DEADMAN'S WASH AREA DRAINAGE MASTER STUDY

VOLUME 2, REPORT

INDEX NO. ST-886341

September, 1990

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PREPARED FOR:

CITY OF PHOENIX, ARIZONA
ENGINEERING DEPARTMENT
FLOODPLAIN MANAGEMENT SECTION

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Las Vegas, Nevada
Phoenix, Arizona

sea incorporated
CONSULTING ENGINEERS

CASES 1, 3 AND 5
UPPER WATERSHED MODEL

```
*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*          FEBRUARY 1981                *
*        REVISED 01 JUN 88              *
*                                       *
*  RUN DATE  09/12/1990  TIME  19:43:20 *
*                                       *
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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*          (916) 551-1748               *
*                                       *
*****************************************
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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. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

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

  1           ID   DEADMAN'S WASH, --- CASE 1,3 AND 5 - 100 YEAR, 24 HOUR DESIGN STORM ---
  2           ID   EXISTING CONDITIONS (UPPER WATERSHED MODEL)
  3           ID   KINEMATIC WAVE ROUTING
  4           IT     15                     96
  5           IO      3       0
  6           IN     30

  7           KK     SB1 SUBWATERSHED 1
  8           KM   RUNOFF FROM SB1
  9           KO
 10           BA    .46
 11           LS      0    85.5
 12           PB   4.33
 13           PC      0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 14           PC    .057   .100    .660    .745    .776    .800    .816    .830    .840    .850
 15           PC    .861   .868    .878    .884    .891    .900    .905    .912    .919    .923
 16           PC    .930   .934    .939    .944    .950    .958    .961    .963    .969    .971
 17           PC    .974   .979    .981    .985    .989    .991    .993    .996   1.000
 18           UK   500.    .040     .15     100
 19           RK   1500    .017    .050     .09    TRAP       2       1
 20           RK   7700    .025    .045            TRAP       8       3
 21           DX      5              4       4
```

```
22          KK     SB2 SUBWATERSHED 2
23          KM   RUNOFF FROM SB2
24          KO
25          BA    1.05
26          LS       0    85.3       5
27          UK    500.     .04     .15     100
28          RK   3000.    .015     .05     .15    TRAP       2       1
29          RK   13300    .013    .045            TRAP      10       3     YES
30          DX       7              5       5

31          KK     SB3 SUBWATERSHED 3
32          KM   RUNOFF FROM SB3
33          KO
34          BA     .37
35          LS       0    84.9
36          UK     250     .20     .15     100
37          RK   1000.     .10     .05     .04    TRAP               1
38          RK    6000    .028    .045            TRAP       3       1
39          DX       5              4       4

40          KK     SB4 SUBWATERSHED 4
41          KM   RUNOFF FORM SB4
42          KO
43          BA    1.15
44          LS       0    85.8
45          UK    250.     .10     .15     100
46          RK    1200     .08      .1     .08    TRAP               1
47          RK  11100.    .032    .045            TRAP       4       1
48          DX       6              8       8
```



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

49          KK   CB3+4
50          KM   COMBINE SB3 AND SB4
51          KO
52          HC       2

53          KK     SB5
54          KM   RUNOFF FROM SB5
55          KO
56          BA     .87
57          LS       0    84.6
58          UK    500.     .10     .15     100
59          RK    2000     .05      .1     .06    TRAP       1       1
60          RK  12600.    .012    .045            TRAP      13       4     YES
61          DX       5              6       6

62          KK     SB6
63          KM   RUNOFF FROM SB6
64          KO
65          BA     .71
66          LS       0    84.3
67          UK    500.     .10      .1     100
68          RK   1200.     .05     .05     .06    TRAP       1       1
69          RK  15500.    .026    .045            TRAP       8       4
70          DX       5              4       4
```

```
 71          KK   SB5+6
 72          KM   COMBINE SB5 AND SB6
 73          KO
 74          HC       2

 75          KK     SB7
 76          KM   RUNOFF FROM SB7
 77          KO
 78          BA     .17
 79          LS       0    81.3
 80          UK    250.     .06     .05     100
 81          RK   5200.    .015    .045           TRAP      13      14     YES

 82          KK   SB2+7
 83          KM   COMBINE SB2 AND SB7
 84          KO
 85          HC       2

 86          KK     SB8A
 87          KM   RUNOFF FROM SB8A
 88          KO
 89          BA    1.43
 90          LS       0    84.4
 91          UK    500.     .07     .15     100
 92          RK   3000.     .05      .1     .09    TRAP       2       1
 93          RK  21300.    .022    .045           TRAP      20       2
 94          DX       5              6       6
                                     HEC-1 INPUT                                                    PAGE  3

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


 95          KK   SB278
 96          KM   COMBINE SB2,SB7 AND SB8
 97          KO
 98          HC       2      -3  142

 99          KK    SB8B
100          KM   RUNOFF FROM SB8B
101          KO
102          BA     .07
103          LS       0      75
104          UK     50.      .1      .1     100
105          RK   2000.     .01    .045           TRAP      16       2     YES

106          KK    SB12
107          KM   RUNOFF FROM SB12
108          KO
109          BA     1.8
110          LS       0    83.7
111          UK    200.     .05     .15     100
112          RK   5000.     .03      .1     100    TRAP       2       1
113          RK  17400.    .019    .045           TRAP       3       1
114          DX       6              8       8

115          KK    SB13
116          KM   RUNOFF FROM SB13
117          KO
118          BA     .71
119          LS       0    85.3
```

```
120        UK    700.     .02      .1     100
121        RK  13200.    .016    .045            TRAP      4       1
122        DX      5               6

123        KK  SB1213
124        KM   COMBINE SB12 AND SB13
125        KO
126        HC      2

127        KK    SB14
128        KM   RUNOFF FROM SB14
129        KO
130        BA      .1
131        LS       0    83.5
132        UK    700.     .02      .1     100
133        RK   2100.     .01    .045            TRAP      4       1     YES

134        KK    SB10
135        KM   RUNOFF FROM SB10
136        KO
137        BA     .58
138        LS       0    85.3
139        UK    500.     .20     .15     100
140        RK   1500.     .10      .1     .06    TRAP      1       1
141        RK   8500.    .052    .045            TRAP      6       1
142        DX      5               6       6
                                        HEC-1 INPUT                                                    PAGE  4

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


143        KK   SB11A
144        KM   RUNOFF FROM SB11A
145        KO
146        BA     .68
147        LS       0    80.9
148        UK    250.     .08      .1     100
149        RK   3000.     .04     .05     .08    TRAP      2       1
150        RK  10000.    .019    .045            TRAP     10       3     YES

151        KK  SB1114
152        KM   COMBINE SB11 AND SB14
153        KO
154        HC      2                    7,10

155        KK   SB11B
156        KM   RUNOFF FROM SB11B
157        KO
158        BA    .005
159        LS       0      75
160        UK     50.     .04      .1     100
161        RK   1000.     .02    .045            TRAP      3       3     YES

162        KK    SB15
163        KM   RUNOFF FROM SB15
164        KO
165        BA     .08
166        LS       0    85.0      10
167        UK    250.     .05      .1     100
168        RK   2000.    .025    .045            TRAP     10       3
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```
169          DX      6              6

170          KK    SB9A
171          KM   RUNOFF FROM SB9A
172          KO
173          BA     .77
174          LS       0    84.7
175          UK    300.     .04      .1     100
176          RK   2500.    .020      .1     .10    TRAP      4       1
177          RK  15800.    .016    .045            TRAP      9       2
178          DX      6              8       8

179          KK  SB9145
180          KM   COMBINE SB9, SB11B AND SB15
181          KO
182          HC      3

183          KK    SB9B
184          KM   RUNOFF FROM SB9B
185          KO
186          BA     .08
187          LS       0    84.7
188          UK    600.     .050      .1     100
189          RK   2000.    .016    .045            TRAP     16       3     YES
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

190          KK    SB16
191          KM   RUNOFF FROM SB16
192          KO
193          BA    1.65
194          LS       0    85.9       2       0    85.9
195          UK    500.     .02     .15      60
196          UK    250.      .1     .15      40
197          RK   5000.     .01      .1    1.09    TRAP      4       2
198          RK   2000.     .08      .1     .56    TRAP              1
199          RK  13700.    .009    .045            TRAP      8       3
200          DX      5       5       4       4       4

201          KK  CB1698
202          KM   COMBINE SB8B, SB9B AND SB16
203          KO
204          HC      3

205          KK   SB17A
206          KM   RUNOFF FROM SB17A
207          KO
208          BA    1.15
209          LS       0    85.7
210          UK    500.    .025     .15     100
211          RK   2500.    .016     .05     .14    TRAP      2       2
212          RK   9300.    .014    .045            TRAP      6       3
213          DX      5              4       4

214          KK  CB1796
215          KM   COMBINE SB17A AND SB1698
216          KO
217          HC      2
```

```
218        KK   SB17B
219        KM   RUNOFF FROM SB17B
220        KO
221        BA     .12
222        LS       0    80.4
223        UK    700.     .08      .1     100
224        RK   2900.    .003    .045            TRAP      23       1     YES
225        DX       5              4

226        KK   SB18A
227        KM   RUNOFF FROM SB18A
228        KO
229        BA     .15
230        LS       0    82.1
231        UK    250.    .150      .1     100
232        RK   1000.    .070     .05     .04    TRAP       1       1
233        RK   1100.    .082    .045            TRAP       3       1
234        DX       7              8       8
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LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

235        KK   SB18B
236        KM   RUNOFF FROM SB18B
237        KO
238        BA     .02
239        LS       0    84.2
240        UK    300.     .02      .1     100
241        RK    900.    .017    .045            TRAP       2       1     YES

242        KK  CB1718
243        KM   COMBINE SB17 AND SB18
244        KO
245        HC       2

246        KK   SB21A
247        KM   RUNOFF FROM SB21A
248        KO
249        BA     .13
250        LS       0    83.6
251        UK    500.     .20      .1     100
252        RK   2000.     .04     .05     .07    TRAP       1       1
253        RK   1300.    .008    .045            TRAP       2       1     YES

254        KK   SB19A
255        KM   RUNOFF FROM SB19A
256        KO
257        BA     .35
258        LS       0    85.1
259        UK    200.     .25      .1     100
260        RK   1000.     .20     .05     .03    TRAP       1       1
261        RK   4500.    .039    .045            TRAP       3       1

262        KK   SB19B
263        KM   RUNOFF FROM SB19B
264        KO
265        BA     .05
266        LS       0    80.3
```

```
267          UK    350.     .07      .1     100
268          RK   2500.    .014    .045            TRAP      4       1     YES

269          KK  CB2119
270          KM   COMBINE SB21A + SB19B
271          KO
272          HC       2

273          KK   SB21B
274          KM   RUNOFF FROM SB21B
275          KO
276          BA     .51
277          LS       0    81.3
278          UK    800.     .05      .1     100
279          RK   3500.    .025     .05     .06    TRAP      4       2
280          RK   3600.    .008    .045            TRAP     20       1     YES
```



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

281          KK    SB20
282          KM   RUNOFF FROM SB20
283          KO
284          BA     .10
285          LS       0    86.0
286          UK    250.     .30      .1     100
287          RK   1000.     .09    .045            TRAP      1       1

288          KK    SB22
289          KM   RUNOFF FROM SB22
290          KO
291          BA     .74
292          LS       0    84.7               0    84.7
293          UK    300.     .08     .15      60
294          UK    100.     .40     .15      40
295          RK   3000.     .04      .1     .04    TRAP      1       1
296          RK   1200.      .3     .05     .01    TRAP      4       1
297          RK   3400.    .014    .045            TRAP     10       2     YES

298          KK  CB2122
299          KM   COMBINE SB21B + SB22
300          KO
301          HC       2

302          KK    SB23
303          KM   RUNOFF FROM SB23
304          KO
305          BA     .31
306          LS       0    81.9               0    81.9
307          UK    100.     .50      .1      40
308          UK    300.     .04      .1      60
309          RK   1500.     .25     .05     .03    TRAP      2       1
310          RK   1000.     .03     .05     .07    TRAP      2       1
311          RK   6300.    .008    .045            TRAP     23       1     YES

312          KK    SB24
313          KM   RUNOFF FROM SB24
314          KO
315          BA     .52
```

```
 316          LS       0    86.0
 317          UK    500.    .025      .1     100
 318          RK   7400.    .009    .045            TRAP      3       4
 319          DX       5               4

 320          KK    SB25
 321          KM   RUNOFF FROM SB25
 322          KO
 323          BA     .58
 324          LS       0    86.0      10
 325          UK    500.     .05      .1     100
 326          RK   1500.     .02     .05     .10    TRAP              4
 327          RK   8500.    .011    .045            TRAP      5       4     YES
 328          DX       7               6       6
1                                          HEC-1 INPUT                                                    PAGE  8

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


 329          KK    SB26
 330          KM   RUNOFF FROM SB26
 331          KO
 332          BA     .60
 333          LS       0    84.0      10
 334          UK    500.     .02      .1     100
 335          RK   3000.     .01     .05     .20    TRAP              4
 336          RK   4500.   .0089    .045            TRAP      5       4     YES

 337          KK  CB2623
 338          KM   COMBINE SB26 AND SB23
 339          KO
 340          HC       2

 341          KK    SB27
 342          KM   RUNOFF FROM SB27
 343          KO
 344          BA     .92
 345          LS       0    85.3
 346          UK    400.     .04     .15     100
 347          RK  10000.     .02      .1     .30    TRAP              4
 348          RK   2900.    .005    .045            TRAP     13       1     YES

 349          KK    SB28
 350          KM   RUNOFF FROM SB28
 351          KO               2                      21
 352          BA     .87
 353          LS       0    80.3
 354          UK    300.     .04      .1     100
 355          RK   6000.     .01     .05     .29    TRAP      8       2
 356          RK   4000.    .007    .045            TRAP     15       1     YES
 357          ZZ
1*****************************************
*                                       *
  FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *
         FEBRUARY 1981                  *
        REVISED 01 JUN 88               *
                                        *
 RUN DATE  09/12/1990  TIME  19:43:20   *
*                                       *
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*                                       *
*****************************************
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```
                    DEADMAN'S WASH, --- CASE 1,3 AND 5 - 100 YEAR, 24 HOUR DESIGN STORM ---
                    EXISTING CONDITIONS (UPPER WATERSHED MODEL)
                    KINEMATIC WAVE ROUTING

 5 IO         OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT         HYDROGRAPH TIME DATA
                     NMIN         15  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ         96  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      1    0  ENDING DATE
                   NDTIME       2345  ENDING TIME
                   ICENT          19  CENTURY MARK

              COMPUTATION INTERVAL     .25 HOURS
                   TOTAL TIME BASE   23.75 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


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


          **************
          *            *
 7 KK     *       SB1  *      SUBWATERSHED 1
          *            *
          **************
                    RUNOFF FROM SB1

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

 6 IN         TIME DATA FOR INPUT TIME SERIES
                   JXMIN         30  TIME INTERVAL IN MINUTES
                   JXDATE      1    0  STARTING DATE
                   JXTIME          0  STARTING TIME

            SUBBASIN RUNOFF DATA

10 BA         SUBBASIN CHARACTERISTICS
```

TAREA .46 SUBBASIN AREA

PRECIPITATION DATA

PB STORM 4.33 BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

11 LS SCS LOSS RATE

STRTL	.34	INITIAL ABSTRACTION
CRVNBR	85.50	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

18 UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.0400	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

19 RK COLLECTOR CHANNEL

L	1500.	CHANNEL LENGTH
S	.0170	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.09	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS

20 RK MAIN CHANNEL

L	7700.	CHANNEL LENGTH
S	.0250	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.46	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	8.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.99	1.67	2.24	100.00	1043.47	360.38	2.79	.74
3	1.84	1.36	.69	375.00	1031.35	360.34	2.79	9.04

```
                    4        1.58      1.40       2.20   1925.00    933.90    365.63      2.77      14.57

UITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   68.705 OUTFLOW=   68.075 BASIN STORAGE=     .308 PERCENT ERROR=     .470

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    4        1.58      1.40      15.00             733.30    360.00      2.78

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

                     HYDROGRAPH AT STATION      SB1

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.53, TOTAL EXCESS =    2.80

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                        (CFS)
+    733.      6.00                 114.        35.         35.         35.
                      (INCHES)     2.295      2.783       2.783       2.783
                       (AC-FT)      56.        68.         68.         68.

                     CUMULATIVE AREA =     .46 SQ MI


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


         **************
         *            *
 22 KK   *      SB2   *      SUBWATERSHED 2
         *            *
         **************
                       RUNOFF FROM SB2

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

            SUBBASIN RUNOFF DATA

 25 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.05  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 PI             INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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					

26 LS SCS LOSS RATE

STRTL	.34	INITIAL ABSTRACTION
CRVNBR	85.30	CURVE NUMBER
RTIMP	5.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

27 UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.0400	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	7	MINIMUM NUMBER OF DX INTERVALS

28 RK COLLECTOR CHANNEL

L	3000.	CHANNEL LENGTH
S	.0150	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.15	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

29 RK MAIN CHANNEL

L	13300.	CHANNEL LENGTH
S	.0130	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	1.05	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	10.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.99	1.67	1.61	71.43	2461.44	359.95	2.82	.74
3	1.73	1.36	1.03	600.00	2333.69	361.46	2.81	9.74
4	1.05	1.42	2.91	2660.00	2588.74	371.08	2.78	15.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= 68.277 EXCESS= 160.129 OUTFLOW= 224.033 BASIN STORAGE= 1.883 PERCENT ERROR= 1.090

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.05	1.42	15.00	2501.92	375.00	2.77

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

HYDROGRAPH AT STATION SB2

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.47, TOTAL EXCESS = 2.86

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
2502.	6.25		369.	114.	114.	114.
		(INCHES)	2.274	2.770	2.770	2.770
		(AC-FT)	183.	223.	223.	223.

CUMULATIVE AREA = 1.51 SQ MI

*** ***

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              **************
              *            *
31 KK         *      SB3   *      SUBWATERSHED 3
              *            *
              **************
                        RUNOFF FROM SB3

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

             SUBBASIN RUNOFF DATA

34 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .37  SUBBASIN AREA

               PRECIPITATION DATA

12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                    .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                    .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                    .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                    .00      .00      .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

35 LS          SCS LOSS RATE
                    STRTL        .36  INITIAL ABSTRACTION
                   CRVNBR      84.90  CURVE NUMBER
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
```

36 UK OVERLAND-FLOW ELEMENT NO. 1

L	250.	OVERLAND FLOW LENGTH
S	.2000	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

37 RK COLLECTOR CHANNEL

L	1000.	CHANNEL LENGTH
S	.1000	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.04	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS

38 RK MAIN CHANNEL

L	6000.	CHANNEL LENGTH
S	.0280	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.37	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	3.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	4.44	1.67	.89	50.00	880.24	359.31	2.72	.94
3	4.72	1.33	.30	250.00	879.73	359.26	2.72	14.08
4	2.42	1.38	1.46	1500.00	783.19	361.56	2.54	21.88

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 54.176 OUTFLOW= 50.085 BASIN STORAGE= .132 PERCENT ERROR= 7.306

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	2.42	1.38	15.00	742.09	360.00	2.60

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

HYDROGRAPH AT STATION SB3

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.58, TOTAL EXCESS = 2.75

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
742.	6.00	(CFS)	85.	26.	26.	26.
		(INCHES)	2.147	2.605	2.605	2.605
		(AC-FT)	42.	51.	51.	51.

```
                    CUMULATIVE AREA =     .37 SQ MI


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


          **************
          *            *
 40 KK    *       SB4  *      SUBWATERSHED 4
          *            *
          **************
                     RUNOFF FORM SB4

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

              SUBBASIN RUNOFF DATA

 43 BA          SUBBASIN CHARACTERISTICS
                      TAREA        1.15  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

 44 LS          SCS LOSS RATE
                      STRTL         .33  INITIAL ABSTRACTION
                     CRVNBR       85.80  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 45 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L        250.  OVERLAND FLOW LENGTH
                          S       .1000  SLOPE
                          N        .150  ROUGHNESS COEFFICIENT
                         PA       100.0  PERCENT OF SUBBASIN
                      DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
 [illegible]RK          COLLECTOR CHANNEL
                          L       1200.  CHANNEL LENGTH
                          S       .0800  SLOPE
                          N        .100  CHANNEL ROUGHNESS COEFFICIENT
                         CA         .08  CONTRIBUTING AREA
                      SHAPE        TRAP  CHANNEL SHAPE
```

WD	.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
BK MAIN CHANNEL		
L	11100.	CHANNEL LENGTH
S	.0320	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	1.15	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.14	1.67	.91	41.67	2806.59	359.82	2.81	.76
3	2.11	1.33	.28	150.00	2802.35	359.66	2.80	8.98
4	2.39	1.40	.91	1387.50	2711.69	361.11	2.79	25.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 173.466 OUTFLOW= 171.263 BASIN STORAGE= .674 PERCENT ERROR= .881

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	2.39	1.40	15.00	2672.54	360.00	2.77

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

HYDROGRAPH AT STATION S84

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.50, TOTAL EXCESS = 2.83

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 2673.	6.00		285.	87.	87.	87.
		(INCHES)	2.303	2.773	2.773	2.773
		(AC-FT)	141.	170.	170.	170.

CUMULATIVE AREA = 1.15 SQ MI

*** ***

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              **************
              *            *
49 KK         *    CB3+4   *
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*            *
**************
                COMBINE SB3 AND SB4

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

52 HC          HYDROGRAPH COMBINATION
                  ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                  HYDROGRAPH AT STATION    CB3+4

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                        (CFS)
  3415.       6.00                370.        113.        113.        113.
                     (INCHES)    2.265       2.732       2.732       2.732
                      (AC-FT)     184.        221.        221.        221.

                     CUMULATIVE AREA =    1.52 SQ MI

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

**************
*            *
53 KK     *      SB5   *
*            *
**************
                RUNOFF FROM SB5

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

            SUBBASIN RUNOFF DATA

56 BA          SUBBASIN CHARACTERISTICS
                  TAREA        .87  SUBBASIN AREA

               PRECIPITATION DATA

12 PB             STORM       4.33  BASIN TOTAL PRECIPITATION

 PI             INCREMENTAL PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                  .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                  .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
```

.00	.00	.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					

57 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.60	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

58 UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.1000	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

59 RK COLLECTOR CHANNEL

L	2000.	CHANNEL LENGTH
S	.0500	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.06	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

60 RK MAIN CHANNEL

L	12600.	CHANNEL LENGTH
S	.0120	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.87	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	13.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.14	1.67	1.68	100.00	2020.21	359.42	2.68	.99
3	1.68	1.33	.80	333.33	1940.41	360.65	2.53	7.27
4	.90	1.42	2.15	2100.00	4901.38	370.73	2.63	16.28

CONTINUITY SUMMARY (AC-FT) - INFLOW= 221.495 EXCESS= 126.120 OUTFLOW= 334.620 BASIN STORAGE= 2.705 PERCENT ERROR= 2.960

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.90	1.42	15.00		4202.17	375.00	2.57

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

                HYDROGRAPH AT STATION      SB5

TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.61, TOTAL EXCESS =    2.72

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                        (CFS)
  4202.       6.25                   536.        167.        167.        167.
                      (INCHES)      2.085       2.566       2.566       2.566
                       (AC-FT)       266.        327.        327.        327.

                CUMULATIVE AREA =    2.39 SQ MI


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


          **************
          *            *
 62 KK    *       SB6  *
          *            *
          **************
                   RUNOFF FROM SB6

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

              SUBBASIN RUNOFF DATA

 65 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .71  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

 LS             SCS LOSS RATE
                     STRTL        .37  INITIAL ABSTRACTION
                    CRVNBR      84.30  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA
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                KINEMATIC WAVE
67 UK             OVERLAND-FLOW ELEMENT NO. 1
                        L        500.  OVERLAND FLOW LENGTH
                        S       .1000  SLOPE
                        N        .100  ROUGHNESS COEFFICIENT
                       PA       100.0  PERCENT OF SUBBASIN
                    DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
68 RK             COLLECTOR CHANNEL
                        L       1200.  CHANNEL LENGTH
                        S       .0500  SLOPE
                        N        .050  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .06  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD        1.00  BOTTOM WIDTH OR DIAMETER
                        Z        1.00  SIDE SLOPE
                    DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
69 RK             MAIN CHANNEL
                        L      15500.  CHANNEL LENGTH
                        S       .0260  SLOPE
                        N        .045  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .71  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD        8.00  BOTTOM WIDTH OR DIAMETER
                        Z        4.00  SIDE SLOPE
                    DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
                   RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	4.71	1.67	1.31	100.00	1645.74	359.10	2.66	1.27
3	3.37	1.33	.41	300.00	1636.77	358.88	2.66	12.05
4	1.59	1.39	4.43	3875.00	1251.64	367.32	2.64	14.59

```
ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=  101.897 OUTFLOW=   99.886 BASIN STORAGE=     .625 PERCENT ERROR=    1.360

                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    4       1.59      1.39      15.00            1007.74    375.00      2.62

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

                    HYDROGRAPH AT STATION      SB6

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.64, TOTAL EXCESS =    2.69

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                        (CFS)
+   1008.     6.25                  164.        51.         51.         51.
                      (INCHES)    2.144       2.622       2.622       2.622
```

```
                    (AC-FT)       81.        99.        99.        99.

                    CUMULATIVE AREA =     .71 SQ MI


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


          **************
          *            *
71 KK     *     SB5+6  *
          *            *
          **************
                       COMBINE SB5 AND SB6

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

74 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION    SB5+6

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR      72-HR     23.75-HR
  (CFS)       (HR)
                          (CFS)
   5210.      6.25                  699.       217.       217.        217.
                         (INCHES)  2.096      2.579      2.579       2.579
                          (AC-FT)   347.       426.       426.        426.

