO 4.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     9300.0    10130.0  TYPE=      1  TARGET=      830.000
     4.00      3.44  1014.44      .00  1014.44  1014.69      .25      3.74       .01  1014.50
    1000.       41.      959.       0.      67.     236.       0.       10.        8.  1014.80
      .11       .61      4.06      .00     .070     .035     .000      .000   1011.00  9638.39
  .005782      370.      400.     400.        4        0        0       .00    462.50 10118.30


1490 NH CARD USED
*SECNO 5.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9300.0    10150.0  TYPE=      1  TARGET=      850.000
     5.00      1.43  1016.93  1016.93  1016.93  1017.29      .37      2.09       .04  1017.50
    1000.      204.      796.       0.      82.     150.       0.       11.       10.  1017.60
      .12      2.49      5.30      .00     .057     .035     .000      .000   1015.50  9409.80
  .018665      245.      215.     215.        6       18        0       .00    343.69 10107.78
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         GLOB      DCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VRO       XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 6.000

3470 ENCROACHMENT STATIONS=     9300.0    10260.0  TYPE=      1  TARGET=      960.000
          SCENIC STREET
     6.00      1.57  1019.37      .00  1019.37  1019.51      .14      2.20      .02  1020.50
    1000.        0.     1000.       0.       0.     329.       0.       12.      12.   1020.30
      .14       .00      3.04      .00      .057     .035     .000      .000  1017.80   9837.92
  .005800      360.      215.     170.        4        0        0       .00   360.52  10198.43
```

TW WEIR OVERFLOW BETWEEN 1 AND 2, ROAD WIDTH OF 30 FT MODELED AS A WEIR.

ASQ	QCOMP	ERRAC	TASQ	TCQ	TAPER	NITER	DSWS	USWS	DSSNO	USSNO
408.42	407.17	.31	408.42	407.17	.31	5	1003.570	1004.134	1.000	2.000

TW WEIR OVERFLOW BETWEEN 2 AND 3

ASQ	QCOMP	ERRAC	TASQ	TCQ	TAPER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	408.42	407.17	.31	5	1004.134	1010.581	2.000	3.000

TW WEIR OVERFLOW BETWEEN 3 AND 4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TAPER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	408.42	407.17	.31	5	1010.581	1014.443	3.000	4.000

TW WEIR OVERFLOW BETWEEN 4 AND 5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TAPER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	408.42	407.17	.31	5	1014.443	1016.927	4.000	5.000

TW WEIR OVERFLOW BETWEEN 5 AND 6

ASQ	QCOMP	ERRAC	TASQ	TCQ	TAPER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	408.42	407.17	.31	5	1016.927	1019.370	5.000	6.000

THIS RUN EXECUTED 11/22/88 11: 3:49

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*************************************************
```

T1
T2
T3 3000 CFS

J1	ICHECK	ING	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	-1.000000	.00	1.5	0.	1005.000	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 2

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED       4.35 FEET

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     8150.0   10300.0  TYPE=      1  TARGET=     2150.000
         THIS STUDY WAS DONE TO ESTIMATE THE BREAKOUT FOR THE WEEKES WASH AREA
         THE CROSS SECTIONS ARE FROM THE SURVEY BY THE Z & H COMPANY #88044
         THE CROSS SECTIONS WERE CODED AS THE CENTER OF 10,000
         THE MOST DOWN STREAM CROSS SECTION IS #1
         THE RIGHT BANK WAS ASSUMED TO BE THE CREST FOR THE BREAKOUT
         ET CARDS WERE USED TO ADJUST THE HEAD FOR THE WEIR OVER FLOW
         JUNCTION DR.
     1.00      2.35  1004.35  1004.35  1004.35  1004.78       .43       .00       .00  1008.00
    1836.        0.    1836.       0.       0.     349.        0.        0.        0.   1002.00
      .00       .00     5.26       .00     .000     .035      .000      .000   1002.00  9849.06
  .004240        0.       0.       0.        0       13         0       .00    375.94 10225.00

1490 NH CARD USED
*SECNO 2.000

3265 DIVIDED FLOW

3280 CROSS SECTION       2.00 EXTENDED       4.56 FEET

3470 ENCROACHMENT STATIONS=     9400.0   10300.0  TYPE=      1  TARGET=      900.000
     2.00      4.56  1005.06       .00  1005.06  1005.13       .07       .32       .04  1008.50
    2811.        0.    2811.       0.       0.    1326.        0.        5.        3.   1006.30
      .03       .00     2.12       .00     .000     .035      .000      .000   1000.50  9531.91
  .000718      245.     260.      290.        4        0         0       .00    518.61 10203.55

1490 NH CARD USED
*SECNO 3.000
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3265 DIVIDED FLOW

3280 CROSS SECTION       3.00 EXTENDED       5.02 FEET

3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9200.0   10119.0  TYPE=      1  TARGET=      919.000
     3.00      3.32  1011.32  1011.32  1011.32  1011.88      .57       .50       .15  1011.20
    2831.       39.    2792.       0.       51.     459.       0.       12.       7.  1011.00
      .05       .75     6.08      .00      .070     .035     .000      .000  1008.00  9304.75
  .004374      320.     345.     400.       20       13        0       .00   559.53 10118.00


1490 NH CARD USED
*SECNO 4.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10130.0  TYPE=      1  TARGET=      830.000
     4.00      4.13  1015.13  1015.13  1015.13  1015.88      .75      1.39       .06  1014.50
    2947.      341.    2606.       0.      352.     353.       0.       18.      12.  1014.80
      .07       .97     7.39      .00      .070     .035     .000      .000  1011.00  9453.27
  .002883      370.     400.     400.       12       11        0       .00   666.73 10120.00