                         CUMULATIVE AREA =    3.10 SQ MI


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


          **************
          *            *
75 KK     *       SB7  *
          *            *
          **************
                       RUNOFF FROM SB7

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

            SUBBASIN RUNOFF DATA
```

78 BA SUBBASIN CHARACTERISTICS

TAREA .17 SUBBASIN AREA

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

79 LS SCS LOSS RATE

STRTL .46 INITIAL ABSTRACTION

CRVNBR 81.30 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

80 UK OVERLAND-FLOW ELEMENT NO. 1

L 250. OVERLAND FLOW LENGTH

S .0600 SLOPE

N .050 ROUGHNESS COEFFICIENT

PA 100.0 PERCENT OF SUBBASIN

DXMIN 5 MINIMUM NUMBER OF DX INTERVALS

81 RK MAIN CHANNEL

L 5200. CHANNEL LENGTH

S .0150 SLOPE

N .045 CHANNEL ROUGHNESS COEFFICIENT

CA .17 CONTRIBUTING AREA

SHAPE TRAP CHANNEL SHAPE

WD 13.00 BOTTOM WIDTH OR DIAMETER

Z 14.00 SIDE SLOPE

DXMIN 4 MINIMUM NUMBER OF DX INTERVALS

RUPSTQ YES ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	7.30	1.67	.69	50.00	361.05	359.93	2.41	1.21
3	.92	1.36	1.80	1300.00	5099.59	379.63	2.56	12.01

NUITY SUMMARY (AC-FT) - INFLOW= 426.419 EXCESS= 22.006 OUTFLOW= 446.241 BASIN STORAGE= 1.476 PERCENT ERROR= .158

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    3        .92      1.36      15.00            4081.52    375.00      2.56

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

                    HYDROGRAPH AT STATION      SB7

 TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.90, TOTAL EXCESS =    2.43

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
  4082.      6.25                 731.        228.        228.        228.
                      (INCHES)    2.078       2.563       2.563       2.563
                       (AC-FT)    362.        447.        447.        447.

                    CUMULATIVE AREA =    3.27 SQ MI


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


         **************
         *            *
82 KK    *     SB2+7  *
         *            *
         **************
                    COMBINE SB2 AND SB7

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

85 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                    HYDROGRAPH AT STATION    SB2+7

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
  6583.      6.25                1100.        341.        341.        341.
                      (INCHES)    2.140       2.628       2.628       2.628
                       (AC-FT)    546.        670.        670.        670.

                    CUMULATIVE AREA =    4.78 SQ MI


** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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*            *
KK  *   SB8  *    A
*            *
**************
              RUNOFF FROM SB8A

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

          SUBBASIN RUNOFF DATA

89 BA       SUBBASIN CHARACTERISTICS
                 TAREA       1.43  SUBBASIN AREA

            PRECIPITATION DATA

12 PB            STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI         INCREMENTAL PRECIPITATION PATTERN
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                 .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                 .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                 .00       .00       .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

90 LS       SCS LOSS RATE
                 STRTL        .37  INITIAL ABSTRACTION
                CRVNBR      84.40  CURVE NUMBER
                 RTIMP        .00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
91 UK         OVERLAND-FLOW ELEMENT NO. 1
                   L        500.  OVERLAND FLOW LENGTH
                   S       .0700  SLOPE
                   N        .150  ROUGHNESS COEFFICIENT
                  PA       100.0  PERCENT OF SUBBASIN
               DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
92 RK         COLLECTOR CHANNEL
                   L       3000.  CHANNEL LENGTH
                   S       .0500  SLOPE
                   N        .100  CHANNEL ROUGHNESS COEFFICIENT
                  CA         .09  CONTRIBUTING AREA
               SHAPE        TRAP  CHANNEL SHAPE
                  WD        2.00  BOTTOM WIDTH OR DIAMETER
                   Z        1.00  SIDE SLOPE
               DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
93 RK         MAIN CHANNEL
                   L      21300.  CHANNEL LENGTH
                   S       .0220  SLOPE
                   N        .045  CHANNEL ROUGHNESS COEFFICIENT
```

CA	1.43	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	20.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.63	1.67	1.89	100.00	3245.79	358.84	2.68	.88
3	1.57	1.36	1.07	500.00	3047.26	360.75	2.67	7.82
4	.91	1.51	3.08	3550.00	2180.60	375.09	2.66	19.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 205.918 OUTFLOW= 203.043 BASIN STORAGE= 2.801 PERCENT ERROR= .036

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.91	1.51	15.00	2175.82	375.00	2.68

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

HYDROGRAPH AT STATION SB8

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.63, TOTAL EXCESS = 2.70

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 2176.	6.25		338.	104.	104.	104.
		(INCHES)	2.196	2.684	2.684	2.684
		(AC-FT)	167.	205.	205.	205.

CUMULATIVE AREA = 1.43 SQ MI

** ***

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              **************
              *            *
95 KK         *    SB278   *
              *            *
              **************
```

COMBINE SB2,SB7 AND SB8

97 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL

```
                    QSCAL          0.  HYDROGRAPH PLOT SCALE

98 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                      HYDROGRAPH AT STATION    SB278

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                        (CFS)
  8759.       6.25                1438.        446.        446.        446.
                    (INCHES)      2.153       2.641       2.641       2.641
                     (AC-FT)       713.        875.        875.        875.

                    CUMULATIVE AREA =    6.21 SQ MI


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


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          *            *
99 KK     *     SB8B   *
          *            *
          **************
                       RUNOFF FROM SB8B

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

            SUBBASIN RUNOFF DATA

102 BA         SUBBASIN CHARACTERISTICS
                    TAREA        .07  SUBBASIN AREA

               PRECIPITATION DATA

12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                    .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                    .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                    .00       .00       .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
```

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103 LS          SCS LOSS RATE
                     STRTL        .67  INITIAL ABSTRACTION
                    CRVNBR      75.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
104 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        50.  OVERLAND FLOW LENGTH
                         S      .1000  SLOPE
                         N       .100  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                     DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
105 RK            MAIN CHANNEL
                         L      2000.  CHANNEL LENGTH
                         S      .0100  SLOPE
                         N       .045  CHANNEL ROUGHNESS COEFFICIENT
                        CA        .07  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD      16.00  BOTTOM WIDTH OR DIAMETER
                         Z       2.00  SIDE SLOPE
                     DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
                    RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                                COMPUTED KINEMATIC PARAMETERS
                                     VARIABLE TIME STEP
                                  (DT SHOWN IS A MINIMUM)
                 ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                             PEAK                  CELERITY
                                                (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

                    1        4.71     1.67       .38     10.00    117.26    359.74       1.91       .44
                    3         .71     1.48       .24    333.33   8759.64    376.36       2.63     22.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=  874.797  EXCESS=    7.160 OUTFLOW=  881.302 BASIN STORAGE=     .997 PERCENT ERROR=    -.039

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    3         .71     1.48     15.00             8290.03    375.00       2.65

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

                     HYDROGRAPH AT STATION     SB8B

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    2.41, TOTAL EXCESS =    1.92

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                          (CFS)
  8290.       6.25                1456.        452.        452.        452.
                         (INCHES)  2.155       2.646       2.646       2.646
                          (AC-FT)   722.        886.        886.        886.

                     CUMULATIVE AREA =    6.28 SQ MI
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** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
106 KK        *     SB12   *
              *            *
              **************
                             RUNOFF FROM SB12

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

              SUBBASIN RUNOFF DATA

109 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.80  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

110 LS          SCS LOSS RATE
                      STRTL        .39  INITIAL ABSTRACTION
                     CRVNBR      83.70  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
111 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L       200.  OVERLAND FLOW LENGTH
                          S      .0500  SLOPE
                          N       .150  ROUGHNESS COEFFICIENT
                         PA      100.0  PERCENT OF SUBBASIN
                      DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
112 RK            COLLECTOR CHANNEL
                          L      5000.  CHANNEL LENGTH
                          S      .0300  SLOPE
                          N       .100  CHANNEL ROUGHNESS COEFFICIENT
                         CA     100.00  CONTRIBUTING AREA
                      SHAPE        TRAP  CHANNEL SHAPE
                         WD       2.00  BOTTOM WIDTH OR DIAMETER
                          Z       1.00  SIDE SLOPE
                      DXMIN          8  MINIMUM NUMBER OF DX INTERVALS
113 RK            MAIN CHANNEL
```

L	17400.	CHANNEL LENGTH
S	.0190	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	1.80	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	3.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.22	1.67	1.01	33.33	4113.98	359.02	2.61	.55
3	1.22	1.36	.25	625.00	4107.40	359.95	2.61	41.26
4	1.99	1.38	1.65	2175.00	3586.57	364.19	2.59	21.95

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 253.155 OUTFLOW= 249.077 BASIN STORAGE= 1.498 PERCENT ERROR= 1.019

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.99	1.38	15.00	3159.93	360.00	2.61

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

HYDROGRAPH AT STATION SB12

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.69, TOTAL EXCESS = 2.64

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 3160.	6.00		415.	128.	128.	128.
		(INCHES)	2.146	2.611	2.611	2.611
		(AC-FT)	206.	251.	251.	251.

CUMULATIVE AREA = 1.80 SQ MI

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**************
*            *
KK   *   SB13  *
*            *
**************
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RUNOFF FROM SB13

117 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

118 BA SUBBASIN CHARACTERISTICS

TAREA	.71	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

119 LS SCS LOSS RATE

STRTL	.34	INITIAL ABSTRACTION
CRVNBR	85.30	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

120 UK OVERLAND-FLOW ELEMENT NO. 1

L	700.	OVERLAND FLOW LENGTH
S	.0200	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

121 RK MAIN CHANNEL

L	13200.	CHANNEL LENGTH
S	.0160	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.71	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	2.75	140.00	1508.19	360.76	2.77	.85
3	1.69	1.40	2.32	2200.00	1206.69	369.47	2.74	15.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 105.348 OUTFLOW= 103.835 BASIN STORAGE= .629 PERCENT ERROR= .840

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3 1.69 1.40 15.00 1058.11 375.00 2.73

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

HYDROGRAPH AT STATION SB13

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.55, TOTAL EXCESS = 2.78

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
1058.	6.25		171.	53.	53.	53.
		(INCHES)	2.240	2.734	2.734	2.734
		(AC-FT)	85.	104.	104.	104.

CUMULATIVE AREA = .71 SQ MI

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          **************
          *            *
123 KK    *   SB1213   *
          *            *
          **************
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COMBINE SB12 AND SB13

125 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

126 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION SB1213

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
3894.	6.00		586.	180.	180.	180.
		(INCHES)	2.172	2.646	2.646	2.646
		(AC-FT)	291.	354.	354.	354.

```
                    CUMULATIVE AREA =    2.51 SQ MI


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


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          *            *
127 KK    *     SB14   *
          *            *
          **************
                     RUNOFF FROM SB14

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

              SUBBASIN RUNOFF DATA

130 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .10  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                     .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                     .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                     .00      .00      .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

131 LS          SCS LOSS RATE
                      STRTL        .40  INITIAL ABSTRACTION
                     CRVNBR      83.50  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
132 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L       700.  OVERLAND FLOW LENGTH
                          S      .0200  SLOPE
                          N       .100  ROUGHNESS COEFFICIENT
                         PA      100.0  PERCENT OF SUBBASIN
                      DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
133 RK            MAIN CHANNEL
                          L      2100.  CHANNEL LENGTH
                          S      .0100  SLOPE
                          N       .045  CHANNEL ROUGHNESS COEFFICIENT
                         CA        .10  CONTRIBUTING AREA
                      SHAPE       TRAP  CHANNEL SHAPE
                         WD       4.00  BOTTOM WIDTH OR DIAMETER
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                Z        1.00  SIDE SLOPE
            DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
            RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA      M        DT        DX      PEAK   TIME TO    VOLUME   MAXIMUM
                                                                    PEAK              CELERITY
                                          (MIN)     (FT)    (CFS)   (MIN)     (IN)     (FPS)

             1        2.11     1.67      2.89    140.00   193.97   359.28      2.57       .81
             3        1.34     1.40       .32    350.00  4078.55   361.73      2.64     18.34

ONTINUITY SUMMARY (AC-FT) - INFLOW=  354.237  EXCESS=   13.969 OUTFLOW=  367.454 BASIN STORAGE=     .384 PERCENT ERROR=     .100

                                 INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

             3        1.34     1.40     15.00            3689.03   360.00      2.66

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

                 HYDROGRAPH AT STATION     SB14

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.71, TOTAL EXCESS =    2.62

 PEAK FLOW    TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR      24-HR      72-HR    23.75-HR
  (CFS)       (HR)
                        (CFS)
+   3689.     6.00                613.       189.       189.       189.
                      (INCHES)   2.184      2.661      2.661      2.661
                      (AC-FT)     304.       370.       370.       370.

                 CUMULATIVE AREA =    2.61 SQ MI


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


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        *            *
 134 KK *      SB10  *
        *            *
        **************
                 RUNOFF FROM SB10

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

          SUBBASIN RUNOFF DATA
```

137 BA SUBBASIN CHARACTERISTICS

TAREA	.58	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

138 LS SCS LOSS RATE

STRTL	.34	INITIAL ABSTRACTION
CRVNBR	85.30	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

139 UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.2000	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

140 RK COLLECTOR CHANNEL

L	1500.	CHANNEL LENGTH
S	.1000	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.06	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

141 RK MAIN CHANNEL

L	8500.	CHANNEL LENGTH
S	.0520	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.58	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	6.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	4.44	1.67	1.34	100.00	1385.75	359.34	2.76	1.24

3	2.38	1.33	.45	250.00	1373.11	359.10	2.60	10.42
4	2.62	1.43	.92	1416.67	1323.22	361.62	2.60	25.55

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 86.059 OUTFLOW= 80.334 BASIN STORAGE= .294 PERCENT ERROR= 6.311

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	2.62	1.43	15.00	1292.24	360.00	2.67

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

HYDROGRAPH AT STATION SB10

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.55, TOTAL EXCESS = 2.78

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	23.75-HR
1292.	6.00		137.	42.	42.	42.
		(INCHES)	2.201	2.671	2.671	2.671
		(AC-FT)	68.	83.	83.	83.

CUMULATIVE AREA = .58 SQ MI

*** ***

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              **************
              *            *
143 KK        *    SB11A   *
              *            *
              **************
```

RUNOFF FROM SB11A

145 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

146 BA SUBBASIN CHARACTERISTICS

TAREA	.68	SUBBASIN AREA

PRECIPITATION DATA

12 PB STORM	4.33	BASIN TOTAL PRECIPITATION

PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01

.00	.00	.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					

147 LS SCS LOSS RATE

STRTL	.47	INITIAL ABSTRACTION
CRVNBR	80.90	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

148 UK OVERLAND-FLOW ELEMENT NO. 1

L	250.	OVERLAND FLOW LENGTH
S	.0800	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

149 RK COLLECTOR CHANNEL

L	3000.	CHANNEL LENGTH
S	.0400	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.08	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

150 RK MAIN CHANNEL

L	10000.	CHANNEL LENGTH
S	.0190	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.68	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	10.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	4.21	1.67	.96	50.00	1422.00	359.86	2.37	.86
3	2.82	1.36	.72	500.00	1411.32	359.58	2.37	11.58
4	1.27	1.42	1.66	1666.67	2361.30	367.95	2.49	16.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= 82.608 EXCESS= 86.788 OUTFLOW= 167.190 BASIN STORAGE= 1.079 PERCENT ERROR= .666

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.27	1.42	15.00		1653.60	375.00	2.49

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

                    HYDROGRAPH AT STATION    SB11A

TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.94, TOTAL EXCESS =    2.39

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                         (CFS)
+   1654.     6.25                  275.        85.         85.         85.
                       (INCHES)    2.026       2.486       2.486       2.486
                        (AC-FT)    136.        167.        167.        167.

                    CUMULATIVE AREA =    1.26 SQ MI


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


          **************
          *            *
151 KK    *    SB1114  *
          *            *
          **************
                    COMBINE SB11 AND SB14

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

154 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                    HYDROGRAPH AT STATION .  SB1114

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                         (CFS)
+   5341.     6.00                  887.       274.        274.        274.
                       (INCHES)    2.131       2.604       2.604       2.604
                        (AC-FT)    440.        538.        538.        538.

                    CUMULATIVE AREA =    3.87 SQ MI


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


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                *          *
155 KK          *    SB11B *
                *          *
               **************
                          RUNOFF FROM SB11B

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

               SUBBASIN RUNOFF DATA

158 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .00  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

159 LS          SCS LOSS RATE
                     STRTL        .67  INITIAL ABSTRACTION
                    CRVNBR      75.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
160 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        50.  OVERLAND FLOW LENGTH
                         S      .0400  SLOPE
                         N       .100  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                    DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
161 RK            MAIN CHANNEL
                         L      1000.  CHANNEL LENGTH
                         S      .0200  SLOPE
                         N       .045  CHANNEL ROUGHNESS COEFFICIENT
                        CA        .00  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD       3.00  BOTTOM WIDTH OR DIAMETER
                         Z       3.00  SIDE SLOPE
                    DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
                    RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                   ***
                                COMPUTED KINEMATIC PARAMETERS
                                     VARIABLE TIME STEP
                                   (DT SHOWN IS A MINIMUM)
                  ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO    VOLUME    MAXIMUM
```

						PEAK		CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
1	2.98	1.67	.49	10.00	8.38	359.60	1.91	.34
3	1.79	1.35	.14	166.67	5348.40	360.72	2.60	19.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= 537.554 EXCESS= .511 OUTFLOW= 537.761 BASIN STORAGE= .212 PERCENT ERROR= .017

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	1.79	1.35	15.00	5126.07	375.00	2.61

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

HYDROGRAPH AT STATION SB11B

TOTAL RAINFALL = 4.33, TOTAL LOSS = 2.41, TOTAL EXCESS = 1.92

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	23.75-HR
(CFS)	(HR)	(CFS)				
5126.	6.25		890.	275.	275.	275.
		(INCHES)	2.136	2.611	2.611	2.611
		(AC-FT)	441.	540.	540.	540.

CUMULATIVE AREA = 3.88 SQ MI

*** ***

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              **************
              *            *
162 KK        *     SB15   *
              *            *
              **************
```

RUNOFF FROM SB15

164 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

165 BA SUBBASIN CHARACTERISTICS

TAREA	.08	SUBBASIN AREA

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

166 LS SCS LOSS RATE

STRTL	.35	INITIAL ABSTRACTION
CRVNBR	85.00	CURVE NUMBER
RTIMP	10.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

167 UK OVERLAND-FLOW ELEMENT NO. 1

L	250.	OVERLAND FLOW LENGTH
S	.0500	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

168 RK MAIN CHANNEL

L	2000.	CHANNEL LENGTH
S	.0250	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.08	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	10.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.33	1.67	.88	41.67	196.78	359.65	2.89	.79
3	1.45	1.42	.61	333.33	196.06	359.50	2.88	9.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 12.425 OUTFLOW= 12.304 BASIN STORAGE= .023 PERCENT ERROR= .785

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	1.45	1.42	15.00	195.41	360.00	2.99

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

HYDROGRAPH AT STATION SB15

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.42, TOTAL EXCESS = 2.91

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

```
                                  6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
     195.     6.00                  22.         7.          7.          7.
                        (INCHES)   2.510       2.991       2.991       2.991
                         (AC-FT)     11.         13.         13.         13.

                        CUMULATIVE AREA =     .08 SQ MI
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            **************
            *            *
170 KK      *     SB9A   *
            *            *
            **************
                          RUNOFF FROM SB9A

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

              SUBBASIN RUNOFF DATA

173 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .77  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

174 LS          SCS LOSS RATE
                      STRTL        .36  INITIAL ABSTRACTION
                     CRVNBR      84.70  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
175 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L       300.  OVERLAND FLOW LENGTH
                          S      .0400  SLOPE
                          N       .100  ROUGHNESS COEFFICIENT
                         PA      100.0  PERCENT OF SUBBASIN
                      DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
```

176 RK COLLECTOR CHANNEL

L	2500.	CHANNEL LENGTH
S	.0200	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.10	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS

177 RK MAIN CHANNEL

L	15800.	CHANNEL LENGTH
S	.0160	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.77	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	9.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.98	1.67	1.06	50.00	1812.67	359.06	2.70	.78
3	.85	1.40	.87	312.50	1748.58	360.41	2.69	6.01
4	1.21	1.43	2.23	1975.00	1331.64	372.41	2.67	14.79

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 111.997 OUTFLOW= 109.496 BASIN STORAGE= 1.263 PERCENT ERROR= 1.105

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.21	1.43	15.00	1263.54	375.00	2.66

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

HYDROGRAPH AT STATION SB9A

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.60, TOTAL EXCESS = 2.73

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 1264.	6.25		181.	56.	56.	56.
		(INCHES)	2.182	2.662	2.662	2.662
		(AC-FT)	90.	109.	109.	109.

CUMULATIVE AREA = .77 SQ MI

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**************
*            *
179 KK    *   SB9145  *
*            *
**************
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COMBINE SB9, SB11B AND SB15

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

182 HC        HYDROGRAPH COMBINATION
                   ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

   ***            ***            ***            ***            ***
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HYDROGRAPH AT STATION SB9145

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 6435.	6.25		1092.	337.	337.	337.
		(INCHES)	2.148	2.626	2.626	2.626
		(AC-FT)	541.	662.	662.	662.

CUMULATIVE AREA = 4.72 SQ MI

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**************
*            *
183 KK    *     SB9B  *
*            *
**************
```

RUNOFF FROM SB9B

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

           SUBBASIN RUNOFF DATA

186 BA        SUBBASIN CHARACTERISTICS
                   TAREA        .08  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB             STORM       4.33  BASIN TOTAL PRECIPITATION
```

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

187 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.70	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

188 UK OVERLAND-FLOW ELEMENT NO. 1

L	600.	OVERLAND FLOW LENGTH
S	.0500	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

189 RK MAIN CHANNEL

L	2000.	CHANNEL LENGTH
S	.0160	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.08	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	16.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.33	1.67	1.52	100.00	185.68	359.51	2.69	1.09
3	.92	1.46	.19	250.00	6485.93	376.33	2.62	21.52

CONTINUITY SUMMARY (AC-FT) - INFLOW= 661.694 EXCESS= 11.636 OUTFLOW= 672.342 BASIN STORAGE= .710 PERCENT ERROR= .041

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.92	1.46	15.00	6446.98	375.00	2.64

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

HYDROGRAPH AT STATION SB9B

```
TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.60, TOTAL EXCESS =    2.73

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+ (CFS)       (HR)
                        (CFS)
  6447.       6.25                1117.        345.        345.        345.
                      (INCHES)    2.161       2.642       2.642       2.642
                       (AC-FT)     554.        677.        677.        677.

                      CUMULATIVE AREA =    4.80 SQ MI


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


          **************
          *            *
190 KK    *     SB16   *
          *            *
          **************
                        RUNOFF FROM SB16

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

            SUBBASIN RUNOFF DATA

193 BA          SUBBASIN CHARACTERISTICS
                     TAREA       1.65  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

194 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      85.90  CURVE NUMBER
                     RTIMP       2.00  PERCENT IMPERVIOUS AREA

                LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      85.90  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA
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                KINEMATIC WAVE
195 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L        500.  OVERLAND FLOW LENGTH
                          S       .0200  SLOPE
                          N        .150  ROUGHNESS COEFFICIENT
                         PA        60.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
196 UK            OVERLAND-FLOW ELEMENT NO. 2
                          L        250.  OVERLAND FLOW LENGTH
                          S       .1000  SLOPE
                          N        .150  ROUGHNESS COEFFICIENT
                         PA        40.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
197 RK            COLLECTOR CHANNEL
                          L       5000.  CHANNEL LENGTH
                          S       .0100  SLOPE
                          N        .100  CHANNEL ROUGHNESS COEFFICIENT
                         CA        1.09  CONTRIBUTING AREA
                      SHAPE        TRAP  CHANNEL SHAPE
                         WD        4.00  BOTTOM WIDTH OR DIAMETER
                          Z        2.00  SIDE SLOPE
                     DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
198 RK            COLLECTOR CHANNEL
                          L       2000.  CHANNEL LENGTH
                          S       .0800  SLOPE
                          N        .100  CHANNEL ROUGHNESS COEFFICIENT
                         CA         .56  CONTRIBUTING AREA
                      SHAPE        TRAP  CHANNEL SHAPE
                         WD         .00  BOTTOM WIDTH OR DIAMETER
                          Z        1.00  SIDE SLOPE
                     DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
199 RK            MAIN CHANNEL
                          L      13700.  CHANNEL LENGTH
                          S       .0090  SLOPE
                          N        .045  CHANNEL ROUGHNESS COEFFICIENT
                         CA        1.65  CONTRIBUTING AREA
                      SHAPE        TRAP  CHANNEL SHAPE
                         WD        8.00  BOTTOM WIDTH OR DIAMETER
                          Z        3.00  SIDE SLOPE
                     DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
                    RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH
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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	2.85	100.00	2109.36	361.15	2.81	.58
2	3.14	1.67	1.10	50.00	1555.84	359.02	2.64	1.07
3	.57	1.38	2.66	1250.00	3105.21	363.73	2.73	7.82
4	2.11	1.33	.60	500.00	3057.09	366.36	2.73	13.98
5	.95	1.40	4.34	3425.00	2402.56	379.32	2.71	13.14

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 251.280 OUTFLOW= 238.722 BASIN STORAGE= 4.518 PERCENT ERROR= 3.199

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.95	1.40	15.00	2224.83	375.00	2.71

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

HYDROGRAPH AT STATION SB16

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.47, TOTAL EXCESS = 2.86

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
+		(CFS)				
2225.	6.25		393.	122.	122.	122.
		(INCHES)	2.213	2.715	2.715	2.715
		(AC-FT)	195.	239.	239.	239.

CUMULATIVE AREA = 1.65 SQ MI

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          **************
          *            *
201 KK    *   CB1698   *
          *            *
          **************
```

COMBINE SB8B, SB9B AND SB16

203 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

204 HC HYDROGRAPH COMBINATION

ICOMP	3	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CB1698

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
+		(CFS)				
16962.	6.25		2964.	918.	918.	918.
		(INCHES)	2.164	2.653	2.653	2.653
		(AC-FT)	1470.	1802.	1802.	1802.

CUMULATIVE AREA = 12.73 SQ MI

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

              **************
              *            *
205 KK        *    SB17A   *
              *            *
              **************
                             RUNOFF FROM SB17A

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

              SUBBASIN RUNOFF DATA

208 BA          SUBBASIN CHARACTERISTICS
                     TAREA        1.15  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

209 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
                    CRVNBR       85.70  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
210 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        500.  OVERLAND FLOW LENGTH
                         S       .0250  SLOPE
                         N        .150  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
211 RK            COLLECTOR CHANNEL
                         L       2500.  CHANNEL LENGTH
                         S       .0160  SLOPE
                         N        .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .14  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD        2.00  BOTTOM WIDTH OR DIAMETER
                         Z        2.00  SIDE SLOPE
                     DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
212 RK            MAIN CHANNEL
```

L	9300.	CHANNEL LENGTH
S	.0140	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	1.15	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	6.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.57	1.67	2.63	100.00	2570.41	359.30	2.77	.63
3	1.64	1.35	1.17	625.00	2391.95	361.76	2.76	8.94
4	1.30	1.38	2.64	2325.00	2111.64	368.95	2.75	14.70

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 172.898 OUTFLOW= 168.487 BASIN STORAGE= .961 PERCENT ERROR= 1.995

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.30	1.38	15.00	1826.71	375.00	2.73

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

HYDROGRAPH AT STATION SB17A

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.51, TOTAL EXCESS = 2.82

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 1827.	6.25		277.	85.	85.	85.
		(INCHES)	2.239	2.729	2.729	2.729
		(AC-FT)	137.	167.	167.	167.

CUMULATIVE AREA = 1.15 SQ MI

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**************
*            *
KK    *  CB1796  *
*            *
**************
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COMBINE SB17A AND SB1698

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

217 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                     HYDROGRAPH AT STATION   CB1796

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                         (CFS)
+  18789.     6.25                3241.       1003.       1003.       1003.
                       (INCHES)   2.170       2.660       2.660       2.660
                        (AC-FT)   1607.       1970.       1970.       1970.

                      CUMULATIVE AREA =   13.88 SQ MI


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


          **************
          *            *
218 KK    *     SB17B  *
          *            *
          **************
                     RUNOFF FROM SB17B

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

             SUBBASIN RUNOFF DATA

221 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .12  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

LS          SCS LOSS RATE
                STRTL        .49  INITIAL ABSTRACTION
                CRVNBR     80.40  CURVE NUMBER
                RTIMP        .00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
223 UK        OVERLAND-FLOW ELEMENT NO. 1
                  L        700.  OVERLAND FLOW LENGTH
                  S       .0800  SLOPE
                  N        .100  ROUGHNESS COEFFICIENT
                 PA       100.0  PERCENT OF SUBBASIN
              DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
224 RK        MAIN CHANNEL
                  L       2900.  CHANNEL LENGTH
                  S       .0030  SLOPE
                  N        .045  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .12  CONTRIBUTING AREA
              SHAPE        TRAP  CHANNEL SHAPE
                 WD       23.00  BOTTOM WIDTH OR DIAMETER
                  Z        1.00  SIDE SLOPE
              DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
             RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
              ELEMENT    ALPHA       M        DT        DX      PEAK   TIME TO    VOLUME   MAXIMUM
                                                                        PEAK               CELERITY
                                             (MIN)      (FT)    (CFS)    (MIN)     (IN)     (FPS)

                  1       4.21     1.67      1.84    140.00    239.03   359.08      2.32      1.27
                  3        .28     1.55       .52    725.00  18819.74   376.51      2.65     23.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= 1969.590  EXCESS=   15.045 OUTFLOW= 1979.677 BASIN STORAGE=    3.288 PERCENT ERROR=     .084

                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                  3        .28     1.55     15.00            17904.10   375.00      2.67

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

                 HYDROGRAPH AT STATION    SB17B

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.98, TOTAL EXCESS =    2.35

PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+ CFS)        (HR)
                        (CFS)
  17904.      6.25                3284.       1015.       1015.       1015.
                      (INCHES)    2.180       2.668       2.668       2.668
                       (AC-FT)    1628.       1993.       1993.       1993.
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                    CUMULATIVE AREA =   14.00 SQ MI


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


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          *            *
226 KK    *     SB18A  *
          *            *
          **************
                     RUNOFF FROM SB18A

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

             SUBBASIN RUNOFF DATA

229 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .15  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

230 LS          SCS LOSS RATE
                     STRTL         .44  INITIAL ABSTRACTION
                    CRVNBR       82.10  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
231 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        250.  OVERLAND FLOW LENGTH
                         S       .1500  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
232 RK            COLLECTOR CHANNEL
                         L       1000.  CHANNEL LENGTH
                         S       .0700  SLOPE
                         N        .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .04  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD        1.00  BOTTOM WIDTH OR DIAMETER
```

	Z	1.00	SIDE SLOPE
	DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
233 RK	MAIN CHANNEL		
	L	1100.	CHANNEL LENGTH
	S	.0820	SLOPE
	N	.045	CHANNEL ROUGHNESS COEFFICIENT
	CA	.15	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	3.00	BOTTOM WIDTH OR DIAMETER
	Z	1.00	SIDE SLOPE
	DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
	RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	5.77	1.67	.57	35.71	327.17	359.56	2.48	1.04
3	3.98	1.33	.18	125.00	327.10	359.47	2.48	11.87
4	4.14	1.38	.12	137.50	327.04	359.55	2.48	19.51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 19.969 OUTFLOW= 19.814 BASIN STORAGE= .022 PERCENT ERROR= .664

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	4.14	1.38	15.00	326.75	360.00	2.54

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

HYDROGRAPH AT STATION SB18A

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.83, TOTAL EXCESS = 2.50

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 327.	6.00		34.	10.	10.	10.
		(INCHES)	2.104	2.536	2.536	2.536
		(AC-FT)	17.	20.	20.	20.

CUMULATIVE AREA = .15 SQ MI

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          **************
          *            *
235 KK    *    SB18B   *
          *            *
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                RUNOFF FROM SB18B

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

            SUBBASIN RUNOFF DATA

238 BA        SUBBASIN CHARACTERISTICS
                   TAREA        .02  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB             STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
                   .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                   .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                   .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                   .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                   .00      .00      .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

239 LS        SCS LOSS RATE
                   STRTL        .38  INITIAL ABSTRACTION
                  CRVNBR      84.20  CURVE NUMBER
                   RTIMP        .00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
240 UK          OVERLAND-FLOW ELEMENT NO. 1
                       L       300.  OVERLAND FLOW LENGTH
                       S      .0200  SLOPE
                       N       .100  ROUGHNESS COEFFICIENT
                      PA      100.0  PERCENT OF SUBBASIN
                   DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
241 RK          MAIN CHANNEL
                       L       900.  CHANNEL LENGTH
                       S      .0170  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .02  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       2.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                   DXMIN          8  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                 ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M        DT        DX      PEAK   TIME TO    VOLUME   MAXIMUM
                                                                      PEAK              CELERITY
                                          (MIN)      (FT)    (CFS)    (MIN)      (IN)     (FPS)
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                    1       2.11      1.67      1.14     42.86     46.07    359.69      2.65       .62
                    3       2.04      1.36       .17    112.50    369.10    361.14      2.55     10.87

CONTINUITY SUMMARY (AC-FT) - INFLOW=   20.285  EXCESS=    2.861 OUTFLOW=   23.090 BASIN STORAGE=     .020 PERCENT ERROR=     .153

                                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    3       2.04      1.36     15.00              359.08    360.00      2.58

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

                     HYDROGRAPH AT STATION    SB18B

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.65, TOTAL EXCESS =    2.68

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                       (CFS)
   359.      6.00                    39.         12.         12.         12.
                     (INCHES)      2.144       2.581       2.581       2.581
                     (AC-FT)        19.         23.         23.         23.

                     CUMULATIVE AREA =     .17 SQ MI


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


          **************
          *            *
242 KK    *   CB1718   *
          *            *
          **************
                       COMBINE SB17 AND SB18

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

245 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                     HYDROGRAPH AT STATION   CB1718

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                       (CFS)
 18008.      6.25                  3319.       1027.       1027.       1027.
```

```
                (INCHES)     2.177       2.667       2.667       2.667
                 (AC-FT)     1646.       2016.       2016.       2016.

                 CUMULATIVE AREA =   14.17 SQ MI


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


          **************
          *            *
246 KK    *     SB21A  *
          *            *
          **************
                     RUNOFF FROM SB21A

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

             SUBBASIN RUNOFF DATA

249 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .13  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

250 LS          SCS LOSS RATE
                      STRTL         .39  INITIAL ABSTRACTION
                     CRVNBR       83.60  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
251 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L        500.  OVERLAND FLOW LENGTH
                          S       .2000  SLOPE
                          N        .100  ROUGHNESS COEFFICIENT
                         PA       100.0  PERCENT OF SUBBASIN
                      DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
252 RK            COLLECTOR CHANNEL
                          L       2000.  CHANNEL LENGTH
                          S       .0400  SLOPE
                          N        .050  CHANNEL ROUGHNESS COEFFICIENT
```

CA	.07	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS

253 RK MAIN CHANNEL

L	1300.	CHANNEL LENGTH
S	.0080	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.13	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.66	1.67	.78	71.43	297.01	359.28	2.61	1.53
3	3.01	1.33	.37	250.00	296.28	359.90	2.60	11.20
4	1.40	1.36	.12	162.50	18058.64	375.89	2.67	22.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2016.382 EXCESS= 18.221 OUTFLOW= 2033.211 BASIN STORAGE= 1.045 PERCENT ERROR= .017

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.40	1.36	15.00	17578.41	375.00	2.67

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

HYDROGRAPH AT STATION SB21A

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.70, TOTAL EXCESS = 2.63

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
17578.	6.25		3355.	1039.	1039.	1039.
		(INCHES)	2.181	2.673	2.673	2.673
		(AC-FT)	1664.	2039.	2039.	2039.

CUMULATIVE AREA = 14.30 SQ MI

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                *           *
254 KK          *    SB19A  *
                *           *
                **************
                              RUNOFF FROM SB19A

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

                    SUBBASIN RUNOFF DATA

257 BA                SUBBASIN CHARACTERISTICS
                            TAREA         .35  SUBBASIN AREA

                      PRECIPITATION DATA

 12 PB                      STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI                  INCREMENTAL PRECIPITATION PATTERN
                        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                        .00     .00     .00     .00     .00     .00     .01     .01     .01     .01
                        .02     .02     .28     .28     .04     .04     .02     .02     .01     .01
                        .01     .01     .01     .01     .00     .00     .01     .00     .01     .01
                        .00     .00     .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

258 LS                SCS LOSS RATE
                            STRTL         .35  INITIAL ABSTRACTION
                           CRVNBR       85.10  CURVE NUMBER
                            RTIMP         .00  PERCENT IMPERVIOUS AREA

                      KINEMATIC WAVE
259 UK                  OVERLAND-FLOW ELEMENT NO. 1
                                L        200.  OVERLAND FLOW LENGTH
                                S       .2500  SLOPE
                                N        .100  ROUGHNESS COEFFICIENT
                               PA       100.0  PERCENT OF SUBBASIN
                            DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
260 RK                  COLLECTOR CHANNEL
                                L       1000.  CHANNEL LENGTH
                                S       .2000  SLOPE
                                N        .050  CHANNEL ROUGHNESS COEFFICIENT
                               CA         .03  CONTRIBUTING AREA
                            SHAPE        TRAP  CHANNEL SHAPE
                               WD        1.00  BOTTOM WIDTH OR DIAMETER
                                Z        1.00  SIDE SLOPE
                            DXMIN           8  MINIMUM NUMBER OF DX INTERVALS
261 RK                  MAIN CHANNEL
                                L       4500.  CHANNEL LENGTH
                                S       .0390  SLOPE
                                N        .045  CHANNEL ROUGHNESS COEFFICIENT
                               CA         .35  CONTRIBUTING AREA
                            SHAPE        TRAP  CHANNEL SHAPE
                               WD        3.00  BOTTOM WIDTH OR DIAMETER
```

Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	7.45	1.67	.41	28.57	838.47	358.60	2.75	1.15
3	6.73	1.33	.12	125.00	838.38	359.79	2.75	16.76
4	2.86	1.38	.49	562.50	838.20	359.59	2.74	19.29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 51.589 OUTFLOW= 51.222 BASIN STORAGE= .111 PERCENT ERROR= .497

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	2.86	1.38	15.00	838.07	360.00	2.81

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

HYDROGRAPH AT STATION SB19A

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.57, TOTAL EXCESS = 2.76

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 838.	6.00		89.	27.	27.	27.
		(INCHES)	2.356	2.808	2.808	2.808
		(AC-FT)	44.	52.	52.	52.

CUMULATIVE AREA = .35 SQ MI

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              **************
              *            *
262 KK        *    SB19B   *
              *            *
              **************
```

RUNOFF FROM SB19B

264 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

265 BA SUBBASIN CHARACTERISTICS

TAREA	.05	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

266 LS SCS LOSS RATE

STRTL	.49	INITIAL ABSTRACTION
CRVNBR	80.30	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

267 UK OVERLAND-FLOW ELEMENT NO. 1

L	350.	OVERLAND FLOW LENGTH
S	.0700	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	7	MINIMUM NUMBER OF DX INTERVALS

268 RK MAIN CHANNEL

L	2500.	CHANNEL LENGTH
S	.0140	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.05	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.94	1.67	.90	50.00	102.16	359.78	2.32	.92
3	1.58	1.40	.38	312.50	924.93	362.66	2.73	13.57

NUITY SUMMARY (AC-FT) - INFLOW= 52.407 EXCESS= 6.246 OUTFLOW= 58.261 BASIN STORAGE= .121 PERCENT ERROR= .462

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    3        1.58      1.40      15.00            875.20    360.00      2.80

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

                    HYDROGRAPH AT STATION    SB19B

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.99, TOTAL EXCESS =    2.34

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
   875.      6.00                101.        30.         30.         30.
                      (INCHES)   2.347       2.800       2.800       2.800
                       (AC-FT)    50.        60.         60.         60.

                    CUMULATIVE AREA =     .40 SQ MI


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


         **************
         *            *
269 KK   *    CB2119  *
         *            *
         **************
                       COMBINE SB21A + SB19B

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

272 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                    HYDROGRAPH AT STATION   CB2119

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
 17923.      6.25                3448.       1069.       1069.       1069.
                      (INCHES)   2.180       2.676       2.676       2.676
                       (AC-FT)   1710.       2099.       2099.       2099.

                    CUMULATIVE AREA =   14.70 SQ MI


** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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**************
*            *
KK  *   SB21B  *
*            *
**************
                RUNOFF FROM SB21B

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

            SUBBASIN RUNOFF DATA

276 BA        SUBBASIN CHARACTERISTICS
                TAREA        .51  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB          STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
                .00    .00    .00    .00    .00    .00    .00    .00    .00    .00
                .00    .00    .00    .00    .00    .00    .01    .01    .01    .01
                .02    .02    .28    .28    .04    .04    .02    .02    .01    .01
                .01    .01    .01    .01    .00    .00    .01    .00    .01    .01
                .00    .00    .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

277 LS        SCS LOSS RATE
                STRTL        .46  INITIAL ABSTRACTION
                CRVNBR     81.30  CURVE NUMBER
                RTIMP        .00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
278 UK          OVERLAND-FLOW ELEMENT NO. 1
                  L         800.  OVERLAND FLOW LENGTH
                  S        .0500  SLOPE
                  N         .100  ROUGHNESS COEFFICIENT
                 PA        100.0  PERCENT OF SUBBASIN
                DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
279 RK          COLLECTOR CHANNEL
                  L        3500.  CHANNEL LENGTH
                  S        .0250  SLOPE
                  N         .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA          .06  CONTRIBUTING AREA
                SHAPE        TRAP  CHANNEL SHAPE
                 WD        4.00  BOTTOM WIDTH OR DIAMETER
                  Z        2.00  SIDE SLOPE
                DXMIN          8  MINIMUM NUMBER OF DX INTERVALS
280 RK          MAIN CHANNEL
                  L        3600.  CHANNEL LENGTH
                  S        .0080  SLOPE
                  N         .045  CHANNEL ROUGHNESS COEFFICIENT
```

CA	.51	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	20.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.33	1.67	1.68	114.29	999.87	360.22	2.39	1.13
3	1.81	1.38	.93	437.50	900.78	363.90	2.38	7.85
4	.51	1.54	.24	450.00	18406.28	376.77	2.66	31.65

ONTINUITY SUMMARY (AC-FT) - INFLOW= 2098.967 EXCESS= 66.019 OUTFLOW= 2155.308 BASIN STORAGE= 3.878 PERCENT ERROR= .268

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.51	1.54	15.00	17557.86	375.00	2.66

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HYDROGRAPH AT STATION SB21B

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.90, TOTAL EXCESS = 2.43

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 17558.	6.25		3560.	1100.	1100.	1100.
		(INCHES)	2.175	2.661	2.661	2.661
		(AC-FT)	1765.	2160.	2160.	2160.

CUMULATIVE AREA = 15.21 SQ MI

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              **************
              *            *
281 KK        *     SB20   *
              *            *
              **************
```

RUNOFF FROM SB20

283 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL

QSCAL 0. HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

BA SUBBASIN CHARACTERISTICS

TAREA .10 SUBBASIN AREA

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

285 LS SCS LOSS RATE

STRTL .33 INITIAL ABSTRACTION

CRVNBR 86.00 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

286 UK OVERLAND-FLOW ELEMENT NO. 1

L 250. OVERLAND FLOW LENGTH

S .3000 SLOPE

N .100 ROUGHNESS COEFFICIENT

PA 100.0 PERCENT OF SUBBASIN

DXMIN 7 MINIMUM NUMBER OF DX INTERVALS

287 RK MAIN CHANNEL

L 1000. CHANNEL LENGTH

S .0900 SLOPE

N .045 CHANNEL ROUGHNESS COEFFICIENT

CA .10 CONTRIBUTING AREA

SHAPE TRAP CHANNEL SHAPE

WD 1.00 BOTTOM WIDTH OR DIAMETER

Z 1.00 SIDE SLOPE

DXMIN 8 MINIMUM NUMBER OF DX INTERVALS

RUPSTQ NO ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	8.16	1.67	.44	35.71	245.89	359.24	2.83	1.35
3	5.02	1.33	.11	125.00	245.87	359.67	2.83	18.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 15.183 OUTFLOW= 15.101 BASIN STORAGE= .006 PERCENT ERROR= .504

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	5.02	1.33	15.00	244.49	360.00	2.85

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

HYDROGRAPH AT STATION SB20

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.48, TOTAL EXCESS = 2.85

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW (CFS)	6-HR	24-HR	72-HR	23.75-HR
244.	6.00		26.	8.	8.	8.
		(INCHES)	2.396	2.851	2.851	2.851
		(AC-FT)	13.	15.	15.	15.

CUMULATIVE AREA = .10 SQ MI

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              **************
              *            *
288 KK        *     SB22   *
              *            *
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RUNOFF FROM SB22

290 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

291 BA SUBBASIN CHARACTERISTICS

TAREA	.74	SUBBASIN AREA

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

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292 LS        SCS LOSS RATE
                  STRTL        .36  INITIAL ABSTRACTION
                 CRVNBR      84.70  CURVE NUMBER
                  RTIMP        .00  PERCENT IMPERVIOUS AREA

            LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                  STRTL        .36  INITIAL ABSTRACTION
                 CRVNBR      84.70  CURVE NUMBER
                  RTIMP        .00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
293 UK        OVERLAND-FLOW ELEMENT NO. 1
                      L       300.  OVERLAND FLOW LENGTH
                      S      .0800  SLOPE
                      N       .150  ROUGHNESS COEFFICIENT
                     PA       60.0  PERCENT OF SUBBASIN
                  DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
294 UK        OVERLAND-FLOW ELEMENT NO. 2
                      L       100.  OVERLAND FLOW LENGTH
                      S      .4000  SLOPE
                      N       .150  ROUGHNESS COEFFICIENT
                     PA       40.0  PERCENT OF SUBBASIN
                  DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
295 RK        COLLECTOR CHANNEL
                      L      3000.  CHANNEL LENGTH
                      S      .0400  SLOPE
                      N       .100  CHANNEL ROUGHNESS COEFFICIENT
                     CA        .04  CONTRIBUTING AREA
                  SHAPE       TRAP  CHANNEL SHAPE
                     WD       1.00  BOTTOM WIDTH OR DIAMETER
                      Z       1.00  SIDE SLOPE
                  DXMIN          8  MINIMUM NUMBER OF DX INTERVALS
296 RK        COLLECTOR CHANNEL
                      L      1200.  CHANNEL LENGTH
                      S      .3000  SLOPE
                      N       .050  CHANNEL ROUGHNESS COEFFICIENT
                     CA        .01  CONTRIBUTING AREA
                  SHAPE       TRAP  CHANNEL SHAPE
                     WD       4.00  BOTTOM WIDTH OR DIAMETER
                      Z       1.00  SIDE SLOPE
                  DXMIN          8  MINIMUM NUMBER OF DX INTERVALS
297 RK        MAIN CHANNEL
                      L      3400.  CHANNEL LENGTH
                      S      .0140  SLOPE
                      N       .045  CHANNEL ROUGHNESS COEFFICIENT
                     CA        .74  CONTRIBUTING AREA
                  SHAPE       TRAP  CHANNEL SHAPE
                     WD      10.00  BOTTOM WIDTH OR DIAMETER
                      Z       2.00  SIDE SLOPE
                  DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
                 RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                           (DT SHOWN IS A MINIMUM)
      ELEMENT    ALPHA      M       DT       DX      PEAK   TIME TO    VOLUME   MAXIMUM
                                                             PEAK               CELERITY
                                   (MIN)     (FT)    (CFS)   (MIN)     (IN)     (FPS)
```

1	2.81	1.67	.95	42.86	1046.92	359.89	2.70	.75
2	6.28	1.67	.42	20.00	700.73	359.51	2.72	.80
3	1.51	1.33	1.08	375.00	1672.14	359.98	2.70	5.77
4	6.58	1.40	.19	150.00	1664.32	361.17	2.70	13.49
5	1.08	1.44	1.14	1133.33	1869.19	362.92	2.71	16.56

CONTINUITY SUMMARY (AC-FT) - INFLOW= 15.206 EXCESS= 107.633 OUTFLOW= 121.414 BASIN STORAGE= .680 PERCENT ERROR= .606

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	1.08	1.44	15.00	1766.32	360.00	2.69

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

HYDROGRAPH AT STATION SB22

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.60, TOTAL EXCESS = 2.73

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
1766.	6.00		201.	61.	61.	61.
		(INCHES)	2.220	2.686	2.686	2.686
		(AC-FT)	99.	120.	120.	120.

CUMULATIVE AREA = .84 SQ MI

*** ***

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298 KK      **************
            *            *
            *    CB2122  *
            *            *
            **************
```

COMBINE SB21B + SB22

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

301 HC      HYDROGRAPH COMBINATION
                 ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
```

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

HYDROGRAPH AT STATION CB2122

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

```
                                  6-HR       24-HR      72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
   2459.      6.25                3756.      1162.      1162.       1162.
                      (INCHES)    2.175      2.663      2.663       2.663
                       (AC-FT)    1862.      2280.      2280.       2280.

                       CUMULATIVE AREA =   16.05 SQ MI


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


          **************
          *            *
302 KK    *     SB23   *
          *            *
          **************
                         RUNOFF FROM SB23

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

            SUBBASIN RUNOFF DATA

305 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .31  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

306 LS          SCS LOSS RATE
                      STRTL        .44  INITIAL ABSTRACTION
                     CRVNBR      81.90  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

                LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                      STRTL        .44  INITIAL ABSTRACTION
                     CRVNBR      81.90  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
307 UK          OVERLAND-FLOW ELEMENT NO. 1
```

```
                L        100.  OVERLAND FLOW LENGTH
                S       .5000  SLOPE
                N        .100  ROUGHNESS COEFFICIENT
               PA        40.0  PERCENT OF SUBBASIN
            DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
308 UK     OVERLAND-FLOW ELEMENT NO. 2
                L        300.  OVERLAND FLOW LENGTH
                S       .0400  SLOPE
                N        .100  ROUGHNESS COEFFICIENT
               PA        60.0  PERCENT OF SUBBASIN
            DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
309 RK     COLLECTOR CHANNEL
                L       1500.  CHANNEL LENGTH
                S       .2500  SLOPE
                N        .050  CHANNEL ROUGHNESS COEFFICIENT
               CA         .03  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD        2.00  BOTTOM WIDTH OR DIAMETER
                Z        1.00  SIDE SLOPE
            DXMIN           8  MINIMUM NUMBER OF DX INTERVALS
310 RK     COLLECTOR CHANNEL
                L       1000.  CHANNEL LENGTH
                S       .0300  SLOPE
                N        .050  CHANNEL ROUGHNESS COEFFICIENT
               CA         .07  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD        2.00  BOTTOM WIDTH OR DIAMETER
                Z        1.00  SIDE SLOPE
            DXMIN           8  MINIMUM NUMBER OF DX INTERVALS
311 RK     MAIN CHANNEL
                L       6300.  CHANNEL LENGTH
                S       .0080  SLOPE
                N        .045  CHANNEL ROUGHNESS COEFFICIENT
               CA         .31  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD       23.00  BOTTOM WIDTH OR DIAMETER
                Z        1.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH
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***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	10.54	1.67	.23	14.29	268.74	356.28	2.47	1.03
2	2.98	1.67	1.31	60.00	399.81	359.66	2.45	.76
3	7.04	1.36	.18	187.50	667.46	359.59	2.46	17.61
4	2.44	1.36	.21	125.00	666.31	359.94	2.46	10.06
5	.46	1.55	1.11	2100.00	18552.38	377.12	2.65	31.55

NUITY SUMMARY (AC-FT) - INFLOW= 2279.884 EXCESS= 40.982 OUTFLOW= 2312.615 BASIN STORAGE= 5.150 PERCENT ERROR= .134

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    5        .46      1.55      15.00          17483.01    375.00      2.67

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

                    HYDROGRAPH AT STATION     SB23

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.85, TOTAL EXCESS =    2.48

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                         (CFS)
  17483.      6.25                3837.       1187.       1187.        1187.
                        (INCHES)  2.180       2.669       2.669        2.669
                         (AC-FT)  1903.       2330.       2330.        2330.

                    CUMULATIVE AREA =   16.36 SQ MI


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


          **************
          *            *
312 KK    *      SB24  *
          *            *
          **************
                    RUNOFF FROM SB24

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

            SUBBASIN RUNOFF DATA

315 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .52  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

316 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
```

CRVNBR	86.00	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.0250	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

318 RK MAIN CHANNEL

L	7400.	CHANNEL LENGTH
S	.0090	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.52	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	3.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.36	1.67	1.98	100.00	1239.16	359.32	2.81	.84
3	1.14	1.35	3.32	1850.00	1039.34	365.90	2.79	9.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 78.953 OUTFLOW= 77.318 BASIN STORAGE= .375 PERCENT ERROR= 1.596

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	1.14	1.35	15.00	849.92	360.00	2.79

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

HYDROGRAPH AT STATION SB24

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.48, TOTAL EXCESS = 2.85

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 850.	6.00		129.	39.	39.	39.
		(INCHES)	2.300	2.789	2.789	2.789
		(AC-FT)	64.	77.	77.	77.

CUMULATIVE AREA = .52 SQ MI

*** ***

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              **************
              *            *
320 KK        *     SB25   *
              *            *
              **************
                        RUNOFF FROM SB25

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

              SUBBASIN RUNOFF DATA

323 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .58  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

324 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      86.00  CURVE NUMBER
                     RTIMP      10.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
325 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       500.  OVERLAND FLOW LENGTH
                         S      .0500  SLOPE
                         N       .100  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                     DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
326 RK            COLLECTOR CHANNEL
                         L      1500.  CHANNEL LENGTH
                         S      .0200  SLOPE
                         N       .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA        .10  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD        .00  BOTTOM WIDTH OR DIAMETER
                         Z       4.00  SIDE SLOPE
                     DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
327 RK            MAIN CHANNEL
                         L      8500.  CHANNEL LENGTH
                         S      .0110  SLOPE
```

N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.58	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	5.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.33	1.67	1.14	71.43	1450.34	359.41	2.96	1.04
3	1.64	1.33	.52	250.00	1430.33	359.46	2.96	7.95
4	1.16	1.36	2.03	1416.67	1927.79	369.33	2.89	11.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= 77.345 EXCESS= 92.649 OUTFLOW= 169.766 BASIN STORAGE= .995 PERCENT ERROR= -.451

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.16	1.36	15.00	1632.84	375.00	2.89

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

HYDROGRAPH AT STATION SB25

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.33, TOTAL EXCESS = 3.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
1633.	6.25		282.	86.	86.	86.
		(INCHES)	2.381	2.885	2.885	2.885
		(AC-FT)	140.	169.	169.	169.

CUMULATIVE AREA = 1.10 SQ MI

*** ***

```
**************
*            *
*      SB26  *
*            *
**************
```

329 KK

RUNOFF FROM SB26

331 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL

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

     SUBBASIN RUNOFF DATA

332 BA     SUBBASIN CHARACTERISTICS
          TAREA        .60  SUBBASIN AREA

           PRECIPITATION DATA

12 PB     STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI       INCREMENTAL PRECIPITATION PATTERN
              .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
              .00     .00     .00     .00     .00     .00     .01     .01     .01     .01
              .02     .02     .28     .28     .04     .04     .02     .02     .01     .01
              .01     .01     .01     .01     .00     .00     .01     .00     .01     .01
              .00     .00     .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

333 LS     SCS LOSS RATE
          STRTL        .38  INITIAL ABSTRACTION
         CRVNBR      84.00  CURVE NUMBER
          RTIMP      10.00  PERCENT IMPERVIOUS AREA

           KINEMATIC WAVE
334 UK       OVERLAND-FLOW ELEMENT NO. 1
                L       500.  OVERLAND FLOW LENGTH
                S      .0200  SLOPE
                N       .100  ROUGHNESS COEFFICIENT
               PA      100.0  PERCENT OF SUBBASIN
            DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
335 RK       COLLECTOR CHANNEL
                L      3000.  CHANNEL LENGTH
                S      .0100  SLOPE
                N       .050  CHANNEL ROUGHNESS COEFFICIENT
               CA        .20  CONTRIBUTING AREA
            SHAPE       TRAP  CHANNEL SHAPE
               WD        .00  BOTTOM WIDTH OR DIAMETER
                Z       4.00  SIDE SLOPE
            DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
336 RK       MAIN CHANNEL
                L      4500.  CHANNEL LENGTH
                S      .0089  SLOPE
                N       .045  CHANNEL ROUGHNESS COEFFICIENT
               CA        .60  CONTRIBUTING AREA
            SHAPE       TRAP  CHANNEL SHAPE
               WD       5.00  BOTTOM WIDTH OR DIAMETER
                Z       4.00  SIDE SLOPE
            DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                   ***

                     COMPUTED KINEMATIC PARAMETERS
                          VARIABLE TIME STEP
                       (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	1.56	71.43	1390.14	359.90	2.79	.76
3	1.16	1.33	1.19	500.00	1285.75	362.01	2.78	7.02
4	1.05	1.36	1.08	750.00	2490.82	368.24	2.84	11.57

ONTINUITY SUMMARY (AC-FT) - INFLOW= 169.279 EXCESS= 90.576 OUTFLOW= 257.388 BASIN STORAGE= .978 PERCENT ERROR= .573

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.05	1.36	15.00	2326.02	375.00	2.84

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

HYDROGRAPH AT STATION SB26

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.50, TOTAL EXCESS = 2.83

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 2326.	6.25		428.	131.	131.	131.
		(INCHES)	2.341	2.836	2.836	2.836
		(AC-FT)	212.	257.	257.	257.