1490 NH CARD USED
*SECNO 5.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10150.0  TYPE=      1  TARGET=      850.000
     5.00      2.06  1017.56  1017.56  1017.56  1018.24      .69      1.40       .01  1017.50
    2964.      691.    2072.       0.      252.     272.       0.       21.      16.  1017.60
      .08      3.53     7.62      .00      .054     .035     .000      .000  1015.50  9394.77
  .023502      245.     215.     215.       20       12        0       .00   640.01 10142.52
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 6.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=     9300.0    10260.0  TYPE=      1  TARGET=      960.000
          SCENIC STREET
     6.00      2.50  1020.30  1019.79  1020.30  1020.55      .25      2.46      2.26  1020.50
    3000.        7.     2993.       0.       14.     739.       0.       25.       20.   1020.30
      .09       .46      4.05      .00      .070     .035     .000      .000   1017.80   9465.76
  .005873      360.      215.     170.       20        8        0       .00    628.67  10249.99
```

TW WEIR OVERFLOW BETWEEN 1 AND 2, ROAD WIDTH OF 30 FT MODELED AS A WEIR.

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
974.19	974.42	.02	974.19	974.42	.02	13	1004.349	1005.061	1.000	2.000

TW WEIR OVERFLOW BETWEEN 2 AND 3

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
19.96	19.68	1.41	994.15	994.10	.01	13	1005.061	1011.319	2.000	3.000

TW WEIR OVERFLOW BETWEEN 3 AND 4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
116.79	116.29	.43	1110.94	1110.39	.05	13	1011.319	1015.127	3.000	4.000

TW WEIR OVERFLOW BETWEEN 4 AND 5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
16.29	16.30	.03	1127.23	1126.69	.05	13	1015.127	1017.555	4.000	5.000

TW WEIR OVERFLOW BETWEEN 5 AND 6

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
36.40	36.40	.00	1163.63	1163.09	.05	13	1017.555	1020.300	5.000	6.000

THIS RUN EXECUTED 11/22/88 11: 4:16

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  C1,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
**************************************************
```

T1
T2 WEEKES WASH
T3 5000 CFS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	-1.000000	.00	.0	0.	1005.000	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     FG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      GCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 3

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED       4.53 FEET

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     8150.0    10300.0  TYPE=      1  TARGET=     2150.000
         THIS STUDY WAS DONE TO ESTIMATE THE BREAKOUT FOR THE WEEKES WASH AREA
         THE CROSS SECTIONS ARE FROM THE SURVEY BY THE Z & H COMPANY #88044
         THE CROSS SECTIONS WERE CODED AS THE CENTER OF 10,000
         THE MOST DOWN STREAM CROSS SECTION IS #1
         THE RIGHT BANK WAS ASSUMED TO BE THE CREST FOR THE BREAKOUT
         ET CARDS WERE USED TO ADJUST THE HEAD FOR THE WEIR OVER FLOW
         JUNCTION DR.
     1.00      2.53  1004.53  1004.53  1004.58  1005.10       .57       .00       .00  1008.00
    2539.        0.    2539.       0.       0.     418.        0.        0.        0.   1002.00
      .00       .00     6.08       .00     .000     .035      .000      .000   1002.00   9840.70
  .004611        0.       0.       0.        0       14         0       .00    384.30  10225.00

1490 NH CARD USED
*SECNO 2.000

3265 DIVIDED FLOW

3280 CROSS SECTION       2.00 EXTENDED       4.92 FEET

3470 ENCROACHMENT STATIONS=     9400.0    10300.0  TYPE=      1  TARGET=      900.000
     2.00      4.93  1005.43       .00  1005.41  1005.52       .10       .37       .05  1008.50
    3760.        0.    3760.       0.       0.    1518.        0.        6.        3.   1006.30
      .03       .00     2.48       .00     .000     .035      .000      .000   1000.50   9529.58
  .000345      245.     260.      290.        4        0         0       .00    530.65  10203.98

1490 NH CARD USED
*SECNO 3.000
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3265 DIVIDED FLOW

3280 CROSS SECTION       3.00 EXTENDED       5.33 FEET


3301 HV CHANGED MORE THAN HVINS

3665 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9200.0   10119.0  TYPE=      1  TARGET=      919.000
     3.00      3.63  1011.63  1011.63  1011.64  1012.26      .62       .54       .16  1011.20
    3874.       95.     3780.       0.      121.     590.       0.       15.       8.   1011.00
      .04       .79      6.40      .00      .070     .035     .000      .000  1008.00  9283.44
  .003614      320.      345.     400.       20       14        0       .00   704.74 10118.00


1490 NH CARD USED
*SECNO 4.000
3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10130.0  TYPE=      1  TARGET=      830.000
     4.00      4.66  1015.66  1015.66  1015.66  1016.52      .87      1.20       .07  1014.50
    4432.      792.     3640.       0.      620.     443.       0.       22.      14.   1014.80
      .06      1.28      8.22      .00      .070     .035     .000      .000  1011.00  9439.09
  .002634      370.      400.     400.       20       13        0       .00   680.91 10120.00


1490 NH CARD USED
*SECNO 5.000
3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10150.0  TYPE=      1  TARGET=      850.000
     5.00      2.82  1018.32  1018.32  1018.32  1019.11      .79       .69       .01  1017.50
    4799.     1221.     3578.       0.      636.     438.       0.       28.      18.   1017.60
      .07      1.92      8.17      .00      .055     .035     .000      .000  1015.50  9376.46
  .003639      245.      215.     215.       20       14        0       .00   768.54 10145.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 6.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9300.0    10260.0  TYPE=      1  TARGET=      960.000
          SCENIC STREET
     6.00      2.51   1020.31   1020.31   1020.31   1021.01       .70       .89       .01   1020.50
    5000.        6.     4994.        0.       16.       744.        0.       34.       22.   1020.30
      .08       .39      6.71       .00      .070      .035      .000      .000   1017.80   9465.27
  .004002      360.      215.      170.         2        11         0       .00    633.42  10250.00
```

TW WEIR OVERFLOW BETWEEN 1 AND 2, ROAD WIDTH OF 30 FT MODELED AS A WEIR.

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1221.03	1200.85	1.67	1221.03	1200.85	1.67	20	1004.528	1005.426	1.000	2.000

TW WEIR OVERFLOW BETWEEN 2 AND 3

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
114.49	114.53	.04	1335.52	1315.38	1.52	20	1005.426	1011.634	2.000	3.000

TW WEIR OVERFLOW BETWEEN 3 AND 4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
557.33	561.56	.76	1892.85	1876.95	.84	20	1011.634	1015.659	3.000	4.000

TW WEIR OVERFLOW BETWEEN 4 AND 5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
367.26	369.89	.71	2260.12	2246.84	.59	20	1015.659	1018.321	4.000	5.000

TW WEIR OVERFLOW BETWEEN 5 AND 6

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
200.92	200.10	.41	2461.04	2446.94	.57	20	1018.321	1020.310	5.000	6.000

THIS RUN EXECUTED 11/22/88 11: 4:51

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
**************************************************
```

T1
T2 WEEKES WASH
T3 6000 CFS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	-1.000000	.00	.0	0.	1005.000	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	4.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 4