CUMULATIVE AREA = 1.70 SQ MI

*** ***

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          **************
          *            *
337 KK    *   CB2623   *
          *            *
          **************
```

COMBINE SB26 AND SB23

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

340 HC        HYDROGRAPH COMBINATION
                   ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
```

***

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

HYDROGRAPH AT STATION CB2623

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+[illegible]9809.	6.25		4265.	1318.	1318.	1318.
		(INCHES)	2.195	2.685	2.685	2.685
		(AC-FT)	2115.	2587.	2587.	2587.

CUMULATIVE AREA = 18.06 SQ MI

** ***

```
              **************
              *            *
341 KK        *     SB27   *
              *            *
              **************
                      RUNOFF FROM SB27

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

              SUBBASIN RUNOFF DATA

344 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .92  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                     .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                     .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                     .00      .00      .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

345 LS          SCS LOSS RATE
                     STRTL        .34  INITIAL ABSTRACTION
                    CRVNBR      85.30  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
[illegible]UK     OVERLAND-FLOW ELEMENT NO. 1
                         L       400.  OVERLAND FLOW LENGTH
                         S      .0400  SLOPE
                         N       .150  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
```

	DXMIN	7	MINIMUM NUMBER OF DX INTERVALS
347 RK	COLLECTOR CHANNEL		
	L	10000.	CHANNEL LENGTH
	S	.0200	SLOPE
	N	.100	CHANNEL ROUGHNESS COEFFICIENT
	CA	.30	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	.00	BOTTOM WIDTH OR DIAMETER
	Z	4.00	SIDE SLOPE
	DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
348 RK	MAIN CHANNEL		
	L	2900.	CHANNEL LENGTH
	S	.0050	SLOPE
	N	.045	CHANNEL ROUGHNESS COEFFICIENT
	CA	.92	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	13.00	BOTTOM WIDTH OR DIAMETER
	Z	1.00	SIDE SLOPE
	DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
	RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.99	1.67	1.40	57.14	2159.82	359.51	2.75	.68
3	.82	1.33	5.40	1666.67	1156.67	383.83	2.71	5.15
4	.54	1.50	.29	483.33	20898.70	376.49	2.72	28.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2586.879 EXCESS= 136.507 OUTFLOW= 2754.847 BASIN STORAGE= 4.858 PERCENT ERROR= -1.334

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.54	1.50	15.00	20077.43	375.00	2.74

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

HYDROGRAPH AT STATION SB27

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.55, TOTAL EXCESS = 2.78

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
20077.	6.25		4556.	1414.	1414.	1414.
		(INCHES)	2.231	2.740	2.740	2.740
		(AC-FT)	2259.	2774.	2774.	2774.

CUMULATIVE AREA = 18.98 SQ MI

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              **************
              *            *
349 KK        *     SB28   *
              *            *
              **************
                             RUNOFF FROM SB28

351 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          2  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         96  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .250  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

352 BA        SUBBASIN CHARACTERISTICS
                      TAREA        .87  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
                    .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                    .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                    .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                    .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                    .00      .00      .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

353 LS        SCS LOSS RATE
                      STRTL        .49  INITIAL ABSTRACTION
                     CRVNBR      80.30  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
354 UK          OVERLAND-FLOW ELEMENT NO. 1
                          L       300.  OVERLAND FLOW LENGTH
                          S      .0400  SLOPE
                          N       .100  ROUGHNESS COEFFICIENT
                         PA      100.0  PERCENT OF SUBBASIN
                       DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
 RK           COLLECTOR CHANNEL
                          L      6000.  CHANNEL LENGTH
                          S      .0100  SLOPE
                          N       .050  CHANNEL ROUGHNESS COEFFICIENT
                         CA        .29  CONTRIBUTING AREA
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SHAPE	TRAP	CHANNEL SHAPE
WD	8.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

RK MAIN CHANNEL

L	4000.	CHANNEL LENGTH
S	.0070	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.87	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	15.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.98	1.67	.97	42.86	1773.53	359.85	2.32	.73
3	.91	1.42	1.88	1000.00	1543.58	362.59	2.30	8.87
4	.58	1.52	.35	666.67	20879.48	376.77	2.72	31.59

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2774.493 EXCESS= 108.685 OUTFLOW= 2875.685 BASIN STORAGE= 5.111 PERCENT ERROR= .083

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.58	1.52	15.00	19828.54	375.00	2.73

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

HYDROGRAPH AT STATION SB28

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.99, TOTAL EXCESS = 2.34

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
19829.	6.25		4743.	1473.	1473.	1473.
		(INCHES)	2.221	2.730	2.730	2.730
		(AC-FT)	2352.	2891.	2891.	2891.

CUMULATIVE AREA = 19.85 SQ MI

STATION SB28

(O) OUTFLOW

0. 4000. 8000. 12000. 16000. 20000. 0. 0. 0. 0. 0. 0. 0.

(L) PRECIP, (X) EXCESS

.0 .0 .0 .0 .0 .0 .0 .0 1.6 1.2 .8 .4 .0

DAHRMN PER

10000 10---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.

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10015   20         .         .         .         .         .         .         .         .         .         .         .         .
10030   30         .         .         .         .         .         .         .         .         .         .         .         .
10045   40         .         .         .         .         .         .         .         .         .         .         .         .
[illegible]0   50         .         .         .         .         .         .         .         .         .         .         .         .
[illegible]5   60         .         .         .         .         .         .         .         .         .         .         .         .
10130   70         .         .         .         .         .         .         .         .         .         .         .         .
10145   80         .         .         .         .         .         .         .         .         .         .         .         .
10200   90         .         .         .         .         .         .         .         .         .         .         .         .
10215  100         .         .         .         .         .         .         .         .         .         .         .         .
10230  110 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
10245  120         .         .         .         .         .         .         .         .         .         .         .         .
10300  130         .         .         .         .         .         .         .         .         .         .         .         .
10315  140         .         .         .         .         .         .         .         .         .         .         .         .
10330  150         .         .         .         .         .         .         .         .         .         .         .         .
10345  160         .         .         .         .         .         .         .         .         .         .         .         .
10400  170         .         .         .         .         .         .         .         .         .         .         .         .
10415  180         .         .         .         .         .         .         .         .         .         .         .        L.
10430  190         .         .         .         .         .         .         .         .         .         .         .        L.
10445  200         .         .         .         .         .         .         .         .         .         .         .        L.
10500  210 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .L.
10515  220         .         .         .         .         .         .         .         .         .         .         .       LL.
10530  230         .         .         .         .         .         .         .         .         .         .         .       LL.
10545  24.   0     .         .         .         .         .         .         .         .          LLLLLLLLLLLLLLLLLLLLXXXXXXXXX.
10600  25.         .         .     0   .         .         .         .         .         .          LLLLLLLLLXXXXXXXXXXXXXXXXXXXX.
10615  26.         .         .         .         .         0         .         .         .         .         .         .    LLXXX.
10630  27.         .         .         .         .        0.         .         .         .         .         .         .    LXXXX.
10645  28.         .         .         .     0   .         .         .         .         .         .         .         .       LX.
10700  29.         .         .    0    .         .         .         .         .         .         .         .         .       LX.
10715  30.         .      0  .         .         .         .         .         .         .         .         .         .        X.
10730  31. . . . . . 0 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .X.
10745  32.        0.         .         .         .         .         .         .         .         .         .         .        X.
10800  33.       0 .         .         .         .         .         .         .         .         .         .         .        X.
10815  34.     0   .         .         .         .         .         .         .         .         .         .         .        X.
10830  35.    0    .         .         .         .         .         .         .         .         .         .         .        X.
10845  36.    0    .         .         .         .         .         .         .         .         .         .         .        L.
10900  37.   0     .         .         .         .         .         .         .         .         .         .         .        L.
10915  38.   0     .         .         .         .         .         .         .         .         .         .         .        L.
10930  39.  0      .         .         .         .         .         .         .         .         .         .         .        L.
10945  40.  0      .         .         .         .         .         .         .         .         .         .         .        L.
11000  41. .0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .L.
11015  42.  0      .         .         .         .         .         .         .         .         .         .         .         .
11030  43.  0      .         .         .         .         .         .         .         .         .         .         .         .
11045  44. 0       .         .         .         .         .         .         .         .         .         .         .        L.
11100  45. 0       .         .         .         .         .         .         .         .         .         .         .        L.
11115  46. 0       .         .         .         .         .         .         .         .         .         .         .         .
11130  47. 0       .         .         .         .         .         .         .         .         .         .         .         .
11145  48. 0       .         .         .         .         .         .         .         .         .         .         .         .
11200  49. 0       .         .         .         .         .         .         .         .         .         .         .         .
11215  50. 0       .         .         .         .         .         .         .         .         .         .         .         .
11230  51. 0 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11245  52. 0       .         .         .         .         .         .         .         .         .         .         .         .
11300  53. 0       .         .         .         .         .         .         .         .         .         .         .         .
11315  54. 0       .         .         .         .         .         .         .         .         .         .         .         .
11330  55. 0       .         .         .         .         .         .         .         .         .         .         .         .
[illegible]345  56. 0       .         .         .         .         .         .         .         .         .         .         .         .
[illegible]0  57. 0       .         .         .         .         .         .         .         .         .         .         .         .
11415  58. 0       .         .         .         .         .         .         .         .         .         .         .         .
11430  59. 0       .         .         .         .         .         .         .         .         .         .         .         .
11445  60. 0       .         .         .         .         .         .         .         .         .         .         .         .
11500  61. 0 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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11515  62.0   .      .      .      .      .      .      .      .      .      .      .      .
11530  63.0   .      .      .      .      .      .      .      .      .      .      .      .
11545  64.0   .      .      .      .      .      .      .      .      .      .      .      .
[illegible]00  65.0   .      .      .      .      .      .      .      .      .      .      .      .
[illegible]5  66.0   .      .      .      .      .      .      .      .      .      .      .      .
11630  67.0   .      .      .      .      .      .      .      .      .      .      .      .
11645  68.0   .      .      .      .      .      .      .      .      .      .      .      .
11700  69.0   .      .      .      .      .      .      .      .      .      .      .      .
11715  70.0   .      .      .      .      .      .      .      .      .      .      .      .
11730  71.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11745  72.0   .      .      .      .      .      .      .      .      .      .      .      .
11800  73.0   .      .      .      .      .      .      .      .      .      .      .      .
11815  74.0   .      .      .      .      .      .      .      .      .      .      .      .
11830  75.0   .      .      .      .      .      .      .      .      .      .      .      .
11845  76.0   .      .      .      .      .      .      .      .      .      .      .      .
11900  77.0   .      .      .      .      .      .      .      .      .      .      .      .
11915  78.0   .      .      .      .      .      .      .      .      .      .      .      .
11930  79.0   .      .      .      .      .      .      .      .      .      .      .      .
11945  80.0   .      .      .      .      .      .      .      .      .      .      .      .
12000  81.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
12015  82.0   .      .      .      .      .      .      .      .      .      .      .      .
12030  83.0   .      .      .      .      .      .      .      .      .      .      .      .
12045  84.0   .      .      .      .      .      .      .      .      .      .      .      .
12100  85.0   .      .      .      .      .      .      .      .      .      .      .      .
12115  86.0   .      .      .      .      .      .      .      .      .      .      .      .
12130  87.0   .      .      .      .      .      .      .      .      .      .      .      .
12145  88.0   .      .      .      .      .      .      .      .      .      .      .      .
12200  89.0   .      .      .      .      .      .      .      .      .      .      .      .
12215  90.0   .      .      .      .      .      .      .      .      .      .      .      .
12230  91.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
12245  92.0   .      .      .      .      .      .      .      .      .      .      .      .
12300  93.0   .      .      .      .      .      .      .      .      .      .      .      .
12315  94.0   .      .      .      .      .      .      .      .      .      .      .      .
12330  95.0   .      .      .      .      .      .      .      .      .      .      .      .
12345  96.0-------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
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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	SB1	733.	6.00	114.	35.	35.	.46		
HYDROGRAPH AT	SB2	2502.	6.25	369.	114.	114.	1.51		
HYDROGRAPH AT	SB3	742.	6.00	85.	26.	26.	.37		
HYDROGRAPH AT	SB4	2673.	6.00	285.	87.	87.	1.15		
2 COMBINED AT	CB3+4	3415.	6.00	370.	113.	113.	1.52		

HYDROGRAPH AT	SB5	4202.	6.25	536.	167.	167.	2.39
HYDROGRAPH AT	SB6	1008.	6.25	164.	51.	51.	.71
2 COMBINED AT	SB5+6	5210.	6.25	699.	217.	217.	3.10
HYDROGRAPH AT	SB7	4082.	6.25	731.	228.	228.	3.27
2 COMBINED AT	SB2+7	6583.	6.25	1100.	341.	341.	4.78
HYDROGRAPH AT	SB8	2176.	6.25	338.	104.	104.	1.43
2 COMBINED AT	SB278	8759.	6.25	1438.	446.	446.	6.21
HYDROGRAPH AT	SB8B	8290.	6.25	1456.	452.	452.	6.28
HYDROGRAPH AT	SB12	3160.	6.00	415.	128.	128.	1.80
HYDROGRAPH AT	SB13	1058.	6.25	171.	53.	53.	.71
2 COMBINED AT	SB1213	3894.	6.00	586.	180.	180.	2.51
HYDROGRAPH AT	SB14	3689.	6.00	613.	189.	189.	2.61
HYDROGRAPH AT	SB10	1292.	6.00	137.	42.	42.	.58
HYDROGRAPH AT	SB11A	1654.	6.25	275.	85.	85.	1.26
2 COMBINED AT	SB1114	5341.	6.00	887.	274.	274.	3.87
HYDROGRAPH AT	SB11B	5126.	6.25	890.	275.	275.	3.88
HYDROGRAPH AT	SB15	195.	6.00	22.	7.	7.	.08
HYDROGRAPH AT	SB9A	1264.	6.25	181.	56.	56.	.77
3 COMBINED AT	SB9145	6435.	6.25	1092.	337.	337.	4.72
HYDROGRAPH AT	SB9B	6447.	6.25	1117.	345.	345.	4.80

HYDROGRAPH AT	SB16	2225.	6.25	393.	122.	122.	1.65
3 COMBINED AT	CB1698	16962.	6.25	2964.	918.	918.	12.73
HYDROGRAPH AT	SB17A	1827.	6.25	277.	85.	85.	1.15
2 COMBINED AT	CB1796	18789.	6.25	3241.	1003.	1003.	13.88
HYDROGRAPH AT	SB17B	17904.	6.25	3284.	1015.	1015.	14.00
HYDROGRAPH AT	SB18A	327.	6.00	34.	10.	10.	.15
HYDROGRAPH AT	SB18B	359.	6.00	39.	12.	12.	.17
2 COMBINED AT	CB1718	18008.	6.25	3319.	1027.	1027.	14.17
HYDROGRAPH AT	SB21A	17578.	6.25	3355.	1039.	1039.	14.30
HYDROGRAPH AT	SB19A	838.	6.00	89.	27.	27.	.35
HYDROGRAPH AT	SB19B	875.	6.00	101.	30.	30.	.40
2 COMBINED AT	CB2119	17923.	6.25	3448.	1069.	1069.	14.70
HYDROGRAPH AT	SB21B	17558.	6.25	3560.	1100.	1100.	15.21
HYDROGRAPH AT	SB20	244.	6.00	26.	8.	8.	.10
HYDROGRAPH AT	SB22	1766.	6.00	201.	61.	61.	.84
2 COMBINED AT	CB2122	18459.	6.25	3756.	1162.	1162.	16.05
HYDROGRAPH AT	SB23	17483.	6.25	3837.	1187.	1187.	16.36
HYDROGRAPH AT	SB24	850.	6.00	129.	39.	39.	.52
HYDROGRAPH AT	SB25	1633.	6.25	282.	86.	86.	1.10
HYDROGRAPH AT	SB26	2326.	6.25	428.	131.	131.	1.70

2 COMBINED AT	CB2623	19809.	6.25	4265.	1318.	1318.	18.06
HYDROGRAPH AT	SB27	20077.	6.25	4556.	1414.	1414.	18.98
HYDROGRAPH AT	SB28	19829.	6.25	4743.	1473.	1473.	19.85

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	AREA mi²
SB1	4	2.20	933.90	365.63	2.77	15.00	733.30	360.00	2.78	
CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 68.705 OUTFLOW= 68.075 BASIN STORAGE= .308 PERCENT ERROR= .470										.46
SB2	4	2.91	2588.74	371.08	2.78	15.00	2501.92	375.00	2.77	
CONTINUITY SUMMARY (AC-FT) - INFLOW= 68.277 EXCESS= 160.129 OUTFLOW= 224.033 BASIN STORAGE= 1.883 PERCENT ERROR= 1.090										1.05
SB3	4	1.46	783.19	361.56	2.54	15.00	742.09	360.00	2.60	
CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 54.176 OUTFLOW= 50.085 BASIN STORAGE= .132 PERCENT ERROR= 7.306										.37
SB4	4	.91	2711.69	361.11	2.79	15.00	2672.54	360.00	2.77	
CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 173.466 OUTFLOW= 171.263 BASIN STORAGE= .674 PERCENT ERROR= .881										1.15
SB5	4	2.15	4901.38	370.73	2.63	15.00	4202.17	375.00	2.57	
CONTINUITY SUMMARY (AC-FT) - INFLOW= 221.495 EXCESS= 126.120 OUTFLOW= 334.620 BASIN STORAGE= 2.705 PERCENT ERROR= 2.960										.87
SB6	4	4.43	1251.64	367.32	2.64	15.00	1007.74	375.00	2.62	
CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 101.897 OUTFLOW= 99.886 BASIN STORAGE= .625 PERCENT ERROR= 1.360										.71
SB7	3	1.80	5099.59	379.63	2.56	15.00	4081.52	375.00	2.56	
CONTINUITY SUMMARY (AC-FT) - INFLOW= 426.419 EXCESS= 22.006 OUTFLOW= 446.241 BASIN STORAGE= 1.476 PERCENT ERROR= .158										.17
SB8	4	3.08	2180.60	375.09	2.66	15.00	2175.82	375.00	2.68	
INUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 205.918 OUTFLOW= 203.043 BASIN STORAGE= 2.801 PERCENT ERROR= .036										1.43
SB8B	3	.24	8759.64	376.36	2.63	15.00	8290.03	375.00	2.65	

CONTINUITY SUMMARY (AC-FT) - INFLOW= 874.797 EXCESS= 7.160 OUTFLOW= 881.302 BASIN STORAGE= .997 PERCENT ERROR= -.039 .07

SB12	4	1.65	3586.57	364.19	2.59	15.00	3159.93	360.00	2.61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 253.155 OUTFLOW= 249.077 BASIN STORAGE= 1.498 PERCENT ERROR= 1.019 1.8

SB13	3	2.32	1206.69	369.47	2.74	15.00	1058.11	375.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 105.348 OUTFLOW= 103.835 BASIN STORAGE= .629 PERCENT ERROR= .840 .71

SB14	3	.32	4078.55	361.73	2.64	15.00	3689.03	360.00	2.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= 354.237 EXCESS= 13.969 OUTFLOW= 367.454 BASIN STORAGE= .384 PERCENT ERROR= .100 .10

SB10	4	.92	1323.22	361.62	2.60	15.00	1292.24	360.00	2.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 86.059 OUTFLOW= 80.334 BASIN STORAGE= .294 PERCENT ERROR= 6.311 5.8

SB11A	4	1.66	2361.30	367.95	2.49	15.00	1653.60	375.00	2.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= 82.608 EXCESS= 86.788 OUTFLOW= 167.190 BASIN STORAGE= 1.079 PERCENT ERROR= .666 .68

SB11B	3	.14	5348.40	360.72	2.60	15.00	5126.07	375.00	2.61

CONTINUITY SUMMARY (AC-FT) - INFLOW= 537.554 EXCESS= .511 OUTFLOW= 537.761 BASIN STORAGE= .212 PERCENT ERROR= .017 .005

SB15	3	.61	196.06	359.50	2.88	15.00	195.41	360.00	2.99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 12.425 OUTFLOW= 12.304 BASIN STORAGE= .023 PERCENT ERROR= .785 .08

SB9A	4	2.23	1331.64	372.41	2.67	15.00	1263.54	375.00	2.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 111.997 OUTFLOW= 109.496 BASIN STORAGE= 1.263 PERCENT ERROR= 1.105 .77

SB9B	3	.19	6485.93	376.33	2.62	15.00	6446.98	375.00	2.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= 661.694 EXCESS= 11.636 OUTFLOW= 672.342 BASIN STORAGE= .710 PERCENT ERROR= .041 .08

SB16	5	4.34	2402.56	379.32	2.71	15.00	2224.83	375.00	2.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 251.280 OUTFLOW= 238.722 BASIN STORAGE= 4.518 PERCENT ERROR= 3.199 1.65

SB17A	4	2.64	2111.64	368.95	2.75	15.00	1826.71	375.00	2.73

INUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 172.898 OUTFLOW= 168.487 BASIN STORAGE= .961 PERCENT ERROR= 1.995 1.15

SB17B	3	.52	18819.74	376.51	2.65	15.00	17904.10	375.00	2.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= 1969.590 EXCESS= 15.045 OUTFLOW= 1979.677 BASIN STORAGE= 3.288 PERCENT ERROR= .084 .12

SB18A	4	.12	327.04	359.55	2.48	15.00	326.75	360.00	2.54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 19.969 OUTFLOW= 19.814 BASIN STORAGE= .022 PERCENT ERROR= .664 .15

SB18B	3	.17	369.10	361.14	2.55	15.00	359.08	360.00	2.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= 20.285 EXCESS= 2.861 OUTFLOW= 23.090 BASIN STORAGE= .020 PERCENT ERROR= .153 .02

SB21A	4	.12	18058.64	375.89	2.67	15.00	17578.41	375.00	2.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2016.382 EXCESS= 18.221 OUTFLOW= 2033.211 BASIN STORAGE= 1.045 PERCENT ERROR= .017 .13

SB19A	4	.49	838.20	359.59	2.74	15.00	838.07	360.00	2.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 51.589 OUTFLOW= 51.222 BASIN STORAGE= .111 PERCENT ERROR= .497 .35

SB19B	3	.38	924.93	362.66	2.73	15.00	875.20	360.00	2.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= 52.407 EXCESS= 6.246 OUTFLOW= 58.261 BASIN STORAGE= .121 PERCENT ERROR= .462 .05

SB21B	4	.24	18406.28	376.77	2.66	15.00	17557.86	375.00	2.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2098.967 EXCESS= 66.019 OUTFLOW= 2155.308 BASIN STORAGE= 3.878 PERCENT ERROR= .268 .51

SB20	3	.11	245.87	359.67	2.83	15.00	244.49	360.00	2.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 15.183 OUTFLOW= 15.101 BASIN STORAGE= .006 PERCENT ERROR= .504 .10

SB22	5	1.14	1869.19	362.92	2.71	15.00	1766.32	360.00	2.69

CONTINUITY SUMMARY (AC-FT) - INFLOW= 15.206 EXCESS= 107.633 OUTFLOW= 121.414 BASIN STORAGE= .680 PERCENT ERROR= .606 .74

SB23	5	1.11	18552.38	377.12	2.65	15.00	17483.01	375.00	2.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2279.884 EXCESS= 40.982 OUTFLOW= 2312.615 BASIN STORAGE= 5.150 PERCENT ERROR= .134 .31

SB24	3	3.32	1039.34	365.90	2.79	15.00	849.92	360.00	2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 78.953 OUTFLOW= 77.318 BASIN STORAGE= .375 PERCENT ERROR= 1.596 .52

SB25	4	2.03	1927.79	369.33	2.89	15.00	1632.84	375.00	2.89

INUITY SUMMARY (AC-FT) - INFLOW= 77.345 EXCESS= 92.649 OUTFLOW= 169.766 BASIN STORAGE= .995 PERCENT ERROR= -.451 .68

SB26	4	1.08	2490.82	368.24	2.84	15.00	2326.02	375.00	2.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= 169.279 EXCESS= 90.576 OUTFLOW= 257.388 BASIN STORAGE= .978 PERCENT ERROR= .573 .60

SB27	4	.29	20898.70	376.49	2.72	15.00	20077.43	375.00	2.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2586.879 EXCESS= 136.507 OUTFLOW= 2754.847 BASIN STORAGE= 4.858 PERCENT ERROR= -1.334 .92

SB28	4	.35	20879.48	376.77	2.72	15.00	19828.54	375.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2774.493 EXCESS= 108.685 OUTFLOW= 2875.685 BASIN STORAGE= 5.111 PERCENT ERROR= .083 .87

*** NORMAL END OF HEC-1 ***

CASE 2
UPPER WATERSHED MODEL

```
****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*          FEBRUARY 1981               *
*        REVISED 01 JUN 88             *
*                                      *
*  RUN DATE  09/13/1990  TIME  13:16:44 *
*                                      *
****************************************
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```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*          (916) 551-1748              *
*                                      *
****************************************
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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. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

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

  1           ID   DEADMAN'S WASH - CASE 2 - 100 YEAR, 24 HOUR DESIGN STORM
  2           ID   FUTURE CONDITIONS - UPPER WATERSHED
  3           ID   KINEMATIC WAVE ROUTING
  4           IT      15                     96
  5           IO       3       0
  6           IN      30

  7           KK     SB1
  8           KM   RUNOFF FROM SB1
  9           KO
 10           BA    0.46
 11           LS       0    85.5      46
 12           PB    4.33
 13           PC     0.0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 14           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
 15           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
 16           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
 17           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
 18           UK    500.    .040     .15     100
 19           RK   1500.    .017    .050     .09    TRAP       2       1
 20           RK   7700.    .025    .045            TRAP       8       3
 21           DX       5               6       6
```

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22          KK     SB2
23          KM   RUNOFF FROM SB2
24          KO
25          BA    1.05
26          LS       0    85.3      20
27          UK    500.     .04     .15     100
28          RK   3000.    .015     .05     .15    TRAP       2       1
29          RK  13300.    .013    .045            TRAP      10       3     YES
30          DX       7              5       5

31          KK     SB3
32          KM   RUNOFF FROM SB3
33          KO
34          BA     .37
35          LS       0    84.9       6
36          UK    250.     .20     .15     100
37          RK   1000.     .10     .05     .04    TRAP               1
38          RK   6000.    .028    .045            TRAP       3       1
39          DX       5              6       6

40          KK     SB4
41          KM   RUNOFF FROM SB4
42          KO
43          BA    1.15
44          LS       0    85.8       3
45          UK    250.     .10     .15     100
46          RK   1200.     .08     .10     .08    TRAP               1
47          RK  11100.    .032    .045            TRAP       4       1
48          DX      10             12      12
                                        HEC-1 INPUT                                          PAGE  2

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


49          KK   CB34
50          KM   COMBINE SB3 AND SB4
51          KO
52          HC       2

53          KK     SB5
54          KM   RUNOFF FROM SB5
55          KO
56          BA     .87
57          LS       0    84.6      20
58          UK    500.     .10     .15     100
59          RK   2000.     .05     .10     .06    TRAP       1       1
60          RK  12600.    .012    .045            TRAP      13       4     YES
61          DX       5              6       6