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED       4.62 FEET

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     8150.0    10300.0  TYPE=      1  TARGET=     2150.000
          THIS STUDY WAS DONE TO ESTIMATE THE BREAKOUT FOR THE WEEKES WASH AREA
          THE CROSS SECTIONS ARE FROM THE SURVEY BY THE Z & H COMPANY #88044
          THE CROSS SECTIONS WERE CODED AS THE CENTER OF 10,000
          THE MOST DOWN STREAM CROSS SECTION IS #1
          THE RIGHT BANK WAS ASSUMED TO BE THE CREST FOR THE BREAKOUT
          ET CARDS WERE USED TO ADJUST THE HEAD FOR THE WEIR OVER FLOW
          JUNCTION DR.
     1.00      2.62  1004.62  1004.62  1004.62  1005.24       .61       .00       .00  1008.00
    2862.        C.    2862.       0.       0.     455.        0.        0.        0.   1002.00
      .00       .00     6.29      .00     .000     .035      .000      .000   1002.00  9836.20
  .017825        C.       C.       0.        0       14         0       .00    388.80 10225.00

1490 NH CARD USED
*SECNO 2.000

3265 DIVIDED FLOW

3280 CROSS SECTION       2.00 EXTENDED       5.15 FEET


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9400.0    10300.0  TYPE=      1  TARGET=      900.000
     2.00      5.15  1005.65      .00  1005.65  1005.76       .10       .46       .05  1008.50
    4203.        C.    4203.       0.       0.    1639.        1.        6.        3.   1006.30
      .03       .00     2.56      .11     .000     .035      .070      .000   1000.50  9528.13
 .000832      245.     260.     290.        5        0         0       .00    545.54 10249.54
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QRCB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 3.000

3265 DIVIDED FLOW

3280 CROSS SECTION       3.00 EXTENDED       5.46 FEET


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9200.0   10119.0  TYPE=      1  TARGET=      919.000
     3.00      3.76  1011.76  1011.76  1011.75  1012.42      .66       .52       .17  1011.20
    4392.      130.     4262.       0.      160.     642.       0.       16.       8.   1011.00
      .04       .82      6.64      .00      .070     .035     .070      .000  1008.00  9275.07
  .003471      320.      345.     400.       20       14        0       .00   757.13 10118.00


1490 NH CARD USED
*SECNO 4.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10130.0  TYPE=      1  TARGET=      830.000
     4.00      4.89  1015.89  1015.89  1015.84  1016.81      .92      1.16       .08  1014.50
    5165.     1031.     4134.       0.      736.     482.       0.       25.      14.   1014.80
      .06      1.40      8.58      .00      .070     .035     .070      .000  1011.00  9433.05
  .002575      370.      400.     400.       20       13        0       .00   686.95 10120.00


1490 NH CARD USED
*SECNO 5.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10150.0  TYPE=      1  TARGET=      850.000
     5.00      3.01  1018.51  1018.51  1018.51  1019.38      .87       .68       .01  1017.50
    5689.     1533.     4155.       0.      743.     480.       0.       31.      18.   1017.60
      .07      2.06      8.66      .00      .056     .035     .070      .000  1015.50  9371.86
  .003624      245.      215.     215.       20       14        0       .00   773.14 10145.00
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 6.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0    10260.0  TYPE=     1  TARGET=     960.000
        SCENIC STREET
     6.00      2.72  1020.52  1020.52  1020.52  1021.27      .75      .87      .01  1020.50
    6000.       26.     5974.       0.      48.     858.       0.      38.      23.   1020.30
      .08       .54      6.96      .00     .070     .035     .070     .000  1017.80  9455.41
  .003806      360.      215.     170.        2       15        0      .00   794.59 10250.00
```

TW WEIR OVERFLOW BETWEEN 1 AND 2, ROAD WIDTH OF 30 FT MODELED AS A WEIR.

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1340.24	1351.77	.86	1340.24	1351.77	.86	13	1004.624	1005.653	1.000	2.000

TW WEIR OVERFLOW BETWEEN 2 AND 3

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
189.72	195.72	3.12	1529.95	1547.49	1.14	13	1005.653	1011.758	2.000	3.000

TW WEIR OVERFLOW BETWEEN 3 AND 4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
772.61	805.52	4.17	2302.56	2353.01	2.17	13	1011.758	1015.886	3.000	4.000

TW WEIR OVERFLOW BETWEEN 4 AND 5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
523.58	537.36	2.60	2826.14	2890.37	2.25	13	1015.886	1018.513	4.000	5.000

TW WEIR OVERFLOW BETWEEN 5 AND 6

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
311.48	311.39	.03	3137.63	3201.76	2.02	13	1018.513	1020.518	5.000	6.000

THIS RUN EXECUTED 11/22/88 11: 5:16

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
**************************************************
```

T1
T2 WEEKES WASH
T3 7000 CFS

J1	ICHECK	INQ	NINV	IDIP	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	6.	0.	0.	-1.000000	.00	1.5	0.	1005.000	.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	5.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      GCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 5

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED       4.71 FEET

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     8150.0    10300.0  TYPE=      1  TARGET=     2150.000
         THIS STUDY WAS DONE TO ESTIMATE THE BREAKOUT FOR THE WEEKES WASH AREA
         THE CROSS SECTIONS ARE FROM THE SURVEY BY THE Z & H COMPANY #88044
         THE CROSS SECTIONS WERE CODED AS THE CENTER OF 10,000
         THE MOST DOWN STREAM CROSS SECTION IS #1
         THE RIGHT BANK WAS ASSUMED TO BE THE CREST FOR THE BREAKOUT
         ET CARDS WERE USED TO ADJUST THE HEAD FOR THE WEIR OVER FLOW
         JUNCTION DR.
     1.00      2.71  1004.71  1004.71  1004.72  1005.36       .65       .00       .00  1008.00
    3167.        0.    3167.       0.       0.     488.        0.        0.        0.   1002.00
      .00       .00     6.49       .00     .000     .035      .000      .000   1002.00  9832.23
  .017483        0.       0.       0.        0       14         0       .00    392.78 10225.00

1490 NH CARD USED
*SECNO 2.000

3265 DIVIDED FLOW

3280 CROSS SECTION       2.00 EXTENDED       5.29 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9400.0    10300.0  TYPE=      1  TARGET=      900.000
     2.00      5.29  1005.79       .00  1005.80  1005.91       .11       .49       .05  1008.50
    4640.        0.    4640.       0.       0.    1715.        2.        7.        3.   1006.30
      .03       .00     2.71       .17     .000     .035      .070      .000   1000.50  9527.24
  .000883      245.     260.      290.        5        0         0       .00    556.95 10253.73
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      GCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 3.000