62          KK     SB6
63          KM   RUNOFF FROM SB6
64          KO
65          BA     .71
66          LS       0    84.3      17
67          UK    500.     .10     .10     100
68          RK   1200.     .05     .05     .06    TRAP       1       1
69          RK  15500.    .026    .045            TRAP       8       4
70          DX       5              6       6
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```
 71          KK    CB56
 72          KM   COMBINE SB5 AND SB6
 73          KO
 74          HC       2

 75          KK     SB7
 76          KM   RUNOFF FROM SB7
 77          KO
 78          BA     .17
 79          LS       0    81.3      20
 80          UK    250.     .06     .05     100
 81          RK   5200.    .015    .045           TRAP      13      14     YES

 82          KK    CB27
 83          KM   COMBINE SB2 AND SB7
 84          KO
 85          HC       2

 86          KK    SB8A
 87          KM   RUNOFF FROM SB8A
 88          KO
 89          BA    1.43
 90          LS       0    84.4      16
 91          UK    500.     .07     .15     100
 92          RK   3000.     .05     .10     .09    TRAP       2       1
 93          RK  21300.    .022    .045            TRAP      20       2
 94          DX       6              8       8
                                     HEC-1 INPUT                                                    PAGE  3

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


 95          KK    CB78
 96          KM   COMBINE CB27 AND SB8A
 97          KO
 98          HC       2

 99          KK    SB8B
100          KM   RUNOFF FROM SB8B
101          KO
102          BA     .07
103          LS       0    75.0      20
104          UK     50.     .10     .10     100
105          RK   2000.     .01    .045           TRAP      16       2     YES
106          DX       6              8

107          KK    SB12
108          KM   RUNOFF FROM SB12
109          KO
110          BA    1.80
111          LS       0    83.7      19
112          UK    200.     .05     .15     100
113          RK   5000.     .03     .10     100    TRAP       2       1
114          RK  17400.    .019    .045            TRAP       3       1
115          DX       6              8       8

116          KK    SB13
117          KM   RUNOFF FROM SB13
118          KO
119          BA     .71
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120          LS       0    85.3      20
121          UK    700.     .02     .10     100
122          RK  13200.    .016    .045             TRAP      4       1
123          DX       5              6

124          KK  CB1213
125          KM   COMBINE SB12 AND SB13
126          KO
127          HC       2

128          KK    SB14
129          KM   RUNOFF FROM SB14
130          KO
131          BA     .10
132          LS       0    83.5      20
133          UK    700.     .02     .10     100
134          RK   2100.     .01    .045             TRAP      4       1     YES

135          KK    SB10
136          KM   RUNOFF FROM SB10
137          KO
138          BA     .58
139          LS       0    85.3       5
140          UK    500.     .20     .15     100
141          RK   1500.     .10     .10     .06     TRAP      1       1
142          RK   8500.    .052    .045             TRAP      6       1
```



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

143          DX       5              6       6

144          KK   SB11A
145          KM   RUNOFF FROM SB11A
146          KO
147          BA     .68
148          LS       0    80.9      20
149          UK    250.     .08     .10     100
150          RK   3000.     .04     .05     .08     TRAP      2       1
151          RK  10000.    .019    .045             TRAP     10       3     YES

152          KK  CB1114
153          KM   COMBINE SB11A AND SB14
154          KO
155          HC       2

156          KK   SB11B
157          KM   RUNOFF FROM SB11B
158          KO
159          BA    .005
160          LS       0    75.0      20
161          UK     50.     .04     .10     100
162          RK   1000.     .02    .045             TRAP      3       3     YES

163          KK    SB15
164          KM   RUNOFF FROM SB15
165          KO
166          BA     .08
167          LS       0    85.0      20
168          UK    250.     .05     .10     100
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169          RK   2000.    .025    .045           TRAP      10       3
170          DX       6              6

171          KK    SB9A
172          KM   RUNOFF FROM SB9A
173          KO
174          BA     .77
175          LS       0    84.7      19
176          UK    300.     .04     .10     100
177          RK   2500.     .02     .10     .10   TRAP       4       1
178          RK  15800.    .016    .045           TRAP       9       2
179          DX       6              8       8

180          KK  CB9115
181          KM   COMBINE SB9A, SB15 AND SB11B
182          KO
183          HC       3

184          KK    SB9B
185          KM   RUNOFF FROM SB9B
186          KO
187          BA     .08
188          LS       0    84.7      20
189          UK    600.     .05     .10     100
190          RK   2000.    .016    .045           TRAP      16       3     YES
```



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

191          KK    SB16
192          KM   RUNOFF FROM SB16
193          KO
194          BA    1.65
195          LS       0    85.9      20       0   85.9      20
196          UK    500.     .02     .15      60
197          UK    250.     .10     .15      40
198          RK   5000.     .01     .10    1.09   TRAP       4       2
199          RK   2000.     .08     .10     .56   TRAP               1
200          RK  13700.    .009    .045           TRAP       8       3
201          DX       6      6       7       7      7

202          KK  CB1698
203          KM   COMBINE SB16, SB9B AND SB8B
204          KO
205          HC       3

206          KK   SB17A
207          KM   RUNOFF FROM SB17A
208          KO
209          BA    1.15
210          LS       0    85.7      20
211          UK    500.    .025     .15     100
212          RK   2500.    .016     .05     .14   TRAP       2       2
213          RK   9300.    .014    .045           TRAP       6       3
214          DX       6              6       6

215          KK  CB1798
216          KM   COMBINE SB17A AND CB1698
217          KO
```

```
218          HC      2

219          KK   SB17B
220          KM   RUNOFF FROM SB17B
221          KO
222          BA    .12
223          LS      0    80.4      20
224          UK    700.     .08     .10     100
225          RK   2900.    .003    .045           TRAP      23       1     YES
226          DX      6              6

227          KK   SB18A
228          KM   RUNOFF FROM SB18A
229          KO
230          BA    .15
231          LS      0    82.1      20
232          UK    250.     .15     .10     100
233          RK   1000.     .07     .05     .04    TRAP       1       1
234          RK   1100.    .082    .045           TRAP       3       1
235          DX      7              8       8
                                          HEC-1 INPUT                                                    PAGE  6

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


236          KK   SB18B
237          KM   RUNOFF FROM SB18B
238          KO
239          BA    .02
240          LS      0    84.2      20
241          UK    300.     .02     .10     100
242          RK    900.    .017    .045           TRAP       2       1     YES

243          KK  CB1718
244          KM   COMBINE SB17B AND SB18B
245          KO
246          HC      2

247          KK   SB21A
248          KM   RUNOFF FROM SB21A
249          KO
250          BA    .13
251          LS      0    83.6      20
252          UK    500.     .20     .10     100
253          RK   2000.     .04     .05     .07    TRAP       1       1
254          RK   1300.    .008    .045           TRAP       2       1     YES

255          KK   SB19A
256          KM   RUNOFF FROM SB19A
257          KO
258          BA    .35
259          LS      0    85.1      50
260          UK    200.     .25     .10     100
261          RK   1000.     .20     .05     .03    TRAP       1       1
262          RK   4500.    .039    .045           TRAP       3       1

263          KK   SB19B
264          KM   RUNOFF FROM SB19B
265          KO
266          BA    .05
```

```
267          LS       0    80.3      20
268          UK    350.     .07     .10     100
269          RK   2500.    .014    .045            TRAP      4       1     YES

270          KK  CB2119
271          KM   COMBINE SB21A AND SB19B
272          KO
273          HC       2

274          KK   SB21B
275          KM   RUNOFF FROM SB21B
276          KO
277          BA     .51
278          LS       0    81.3      20
279          UK    800.     .05     .10     100
280          RK   3500.    .025     .05     .06    TRAP      4       2
281          RK   3600.    .008    .045            TRAP     20       1     YES
```



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

282          KK    SB20
283          KM   RUNOFF FROM SB20
284          KO
285          BA     .10
286          LS       0    86.0      10
287          UK    250.     .30     .10     100
288          RK   1000.     .09    .045            TRAP      1       1

289          KK    SB22
290          KM   RUNOFF FROM SB22
291          KO
292          BA     .74
293          LS       0    84.7      20       0    84.7     20
294          UK    300.     .08     .15      60
295          UK    100.     .40     .15      40
296          RK   3000.     .04     .10     .04    TRAP      1       1
297          RK   1200.     .30     .05     .01    TRAP      4       1
298          RK   3400.    .014    .045            TRAP     10       2     YES
299          DX       6       6       6       6       6

300          KK  CB2122
301          KM   COMBINE SB21B AND SB22
302          KO
303          HC       2

304          KK    SB23
305          KM   RUNOFFF FROM SB23
306          KO
307          BA     .31
308          LS       0    81.9      20       0    81.9     20
309          UK    100.     .50     .10      40
310          UK    300.     .04     .10      60
311          RK   1500.     .25     .05     .03    TRAP      2       1
312          RK   1000.     .03     .05     .07    TRAP      2       1
313          RK   6300.    .008    .045            TRAP     23       1     YES

314          KK    SB24
315          KM   RUNOFF FROM SB24
```

```
 316          KO
 317          BA     .52
 318          LS       0    86.0      20
 319          UK    500.    .025     .10     100
 320          RK   7400.    .009    .045           TRAP       3       4
 321          DX       6              6

 322          KK    SB25
 323          KM   RUNOFF FROM SB25
 324          KO
 325          BA     .58
 326          LS       0    86.0      20
 327          UK    500.     .05     .10     100
 328          RK   1500.     .02     .05     .10    TRAP               4
 329          RK   8500.    .011    .045           TRAP       5       4     YES
 330          DX       7              6       6
                                          HEC-1 INPUT                                          PAGE  8

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


 331          KK    SB26
 332          KM   RUNOFF FROM SB26
 333          KO
 334          BA     .60
 335          LS       0    84.0      20
 336          UK    500.     .02     .10     100
 337          RK   3000.     .01     .05     .20    TRAP               4
 338          RK   4500.   .0089    .045           TRAP       5       4     YES

 339          KK  CB2623
 340          KM   COMBINE SB26 AND SB23
 341          KO
 342          HC       2

 343          KK    SB27
 344          KM   RUNOFF FROM SB27
 345          KO
 346          BA     .92
 347          LS       0    85.3      20
 348          UK    400.     .04     .15     100
 349          RK  10000.     .02     .10     .30    TRAP               4
 350          RK   2900.    .005    .045           TRAP      13       1     YES

 351          KK    SB28
 352          KM   RUNOFF FROM SB28
 353          KO               2                      22
 354          BA     .87
 355          LS       0    80.3      43
 356          UK    300.     .04     .10     100
 357          RK   6000.     .01     .05     .29    TRAP       8       2
 358          RK  10900.    .007    .045           TRAP      15       1     YES
 359          ZZ
```

```
*****************************************                    *****************************************
                                        *                    *                                       *
 LOOD HYDROGRAPH PACKAGE  (HEC-1)       *                    *   U.S. ARMY CORPS OF ENGINEERS        *
        FEBRUARY 1981                   *                    * THE HYDROLOGIC ENGINEERING CENTER     *
       REVISED 01 JUN 88                *                    *         609 SECOND STREET             *
*                                       *                    *       DAVIS, CALIFORNIA 95616         *
 RUN DATE  09/13/1990  TIME  13:16:44   *                    *          (916) 551-1748               *
```

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

```
                    DEADMAN'S WASH - CASE 2 - 100 YEAR, 24 HOUR DESIGN STORM
                    FUTURE CONDITIONS - UPPER WATERSHED
                    KINEMATIC WAVE ROUTING

 5 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          3  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

  IT         HYDROGRAPH TIME DATA
                   NMIN         15  MINUTES IN COMPUTATION INTERVAL
                  IDATE      1    0  STARTING DATE
                  ITIME       0000  STARTING TIME
                     NQ         96  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE      1    0  ENDING DATE
                 NDTIME       2345  ENDING TIME
                 ICENT          19  CENTURY MARK

            COMPUTATION INTERVAL     .25 HOURS
                 TOTAL TIME BASE   23.75 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


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


        **************
        *            *
 7 KK   *       SB1  *
        *            *
        **************
                    RUNOFF FROM SB1

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

 1 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         30  TIME INTERVAL IN MINUTES
                 JXDATE      1    0  STARTING DATE
                 JXTIME          0  STARTING TIME

          SUBBASIN RUNOFF DATA
```

```
10 BA        SUBBASIN CHARACTERISTICS
                 TAREA          .46  SUBBASIN AREA

             PRECIPITATION DATA

12 PB            STORM         4.33  BASIN TOTAL PRECIPITATION

13 PI          INCREMENTAL PRECIPITATION PATTERN
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                 .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                 .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                 .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                 .00      .00      .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

11 LS        SCS LOSS RATE
                 STRTL         .34  INITIAL ABSTRACTION
                CRVNBR       85.50  CURVE NUMBER
                 RTIMP       46.00  PERCENT IMPERVIOUS AREA

             KINEMATIC WAVE
18 UK          OVERLAND-FLOW ELEMENT NO. 1
                     L        500.  OVERLAND FLOW LENGTH
                     S       .0400  SLOPE
                     N        .150  ROUGHNESS COEFFICIENT
                    PA       100.0  PERCENT OF SUBBASIN
                 DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
19 RK          COLLECTOR CHANNEL
                     L       1500.  CHANNEL LENGTH
                     S       .0170  SLOPE
                     N        .050  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .09  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD        2.00  BOTTOM WIDTH OR DIAMETER
                     Z        1.00  SIDE SLOPE
                 DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
20 RK          MAIN CHANNEL
                     L       7700.  CHANNEL LENGTH
                     S       .0250  SLOPE
                     N        .045  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .46  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD        8.00  BOTTOM WIDTH OR DIAMETER
                     Z        3.00  SIDE SLOPE
                 DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
               RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                           (DT SHOWN IS A MINIMUM)
   ELEMENT    ALPHA       M        DT       DX      PEAK    TIME TO    VOLUME    MAXIMUM
                                                             PEAK                 CELERITY
                                  (MIN)     (FT)    (CFS)    (MIN)      (IN)      (FPS)
```

1	1.99	1.67	2.08	100.00	1237.23	358.57	3.51	.80
3	1.84	1.36	.45	250.00	1217.91	358.94	3.51	9.29
4	1.58	1.40	1.40	1283.33	1160.32	363.03	3.49	15.31

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 85.963 OUTFLOW= 85.702 BASIN STORAGE= .344 PERCENT ERROR= -.097

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.58	1.40	15.00	1119.72	360.00	3.48

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

HYDROGRAPH AT STATION SB1

TOTAL RAINFALL = 4.33, TOTAL LOSS = .83, TOTAL EXCESS = 3.50

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
1120.	6.00		144.	43.	43.	43.
		(INCHES)	2.901	3.477	3.477	3.477
		(AC-FT)	71.	85.	85.	85.

CUMULATIVE AREA = .46 SQ MI

*** ***

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          **************
          *            *
22 KK     *       SB2  *
          *            *
          **************
```

RUNOFF FROM SB2

24 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

25 BA SUBBASIN CHARACTERISTICS

TAREA	1.05	SUBBASIN AREA

PRECIPITATION DATA

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01

.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

```
26 LS        SCS LOSS RATE
                  STRTL        .34  INITIAL ABSTRACTION
                 CRVNBR      85.30  CURVE NUMBER
                  RTIMP      20.00  PERCENT IMPERVIOUS AREA

             KINEMATIC WAVE
27 UK          OVERLAND-FLOW ELEMENT NO. 1
                      L       500.  OVERLAND FLOW LENGTH
                      S      .0400  SLOPE
                      N       .150  ROUGHNESS COEFFICIENT
                     PA      100.0  PERCENT OF SUBBASIN
                  DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
28 RK          COLLECTOR CHANNEL
                      L      3000.  CHANNEL LENGTH
                      S      .0150  SLOPE
                      N       .050  CHANNEL ROUGHNESS COEFFICIENT
                     CA        .15  CONTRIBUTING AREA
                  SHAPE       TRAP  CHANNEL SHAPE
                     WD       2.00  BOTTOM WIDTH OR DIAMETER
                      Z       1.00  SIDE SLOPE
                  DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
29 RK          MAIN CHANNEL
                      L     13300.  CHANNEL LENGTH
                      S      .0130  SLOPE
                      N       .045  CHANNEL ROUGHNESS COEFFICIENT
                     CA       1.05  CONTRIBUTING AREA
                  SHAPE       TRAP  CHANNEL SHAPE
                     WD      10.00  BOTTOM WIDTH OR DIAMETER
                      Z       3.00  SIDE SLOPE
                  DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
                 RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH
```

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.99	1.67	1.58	71.43	2574.89	358.97	3.05	.76
3	1.73	1.36	1.01	600.00	2478.12	361.19	3.04	9.90
4	1.05	1.42	2.75	2660.00	3141.23	369.82	3.15	16.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= 85.297 EXCESS= 173.130 OUTFLOW= 253.876 BASIN STORAGE= 2.038 PERCENT ERROR= .972

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.05	1.42	15.00		2905.28	375.00	3.12

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

                HYDROGRAPH AT STATION      SB2

TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.24, TOTAL EXCESS =    3.09

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR      24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                     (CFS)
+   2905.     6.25                420.       128.        128.        128.
                  (INCHES)     2.587      3.119       3.119       3.119
                   (AC-FT)      208.       251.        251.        251.

                  CUMULATIVE AREA =    1.51 SQ MI


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


        **************
        *            *
 31 KK  *      SB3   *
        *            *
        **************
                 RUNOFF FROM SB3

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

            SUBBASIN RUNOFF DATA

 34 BA        SUBBASIN CHARACTERISTICS
                   TAREA        .37  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB             STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                   .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                   .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                   .00       .00       .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

 35 LS        SCS LOSS RATE
                   STRTL        .36  INITIAL ABSTRACTION
                  CRVNBR      84.90  CURVE NUMBER
                   RTIMP       6.00  PERCENT IMPERVIOUS AREA
```

```
                KINEMATIC WAVE
36 UK             OVERLAND-FLOW ELEMENT NO. 1
                          L        250.  OVERLAND FLOW LENGTH
                          S       .2000  SLOPE
                          N        .150  ROUGHNESS COEFFICIENT
                         PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
37 RK             COLLECTOR CHANNEL
                          L       1000.  CHANNEL LENGTH
                          S       .1000  SLOPE
                          N        .050  CHANNEL ROUGHNESS COEFFICIENT
                         CA         .04  CONTRIBUTING AREA
                      SHAPE        TRAP  CHANNEL SHAPE
                         WD         .00  BOTTOM WIDTH OR DIAMETER
                          Z        1.00  SIDE SLOPE
                     DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
38 RK             MAIN CHANNEL
                          L       6000.  CHANNEL LENGTH
                          S       .0280  SLOPE
                          N        .045  CHANNEL ROUGHNESS COEFFICIENT
                         CA         .37  CONTRIBUTING AREA
                      SHAPE        TRAP  CHANNEL SHAPE
                         WD        3.00  BOTTOM WIDTH OR DIAMETER
                          Z        1.00  SIDE SLOPE
                     DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
                    RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                        ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	4.44	1.67	.88	50.00	897.15	359.48	2.82	.95
3	4.72	1.33	.20	166.67	896.71	359.32	2.82	13.91
4	2.42	1.38	.95	1000.00	887.71	360.06	2.81	17.52

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   56.052 OUTFLOW=   55.487 BASIN STORAGE=     .153 PERCENT ERROR=     .735

                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                 4       2.42      1.38      15.00             887.46    360.00      2.91

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

                 HYDROGRAPH AT STATION      SB3

 TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.49, TOTAL EXCESS =    2.84

  FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                 6-HR       24-HR       72-HR     23.75-HR
 (CFS)     (HR)
                     (CFS)
  887.     6.00                97.         29.         29.         29.
```

```
                (INCHES)     2.439       2.908       2.908       2.908
                 (AC-FT)      48.         57.         57.         57.

                 CUMULATIVE AREA =     .37 SQ MI


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


          **************
          *            *
40 KK     *       SB4  *
          *            *
          **************
                     RUNOFF FROM SB4

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

             SUBBASIN RUNOFF DATA

43 BA          SUBBASIN CHARACTERISTICS
                     TAREA        1.15  SUBBASIN AREA

               PRECIPITATION DATA

12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

44 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
                    CRVNBR       85.80  CURVE NUMBER
                     RTIMP        3.00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
45 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        250.  OVERLAND FLOW LENGTH
                         S       .1000  SLOPE
                         N        .150  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN          10  MINIMUM NUMBER OF DX INTERVALS
46 RK            COLLECTOR CHANNEL
                         L       1200.  CHANNEL LENGTH
                         S       .0800  SLOPE
                         N        .100  CHANNEL ROUGHNESS COEFFICIENT
```

CA	.08	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	12	MINIMUM NUMBER OF DX INTERVALS

47 RK MAIN CHANNEL

L	11100.	CHANNEL LENGTH
S	.0320	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	1.15	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	12	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.14	1.67	.56	25.00	2833.79	359.92	2.85	.75
3	2.11	1.33	.19	100.00	2832.19	359.84	2.85	8.92
4	2.39	1.40	.61	925.00	2759.90	361.68	2.84	25.37

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 176.229 OUTFLOW= 174.173 BASIN STORAGE= .665 PERCENT ERROR= .789

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	2.39	1.40	15.00	2718.31	360.00	2.83

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

HYDROGRAPH AT STATION SB4

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.46, TOTAL EXCESS = 2.87

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
2718.	6.00	(CFS)	291.	88.	88.	88.
		(INCHES)	2.354	2.828	2.828	2.828
		(AC-FT)	144.	173.	173.	173.

CUMULATIVE AREA = 1.15 SQ MI

*** ***

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```
          *            *
49 KK     *     CB34   *
          *            *
          **************
                         COMBINE SB3 AND SB4

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

52 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION    CB34

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                         (CFS)
+   3606.     6.00                388.        118.        118.        118.
                     (INCHES)    2.375       2.847       2.847       2.847
                      (AC-FT)     193.        231.        231.        231.

                      CUMULATIVE AREA =    1.52 SQ MI


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


          **************
          *            *
53 KK     *       SB5  *
          *            *
          **************
                         RUNOFF FROM SB5

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

            SUBBASIN RUNOFF DATA

56 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .87  SUBBASIN AREA

               PRECIPITATION DATA

PB                   STORM        4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
```

.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

```
57 LS        SCS LOSS RATE
                  STRTL        .36  INITIAL ABSTRACTION
                 CRVNBR      84.60  CURVE NUMBER
                  RTIMP      20.00  PERCENT IMPERVIOUS AREA

             KINEMATIC WAVE
58 UK          OVERLAND-FLOW ELEMENT NO. 1
                      L       500.  OVERLAND FLOW LENGTH
                      S      .1000  SLOPE
                      N       .150  ROUGHNESS COEFFICIENT
                     PA      100.0  PERCENT OF SUBBASIN
                  DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
59 RK          COLLECTOR CHANNEL
                      L      2000.  CHANNEL LENGTH
                      S      .0500  SLOPE
                      N       .100  CHANNEL ROUGHNESS COEFFICIENT
                     CA        .06  CONTRIBUTING AREA
                  SHAPE       TRAP  CHANNEL SHAPE
                     WD       1.00  BOTTOM WIDTH OR DIAMETER
                      Z       1.00  SIDE SLOPE
                  DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
60 RK          MAIN CHANNEL
                      L     12600.  CHANNEL LENGTH
                      S      .0120  SLOPE
                      N       .045  CHANNEL ROUGHNESS COEFFICIENT
                     CA        .87  CONTRIBUTING AREA
                  SHAPE       TRAP  CHANNEL SHAPE
                     WD      13.00  BOTTOM WIDTH OR DIAMETER
                      Z       4.00  SIDE SLOPE
                  DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
                 RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH
```

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.14	1.67	1.64	100.00	2148.04	358.51	3.01	1.02
3	1.68	1.33	.78	333.33	2111.69	360.04	3.00	7.14
4	.90	1.42	2.12	2100.00	5156.93	369.79	2.87	16.54

CONTINUITY SUMMARY (AC-FT) - INFLOW= 230.804 EXCESS= 141.076 OUTFLOW= 365.535 BASIN STORAGE= 2.705 PERCENT ERROR= .979

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    4        .90      1.42      15.00            4398.92    375.00      2.86

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

                     HYDROGRAPH AT STATION      SB5

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.29, TOTAL EXCESS =    3.04

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                        (CFS)
  4399.       6.25                608.        186.        186.        186.
                     (INCHES)    2.365       2.862       2.862       2.862
                      (AC-FT)     301.        365.        365.        365.

                     CUMULATIVE AREA =    2.39 SQ MI


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


          **************
          *            *
 62 KK    *       SB6  *
          *            *
          **************
                        RUNOFF FROM SB6

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

            SUBBASIN RUNOFF DATA

 65 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .71  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

 66 LS          SCS LOSS RATE
                      STRTL         .37  INITIAL ABSTRACTION
                     CRVNBR       84.30  CURVE NUMBER
```

```
                RTIMP       17.00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
UK            OVERLAND-FLOW ELEMENT NO. 1
                  L        500.  OVERLAND FLOW LENGTH
                  S       .1000  SLOPE
                  N        .100  ROUGHNESS COEFFICIENT
                 PA       100.0  PERCENT OF SUBBASIN
             DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
68 RK         COLLECTOR CHANNEL
                  L       1200.  CHANNEL LENGTH
                  S       .0500  SLOPE
                  N        .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .06  CONTRIBUTING AREA
             SHAPE         TRAP  CHANNEL SHAPE
                 WD        1.00  BOTTOM WIDTH OR DIAMETER
                  Z        1.00  SIDE SLOPE
             DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
69 RK         MAIN CHANNEL
                  L      15500.  CHANNEL LENGTH
                  S       .0260  SLOPE
                  N        .045  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .71  CONTRIBUTING AREA
             SHAPE         TRAP  CHANNEL SHAPE
                 WD        8.00  BOTTOM WIDTH OR DIAMETER
                  Z        4.00  SIDE SLOPE
             DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
            RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                           (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	4.71	1.67	1.28	100.00	1748.27	359.71	2.94	1.30
3	3.37	1.33	.28	200.00	1743.71	359.49	2.94	12.04
4	1.59	1.39	2.85	2583.33	1430.27	366.67	2.93	15.09

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=  112.446 OUTFLOW=  110.874 BASIN STORAGE=     .745 PERCENT ERROR=     .736

                        INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
```

4	1.59	1.39	15.00	1168.06	360.00	2.92

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

                HYDROGRAPH AT STATION      SB6

 TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.36, TOTAL EXCESS =    2.97

PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                 6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                     (CFS)
```

```
 1168.      6.00                185.        56.        56.        56.
                     (INCHES)   2.418      2.923      2.923      2.923
                      (AC-FT)    92.        111.       111.       111.

                     CUMULATIVE AREA =     .71 SQ MI


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


          **************
          *            *
 71 KK    *      CB56  *
          *            *
          **************
                        COMBINE SB5 AND SB6

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

 74 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                      HYDROGRAPH AT STATION     CB56

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
  5472.      6.25                791.        242.        242.        242.
                     (INCHES)   2.371       2.876       2.876       2.876
                      (AC-FT)    392.        475.        475.        475.