3265 DIVIDED FLOW

3280 CROSS SECTION       3.00 EXTENDED       5.55 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9200.0   10119.0  TYPE=      1  TARGET=     919.000
     3.00      3.85  1011.85  1011.85  1011.85  1012.58      .73       .55       .19  1011.20
    4913.      165.     4748.       0.      192.     680.       0.       17.       8.   1011.00
      .04       .86      6.99      .00      .070     .035     .070      .000  1008.00  9269.00
  .003564      320.      345.     400.       20       16        0       .00   795.09 10118.00

1490 NH CARD USED
*SECNO 4.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10130.0  TYPE=      1  TARGET=     830.000
     4.00      5.03  1016.03  1016.03  1016.03  1017.07     1.04      1.23       .09  1014.50
    5893.     1244.     4649.       0.      309.     505.       0.       26.      15.   1014.80
      .06      1.54      9.20      .00      .070     .035     .070      .000  1011.00  9429.56
  .002776      370.      400.     400.       20       11        0       .00   690.44 10120.00

1490 NH CARD USED
*SECNO 5.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10150.0  TYPE=      1  TARGET=     850.000
     5.00      3.20  1018.70  1018.70  1018.70  1019.64      .94       .70       .01  1017.50
    6576.     1857.     4719.       0.      848.     521.       0.       34.      19.   1017.60
      .06      2.19      9.06      .00      .056     .035     .070      .000  1015.50  9367.34
  .003558      245.      215.     215.       20       14        0       .00   777.66 10145.00
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 6.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10260.0  TYPE=     1  TARGET=     960.000
        SCENIC STREET
     6.00      2.88  1020.68  1020.68  1020.68  1021.50      .82      .85      .01  1020.50
    7000.       61.     6939.       0.      88.     952.       0.      41.      24.   1020.30
      .07       .69      7.29      .00     .070     .035     .070     .000  1017.80  9447.48
  .003639      360.      215.     170.       11       15        0      .00   802.52 10250.00
```

TW WEIR OVERFLOW BETWEEN 1 AND 2, ROAD WIDTH OF 30 FT MODELED AS A WEIR.

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1472.61	1470.76	.13	1472.61	1470.76	.13	8	1004.709	1005.792	1.000	2.000

TW WEIR OVERFLOW BETWEEN 2 AND 3

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
272.82	271.04	.65	1745.43	1741.79	.21	8	1005.792	1011.848	2.000	3.000

TW WEIR OVERFLOW BETWEEN 3 AND 4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
980.37	980.30	.01	2725.80	2722.09	.14	8	1011.848	1016.025	3.000	4.000

TW WEIR OVERFLOW BETWEEN 4 AND 5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
682.57	682.87	.04	3408.38	3404.96	.10	8	1016.025	1018.702	4.000	5.000

TW WEIR OVERFLOW BETWEEN 5 AND 6

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
424.19	424.53	.08	3832.57	3829.48	.08	8	1018.702	1020.685	5.000	6.000

THIS RUN EXECUTED 11/22/88 11: 5:30

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
**************************************************
```

T1
T2 WEEKES WASH
T3 9000 CFS

J1	ICHECK	ING	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	7.	0.	0.	-1.000000	.00	1.5	0.	1005.000	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	6.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 6

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED       4.84 FEET

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     8150.0    10300.0  TYPE=      1  TARGET=     2150.000
         THIS STUDY WAS DONE TO ESTIMATE THE BREAKOUT FOR THE WEEKES WASH AREA
         THE CROSS SECTIONS ARE FROM THE SURVEY BY THE Z & H COMPANY #88044
         THE CROSS SECTIONS WERE CODED AS THE CENTER OF 10,000
         THE MOST DOWN STREAM CROSS SECTION IS #1
         THE RIGHT BANK WAS ASSUMED TO BE THE CREST FOR THE BREAKOUT
         ET CARDS WERE USED TO ADJUST THE HEAD FOR THE WEIR OVER FLOW
         JUNCTION DR.
     1.00      2.84  1004.84  1004.84  1004.85  1005.55       .71       .00       .00  1008.00
    3659.        0.    3659.       0.       0.     541.        0.        0.        0.   1002.00
      .00       .00     6.76      .00     .000     .035      .000      .000   1002.00   9825.97
  .016895        0.       0.       0.        0       10         0       .00    399.04  10225.00

1490 NH CARD USED
*SECNO 2.000

3265 DIVIDED FLOW

3280 CROSS SECTION       2.00 EXTENDED       5.50 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9400.0    10300.0  TYPE=      1  TARGET=      900.000
     2.00      5.50  1006.00       .00  1006.01  1006.13       .13       .52       .06  1008.50
    5334.        0.    5333.        2.       0.    1830.        6.        7.        3.   1006.30
      .02       .00     2.91       .26     .000     .035      .070      .000   1000.50   9525.90
  .000957      245.     260.      290.        5        0         0       .00    574.16  10260.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        CLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 3.000
3280 CROSS SECTION       3.00 EXTENDED       5.80 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9200.0   10119.0  TYPE=      1  TARGET=      919.000
     3.00      4.10  1012.10  1012.10  1012.10  1012.84      .74       .55       .18  1011.20
    5838.      276.     5562.       0.     300.     787.       0.       19.       9.   1011.00
      .04       .92      7.07      .00     .070     .035     .070      .000  1008.00  9251.70
  .003003      320.      345.     400.       20       14        0       .00   866.30 10118.00

1490 NH CARD USED
*SECNO 4.000
3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10130.0  TYPE=      1  TARGET=      830.000
     4.00      5.37  1016.37  1016.37  1016.37  1017.55     1.18      1.14       .13  1014.50
    7322.     1726.     5596.       0.     987.     563.       0.       30.      15.   1014.80
      .05      1.75      9.93      .00     .070     .035     .070      .000  1011.00  9423.63
  .002804      370.      400.     400.       20       11        0       .00   696.37 10120.00

1490 NH CARD USED
*SECNO 5.000
3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    9300.0   10150.0  TYPE=      1  TARGET=      850.000
     5.00      3.54  1019.04  1019.04  1019.05  1020.10     1.06       .70       .01  1017.50
    8342.     2529.     5814.       0.    1046.     595.       0.       39.      19.   1017.60
      .06      2.42      9.77      .00     .056     .035     .070      .000  1015.50  9339.79
  .003471      245.      215.     215.       20       14        0       .00   805.21 10145.00
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
Q         QLOB      QCH       QRCB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
TIME      VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


1490 NH CARD USED
*SECNO 6.000
3230 CROSS SECTION        6.00 EXTENDED        .29 FEET

3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9300.0    10260.0  TYPE=      1  TARGET=      960.000
         SCENIC STREET
     6.00      3.19  1020.99  1020.99  1020.99  1021.94       .95       .82       .01  1020.50
    9000.      154.     8346.       0.     163.     1121.       0.       48.       25.   1020.30
      .07       .94      7.89      .00     .070      .035     .070      .000  1017.80  9433.14
  .003429      360.      215.     170.       20        15        0       .00    816.86 10250.00
```

TW WEIR OVERFLOW BETWEEN 1 AND 2, ROAD WIDTH OF 30 FT MODELED AS A WEIR.

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1675.25	1669.14	.37	1675.25	1669.14	.37	8	1004.844	1006.002	1.000	2.000

TW WEIR OVERFLOW BETWEEN 2 AND 3

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
503.61	502.34	.25	2178.86	2171.48	.34	8	1006.002	1012.104	2.000	3.000

TW WEIR OVERFLOW BETWEEN 3 AND 4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1484.06	1484.97	.06	3662.92	3656.44	.18	8	1012.104	1016.366	3.000	4.000

TW WEIR OVERFLOW BETWEEN 4 AND 5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1020.29	1019.12	.11	4683.21	4675.56	.16	8	1016.366	1019.043	4.000	5.000

TW WEIR OVERFLOW BETWEEN 5 AND 6

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
657.60	657.03	.09	5340.80	5332.59	.15	8	1019.043	1020.987	5.000	6.000

THIS RUN EXECUTED 11/22/88 11: 5:49

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
**************************************************
```

T1
T2 WEEKES WASH
T3 10000 CFS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	8.	0.	0.	-1.000000	.00	1.5	0.	1005.000	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      GCH       GRCB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 7

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      4.93 FEET

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    8150.0   10300.0  TYPE=     1  TARGET=    2150.000
         THIS STUDY WAS DONE TO ESTIMATE THE BREAKOUT FOR THE WEEKES WASH AREA
         THE CROSS SECTIONS ARE FROM THE SURVEY BY THE Z & H COMPANY #88044
         THE CROSS SECTIONS WERE CODED AS THE CENTER OF 10,000
         THE MOST DOWN STREAM CROSS SECTION IS #1
         THE RIGHT BANK WAS ASSUMED TO BE THE CREST FOR THE BREAKOUT
         ET CARDS WERE USED TO ADJUST THE HEAD FOR THE WEIR OVER FLOW
         JUNCTION DR.
    1.00      2.93  1004.93  1004.93  1004.93  1005.64      .72      .00      .00  1008.00
   3905.        C.    3905.       0.       0.     575.       0.       0.       0.  1002.00
     .00       .00     6.79      .00     .000     .035     .000     .000  1002.00  9821.98
  .015891       C.       0.       0.        0        7        0      .00   403.02 10225.00

1490 NH CARD USED
*SECNO 2.000

3265 DIVIDED FLOW

3280 CROSS SECTION      2.00 EXTENDED      5.60 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=    9400.0   10300.0  TYPE=     1  TARGET=     900.000
    2.00      5.61  1006.11      .00  1006.11  1006.25      .14      .55      .06  1008.50
   5698.        C.    5695.       3.       0.    1387.       9.       7.       3.  1006.30
     .02       .00     3.02      .32     .000     .035     .070     .000  1000.50  9525.25
 .001017      245.     260.     290.        5        0        0      .00   589.49 10260.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     FG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

1490 NH CARD USED
*SECNO 3.000

3265 DIVIDED FLOW

3250 CROSS SECTION       3.00 EXTENDED       5.90 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9200.0    10119.0  TYPE=      1  TARGET=      919.000
     3.00      4.20  1012.20  1012.20  1012.20  1012.97      .77       .57       .19  1011.20
    6322.      336.     5987.       0.      343.      826.       0.       19.       9.   1011.00
      .04       .98      7.25      .00      .070      .035     .070      .000  1008.00  9200.00
  .002955      320.      345.     400.       20        14        0       .00   875.13 10118.00

1490 NH CARD USED
*SECNO 4.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9300.0    10130.0  TYPE=      1  TARGET=      830.000
     4.00      5.53  1016.53  1016.53  1016.53  1017.78     1.25      1.14       .14  1014.50
    8048.     1980.     6068.       0.     1074.      591.       0.       32.      16.   1014.80
      .05      1.84     10.26      .00      .070      .035     .070      .000  1011.00  9420.77
  .002808      370.      400.     400.       20        11        0       .00   699.23 10120.00

1490 NH CARD USED
*SECNO 5.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9300.0    10150.0  TYPE=      1  TARGET=      850.000
     5.00      3.68  1019.18  1019.18  1019.18  1020.32     1.14       .71       .01  1017.50
    9232.     2867.     6365.       0.     1129.      625.       0.       41.      20.   1017.60
      .06      2.54     10.18      .00      .056      .035     .070      .000  1015.50  9336.77
  .003522      245.      215.     215.       20        19        0       .00   808.23 10145.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