                     CUMULATIVE AREA =    3.10 SQ MI


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


          **************
          *            *
 75 KK    *       SB7  *
          *            *
          **************
                        RUNOFF FROM SB7

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

SUBBASIN RUNOFF DATA

BA SUBBASIN CHARACTERISTICS

TAREA .17 SUBBASIN AREA

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

79 LS SCS LOSS RATE

STRTL .46 INITIAL ABSTRACTION

CRVNBR 81.30 CURVE NUMBER

RTIMP 20.00 PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

80 UK OVERLAND-FLOW ELEMENT NO. 1

L 250. OVERLAND FLOW LENGTH

S .0600 SLOPE

N .050 ROUGHNESS COEFFICIENT

PA 100.0 PERCENT OF SUBBASIN

DXMIN 5 MINIMUM NUMBER OF DX INTERVALS

81 RK MAIN CHANNEL

L 5200. CHANNEL LENGTH

S .0150 SLOPE

N .045 CHANNEL ROUGHNESS COEFFICIENT

CA .17 CONTRIBUTING AREA

SHAPE TRAP CHANNEL SHAPE

WD 13.00 BOTTOM WIDTH OR DIAMETER

Z 14.00 SIDE SLOPE

DXMIN 6 MINIMUM NUMBER OF DX INTERVALS

RUPSTQ YES ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	7.30	1.67	.66	50.00	395.42	359.87	2.79	1.25
3	.92	1.36	1.18	866.67	5453.61	381.34	2.86	12.23

ONTINUITY SUMMARY (AC-FT) - INFLOW= 475.482 EXCESS= 25.456 OUTFLOW= 498.233 BASIN STORAGE= 1.698 PERCENT ERROR= .201

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.92	1.36	15.00	4862.32	375.00	2.85

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

HYDROGRAPH AT STATION SB7

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.52, TOTAL EXCESS = 2.81

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	23.75-HR
4862.	6.25		823.	253.	253.	253.
		(INCHES)	2.340	2.846	2.846	2.846
		(AC-FT)	408.	496.	496.	496.

CUMULATIVE AREA = 3.27 SQ MI

*** ***

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          **************
          *            *
82 KK     *      CB27  *
          *            *
          **************
```

COMBINE SB2 AND SB7

84 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

85 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CB27

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	23.75-HR
+ 7768.	6.25		1243.	381.	381.	381.
		(INCHES)	2.418	2.932	2.932	2.932
		(AC-FT)	617.	747.	747.	747.

CUMULATIVE AREA = 4.78 SQ MI

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

              **************
              *            *
86 KK         *     SB8A   *
              *            *
              **************
                             RUNOFF FROM SB8A

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

                   SUBBASIN RUNOFF DATA

89 BA                SUBBASIN CHARACTERISTICS
                          TAREA        1.43  SUBBASIN AREA

                     PRECIPITATION DATA

12 PB                     STORM        4.33  BASIN TOTAL PRECIPITATION

13 PI                  INCREMENTAL PRECIPITATION PATTERN
                      .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                      .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                      .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                      .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                      .00      .00      .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

90 LS                SCS LOSS RATE
                          STRTL         .37  INITIAL ABSTRACTION
                         CRVNBR       84.40  CURVE NUMBER
                          RTIMP       16.00  PERCENT IMPERVIOUS AREA

                     KINEMATIC WAVE
91 UK                  OVERLAND-FLOW ELEMENT NO. 1
                                L       500.  OVERLAND FLOW LENGTH
                                S      .0700  SLOPE
                                N       .150  ROUGHNESS COEFFICIENT
                               PA      100.0  PERCENT OF SUBBASIN
                            DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
92 RK                  COLLECTOR CHANNEL
                                L      3000.  CHANNEL LENGTH
                                S      .0500  SLOPE
                                N       .100  CHANNEL ROUGHNESS COEFFICIENT
                               CA        .09  CONTRIBUTING AREA
                            SHAPE       TRAP  CHANNEL SHAPE
                               WD       2.00  BOTTOM WIDTH OR DIAMETER
                                Z       1.00  SIDE SLOPE
                            DXMIN          8  MINIMUM NUMBER OF DX INTERVALS
93 RK                  MAIN CHANNEL
                                L     21300.  CHANNEL LENGTH
```

S	.0220	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	1.43	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	20.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.63	1.67	1.55	83.33	3441.12	358.75	2.93	.90
3	1.57	1.36	.79	375.00	3297.85	361.02	2.92	7.92
4	.91	1.51	2.21	2662.50	2538.52	371.95	2.89	20.11

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 225.805 OUTFLOW= 220.052 BASIN STORAGE= 2.735 PERCENT ERROR= 1.337

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.91	1.51	15.00	2484.27	375.00	2.89

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

HYDROGRAPH AT STATION SB8A

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.37, TOTAL EXCESS = 2.96

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
2484.	6.25		366.	112.	112.	112.
		(INCHES)	2.378	2.885	2.885	2.885
		(AC-FT)	181.	220.	220.	220.

CUMULATIVE AREA = 1.43 SQ MI

** ***

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**************
*            *
*     CB78   *
*            *
**************
```

95 KK

COMBINE CB27 AND SB8A

97 KO OUTPUT CONTROL VARIABLES

```
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

HC            HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                      HYDROGRAPH AT STATION     CB78

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                        (CFS)
 10252.       6.25                1609.        493.        493.        493.
                    (INCHES)      2.409       2.921       2.921       2.921
                     (AC-FT)       798.        968.        968.        968.

                     CUMULATIVE AREA =    6.21 SQ MI


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


          **************
          *            *
 99 KK    *     SB8B   *
          *            *
          **************
                      RUNOFF FROM SB8B

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

            SUBBASIN RUNOFF DATA

102 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .07  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB              STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                    .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                    .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                    .00       .00       .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

103 LS        SCS LOSS RATE
                STRTL        .67  INITIAL ABSTRACTION
               CRVNBR      75.00  CURVE NUMBER
                RTIMP      20.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
104 UK          OVERLAND-FLOW ELEMENT NO. 1
                    L        50.  OVERLAND FLOW LENGTH
                    S      .1000  SLOPE
                    N       .100  ROUGHNESS COEFFICIENT
                   PA      100.0  PERCENT OF SUBBASIN
               DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
105 RK          MAIN CHANNEL
                    L      2000.  CHANNEL LENGTH
                    S      .0100  SLOPE
                    N       .045  CHANNEL ROUGHNESS COEFFICIENT
                   CA        .07  CONTRIBUTING AREA
                SHAPE       TRAP  CHANNEL SHAPE
                   WD      16.00  BOTTOM WIDTH OR DIAMETER
                    Z       2.00  SIDE SLOPE
               DXMIN          8  MINIMUM NUMBER OF DX INTERVALS
               RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	4.71	1.67	.30	8.33	137.70	354.34	2.39	.47
3	.71	1.48	.17	250.00	10270.77	376.24	2.91	23.97

```
ONTINUITY SUMMARY (AC-FT) - INFLOW=  967.548  EXCESS=    8.961 OUTFLOW=  975.257 BASIN STORAGE=    1.075 PERCENT ERROR=     .018

                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                 3        .71      1.48      15.00            9814.54    375.00      2.93

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

                  HYDROGRAPH AT STATION     SB8B

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.93, TOTAL EXCESS =    2.40

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                        (CFS)
   815.       6.25                1631.       500.        500.        500.
                      (INCHES)    2.415      2.929       2.929       2.929
                      (AC-FT)     809.       981.        981.        981.

                     CUMULATIVE AREA =    6.28 SQ MI
```

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

              **************
              *            *
107 KK        *     SB12   *
              *            *
              **************
                             RUNOFF FROM SB12

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

              SUBBASIN RUNOFF DATA

110 BA          SUBBASIN CHARACTERISTICS
                     TAREA        1.80  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                     .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                     .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                     .00      .00      .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

111 LS          SCS LOSS RATE
                     STRTL         .39  INITIAL ABSTRACTION
                    CRVNBR       83.70  CURVE NUMBER
                     RTIMP       19.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
112 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        200.  OVERLAND FLOW LENGTH
                         S       .0500  SLOPE
                         N        .150  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
113 RK            COLLECTOR CHANNEL
                         L       5000.  CHANNEL LENGTH
                         S       .0300  SLOPE
                         N        .100  CHANNEL ROUGHNESS COEFFICIENT
                        CA      100.00  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD        2.00  BOTTOM WIDTH OR DIAMETER
                         Z        1.00  SIDE SLOPE
```

	DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
114 RK	MAIN CHANNEL		
	L	17400.	CHANNEL LENGTH
	S	.0190	SLOPE
	N	.045	CHANNEL ROUGHNESS COEFFICIENT
	CA	1.80	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	3.00	BOTTOM WIDTH OR DIAMETER
	Z	1.00	SIDE SLOPE
	DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
	RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.22	1.67	.98	33.33	4407.34	359.05	2.94	.57
3	1.22	1.36	.25	625.00	4401.59	359.95	2.93	42.02
4	1.99	1.38	1.60	2175.00	3974.23	362.69	2.92	22.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 284.030 OUTFLOW= 280.151 BASIN STORAGE= 1.439 PERCENT ERROR= .859

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.99	1.38	15.00	3765.86	360.00	2.93

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

HYDROGRAPH AT STATION SB12

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.37, TOTAL EXCESS = 2.96

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
3766.	6.00		469.	143.	143.	143.
		(INCHES)	2.424	2.927	2.927	2.927
		(AC-FT)	233.	281.	281.	281.

CUMULATIVE AREA = 1.80 SQ MI

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*            *
116 KK  *   SB13  *
*            *
**************
```

RUNOFF FROM SB13

118 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

119 BA SUBBASIN CHARACTERISTICS

TAREA	.71	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

120 LS SCS LOSS RATE

STRTL	.34	INITIAL ABSTRACTION
CRVNBR	85.30	CURVE NUMBER
RTIMP	20.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

121 UK OVERLAND-FLOW ELEMENT NO. 1

L	700.	OVERLAND FLOW LENGTH
S	.0200	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

122 RK MAIN CHANNEL

L	13200.	CHANNEL LENGTH
S	.0160	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.71	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	2.62	140.00	1661.30	360.53	3.04	.89

```
                    3        1.69      1.40      2.22   2200.00   1398.97    365.89      3.02      16.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=  117.069 OUTFLOW=  114.441 BASIN STORAGE=     .634 PERCENT ERROR=    1.703

                                        INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    3        1.69      1.40     15.00            1127.83    375.00      3.02

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

                     HYDROGRAPH AT STATION     SB13

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.24, TOTAL EXCESS =    3.09

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                       (CFS)
+   1128.     6.25                 191.        58.         58.         58.
                     (INCHES)     2.504       3.024       3.024       3.024
                      (AC-FT)      95.        115.        115.        115.

                     CUMULATIVE AREA =     .71 SQ MI


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


          **************
          *            *
124 KK    *    CB1213  *
          *            *
          **************
                       COMBINE SB12 AND SB13

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

127 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                     HYDROGRAPH AT STATION   CB1213

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                       (CFS)
+   4851.     6.00                 661.       202.        202.        202.
                     (INCHES)     2.447       2.955       2.955       2.955
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                (AC-FT)      328.        396.        396.        396.

                CUMULATIVE AREA =    2.51 SQ MI


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


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          *            *
128 KK    *     SB14   *
          *            *
          **************
                    RUNOFF FROM SB14

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

              SUBBASIN RUNOFF DATA

131 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .10  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

132 LS          SCS LOSS RATE
                     STRTL         .40  INITIAL ABSTRACTION
                    CRVNBR       83.50  CURVE NUMBER
                     RTIMP       20.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
133 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        700.  OVERLAND FLOW LENGTH
                         S       .0200  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
 RK               MAIN CHANNEL
                         L       2100.  CHANNEL LENGTH
                         S       .0100  SLOPE
                         N        .045  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .10  CONTRIBUTING AREA
```

SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	2.69	140.00	223.81	358.72	2.91	.87
3	1.34	1.40	.30	350.00	5063.31	361.49	2.95	19.50

CONTINUITY SUMMARY (AC-FT) - INFLOW= 395.548 EXCESS= 15.794 OUTFLOW= 410.640 BASIN STORAGE= .390 PERCENT ERROR= .075

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	1.34	1.40	15.00	4657.91	360.00	2.97

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

HYDROGRAPH AT STATION SB14

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.37, TOTAL EXCESS = 2.96

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
4658.	6.00		692.	211.	211.	211.
		(INCHES)	2.463	2.972	2.972	2.972
		(AC-FT)	343.	414.	414.	414.

CUMULATIVE AREA = 2.61 SQ MI

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              **************
              *            *
135 KK        *     SB10   *
              *            *
              **************
```

RUNOFF FROM SB10

KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

138 BA SUBBASIN CHARACTERISTICS

TAREA	.58	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

139 LS SCS LOSS RATE

STRTL	.34	INITIAL ABSTRACTION
CRVNBR	85.30	CURVE NUMBER
RTIMP	5.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

140 UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.2000	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

141 RK COLLECTOR CHANNEL

L	1500.	CHANNEL LENGTH
S	.1000	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.06	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

142 RK MAIN CHANNEL

L	8500.	CHANNEL LENGTH
S	.0520	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.58	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	6.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)

1	4.44	1.67	1.34	100.00	1407.17	359.05	2.83	1.25
3	2.38	1.33	.45	250.00	1396.12	359.14	2.83	9.24
4	2.62	1.43	.92	1416.67	1360.09	361.55	2.82	25.77

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 88.452 OUTFLOW= 87.213 BASIN STORAGE= .328 PERCENT ERROR= 1.030

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	2.62	1.43	15.00	1341.39	360.00	2.79

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

HYDROGRAPH AT STATION SB10

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.47, TOTAL EXCESS = 2.86

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 1341.	6.00		144.	44.	44.	44.
		(INCHES)	2.316	2.793	2.793	2.793
		(AC-FT)	72.	86.	86.	86.

CUMULATIVE AREA = .58 SQ MI

** ***

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          **************
          *            *
144 KK    *     SB11A  *
          *            *
          **************
```

RUNOFF FROM SB11A

146 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

147 BA SUBBASIN CHARACTERISTICS

TAREA	.68	SUBBASIN AREA

PRECIPITATION DATA

PB STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01

.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

```
148 LS        SCS LOSS RATE
                   STRTL        .47  INITIAL ABSTRACTION
                  CRVNBR      80.90  CURVE NUMBER
                   RTIMP      20.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
149 UK          OVERLAND-FLOW ELEMENT NO. 1
                       L       250.  OVERLAND FLOW LENGTH
                       S      .0800  SLOPE
                       N       .100  ROUGHNESS COEFFICIENT
                      PA      100.0  PERCENT OF SUBBASIN
                   DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
150 RK          COLLECTOR CHANNEL
                       L      3000.  CHANNEL LENGTH
                       S      .0400  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .08  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       2.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                   DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
151 RK          MAIN CHANNEL
                       L     10000.  CHANNEL LENGTH
                       S      .0190  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .68  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD      10.00  BOTTOM WIDTH OR DIAMETER
                       Z       3.00  SIDE SLOPE
                   DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH
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***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	4.21	1.67	.93	50.00	1564.59	359.78	2.76	.90
3	2.82	1.36	.70	500.00	1558.12	359.48	2.76	11.89
4	1.27	1.42	1.63	1666.67	2527.24	367.03	2.76	17.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= 86.384 EXCESS= 100.835 OUTFLOW= 185.643 BASIN STORAGE= 1.081 PERCENT ERROR= .264

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    4        1.27      1.42      15.00            2068.76    360.00      2.74

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

                    HYDROGRAPH AT STATION    SB11A

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.55, TOTAL EXCESS =    2.78

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                         (CFS)
   2069.      6.00                   304.        94.         94.         94.
                       (INCHES)     2.245       2.737       2.737       2.737
                        (AC-FT)      151.        184.        184.        184.

                       CUMULATIVE AREA =    1.26 SQ MI


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


          **************
          *            *
152 KK    *    CB1114  *
          *            *
          **************
                        COMBINE SB11A AND SB14

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

155 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                    HYDROGRAPH AT STATION   CB1114

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                         (CFS)
   6727.      6.00                   996.       304.        304.        304.
                       (INCHES)     2.392      2.896       2.896       2.896
                        (AC-FT)      494.       598.        598.        598.

                       CUMULATIVE AREA =    3.87 SQ MI


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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**************
*            *
KK  *    SB11B  *
*            *
**************
              RUNOFF FROM SB11B

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

            SUBBASIN RUNOFF DATA

159 BA        SUBBASIN CHARACTERISTICS
                   TAREA        .00  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB             STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
                   .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                   .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                   .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                   .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                   .00      .00      .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

160 LS        SCS LOSS RATE
                   STRTL        .67  INITIAL ABSTRACTION
                  CRVNBR      75.00  CURVE NUMBER
                   RTIMP      20.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
161 UK          OVERLAND-FLOW ELEMENT NO. 1
                       L        50.  OVERLAND FLOW LENGTH
                       S      .0400  SLOPE
                       N       .100  ROUGHNESS COEFFICIENT
                      PA      100.0  PERCENT OF SUBBASIN
                   DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
162 RK          MAIN CHANNEL
                       L      1000.  CHANNEL LENGTH
                       S      .0200  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .00  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       3.00  BOTTOM WIDTH OR DIAMETER
                       Z       3.00  SIDE SLOPE
                   DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
```

(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.98	1.67	.46	10.00	9.84	359.65	2.39	.36
3	1.79	1.35	.13	166.67	6734.74	360.67	2.89	20.98

ONTINUITY SUMMARY (AC-FT) - INFLOW= 597.660 EXCESS= .640 OUTFLOW= 598.015 BASIN STORAGE= .215 PERCENT ERROR= .012

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	1.79	1.35	15.00	6482.21	360.00	2.90

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

HYDROGRAPH AT STATION SB11B

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.93, TOTAL EXCESS = 2.40

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
+		(CFS)				
6482.	6.00		1000.	306.	306.	306.
		(INCHES)	2.399	2.903	2.903	2.903
		(AC-FT)	496.	600.	600.	600.

CUMULATIVE AREA = 3.88 SQ MI

** ***

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              **************
              *            *
163 KK        *     SB15   *
              *            *
              **************
```

RUNOFF FROM SB15

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

            SUBBASIN RUNOFF DATA

166 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .08  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION
```

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

167 LS SCS LOSS RATE

STRTL	.35	INITIAL ABSTRACTION
CRVNBR	85.00	CURVE NUMBER
RTIMP	20.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

168 UK OVERLAND-FLOW ELEMENT NO. 1

L	250.	OVERLAND FLOW LENGTH
S	.0500	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

169 RK MAIN CHANNEL

L	2000.	CHANNEL LENGTH
S	.0250	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.08	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	10.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.33	1.67	.87	41.67	202.80	359.56	3.05	.80
3	1.45	1.42	.60	333.33	202.19	359.60	3.04	9.21

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 13.097 OUTFLOW= 12.979 BASIN STORAGE= .023 PERCENT ERROR= .725

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	1.45	1.42	15.00	201.54	360.00	3.15

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

HYDROGRAPH AT STATION SB15

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.26, TOTAL EXCESS = 3.07

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
202.	6.00		23.	7.	7.	7.
		(INCHES)	2.633	3.145	3.145	3.145
		(AC-FT)	11.	13.	13.	13.

CUMULATIVE AREA = .08 SQ MI

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              **************
              *            *
171 KK        *     SB9A   *
              *            *
              **************
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RUNOFF FROM SB9A

173 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

174 BA SUBBASIN CHARACTERISTICS

TAREA	.77	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

175 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.70	CURVE NUMBER
RTIMP	19.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

176 UK OVERLAND-FLOW ELEMENT NO. 1

L	300.	OVERLAND FLOW LENGTH
S	.0400	SLOPE
N	.100	ROUGHNESS COEFFICIENT

```
                    PA       100.0  PERCENT OF SUBBASIN
                 DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
177 RK        COLLECTOR CHANNEL
                     L       2500.  CHANNEL LENGTH
                     S       .0200  SLOPE
                     N        .100  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .10  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD        4.00  BOTTOM WIDTH OR DIAMETER
                     Z        1.00  SIDE SLOPE
                 DXMIN           8  MINIMUM NUMBER OF DX INTERVALS
178 RK        MAIN CHANNEL
                     L      15800.  CHANNEL LENGTH
                     S       .0160  SLOPE
                     N        .045  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .77  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD        9.00  BOTTOM WIDTH OR DIAMETER
                     Z        2.00  SIDE SLOPE
                 DXMIN           8  MINIMUM NUMBER OF DX INTERVALS
                RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
              ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                CELERITY
                                                (MIN)     (FT)    (CFS)    (MIN)      (IN)     (FPS)

                  1       2.98     1.67      1.04     50.00   1929.30    359.52      3.01       .80
                  3        .85     1.40       .85    312.50   1879.90    360.09      3.00      6.13
                  4       1.21     1.43      2.12   1975.00   1537.81    369.03      2.97     15.50

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=  124.501 OUTFLOW=  122.108 BASIN STORAGE=    1.241 PERCENT ERROR=     .925

                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                  4       1.21     1.43     15.00            1359.53    375.00      2.94

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

                   HYDROGRAPH AT STATION     SB9A

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.30, TOTAL EXCESS =    3.03

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                   (CFS)
  1360.      6.25                 201.        62.         62.         62.
                (INCHES)        2.427      2.943       2.943       2.943
                 (AC-FT)         100.       121.        121.        121.

                 CUMULATIVE AREA =     .77 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
180 KK    *    CB9115  *
          *            *
          **************
                         COMBINE SB9A, SB15 AND SB11B

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

183 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION   CB9115

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
  7591.       6.00                1223.        374.        374.        374.
                      (INCHES)    2.407       2.913       2.913       2.913
                       (AC-FT)    607.         734.        734.        734.

                      CUMULATIVE AREA =    4.72 SQ MI


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

          **************
          *            *
184 KK    *      SB9B  *
          *            *
          **************
                         RUNOFF FROM SB9B

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

             SUBBASIN RUNOFF DATA

187 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .08  SUBBASIN AREA

                PRECIPITATION DATA
```

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

188 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.70	CURVE NUMBER
RTIMP	20.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

189 UK OVERLAND-FLOW ELEMENT NO. 1

L	600.	OVERLAND FLOW LENGTH
S	.0500	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

190 RK MAIN CHANNEL

L	2000.	CHANNEL LENGTH
S	.0160	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.08	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	16.00	BOTTOM WIDTH OR DIAMETER
Z	3.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.33	1.67	1.48	100.00	198.37	359.83	3.01	1.13
3	.92	1.46	.18	250.00	7769.99	361.43	2.91	22.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= 734.163 EXCESS= 13.004 OUTFLOW= 746.217 BASIN STORAGE= .720 PERCENT ERROR= .031

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.92	1.46	15.00	7224.33	360.00	2.93

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

HYDROGRAPH AT STATION SB9B

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.28, TOTAL EXCESS = 3.05

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 7224.	6.00		1252.	383.	383.	383.
		(INCHES)	2.424	2.931	2.931	2.931
		(AC-FT)	621.	751.	751.	751.

CUMULATIVE AREA = 4.80 SQ MI

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              **************
              *            *
191 KK        *     SB16   *
              *            *
              **************
                     RUNOFF FROM SB16

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

              SUBBASIN RUNOFF DATA

194 BA          SUBBASIN CHARACTERISTICS
                     TAREA       1.65  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                     .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                     .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                     .00      .00      .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

195 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      85.90  CURVE NUMBER
                     RTIMP      20.00  PERCENT IMPERVIOUS AREA

                LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                     STRTL        .33  INITIAL ABSTRACTION
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          CRVNBR      85.90  CURVE NUMBER
           RTIMP      20.00  PERCENT IMPERVIOUS AREA

      KINEMATIC WAVE
UK      OVERLAND-FLOW ELEMENT NO. 1
              L        500.  OVERLAND FLOW LENGTH
              S       .0200  SLOPE
              N        .150  ROUGHNESS COEFFICIENT
             PA        60.0  PERCENT OF SUBBASIN
          DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
197 UK  OVERLAND-FLOW ELEMENT NO. 2
              L        250.  OVERLAND FLOW LENGTH
              S       .1000  SLOPE
              N        .150  ROUGHNESS COEFFICIENT
             PA        40.0  PERCENT OF SUBBASIN
          DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
198 RK  COLLECTOR CHANNEL
              L       5000.  CHANNEL LENGTH
              S       .0100  SLOPE
              N        .100  CHANNEL ROUGHNESS COEFFICIENT
             CA        1.09  CONTRIBUTING AREA
          SHAPE        TRAP  CHANNEL SHAPE
             WD        4.00  BOTTOM WIDTH OR DIAMETER
              Z        2.00  SIDE SLOPE
          DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
199 RK  COLLECTOR CHANNEL
              L       2000.  CHANNEL LENGTH
              S       .0800  SLOPE
              N        .100  CHANNEL ROUGHNESS COEFFICIENT
             CA         .56  CONTRIBUTING AREA
          SHAPE        TRAP  CHANNEL SHAPE
             WD         .00  BOTTOM WIDTH OR DIAMETER
              Z        1.00  SIDE SLOPE
          DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
200 RK  MAIN CHANNEL
              L      13700.  CHANNEL LENGTH
              S       .0090  SLOPE
              N        .045  CHANNEL ROUGHNESS COEFFICIENT
             CA        1.65  CONTRIBUTING AREA
          SHAPE        TRAP  CHANNEL SHAPE
             WD        8.00  BOTTOM WIDTH OR DIAMETER
              Z        3.00  SIDE SLOPE
          DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
         RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH
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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	2.27	83.33	2408.74	359.94	3.13	.61
2	3.14	1.67	.89	41.67	1706.20	359.42	3.11	.78
3	.57	1.38	1.48	714.29	3632.70	362.91	3.11	8.04
4	2.11	1.33	.33	285.71	3604.81	364.24	3.10	14.26
5	.95	1.40	2.37	1957.14	2995.45	375.91	3.08	13.76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 275.966 OUTFLOW= 271.129 BASIN STORAGE= 4.973 PERCENT ERROR= -.049

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5 .95 1.40 15.00 2979.35 375.00 3.09

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

HYDROGRAPH AT STATION SB16

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.19, TOTAL EXCESS = 3.14

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 2979.	6.25		455.	138.	138.	138.
		(INCHES)	2.565	3.088	3.088	3.088
		(AC-FT)	226.	272.	272.	272.

CUMULATIVE AREA = 1.65 SQ MI

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          **************
          *            *
202 KK    *   CB1698   *
          *            *
          **************
```

COMBINE SB16, SB9B AND SB8B

204 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

205 HC HYDROGRAPH COMBINATION

ICOMP	3	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CB1698

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
[illegible]823.	6.25		3333.	1021.	1021.	1021.
		(INCHES)	2.433	2.950	2.950	2.950
		(AC-FT)	1653.	2004.	2004.	2004.

CUMULATIVE AREA = 12.73 SQ MI

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

              **************
              *            *
206 KK        *     SB17A  *
              *            *
              **************
                             RUNOFF FROM SB17A

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

                SUBBASIN RUNOFF DATA

209 BA            SUBBASIN CHARACTERISTICS
                       TAREA        1.15  SUBBASIN AREA

                  PRECIPITATION DATA

 12 PB                 STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI              INCREMENTAL PRECIPITATION PATTERN
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                       .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                       .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                       .00       .00       .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

210 LS            SCS LOSS RATE
                       STRTL         .33  INITIAL ABSTRACTION
                      CRVNBR       85.70  CURVE NUMBER
                       RTIMP       20.00  PERCENT IMPERVIOUS AREA

                  KINEMATIC WAVE
211 UK              OVERLAND-FLOW ELEMENT NO. 1
                             L        500.  OVERLAND FLOW LENGTH
                             S       .0250  SLOPE
                             N        .150  ROUGHNESS COEFFICIENT
                            PA       100.0  PERCENT OF SUBBASIN
                         DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
212 RK              COLLECTOR CHANNEL
                             L       2500.  CHANNEL LENGTH
                             S       .0160  SLOPE
                             N        .050  CHANNEL ROUGHNESS COEFFICIENT
                            CA         .14  CONTRIBUTING AREA
                         SHAPE        TRAP  CHANNEL SHAPE
                            WD        2.00  BOTTOM WIDTH OR DIAMETER
                             Z        2.00  SIDE SLOPE
```

	DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
213 RK	MAIN CHANNEL		
	L	9300.	CHANNEL LENGTH
	S	.0140	SLOPE
	N	.045	CHANNEL ROUGHNESS COEFFICIENT
	CA	1.15	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	6.00	BOTTOM WIDTH OR DIAMETER
	Z	3.00	SIDE SLOPE
	DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
	RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.57	1.67	2.12	83.33	2760.23	360.38	3.12	.65
3	1.64	1.35	.77	416.67	2677.25	361.06	3.11	9.07
4	1.30	1.38	1.71	1550.00	2422.47	367.30	3.10	15.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 191.430 OUTFLOW= 189.820 BASIN STORAGE= 1.026 PERCENT ERROR= .305

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.30	1.38	15.00	1955.90	375.00	3.10

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

HYDROGRAPH AT STATION SB17A

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.21, TOTAL EXCESS = 3.12

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
1956.	6.25		319.	97.	97.	97.
		(INCHES)	2.577	3.098	3.098	3.098
		(AC-FT)	158.	190.	190.	190.

CUMULATIVE AREA = 1.15 SQ MI

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              **************
              *            *
215 KK        *   CB1798   *
              *            *
              **************
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                    COMBINE SB17A AND CB1698

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

218 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                     HYDROGRAPH AT STATION   CB1798

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
 21779.      6.25                3651.       1118.       1118.       1118.
                      (INCHES)   2.445       2.962       2.962       2.962
                       (AC-FT)   1811.       2194.       2194.       2194.

                      CUMULATIVE AREA =   13.88 SQ MI


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


          **************
          *            *
219 KK    *     SB17B  *
          *            *
          **************
                    RUNOFF FROM SB17B

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

             SUBBASIN RUNOFF DATA

222 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .12  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .01       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .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

223 LS        SCS LOSS RATE
                STRTL       .49  INITIAL ABSTRACTION
               CRVNBR     80.40  CURVE NUMBER
                RTIMP     20.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
224 UK          OVERLAND-FLOW ELEMENT NO. 1
                    L      700.  OVERLAND FLOW LENGTH
                    S     .0800  SLOPE
                    N      .100  ROUGHNESS COEFFICIENT
                   PA     100.0  PERCENT OF SUBBASIN
                DXMIN         6  MINIMUM NUMBER OF DX INTERVALS
225 RK          MAIN CHANNEL
                    L     2900.  CHANNEL LENGTH
                    S     .0030  SLOPE
                    N      .045  CHANNEL ROUGHNESS COEFFICIENT
                   CA       .12  CONTRIBUTING AREA
                SHAPE      TRAP  CHANNEL SHAPE
                   WD     23.00  BOTTOM WIDTH OR DIAMETER
                    Z      1.00  SIDE SLOPE
                DXMIN         6  MINIMUM NUMBER OF DX INTERVALS
               RUPSTQ       YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA      M        DT       DX      PEAK    TIME TO    VOLUME    MAXIMUM
                                                                     PEAK               CELERITY
                                          (MIN)     (FT)    (CFS)    (MIN)     (IN)      (FPS)

             1        4.21     1.67      1.48    116.67   266.39   358.79      2.71      1.32
             3         .28     1.55       .33    483.33 21769.05   376.49      2.95     24.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2193.723  EXCESS=   17.578 OUTFLOW= 2206.597 BASIN STORAGE=    3.768 PERCENT ERROR=     .042

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

             3         .28     1.55     15.00           21012.41   375.00      2.98

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

                 HYDROGRAPH AT STATION    SB17B

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.58, TOTAL EXCESS =    2.75

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR      24-HR      72-HR    23.75-HR
  (CFS)       (HR)
                        (CFS)
+ 21012.      6.25                3700.      1132.      1132.      1132.
                      (INCHES)    2.457      2.976      2.976      2.976
```

```
                (AC-FT)     1835.       2223.       2223.       2223.

                CUMULATIVE AREA =   14.00 SQ MI


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


        **************
        *            *
227 KK  *     SB18A  *
        *            *
        **************
                     RUNOFF FROM SB18A

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

            SUBBASIN RUNOFF DATA

230 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .15  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

231 LS          SCS LOSS RATE
                     STRTL         .44  INITIAL ABSTRACTION
                    CRVNBR       82.10  CURVE NUMBER
                     RTIMP       20.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
232 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        250.  OVERLAND FLOW LENGTH
                         S       .1500  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
 RK             COLLECTOR CHANNEL
                         L       1000.  CHANNEL LENGTH
                         S       .0700  SLOPE
                         N        .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .04  CONTRIBUTING AREA
```

SHAPE	TRAP	CHANNEL SHAPE
WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS

RK MAIN CHANNEL

L	1100.	CHANNEL LENGTH
S	.0820	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.15	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	3.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	5.77	1.67	.55	35.71	355.80	359.88	2.85	1.08
3	3.98	1.33	.17	125.00	355.79	359.60	2.85	12.12
4	4.14	1.38	.11	137.50	355.76	359.79	2.84	19.97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 22.903 OUTFLOW= 22.752 BASIN STORAGE= .023 PERCENT ERROR= .559

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	4.14	1.38	15.00	355.60	360.00	2.88

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

HYDROGRAPH AT STATION SB18A

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.47, TOTAL EXCESS = 2.86

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
356.	6.00	(CFS)	38.	12.	12.	12.
		(INCHES)	2.378	2.881	2.881	2.881
		(AC-FT)	19.	23.	23.	23.

CUMULATIVE AREA = .15 SQ MI

*** ***

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236 KK     *     SB18B  *
           *            *
           **************
                  RUNOFF FROM SB18B

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

              SUBBASIN RUNOFF DATA

239 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .02  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

240 LS          SCS LOSS RATE
                     STRTL         .38  INITIAL ABSTRACTION
                    CRVNBR       84.20  CURVE NUMBER
                     RTIMP       20.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
241 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        300.  OVERLAND FLOW LENGTH
                         S       .0200  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
242 RK            MAIN CHANNEL
                         L        900.  CHANNEL LENGTH
                         S       .0170  SLOPE
                         N        .045  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .02  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD        2.00  BOTTOM WIDTH OR DIAMETER
                         Z        1.00  SIDE SLOPE
                     DXMIN           8  MINIMUM NUMBER OF DX INTERVALS
                    RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
                ELEMENT    ALPHA       M        DT        DX      PEAK   TIME TO    VOLUME   MAXIMUM
                                                                          PEAK              CELERITY
```

			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
1	2.11	1.67	1.11	42.86	49.40	359.17	2.98	.64
3	2.04	1.36	.17	112.50	401.38	361.21	2.89	11.11

ONTINUITY SUMMARY (AC-FT) - INFLOW= 23.045 EXCESS= 3.212 OUTFLOW= 26.204 BASIN STORAGE= .020 PERCENT ERROR= .126

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	2.04	1.36	15.00	394.17	360.00	2.93

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

HYDROGRAPH AT STATION SB18B

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.32, TOTAL EXCESS = 3.01

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 394.	6.00		44.	14.	14.	14.
		(INCHES)	2.427	2.928	2.928	2.928
		(AC-FT)	22.	27.	27.	27.

CUMULATIVE AREA = .17 SQ MI

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          **************
          *            *
243 KK    *   CB1718   *
          *            *
          **************
```

COMBINE SB17B AND SB18B

245 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

246 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CB1718

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR

```
                    (CFS)
+  21122.     6.25              3745.      1146.      1146.      1146.
                (INCHES)       2.456      2.975      2.975      2.975
                 (AC-FT)       1857.      2249.      2249.      2249.

                 CUMULATIVE AREA =   14.17 SQ MI


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


        **************
        *            *
247 KK  *     SB21A  *
        *            *
        **************
                RUNOFF FROM SB21A

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

            SUBBASIN RUNOFF DATA

250 BA        SUBBASIN CHARACTERISTICS
                 TAREA        .13  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB           STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                 .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                 .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                 .00       .00       .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

251 LS        SCS LOSS RATE
                 STRTL        .39  INITIAL ABSTRACTION
                CRVNBR      83.60  CURVE NUMBER
                 RTIMP      20.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
252 UK          OVERLAND-FLOW ELEMENT NO. 1
                     L       500.  OVERLAND FLOW LENGTH
                     S      .2000  SLOPE
                     N       .100  ROUGHNESS COEFFICIENT
                    PA      100.0  PERCENT OF SUBBASIN
                 DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
253 RK          COLLECTOR CHANNEL
                     L      2000.  CHANNEL LENGTH
```

S	.0400	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.07	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS

254 RK MAIN CHANNEL

L	1300.	CHANNEL LENGTH
S	.0080	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.13	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.66	1.67	.76	71.43	319.21	359.27	2.95	1.57
3	3.01	1.33	.37	250.00	318.78	359.84	2.94	11.41
4	1.40	1.36	.11	162.50	21181.15	375.82	2.97	23.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2249.379 EXCESS= 20.581 OUTFLOW= 2268.537 BASIN STORAGE= 1.064 PERCENT ERROR= .016

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.40	1.36	15.00	20766.95	375.00	2.98

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

HYDROGRAPH AT STATION SB21A

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.36, TOTAL EXCESS = 2.97

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
20767.	6.25		3788.	1159.	1159.	1159.
		(INCHES)	2.462	2.982	2.982	2.982
		(AC-FT)	1878.	2275.	2275.	2275.

CUMULATIVE AREA = 14.30 SQ MI

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**************
*            *
KK  *   SB19A  *
*            *
**************
                RUNOFF FROM SB19A

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

            SUBBASIN RUNOFF DATA

258 BA        SUBBASIN CHARACTERISTICS
                TAREA        .35  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB          STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
                .00    .00    .00    .00    .00    .00    .00    .00    .00    .00
                .00    .00    .00    .00    .00    .00    .01    .01    .01    .01
                .02    .02    .28    .28    .04    .04    .02    .02    .01    .01
                .01    .01    .01    .01    .00    .00    .01    .00    .01    .01
                .00    .00    .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

259 LS        SCS LOSS RATE
                STRTL        .35  INITIAL ABSTRACTION
                CRVNBR     85.10  CURVE NUMBER
                RTIMP      50.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
260 UK          OVERLAND-FLOW ELEMENT NO. 1
                  L         200.  OVERLAND FLOW LENGTH
                  S        .2500  SLOPE
                  N         .100  ROUGHNESS COEFFICIENT
                 PA        100.0  PERCENT OF SUBBASIN
                DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
261 RK          COLLECTOR CHANNEL
                  L        1000.  CHANNEL LENGTH
                  S        .2000  SLOPE
                  N         .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA          .03  CONTRIBUTING AREA
                SHAPE        TRAP  CHANNEL SHAPE
                 WD        1.00  BOTTOM WIDTH OR DIAMETER
                  Z        1.00  SIDE SLOPE
                DXMIN          8  MINIMUM NUMBER OF DX INTERVALS
   RK           MAIN CHANNEL
                  L        4500.  CHANNEL LENGTH
                  S        .0390  SLOPE
                  N         .045  CHANNEL ROUGHNESS COEFFICIENT
                 CA          .35  CONTRIBUTING AREA
```

SHAPE	TRAP	CHANNEL SHAPE
WD	3.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	7.45	1.67	.39	28.57	967.78	359.77	3.53	1.22
3	6.73	1.33	.12	125.00	967.70	355.48	3.53	17.37
4	2.86	1.38	.47	562.50	967.73	359.67	3.53	20.06

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 66.205 OUTFLOW= 65.830 BASIN STORAGE= .122 PERCENT ERROR= .382

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	2.86	1.38	15.00	967.43	360.00	3.56

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

HYDROGRAPH AT STATION SB19A

TOTAL RAINFALL = 4.33, TOTAL LOSS = .78, TOTAL EXCESS = 3.55

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
967.	6.00		111.	34.	34.	34.
		(INCHES)	2.953	3.560	3.560	3.560
		(AC-FT)	55.	66.	66.	66.

CUMULATIVE AREA = .35 SQ MI

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              **************
              *            *
263 KK        *    SB19B   *
              *            *
              **************
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RUNOFF FROM SB19B

265 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

BA SUBBASIN CHARACTERISTICS

TAREA .05 SUBBASIN AREA

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

267 LS SCS LOSS RATE

STRTL .49 INITIAL ABSTRACTION

CRVNBR 80.30 CURVE NUMBER

RTIMP 20.00 PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

268 UK OVERLAND-FLOW ELEMENT NO. 1

L 350. OVERLAND FLOW LENGTH

S .0700 SLOPE

N .100 ROUGHNESS COEFFICIENT

PA 100.0 PERCENT OF SUBBASIN

DXMIN 7 MINIMUM NUMBER OF DX INTERVALS

269 RK MAIN CHANNEL

L 2500. CHANNEL LENGTH

S .0140 SLOPE

N .045 CHANNEL ROUGHNESS COEFFICIENT

CA .05 CONTRIBUTING AREA

SHAPE TRAP CHANNEL SHAPE

WD 4.00 BOTTOM WIDTH OR DIAMETER

Z 1.00 SIDE SLOPE

DXMIN 8 MINIMUM NUMBER OF DX INTERVALS

RUPSTQ YES ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.94	1.67	.87	50.00	113.15	359.41	2.72	.96
3	1.58	1.40	.37	312.50	1064.03	362.26	3.45	14.12

ONTINUITY SUMMARY (AC-FT) - INFLOW= 66.450 EXCESS= 7.306 OUTFLOW= 73.560 BASIN STORAGE= .124 PERCENT ERROR= .097

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	1.58	1.40	15.00	1049.69	360.00	3.51

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

HYDROGRAPH AT STATION SB19B

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.59, TOTAL EXCESS = 2.74

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
1050.	6.00		126.	38.	38.	38.
		(INCHES)	2.923	3.510	3.510	3.510
		(AC-FT)	62.	75.	75.	75.

CUMULATIVE AREA = .40 SQ MI

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              **************
              *            *
270 KK        *   CB2119   *
              *            *
              **************
```

COMBINE SB21A AND SB19B

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

273 HC        HYDROGRAPH COMBINATION
                   ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION CB2119

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
21147.	6.25		3913.	1197.	1197.	1197.
		(INCHES)	2.474	2.996	2.996	2.996
		(AC-FT)	1940.	2350.	2350.	2350.

CUMULATIVE AREA = 14.70 SQ MI

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              **************
              *            *
274 KK        *    SB21B   *
              *            *
              **************
                        RUNOFF FROM SB21B

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

              SUBBASIN RUNOFF DATA

277 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .51  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                     .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                     .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                     .00      .00      .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

278 LS          SCS LOSS RATE
                     STRTL        .46  INITIAL ABSTRACTION
                    CRVNBR      81.30  CURVE NUMBER
                     RTIMP      20.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
279 UK           OVERLAND-FLOW ELEMENT NO. 1
                         L       800.  OVERLAND FLOW LENGTH
                         S      .0500  SLOPE
                         N       .100  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                     DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
280 RK           COLLECTOR CHANNEL
                         L      3500.  CHANNEL LENGTH
                         S      .0250  SLOPE
                         N       .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA        .06  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD       4.00  BOTTOM WIDTH OR DIAMETER
                         Z       2.00  SIDE SLOPE
                     DXMIN          8  MINIMUM NUMBER OF DX INTERVALS
281 RK           MAIN CHANNEL
                         L      3600.  CHANNEL LENGTH
```

S	.0080	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.51	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	20.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.33	1.67	1.60	114.29	1128.09	358.97	2.77	1.19
3	1.81	1.38	.89	437.50	1056.41	361.92	2.76	8.21
4	.51	1.54	.22	450.00	21642.19	376.69	2.98	33.51

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2349.889 EXCESS= 76.369 OUTFLOW= 2420.786 BASIN STORAGE= 3.918 PERCENT ERROR= .064

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.51	1.54	15.00	20967.74	375.00	3.00

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

HYDROGRAPH AT STATION SB21B

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.52, TOTAL EXCESS = 2.81

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
20968.	6.25		4053.	1240.	1240.	1240.
		(INCHES)	2.477	3.000	3.000	3.000
		(AC-FT)	2010.	2434.	2434.	2434.

CUMULATIVE AREA = 15.21 SQ MI

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*            *
KK    *   SB20  *
*            *
**************
```

RUNOFF FROM SB20

284 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

285 BA SUBBASIN CHARACTERISTICS

TAREA	.10	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

286 LS SCS LOSS RATE

STRTL	.33	INITIAL ABSTRACTION
CRVNBR	86.00	CURVE NUMBER
RTIMP	10.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

287 UK OVERLAND-FLOW ELEMENT NO. 1

L	250.	OVERLAND FLOW LENGTH
S	.3000	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	7	MINIMUM NUMBER OF DX INTERVALS

288 RK MAIN CHANNEL

L	1000.	CHANNEL LENGTH
S	.0900	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.10	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	8	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	8.16	1.67	.44	35.71	252.64	359.68	2.98	1.36
3	5.02	1.33	.11	125.00	252.65	356.88	2.98	18.43

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 15.974 OUTFLOW= 15.884 BASIN STORAGE= .006 PERCENT ERROR= .528

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	5.02	1.33	15.00	251.27	360.00	2.99

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

HYDROGRAPH AT STATION SB20

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.33, TOTAL EXCESS = 3.00

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW (CFS)	6-HR	24-HR	72-HR	23.75-HR
+ 251.	6.00		27.	8.	8.	8.
		(INCHES)	2.501	2.991	2.991	2.991
		(AC-FT)	13.	16.	16.	16.

CUMULATIVE AREA = .10 SQ MI

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              *            *
289 KK        *      SB22  *
              *            *
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RUNOFF FROM SB22

291 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

292 BA SUBBASIN CHARACTERISTICS

TAREA	.74	SUBBASIN AREA

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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

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          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
          .00       .00       .00       .00       .00

LS      SCS LOSS RATE
            STRTL        .36  INITIAL ABSTRACTION
           CRVNBR      84.70  CURVE NUMBER
            RTIMP      20.00  PERCENT IMPERVIOUS AREA

        LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
            STRTL        .36  INITIAL ABSTRACTION
           CRVNBR      84.70  CURVE NUMBER
            RTIMP      20.00  PERCENT IMPERVIOUS AREA

        KINEMATIC WAVE
294 UK    OVERLAND-FLOW ELEMENT NO. 1
                L       300.  OVERLAND FLOW LENGTH
                S      .0800  SLOPE
                N       .150  ROUGHNESS COEFFICIENT
               PA       60.0  PERCENT OF SUBBASIN
            DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
295 UK    OVERLAND-FLOW ELEMENT NO. 2
                L       100.  OVERLAND FLOW LENGTH
                S      .4000  SLOPE
                N       .150  ROUGHNESS COEFFICIENT
               PA       40.0  PERCENT OF SUBBASIN
            DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
296 RK    COLLECTOR CHANNEL
                L      3000.  CHANNEL LENGTH
                S      .0400  SLOPE
                N       .100  CHANNEL ROUGHNESS COEFFICIENT
               CA        .04  CONTRIBUTING AREA
            SHAPE       TRAP  CHANNEL SHAPE
               WD       1.00  BOTTOM WIDTH OR DIAMETER
                Z       1.00  SIDE SLOPE
            DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
297 RK    COLLECTOR CHANNEL
                L      1200.  CHANNEL LENGTH
                S      .3000  SLOPE
                N       .050  CHANNEL ROUGHNESS COEFFICIENT
               CA        .01  CONTRIBUTING AREA
            SHAPE       TRAP  CHANNEL SHAPE
               WD       4.00  BOTTOM WIDTH OR DIAMETER
                Z       1.00  SIDE SLOPE
            DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
298 RK    MAIN CHANNEL
                L      3400.  CHANNEL LENGTH
                S      .0140  SLOPE
                N       .045  CHANNEL ROUGHNESS COEFFICIENT
               CA        .74  CONTRIBUTING AREA
            SHAPE       TRAP  CHANNEL SHAPE
               WD      10.00  BOTTOM WIDTH OR DIAMETER
                Z       2.00  SIDE SLOPE
            DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
      ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO    VOLUME    MAXIMUM
```

			(MIN)	(FT)	(CFS)	PEAK (MIN)	(IN)	CELERITY (FPS)
1	2.81	1.67	1.07	50.00	1115.75	359.85	3.02	.78
2	6.28	1.67	.34	16.67	746.16	355.39	3.04	.81
3	1.51	1.33	1.41	500.00	1806.92	360.00	3.02	5.93
4	6.58	1.40	.24	200.00	1793.35	361.21	3.02	13.92
5	1.08	1.44	.58	566.67	2017.69	362.64	3.01	16.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= 15.954 EXCESS= 120.282 OUTFLOW= 134.814 BASIN STORAGE= .675 PERCENT ERROR= .549

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	1.08	1.44	15.00	1948.91	360.00	3.00

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

HYDROGRAPH AT STATION SB22

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.28, TOTAL EXCESS = 3.05

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 1949.	6.00		225.	68.	68.	68.
		(INCHES)	2.495	3.001	3.001	3.001
		(AC-FT)	112.	134.	134.	134.

CUMULATIVE AREA = .84 SQ MI

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          **************
          *            *
300 KK    *   CB2122   *
          *            *
          **************
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COMBINE SB21B AND SB22

302 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

303 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CB2122

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
21908.	6.25		4279.	1309.	1309.	1309.
		(INCHES)	2.478	3.000	3.000	3.000
		(AC-FT)	2122.	2569.	2569.	2569.

CUMULATIVE AREA = 16.05 SQ MI

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              **************
              *            *
304 KK        *     SB23   *
              *            *
              **************
                      RUNOFFF FROM SB23

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

              SUBBASIN RUNOFF DATA

307 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .31  SUBBASIN AREA

                PRECIPITATION DATA

12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI             INCREMENTAL PRECIPITATION PATTERN
                     .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                     .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                     .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                     .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                     .00      .00      .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

308 LS          SCS LOSS RATE
                     STRTL        .44  INITIAL ABSTRACTION
                    CRVNBR      81.90  CURVE NUMBER
                     RTIMP      20.00  PERCENT IMPERVIOUS AREA

                LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                     STRTL        .44  INITIAL ABSTRACTION
                    CRVNBR      81.90  CURVE NUMBER
                     RTIMP      20.00  PERCENT IMPERVIOUS AREA
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                KINEMATIC WAVE
309 UK            OVERLAND-FLOW ELEMENT NO. 1
                        L        100.  OVERLAND FLOW LENGTH
                        S       .5000  SLOPE
                        N        .100  ROUGHNESS COEFFICIENT
                       PA        40.0  PERCENT OF SUBBASIN
                    DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
310 UK            OVERLAND-FLOW ELEMENT NO. 2
                        L        300.  OVERLAND FLOW LENGTH
                        S       .0400  SLOPE
                        N        .100  ROUGHNESS COEFFICIENT
                       PA        60.0  PERCENT OF SUBBASIN
                    DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
311 RK            COLLECTOR CHANNEL
                        L       1500.  CHANNEL LENGTH
                        S       .2500  SLOPE
                        N        .050  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .03  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD        2.00  BOTTOM WIDTH OR DIAMETER
                        Z        1.00  SIDE SLOPE
                    DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
312 RK            COLLECTOR CHANNEL
                        L       1000.  CHANNEL LENGTH
                        S       .0300  SLOPE
                        N        .050  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .07  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD        2.00  BOTTOM WIDTH OR DIAMETER
                        Z        1.00  SIDE SLOPE
                    DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
313 RK            MAIN CHANNEL
                        L       6300.  CHANNEL LENGTH
                        S       .0080  SLOPE
                        N        .045  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .31  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD       23.00  BOTTOM WIDTH OR DIAMETER
                        Z        1.00  SIDE SLOPE
                    DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
                   RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH
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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	10.54	1.67	.26	16.67	292.72	359.19	2.84	1.08
2	2.98	1.67	1.07	50.00	436.99	358.96	2.83	.78
3	7.04	1.36	.23	250.00	729.35	359.79	2.83	18.20
4	2.44	1.36	.27	166.67	728.65	359.95	2.83	10.40
5	.46	1.55	.52	1050.00	21982.89	377.85	2.99	33.50

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2568.780 EXCESS= 47.103 OUTFLOW= 2607.648 BASIN STORAGE= 6.820 PERCENT ERROR= .054

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.46	1.55	15.00	20905.57	375.00	3.01

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

HYDROGRAPH AT STATION SB23

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.48, TOTAL EXCESS = 2.85

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
20906.	6.25		4369.	1337.	1337.	1337.
		(INCHES)	2.482	3.008	3.008	3.008
		(AC-FT)	2166.	2625.	2625.	2625.

CUMULATIVE AREA = 16.36 SQ MI

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              **************
              *            *
314 KK        *     SB24   *
              *            *
              **************
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RUNOFF FROM SB24

316 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

317 BA SUBBASIN CHARACTERISTICS

TAREA	.52	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

```
318 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      86.00  CURVE NUMBER
                     RTIMP      20.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
319 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       500.  OVERLAND FLOW LENGTH
                         S      .0250  SLOPE
                         N       .100  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                     DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
320 RK            MAIN CHANNEL
                         L      7400.  CHANNEL LENGTH
                         S      .0090  SLOPE
                         N       .045  CHANNEL ROUGHNESS COEFFICIENT
                        CA        .52  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD       3.00  BOTTOM WIDTH OR DIAMETER
                         Z       4.00  SIDE SLOPE
                     DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
                    RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                                COMPUTED KINEMATIC PARAMETERS
                                     VARIABLE TIME STEP
                                  (DT SHOWN IS A MINIMUM)
                  ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                              PEAK                  CELERITY
                                                  (MIN)      (FT)     (CFS)    (MIN)      (IN)      (FPS)

                     1        2.36      1.67      1.62     83.33   1313.01    358.86      3.11       .85
                     3        1.14      1.35      2.17   1233.33   1155.71    362.69      3.09      9.48

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   87.178 OUTFLOW=   85.707 BASIN STORAGE=     .382 PERCENT ERROR=    1.249

                                  INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                     3        1.14      1.35     15.00            1074.61    360.00      3.10

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

                     HYDROGRAPH AT STATION     SB24

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.19, TOTAL EXCESS =    3.14

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
  1075.      6.00                144.        44.         44.         44.
                      (INCHES)  2.579       3.098       3.098       3.098
                      (AC-FT)     72.         86.         86.         86.

                      CUMULATIVE AREA =     .52 SQ MI
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** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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              *            *
322 KK        *     SB25   *
              *            *
              **************
                             RUNOFF FROM SB25

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

                SUBBASIN RUNOFF DATA

325 BA            SUBBASIN CHARACTERISTICS
                        TAREA         .58  SUBBASIN AREA

                  PRECIPITATION DATA

 12 PB                  STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI              INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                        .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                        .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                        .00       .00       .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

326 LS            SCS LOSS RATE
                        STRTL         .33  INITIAL ABSTRACTION
                       CRVNBR       86.00  CURVE NUMBER
                        RTIMP       20.00  PERCENT IMPERVIOUS AREA

                  KINEMATIC WAVE
327 UK              OVERLAND-FLOW ELEMENT NO. 1
                              L        500.  OVERLAND FLOW LENGTH
                              S       .0500  SLOPE
                              N        .100  ROUGHNESS COEFFICIENT
                             PA       100.0  PERCENT OF SUBBASIN
                        DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
328 RK              COLLECTOR CHANNEL
                              L       1500.  CHANNEL LENGTH
                              S       .0200  SLOPE
                              N        .050  CHANNEL ROUGHNESS COEFFICIENT
                             CA         .10  CONTRIBUTING AREA
                          SHAPE        TRAP  CHANNEL SHAPE
                             WD         .00  BOTTOM WIDTH OR DIAMETER
                              Z        4.00  SIDE SLOPE
                        DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
329 RK              MAIN CHANNEL
```

L	8500.	CHANNEL LENGTH
S	.0110	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.58	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	5.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	3.33	1.67	1.13	71.43	1490.40	358.99	3.11	1.05
3	1.64	1.33	.52	250.00	1477.82	359.81	3.11	8.02
4	1.16	1.36	1.97	1416.67	2185.71	369.61	3.09	12.01

ONTINUITY SUMMARY (AC-FT) - INFLOW= 85.930 EXCESS= 97.237 OUTFLOW= 181.194 BASIN STORAGE= .986 PERCENT ERROR= .539

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.16	1.36	15.00	1807.78	375.00	3.08

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

HYDROGRAPH AT STATION SB25

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.19, TOTAL EXCESS = 3.14

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 1808.	6.25		302.	92.	92.	92.
		(INCHES)	2.552	3.076	3.076	3.076
		(AC-FT)	150.	180.	180.	180.