1490 NH CARD USED
*SECNO 6.000
3280 CROSS SECTION       6.00 EXTENDED        .43 FEET

3685 20 TRIALS ATTEMPTED WSEL/CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9300.0    10260.0  TYPE=      1  TARGET=      960.000
         SCENIC STREET
     6.00      3.33  1021.13  1021.13  1021.13  1022.14      1.01       .82       .01  1020.50
   10000.      209.     9791.       0.     200.    1199.       0.       51.       25.   1020.30
      .07      1.04      8.16      .00     .070     .035      .070      .000   1017.80  9426.47
  .003352      360.      215.     170.       20       15         0       .00    823.53 10250.00
```

TW WEIR OVERFLOW BETWEEN 1 AND 2, ROAD WIDTH OF 30 FT MODELED AS A WEIR.

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1792.31	1788.49	.21	1792.31	1788.49	.21	8	1004.929	1006.105	1.000	2.000

TW WEIR OVERFLOW BETWEEN 2 AND 3

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
624.78	620.60	.67	2417.09	2409.09	.33	8	1006.105	1012.199	2.000	3.000

TW WEIR OVERFLOW BETWEEN 3 AND 4

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1725.67	1725.23	.02	4142.75	4134.37	.20	8	1012.199	1016.531	3.000	4.000

TW WEIR OVERFLOW BETWEEN 4 AND 5

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1183.66	1183.23	.04	5326.41	5317.61	.17	8	1016.531	1019.184	4.000	5.000

TW WEIR OVERFLOW BETWEEN 5 AND 6

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
768.24	768.60	.05	6094.64	6086.21	.14	8	1019.184	1021.127	5.000	6.000

THIS RUN EXECUTED 11/22/88 11: 6: 9

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*************************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MARCH 1988, 100 YEAR

SUMMARY PRINTOUT

	SECNO	CWSEL	XLCH	ELMIN	DEPTH	TOPWID	STENCL	STENCR	STCHL	STCHR	SSTA	ENDST	DIFWSP
*	1.000	1003.57	.00	1002.00	1.57	159.61	8150.00	10300.00	9630.00	10225.00	10065.39	10225.00	.00
*	1.000	1004.35	.00	1002.00	2.35	375.94	8150.00	10300.00	9630.00	10225.00	9849.06	10225.00	.78
*	1.000	1004.53	.00	1002.00	2.53	384.30	8150.00	10300.00	9630.00	10225.00	9840.70	10225.00	.18
*	1.000	1004.62	.00	1002.00	2.62	388.80	8150.00	10300.00	9630.00	10225.00	9836.20	10225.00	.10
*	1.000	1004.71	.00	1002.00	2.71	392.78	8150.00	10300.00	9630.00	10225.00	9832.23	10225.00	.09
*	1.000	1004.84	.00	1002.00	2.84	399.04	8150.00	10300.00	9630.00	10225.00	9825.97	10225.00	.13
*	1.000	1004.93	.00	1002.00	2.93	403.02	8150.00	10300.00	9630.00	10225.00	9821.98	10225.00	.09
	2.000	1004.13	260.00	1000.50	3.63	475.90	9400.00	10300.00	9510.00	10230.00	9537.80	10202.48	.00
	2.000	1005.06	260.00	1000.50	4.56	518.61	9400.00	10300.00	9510.00	10230.00	9531.91	10203.55	.93
	2.000	1005.43	260.00	1000.50	4.93	530.65	9400.00	10300.00	9510.00	10230.00	9529.58	10203.98	.36
	2.000	1005.65	260.00	1000.50	5.15	545.54	9400.00	10300.00	9510.00	10230.00	9528.13	10249.54	.23
	2.000	1005.79	260.00	1000.50	5.29	556.95	9400.00	10300.00	9510.00	10230.00	9527.24	10253.73	.14
	2.000	1006.00	260.00	1000.50	5.50	574.16	9400.00	10300.00	9510.00	10230.00	9525.90	10260.00	.21
	2.000	1006.11	260.00	1000.50	5.61	589.49	9400.00	10300.00	9510.00	10230.00	9525.25	10260.00	.10
*	3.000	1010.58	345.00	1008.00	2.58	277.51	9200.00	10119.00	9700.00	10118.00	9354.51	10114.65	.00
*	3.000	1011.32	345.00	1008.00	3.32	559.53	9200.00	10119.00	9700.00	10118.00	9304.75	10118.00	.74
*	3.000	1011.63	345.00	1008.00	3.63	704.74	9200.00	10119.00	9700.00	10118.00	9283.44	10118.00	.32
*	3.000	1011.76	345.00	1008.00	3.76	757.13	9200.00	10119.00	9700.00	10118.00	9275.07	10118.00	.12
*	3.000	1011.85	345.00	1008.00	3.85	795.09	9200.00	10119.00	9700.00	10118.00	9269.00	10118.00	.09
*	3.000	1012.10	345.00	1008.00	4.10	866.30	9200.00	10119.00	9700.00	10118.00	9251.70	10118.00	.26
*	3.000	1012.20	345.00	1008.00	4.20	875.13	9200.00	10119.00	9700.00	10118.00	9200.00	10118.00	.09
	4.000	1014.44	400.00	1011.00	3.44	462.50	9300.00	10130.00	9950.00	10120.00	9638.39	10118.30	.00
*	4.000	1015.13	400.00	1011.00	4.13	666.73	9300.00	10130.00	9950.00	10120.00	9453.27	10120.00	.68
*	4.000	1015.66	400.00	1011.00	4.66	680.91	9300.00	10130.00	9950.00	10120.00	9439.09	10120.00	.53
*	4.000	1015.89	400.00	1011.00	4.89	686.95	9300.00	10130.00	9950.00	10120.00	9433.05	10120.00	.23
*	4.000	1016.03	400.00	1011.00	5.03	690.44	9300.00	10130.00	9950.00	10120.00	9429.56	10120.00	.14
*	4.000	1016.37	400.00	1011.00	5.37	696.37	9300.00	10130.00	9950.00	10120.00	9423.63	10120.00	.34
*	4.000	1016.53	400.00	1011.00	5.53	699.23	9300.00	10130.00	9950.00	10120.00	9420.77	10120.00	.16

	SECNO	CWSEL	XLCH	ELMIN	DEPTH	TOPWID	STENCL	STENCR	STCHL	STCHR	SSTA	ENDST	DIFWSP
*	5.000	1016.93	215.00	1015.50	1.43	343.69	9300.00	10150.00	9928.00	10145.00	9409.80	10107.78	.00
*	5.000	1017.56	215.00	1015.50	2.06	640.01	9300.00	10150.00	9928.00	10145.00	9394.77	10142.52	.63
*	5.000	1018.32	215.00	1015.50	2.82	768.54	9300.00	10150.00	9928.00	10145.00	9376.46	10145.00	.77
*	5.000	1018.51	215.00	1015.50	3.01	773.14	9300.00	10150.00	9928.00	10145.00	9371.86	10145.00	.19
*	5.000	1018.70	215.00	1015.50	3.20	777.66	9300.00	10150.00	9928.00	10145.00	9367.34	10145.00	.19
*	5.000	1019.04	215.00	1015.50	3.54	805.21	9300.00	10150.00	9928.00	10145.00	9339.79	10145.00	.34
*	5.000	1019.18	215.00	1015.50	3.68	808.23	9300.00	10150.00	9928.00	10145.00	9336.77	10145.00	.14
	6.000	1019.37	215.00	1017.80	1.57	360.52	9300.00	10260.00	9690.00	10250.00	9837.92	10198.43	.00
*	6.000	1020.30	215.00	1017.80	2.50	628.67	9300.00	10260.00	9690.00	10250.00	9465.76	10249.99	.93
*	6.000	1020.31	215.00	1017.80	2.51	633.42	9300.00	10260.00	9690.00	10250.00	9465.27	10250.00	.01
*	6.000	1020.52	215.00	1017.80	2.72	794.59	9300.00	10260.00	9690.00	10250.00	9455.41	10250.00	.21
*	6.000	1020.68	215.00	1017.80	2.88	802.52	9300.00	10260.00	9690.00	10250.00	9447.48	10250.00	.17
*	6.000	1020.99	215.00	1017.80	3.19	816.86	9300.00	10260.00	9690.00	10250.00	9433.14	10250.00	.30
*	6.000	1021.13	215.00	1017.80	3.33	823.53	9300.00	10260.00	9690.00	10250.00	9426.47	10250.00	.14

MARCH 1988, 100 YEAR

SUMMARY PRINTOUT

	SECNO	10K*S	CWSEL	EG	DIFEG	HL	OLOSS	HV	VLOB	VCH	VROB	DIFWSX	K*CHSL
*	1.000	50.54	1003.57	1003.95	.00	.00	.00	.38	.00	4.96	.00	.00	.00
*	1.000	42.40	1004.35	1004.78	.83	.00	.00	.43	.00	5.26	.00	.00	.00
*	1.000	46.11	1004.53	1005.10	1.15	.00	.00	.57	.00	6.08	.00	.00	.00
*	1.000	178.25	1004.62	1005.24	1.29	.00	.00	.61	.00	6.29	.00	.00	.00
*	1.000	174.83	1004.71	1005.36	1.41	.00	.00	.65	.00	6.49	.00	.00	.00
*	1.000	168.95	1004.84	1005.55	1.60	.00	.00	.71	.00	6.76	.00	.00	.00
*	1.000	158.91	1004.93	1005.64	1.69	.00	.00	.72	.00	6.79	.00	.00	.00
	2.000	3.39	1004.13	1004.16	.00	.17	.04	.02	.00	1.16	.00	.56	-5.77
	2.000	7.18	1005.06	1005.13	.98	.32	.04	.07	.00	2.12	.00	.71	-5.77
	2.000	8.45	1005.43	1005.52	1.37	.37	.05	.10	.00	2.48	.00	.90	-5.77
	2.000	8.32	1005.65	1005.76	1.60	.46	.05	.10	.00	2.56	.11	1.03	-5.77
	2.000	8.83	1005.79	1005.91	1.75	.49	.05	.11	.00	2.71	.17	1.08	-5.77
	2.000	9.57	1006.00	1006.13	1.98	.52	.06	.13	.00	2.91	.26	1.16	-5.77
	2.000	10.17	1006.11	1006.25	2.09	.55	.06	.14	.00	3.02	.32	1.18	-5.77
*	3.000	176.89	1010.58	1010.94	.00	.36	.10	.36	.33	4.79	.00	6.45	21.74
*	3.000	43.74	1011.32	1011.88	.95	.50	.15	.57	.75	6.08	.00	6.26	21.74
*	3.000	36.14	1011.63	1012.26	1.32	.54	.16	.62	.79	6.40	.00	6.21	21.74
*	3.000	34.71	1011.76	1012.42	1.48	.52	.17	.66	.82	6.64	.00	6.11	21.74
*	3.000	35.64	1011.85	1012.58	1.64	.55	.19	.73	.86	6.99	.00	6.06	21.74
*	3.000	30.03	1012.10	1012.84	1.91	.55	.18	.74	.92	7.07	.00	6.10	21.74
*	3.000	29.55	1012.20	1012.97	2.03	.57	.19	.77	.98	7.25	.00	6.09	21.74
	4.000	57.82	1014.44	1014.69	.00	3.74	.01	.25	.61	4.06	.00	3.86	7.50
*	4.000	28.83	1015.13	1015.88	1.19	1.39	.06	.75	.97	7.39	.00	3.81	7.50
*	4.000	26.34	1015.66	1016.52	1.84	1.20	.07	.87	1.28	8.22	.00	4.02	7.50
*	4.000	25.75	1015.89	1016.81	2.12	1.16	.08	.92	1.40	8.58	.00	4.13	7.50
*	4.000	27.76	1016.03	1017.07	2.38	1.23	.09	1.04	1.54	9.20	.00	4.18	7.50
*	4.000	28.04	1016.37	1017.55	2.86	1.14	.13	1.18	1.75	9.93	.00	4.26	7.50
*	4.000	28.08	1016.53	1017.78	3.09	1.14	.14	1.25	1.84	10.26	.00	4.33	7.50
*	5.000	186.65	1016.93	1017.29	.00	2.09	.04	.37	2.49	5.30	.00	2.48	20.93
*	5.000	235.02	1017.56	1018.24	.95	1.40	.01	.69	3.53	7.62	.00	2.43	20.93
*	5.000	36.39	1018.32	1019.11	1.81	.69	.01	.79	1.92	8.17	.00	2.66	20.93
*	5.000	36.24	1018.51	1019.38	2.09	.68	.01	.87	2.06	8.66	.00	2.63	20.93
*	5.000	35.58	1018.70	1019.64	2.34	.70	.01	.94	2.19	9.06	.00	2.68	20.93
*	5.000	34.71	1019.04	1020.10	2.81	.70	.01	1.06	2.42	9.77	.00	2.68	20.93
*	5.000	35.22	1019.18	1020.32	3.03	.71	.01	1.14	2.54	10.18	.00	2.65	20.93
	6.000	58.00	1019.37	1019.51	.00	2.20	.02	.14	.00	3.04	.00	2.44	10.70
*	6.000	58.73	1020.30	1020.55	1.04	2.46	2.26	.25	.46	4.05	.00	2.74	10.70
*	6.000	40.02	1020.31	1021.01	1.49	.89	.01	.70	.39	6.71	.00	1.99	10.70
*	6.000	38.06	1020.52	1021.27	1.75	.87	.01	.75	.54	6.96	.00	2.00	10.70
*	6.000	36.39	1020.68	1021.50	1.99	.85	.01	.82	.69	7.29	.00	1.98	10.70
*	6.000	34.29	1020.99	1021.94	2.42	.82	.01	.95	.94	7.89	.00	1.94	10.70
*	6.000	33.52	1021.13	1022.14	2.63	.82	.01	1.01	1.04	8.16	.00	1.94	10.70

MARCH 1988, 100 YEAR

SUMMARY PRINTOUT

	SECNO	Q	QLCB	QCH	QROB	QLOBP	QCHP	QROBP	K*XNL	K*XNCH	K*XNR	KRATIO
*	1.000	591.58	.00	591.58	.00	.00	100.00	.00	.01	.01	.01	.00
*	1.000	1836.37	.00	1836.37	.00	.00	100.00	.00	.01	.01	.01	.00
*	1.000	2538.96	.00	2538.96	.00	.00	100.00	.00	.01	.01	.01	.00
*	1.000	2862.37	.00	2862.37	.00	.00	100.00	.00	.01	.01	.01	.00
*	1.000	3167.43	.00	3167.43	.00	.00	100.00	.00	.01	.01	.01	.00
*	1.000	3659.19	.00	3659.19	.00	.00	100.00	.00	.01	.01	.01	.00
*	1.000	3905.36	.00	3905.36	.00	.00	100.00	.00	.01	.01	.01	.00
	2.000	1000.00	.00	1000.00	.00	.00	100.00	.00	.01	.01	.01	6.52
	2.000	2810.56	.00	2810.56	.00	.00	100.00	.00	.01	.01	.01	3.72
	2.000	3759.99	.00	3759.99	.00	.00	100.00	.00	.01	.01	.01	3.46
	2.000	4202.61	.00	4202.55	.06	.00	100.00	.00	.01	.01	.01	6.80
	2.000	4640.05	.00	4639.69	.36	.00	99.99	.01	.01	.01	.01	6.52
	2.000	5334.44	.00	5332.85	1.60	.00	99.97	.03	.01	.01	.01	6.13
	2.000	5697.67	.00	5694.84	2.83	.00	99.95	.05	.01	.01	.01	5.77
*	3.000	1000.00	.16	999.83	.00	.02	99.98	.00	.01	.01	.01	.14
*	3.000	2830.52	38.68	2791.84	.00	1.37	98.63	.00	.01	.01	.01	.41
*	3.000	3874.48	94.92	3779.55	.00	2.45	97.55	.00	.01	.01	.01	.50
*	3.000	4392.33	130.14	4262.18	.00	2.96	97.04	.00	.01	.01	.01	.51
*	3.000	4912.86	165.15	4747.71	.00	3.36	96.64	.00	.01	.01	.01	.53
*	3.000	5838.05	276.48	5561.57	.00	4.74	95.26	.00	.01	.01	.01	.62
*	3.000	6322.45	335.90	5986.55	.00	5.31	94.69	.00	.01	.01	.01	.65
	4.000	1000.00	41.11	958.89	.00	4.11	95.89	.00	.01	.01	.01	1.75
*	4.000	2947.31	341.08	2606.22	.00	11.57	88.43	.00	.01	.01	.01	1.28
*	4.000	4431.81	791.91	3639.90	.00	17.87	82.13	.00	.01	.01	.01	1.34
*	4.000	5164.94	1030.98	4133.96	.00	19.96	80.04	.00	.01	.01	.01	1.37
*	4.000	5893.23	1244.13	4649.11	.00	21.11	78.89	.00	.01	.01	.01	1.36
*	4.000	7322.11	1726.33	5595.78	.00	23.58	76.42	.00	.01	.01	.01	1.30
*	4.000	8048.11	1979.87	6068.24	.00	24.60	75.40	.00	.01	.01	.01	1.31
*	5.000	1000.00	203.71	796.29	.00	20.37	79.63	.00	.01	.01	.01	.56
*	5.000	2963.60	891.23	2072.36	.00	30.07	69.93	.00	.01	.01	.01	.35
*	5.000	4799.07	1221.22	3577.85	.00	25.45	74.55	.00	.01	.01	.01	.92
*	5.000	5688.52	1533.27	4155.25	.00	26.95	73.05	.00	.01	.01	.01	.93
*	5.000	6575.81	1857.11	4718.70	.00	28.24	71.76	.00	.01	.01	.01	.99
*	5.000	8342.40	2528.54	5813.86	.00	30.31	69.69	.00	.01	.01	.01	1.02
*	5.000	9231.77	2867.18	6364.59	.00	31.06	68.94	.00	.01	.01	.01	1.02
	6.000	1000.00	.00	1000.00	.00	.00	100.00	.00	.01	.01	.01	1.79
*	6.000	3000.00	6.65	2993.34	.00	.22	99.78	.00	.01	.01	.01	1.19
*	6.000	5000.00	6.01	4993.99	.00	.12	99.88	.00	.01	.01	.01	.99
*	6.000	6000.00	26.15	5973.85	.00	.44	99.56	.00	.01	.01	.01	1.03
*	6.000	7000.00	60.52	6939.48	.00	.86	99.14	.00	.01	.01	.01	1.05
*	6.000	9000.00	153.65	8846.35	.00	1.71	98.29	.00	.01	.01	.01	1.09
*	6.000	10000.00	208.58	9791.42	.00	2.09	97.91	.00	.01	.01	.01	1.11

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION  SECNO=     1.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     1.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     1.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     1.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     1.000  PROFILE= 5  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     1.000  PROFILE= 6  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     1.000  PROFILE= 7  CRITICAL DEPTH ASSUMED

CAUTION  SECNO=     3.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     3.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     3.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     3.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     3.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     3.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     3.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     3.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     3.000  PROFILE= 5  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.000  PROFILE= 5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     3.000  PROFILE= 5  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     3.000  PROFILE= 6  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.000  PROFILE= 6  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     3.000  PROFILE= 6  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     3.000  PROFILE= 7  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     3.000  PROFILE= 7  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     3.000  PROFILE= 7  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=     4.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     4.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     4.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     4.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     4.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     4.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     4.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     4.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     4.000  PROFILE= 5  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     4.000  PROFILE= 5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     4.000  PROFILE= 5  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     4.000  PROFILE= 6  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     4.000  PROFILE= 6  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     4.000  PROFILE= 6  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     4.000  PROFILE= 7  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     4.000  PROFILE= 7  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     4.000  PROFILE= 7  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=     5.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     5.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     5.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
```

```
CAUTION  SECNO=     5.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     5.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     5.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     5.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     5.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     5.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     5.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     5.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     5.000  PROFILE= 5  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     5.000  PROFILE= 5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     5.000  PROFILE= 5  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     5.000  PROFILE= 6  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     5.000  PROFILE= 6  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     5.000  PROFILE= 6  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     5.000  PROFILE= 7  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     5.000  PROFILE= 7  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     5.000  PROFILE= 7  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=     6.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=     6.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     6.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.000  PROFILE= 5  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.000  PROFILE= 5  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.000  PROFILE= 6  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.000  PROFILE= 6  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.000  PROFILE= 6  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=     6.000  PROFILE= 7  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=     6.000  PROFILE= 7  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=     6.000  PROFILE= 7  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

THIS RUN EXECUTED 11/22/88 11: 6:13

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*************************************************
```

```
STOP
)
)
END OF FILE
AOS/VS CLI   TERMINATING        22-NOV-88        11:06:15

PROCESS 81 TERMINATED

ELAPSED TIME  0:02:56, CPU TIME  00:00:00.084, I/O BLOCKS  52
(OTHER JOBS, SAME USERNAME:
    NUMBER OF CONSOLE JOBS, 1
    NUMBER OF BATCH JOBS, 0)
USER 'HYD.WSM' LOGGED OFF       22-NOV-88        11:06:14

****
*LIST FILE EMPTY, WILL NOT BE PRINTED
****
```