CUMULATIVE AREA = 1.10 SQ MI

** ***

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**************
*            *
KK    *  SB26  *
*            *
**************
```

RUNOFF FROM SB26

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

            SUBBASIN RUNOFF DATA

334 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .60  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB              STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
                  .00    .00    .00    .00    .00    .00    .00    .00    .00    .00
                  .00    .00    .00    .00    .00    .00    .01    .01    .01    .01
                  .02    .02    .28    .28    .04    .04    .02    .02    .01    .01
                  .01    .01    .01    .01    .00    .00    .01    .00    .01    .01
                  .00    .00    .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

335 LS        SCS LOSS RATE
                    STRTL        .38  INITIAL ABSTRACTION
                   CRVNBR      84.00  CURVE NUMBER
                    RTIMP      20.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
336 UK          OVERLAND-FLOW ELEMENT NO. 1
                        L       500.  OVERLAND FLOW LENGTH
                        S      .0200  SLOPE
                        N       .100  ROUGHNESS COEFFICIENT
                       PA      100.0  PERCENT OF SUBBASIN
                    DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
337 RK          COLLECTOR CHANNEL
                        L      3000.  CHANNEL LENGTH
                        S      .0100  SLOPE
                        N       .050  CHANNEL ROUGHNESS COEFFICIENT
                       CA        .20  CONTRIBUTING AREA
                    SHAPE       TRAP  CHANNEL SHAPE
                       WD        .00  BOTTOM WIDTH OR DIAMETER
                        Z       4.00  SIDE SLOPE
                    DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
338 RK          MAIN CHANNEL
                        L      4500.  CHANNEL LENGTH
                        S      .0089  SLOPE
                        N       .045  CHANNEL ROUGHNESS COEFFICIENT
                       CA        .60  CONTRIBUTING AREA
                    SHAPE       TRAP  CHANNEL SHAPE
                       WD       5.00  BOTTOM WIDTH OR DIAMETER
                        Z       4.00  SIDE SLOPE
                    DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
                   RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                   ***
                      COMPUTED KINEMATIC PARAMETERS
```

VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	1.54	71.43	1429.51	358.96	2.96	.77
3	1.16	1.33	1.17	500.00	1347.16	361.21	2.95	7.12
4	1.05	1.36	1.04	750.00	2855.57	366.77	3.07	11.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= 180.467 EXCESS= 95.906 OUTFLOW= 278.089 BASIN STORAGE= .985 PERCENT ERROR= -.977

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	1.05	1.36	15.00	2576.59	375.00	3.08

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

HYDROGRAPH AT STATION SB26

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.33, TOTAL EXCESS = 3.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
2577.	6.25		468.	142.	142.	142.
		(INCHES)	2.560	3.083	3.083	3.083
		(AC-FT)	232.	279.	279.	279.

CUMULATIVE AREA = 1.70 SQ MI

*** ***

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              **************
              *            *
339 KK        *   CB2623   *
              *            *
              **************
```

COMBINE SB26 AND SB23

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

342 HC        HYDROGRAPH COMBINATION
                   ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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***

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

HYDROGRAPH AT STATION CB2623

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
23482.	6.25	(CFS)	4837.	1480.	1480.	1480.
		(INCHES)	2.489	3.015	3.015	3.015
		(AC-FT)	2399.	2905.	2905.	2905.

CUMULATIVE AREA = 18.06 SQ MI

*** ***

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              **************
              *            *
343 KK        *     SB27   *
              *            *
              **************
```

RUNOFF FROM SB27

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

              SUBBASIN RUNOFF DATA

346 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .92  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00    .00    .00    .00    .00    .00    .00    .00    .00    .00
                     .00    .00    .00    .00    .00    .00    .01    .01    .01    .01
                     .02    .02    .28    .28    .04    .04    .02    .02    .01    .01
                     .01    .01    .01    .01    .00    .00    .01    .00    .01    .01
                     .00    .00    .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

347 LS          SCS LOSS RATE
                     STRTL         .34  INITIAL ABSTRACTION
                    CRVNBR       85.30  CURVE NUMBER
                     RTIMP       20.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
348 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        400.  OVERLAND FLOW LENGTH
                         S       .0400  SLOPE
```

```
                N        .150  ROUGHNESS COEFFICIENT
               PA       100.0  PERCENT OF SUBBASIN
            DXMIN           7  MINIMUM NUMBER OF DX INTERVALS
RK        COLLECTOR CHANNEL
                L      10000.  CHANNEL LENGTH
                S       .0200  SLOPE
                N        .100  CHANNEL ROUGHNESS COEFFICIENT
               CA         .30  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD         .00  BOTTOM WIDTH OR DIAMETER
                Z        4.00  SIDE SLOPE
            DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
350 RK    MAIN CHANNEL
                L       2900.  CHANNEL LENGTH
                S       .0050  SLOPE
                N        .045  CHANNEL ROUGHNESS COEFFICIENT
               CA         .92  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD       13.00  BOTTOM WIDTH OR DIAMETER
                Z        1.00  SIDE SLOPE
            DXMIN           6  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                        ***
                    COMPUTED KINEMATIC PARAMETERS
                         VARIABLE TIME STEP
                      (DT SHOWN IS A MINIMUM)
ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                            PEAK                  CELERITY
                                (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

   1        1.99      1.67      1.37     57.14   2295.63   359.29       3.06       .70
   3         .82      1.33      5.18   1666.67   1373.24   379.02       3.02      5.37
   4         .54      1.50       .27    483.33  24793.44   376.55       3.01     29.68

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2904.523  EXCESS=  151.695 OUTFLOW= 3048.678 BASIN STORAGE=    4.922 PERCENT ERROR=     .086

                    INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

   4         .54      1.50     15.00           24067.83   375.00       3.03

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

              HYDROGRAPH AT STATION     SB27

TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.24, TOTAL EXCESS =    3.09

PEAK FLOW     TIME                    MAXIMUM AVERAGE FLOW
                              6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
              (CFS)
+ 24068.      6.25            5105.      1562.       1562.       1562.
             (INCHES)        2.500      3.027       3.027       3.027
             (AC-FT)         2531.      3065.       3065.       3065.

             CUMULATIVE AREA =   18.98 SQ MI
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*** ***

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              **************
              *            *
351 KK        *     SB28   *
              *            *
              **************
                      RUNOFF FROM SB28

353 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          2  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         96  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .250  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

354 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .87  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

355 LS          SCS LOSS RATE
                     STRTL        .49  INITIAL ABSTRACTION
                    CRVNBR      80.30  CURVE NUMBER
                     RTIMP      43.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
356 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       300.  OVERLAND FLOW LENGTH
                         S      .0400  SLOPE
                         N       .100  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                     DXMIN          7  MINIMUM NUMBER OF DX INTERVALS
357 RK            COLLECTOR CHANNEL
                         L      6000.  CHANNEL LENGTH
                         S      .0100  SLOPE
```

N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.29	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	8.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS

358 RK MAIN CHANNEL

L	10900.	CHANNEL LENGTH
S	.0070	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.87	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	15.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.98	1.67	.90	42.86	2186.93	359.72	3.17	.80
3	.91	1.42	1.71	1000.00	2064.48	360.13	3.16	9.75
4	.58	1.52	.90	1816.67	24846.85	379.80	3.02	33.50

CONTINUITY SUMMARY (AC-FT) - INFLOW= 3064.948 EXCESS= 148.337 OUTFLOW= 3195.245 BASIN STORAGE= 13.383 PERCENT ERROR= .145

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.58	1.52	15.00	22633.36	390.00	3.03

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

HYDROGRAPH AT STATION SB28

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.13, TOTAL EXCESS = 3.20

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 22633.	6.50		5359.	1635.	1635.	1635.
		(INCHES)	2.510	3.031	3.031	3.031
		(AC-FT)	2657.	3209.	3209.	3209.

CUMULATIVE AREA = 19.85 SQ MI

STATION SB28

(O) OUTFLOW

0.	4000.	8000.	12000.	16000.	20000.	24000.	0.	0.	0.	0.	0.	0.

(L) PRECIP, (X) EXCESS

.0	.0	.0	.0	.0	.0	.0	.0	1.6	1.2	.8	.4	.0

```
DAHRMN PER
 10000   10---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
 10015   20         .         .         .         .         .         .         .         .         .         .         .         .
 10030   30         .         .         .         .         .         .         .         .         .         .         .         .
 10045   40         .         .         .         .         .         .         .         .         .         .         .         .
 10100   50         .         .         .         .         .         .         .         .         .         .         .         .
 10115   60         .         .         .         .         .         .         .         .         .         .         .         .
 10130   70         .         .         .         .         .         .         .         .         .         .         .         .
 10145   80         .         .         .         .         .         .         .         .         .         .         .         .
 10200   90         .         .         .         .         .         .         .         .         .         .         .         .
 10215  100         .         .         .         .         .         .         .         .         .         .         .         .
 10230  110 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10245  120         .         .         .         .         .         .         .         .         .         .         .         .
 10300  130         .         .         .         .         .         .         .         .         .         .         .         .
 10315  140         .         .         .         .         .         .         .         .         .         .         .         .
 10330  150         .         .         .         .         .         .         .         .         .         .         .         .
 10345  160         .         .         .         .         .         .         .         .         .         .         .         .
 10400  170         .         .         .         .         .         .         .         .         .         .         .         .
 10415  180         .         .         .         .         .         .         .         .         .         .         .         L.
 10430  190         .         .         .         .         .         .         .         .         .         .         .         L.
 10445  200         .         .         .         .         .         .         .         .         .         .         .         L.
 10500  210 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .L.
 10515  220         .         .         .         .         .         .         .         .         .         .         .        LX.
 10530  230         .         .         .         .         .         .         .         .         .         .         .        LX.
 10545  24.0        .         .         .         .         .         .         .         .         LLLLLLLLLLLLXXXXXXXXXXXXXXXXXX.
 10600  25.         .         .         O         .         .         .         .         .         LLLLLLXXXXXXXXXXXXXXXXXXXXXXXXX.
 10615  26.         .         .         .         .         .         O         .         .         .         .         .      LXXXX.
 10630  27.         .         .         .         .         .         O         .         .         .         .         .      LXXXX.
 10645  28.         .         .         .         .         O         .         .         .         .         .         .        LX.
 10700  29.         .         .         O         .         .         .         .         .         .         .         .        LX.
 10715  30.         .         O         .         .         .         .         .         .         .         .         .         X.
 10730  31. . . . . . . . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .X.
 10745  32.         .O        .         .         .         .         .         .         .         .         .         .         X.
 10800  33.         O.        .         .         .         .         .         .         .         .         .         .         X.
 10815  34.         O         .         .         .         .         .         .         .         .         .         .         X.
 10830  35.         O         .         .         .         .         .         .         .         .         .         .         X.
 10845  36.         O         .         .         .         .         .         .         .         .         .         .         L.
 10900  37.         O         .         .         .         .         .         .         .         .         .         .         L.
 10915  38.         O         .         .         .         .         .         .         .         .         .         .         L.
 10930  39.         O         .         .         .         .         .         .         .         .         .         .         L.
 10945  40.         O         .         .         .         .         .         .         .         .         .         .         X.
 11000  41. .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .X.
 11015  42.         O         .         .         .         .         .         .         .         .         .         .         .
 11030  43.         O         .         .         .         .         .         .         .         .         .         .         .
 11045  44.         O         .         .         .         .         .         .         .         .         .         .         L.
 11100  45.         O         .         .         .         .         .         .         .         .         .         .         L.
 11115  46. O       .         .         .         .         .         .         .         .         .         .         .         .
 11130  47. O       .         .         .         .         .         .         .         .         .         .         .         .
 11145  48. O       .         .         .         .         .         .         .         .         .         .         .         .
 11200  49. O       .         .         .         .         .         .         .         .         .         .         .         .
 11215  50. O       .         .         .         .         .         .         .         .         .         .         .         .
 11230  51. O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 11245  52. O       .         .         .         .         .         .         .         .         .         .         .         .
 11300  53. O       .         .         .         .         .         .         .         .         .         .         .         .
 11315  54. O       .         .         .         .         .         .         .         .         .         .         .         .
 11330  55. O       .         .         .         .         .         .         .         .         .         .         .         .
 11345  56. O       .         .         .         .         .         .         .         .         .         .         .         .
 11400  57. O       .         .         .         .         .         .         .         .         .         .         .         .
 11415  58. O       .         .         .         .         .         .         .         .         .         .         .         .
 11430  59. O       .         .         .         .         .         .         .         .         .         .         .         .
```

```
11445  60. 0
11500  61. 0
11515  62. 0
[illegible]30  63. 0
[illegible]5  64. 0
11600  65.0
11615  66.0
11630  67.0
11645  68.0
11700  69.0
11715  70.0
11730  71.0
11745  72.0
11800  73.0
11815  74.0
11830  75.0
11845  76.0
11900  77.0
11915  78.0
11930  79.0
11945  80.0
12000  81.0
12015  82.0
12030  83.0
12045  84.0
12100  85.0
12115  86.0
12130  87.0
12145  88.0
12200  89.0
12215  90.0
12230  91.0
12245  92.0
12300  93.0
12315  94.0
12330  95.0
12345  96.0
```

1

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									
+	SB1	1120.	6.00	144.	43.	43.	.46		
HYDROGRAPH AT									
+	SB2	2905.	6.25	420.	128.	128.	1.51		
HYDROGRAPH AT									
	SB3	887.	6.00	97.	29.	29.	.37		
HYDROGRAPH AT									
	SB4	2718.	6.00	291.	88.	88.	1.15		
2 COMBINED AT									

	CB34	3606.	6.00	388.	118.	118.	1.52
HYDROGRAPH AT	SB5	4399.	6.25	608.	186.	186.	2.39
HYDROGRAPH AT	SB6	1168.	6.00	185.	56.	56.	.71
2 COMBINED AT	CB56	5472.	6.25	791.	242.	242.	3.10
HYDROGRAPH AT	SB7	4862.	6.25	823.	253.	253.	3.27
2 COMBINED AT	CB27	7768.	6.25	1243.	381.	381.	4.78
HYDROGRAPH AT	SB8A	2484.	6.25	366.	112.	112.	1.43
2 COMBINED AT	CB78	10252.	6.25	1609.	493.	493.	6.21
HYDROGRAPH AT	SB8B	9815.	6.25	1631.	500.	500.	6.28
HYDROGRAPH AT	SB12	3766.	6.00	469.	143.	143.	1.80
HYDROGRAPH AT	SB13	1128.	6.25	191.	58.	58.	.71
2 COMBINED AT	CB1213	4851.	6.00	661.	202.	202.	2.51
HYDROGRAPH AT	SB14	4658.	6.00	692.	211.	211.	2.61
HYDROGRAPH AT	SB10	1341.	6.00	144.	44.	44.	.58
HYDROGRAPH AT	SB11A	2069.	6.00	304.	94.	94.	1.26
2 COMBINED AT	CB1114	6727.	6.00	996.	304.	304.	3.87
HYDROGRAPH AT	SB11B	6482.	6.00	1000.	306.	306.	3.88
HYDROGRAPH AT	SB15	202.	6.00	23.	7.	7.	.08
HYDROGRAPH AT	SB9A	1360.	6.25	201.	62.	62.	.77
3 COMBINED AT	CB9115	7591.	6.00	1223.	374.	374.	4.72
HYDROGRAPH AT							

	SB9B	7224.	6.00	1252.	383.	383.	4.80
HYDROGRAPH AT	SB16	2979.	6.25	455.	138.	138.	1.65
3 COMBINED AT	CB1698	19823.	6.25	3333.	1021.	1021.	12.73
HYDROGRAPH AT	SB17A	1956.	6.25	319.	97.	97.	1.15
2 COMBINED AT	CB1798	21779.	6.25	3651.	1118.	1118.	13.88
HYDROGRAPH AT	SB17B	21012.	6.25	3700.	1132.	1132.	14.00
HYDROGRAPH AT	SB18A	356.	6.00	38.	12.	12.	.15
HYDROGRAPH AT	SB18B	394.	6.00	44.	14.	14.	.17
2 COMBINED AT	CB1718	21122.	6.25	3745.	1146.	1146.	14.17
HYDROGRAPH AT	SB21A	20767.	6.25	3788.	1159.	1159.	14.30
HYDROGRAPH AT	SB19A	967.	6.00	111.	34.	34.	.35
HYDROGRAPH AT	SB19B	1050.	6.00	126.	38.	38.	.40
2 COMBINED AT	CB2119	21147.	6.25	3913.	1197.	1197.	14.70
HYDROGRAPH AT	SB21B	20968.	6.25	4053.	1240.	1240.	15.21
HYDROGRAPH AT	SB20	251.	6.00	27.	8.	8.	.10
HYDROGRAPH AT	SB22	1949.	6.00	225.	68.	68.	.84
2 COMBINED AT	CB2122	21908.	6.25	4279.	1309.	1309.	16.05
HYDROGRAPH AT	SB23	20906.	6.25	4369.	1337.	1337.	16.36
HYDROGRAPH AT	SB24	1075.	6.00	144.	44.	44.	.52
HYDROGRAPH AT	SB25	1808.	6.25	302.	92.	92.	1.10
HYDROGRAPH AT							

	SB26	2577.	6.25	468.	142.	142.	1.70
2 COMBINED AT	CB2623	23482.	6.25	4837.	1480.	1480.	18.06
HYDROGRAPH AT	SB27	24068.	6.25	5105.	1562.	1562.	18.98
HYDROGRAPH AT	SB28	22633.	6.50	5359.	1635.	1635.	19.85

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
SB1	4	1.40	1160.32	363.03	3.49	15.00	1119.72	360.00	3.48
CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 85.963 OUTFLOW= 85.702 BASIN STORAGE= .344 PERCENT ERROR= -.097									
SB2	4	2.75	3141.23	369.82	3.15	15.00	2905.28	375.00	3.12
CONTINUITY SUMMARY (AC-FT) - INFLOW= 85.297 EXCESS= 173.130 OUTFLOW= 253.876 BASIN STORAGE= 2.038 PERCENT ERROR= .972									
SB3	4	.95	887.71	360.06	2.81	15.00	887.46	360.00	2.91
CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 56.052 OUTFLOW= 55.487 BASIN STORAGE= .153 PERCENT ERROR= .735									
SB4	4	.61	2759.90	361.68	2.84	15.00	2718.31	360.00	2.83
CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 176.229 OUTFLOW= 174.173 BASIN STORAGE= .665 PERCENT ERROR= .789									
SB5	4	2.12	5156.93	369.79	2.87	15.00	4398.92	375.00	2.86
CONTINUITY SUMMARY (AC-FT) - INFLOW= 230.804 EXCESS= 141.076 OUTFLOW= 365.535 BASIN STORAGE= 2.705 PERCENT ERROR= .979									
SB6	4	2.85	1430.27	366.67	2.93	15.00	1168.06	360.00	2.92
CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 112.446 OUTFLOW= 110.874 BASIN STORAGE= .745 PERCENT ERROR= .736									
SB7	3	1.18	5453.61	381.34	2.86	15.00	4862.32	375.00	2.85
CONTINUITY SUMMARY (AC-FT) - INFLOW= 475.482 EXCESS= 25.456 OUTFLOW= 498.233 BASIN STORAGE= 1.698 PERCENT ERROR= .201									
SB8A	4	2.21	2538.52	371.95	2.89	15.00	2484.27	375.00	2.89
CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 225.805 OUTFLOW= 220.052 BASIN STORAGE= 2.735 PERCENT ERROR= 1.337									

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SB8B      3      .17  10270.77   376.24     2.91    15.00   9814.54   375.00      2.93
CONTINUITY SUMMARY (AC-FT) - INFLOW=  967.548 EXCESS=    8.961 OUTFLOW=  975.257 BASIN STORAGE=    1.075 PERCENT ERROR=    .018

SB12      4     1.60   3974.23   362.69     2.92    15.00   3765.86   360.00      2.93
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  284.030 OUTFLOW=  280.151 BASIN STORAGE=    1.439 PERCENT ERROR=    .859

SB13      3     2.22   1398.97   365.89     3.02    15.00   1127.83   375.00      3.02
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  117.069 OUTFLOW=  114.441 BASIN STORAGE=     .634 PERCENT ERROR=   1.703

SB14      3      .30   5063.31   361.49     2.95    15.00   4657.91   360.00      2.97
CONTINUITY SUMMARY (AC-FT) - INFLOW=  395.548 EXCESS=   15.794 OUTFLOW=  410.640 BASIN STORAGE=     .390 PERCENT ERROR=    .075

SB10      4      .92   1360.09   361.55     2.82    15.00   1341.39   360.00      2.79
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   88.452 OUTFLOW=   87.213 BASIN STORAGE=     .328 PERCENT ERROR=   1.030

SB11A     4     1.63   2527.24   367.03     2.76    15.00   2068.76   360.00      2.74
CONTINUITY SUMMARY (AC-FT) - INFLOW=   86.384 EXCESS=  100.835 OUTFLOW=  185.643 BASIN STORAGE=    1.081 PERCENT ERROR=    .264

SB11B     3      .13   6734.74   360.67     2.89    15.00   6482.21   360.00      2.90
CONTINUITY SUMMARY (AC-FT) - INFLOW=  597.660 EXCESS=     .640 OUTFLOW=  598.015 BASIN STORAGE=     .215 PERCENT ERROR=    .012

SB15      3      .60    202.19   359.60     3.04    15.00    201.54   360.00      3.15
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   13.097 OUTFLOW=   12.979 BASIN STORAGE=     .023 PERCENT ERROR=    .725

SB9A      4     2.12   1537.81   369.03     2.97    15.00   1359.53   375.00      2.94
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  124.501 OUTFLOW=  122.108 BASIN STORAGE=    1.241 PERCENT ERROR=    .925

SB9B      3      .18   7769.99   361.43     2.91    15.00   7224.33   360.00      2.93
CONTINUITY SUMMARY (AC-FT) - INFLOW=  734.163 EXCESS=   13.004 OUTFLOW=  746.217 BASIN STORAGE=     .720 PERCENT ERROR=    .031

SB16      5     2.37   2995.45   375.91     3.08    15.00   2979.35   375.00      3.09
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  275.966 OUTFLOW=  271.129 BASIN STORAGE=    4.973 PERCENT ERROR=   -.049

SB17A     4     1.71   2422.47   367.30     3.10    15.00   1955.90   375.00      3.10
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  191.430 OUTFLOW=  189.820 BASIN STORAGE=    1.026 PERCENT ERROR=    .305
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SB17B     3      .33  21769.05   376.49    2.95    15.00  21012.41   375.00      2.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2193.723 EXCESS=   17.578 OUTFLOW= 2206.597 BASIN STORAGE=    3.768 PERCENT ERROR=    .042

SB18A     4      .11    355.76   359.79    2.84    15.00    355.60   360.00      2.88

CONTINUITY SUMMARY (AC-FT) - INFLOW=    .000 EXCESS=   22.903 OUTFLOW=   22.752 BASIN STORAGE=     .023 PERCENT ERROR=    .559

SB18B     3      .17    401.38   361.21    2.89    15.00    394.17   360.00      2.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=   23.045 EXCESS=    3.212 OUTFLOW=   26.204 BASIN STORAGE=     .020 PERCENT ERROR=    .126

SB21A     4      .11  21181.15   375.82    2.97    15.00  20766.95   375.00      2.98

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2249.379 EXCESS=   20.581 OUTFLOW= 2268.537 BASIN STORAGE=    1.064 PERCENT ERROR=    .016

SB19A     4      .47    967.73   359.67    3.53    15.00    967.43   360.00      3.56

CONTINUITY SUMMARY (AC-FT) - INFLOW=    .000 EXCESS=   66.205 OUTFLOW=   65.830 BASIN STORAGE=     .122 PERCENT ERROR=    .382

SB19B     3      .37   1064.03   362.26    3.45    15.00   1049.69   360.00      3.51

CONTINUITY SUMMARY (AC-FT) - INFLOW=   66.450 EXCESS=    7.306 OUTFLOW=   73.560 BASIN STORAGE=     .124 PERCENT ERROR=    .097

SB21B     4      .22  21642.19   376.69    2.98    15.00  20967.74   375.00      3.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2349.889 EXCESS=   76.369 OUTFLOW= 2420.786 BASIN STORAGE=    3.918 PERCENT ERROR=    .064

SB20      3      .11    252.65   356.88    2.98    15.00    251.27   360.00      2.99

CONTINUITY SUMMARY (AC-FT) - INFLOW=    .000 EXCESS=   15.974 OUTFLOW=   15.884 BASIN STORAGE=     .006 PERCENT ERROR=    .528

SB22      5      .58   2017.69   362.64    3.01    15.00   1948.91   360.00      3.00

CONTINUITY SUMMARY (AC-FT) - INFLOW=   15.954 EXCESS=  120.282 OUTFLOW=  134.814 BASIN STORAGE=     .675 PERCENT ERROR=    .549

SB23      5      .52  21982.89   377.85    2.99    15.00  20905.57   375.00      3.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2568.780 EXCESS=   47.103 OUTFLOW= 2607.648 BASIN STORAGE=    6.820 PERCENT ERROR=    .054

SB24      3     2.17   1155.71   362.69    3.09    15.00   1074.61   360.00      3.10

CONTINUITY SUMMARY (AC-FT) - INFLOW=    .000 EXCESS=   87.178 OUTFLOW=   85.707 BASIN STORAGE=     .382 PERCENT ERROR=   1.249

SB25      4     1.97   2185.71   369.61    3.09    15.00   1807.78   375.00      3.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=   85.930 EXCESS=   97.237 OUTFLOW=  181.194 BASIN STORAGE=     .986 PERCENT ERROR=    .539
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SB26	4	1.04	2855.57	366.77	3.07	15.00	2576.59	375.00	3.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= 180.467 EXCESS= 95.906 OUTFLOW= 278.089 BASIN STORAGE= .985 PERCENT ERROR= -.977

SB27	4	.27	24793.44	376.55	3.01	15.00	24067.83	375.00	3.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= 2904.523 EXCESS= 151.695 OUTFLOW= 3048.678 BASIN STORAGE= 4.922 PERCENT ERROR= .086

SB28	4	.90	24846.85	379.80	3.02	15.00	22633.36	390.00	3.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= 3064.948 EXCESS= 148.337 OUTFLOW= 3195.245 BASIN STORAGE= 13.383 PERCENT ERROR= .145

CASE 1
LOWER WATERSHED MODEL

```
****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*        FEBRUARY 1981                 *
*       REVISED 01 JUN 88              *
*                                      *
*  RUN DATE  09/12/1990  TIME  20:01:36 *
*                                      *
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748             *
*                                      *
****************************************
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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. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

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

  1           ID   DEADMAN'S WASH -- CASE 1 -- 100 YR, 24 HR DESIGN STORM
  2           ID   EXISTING CONDITIONS (LOWER WATERSHED)
  3           ID   KINEMATIC WAVE ROUTING
  4           IT      15                   144
  5           IO       3       0
  6           IN      30

  7           KK    SB32
  8           KM   RUNOFF FROM SB32
  9           KO
 10           BA     .20
 11           LS       0    84.2
 12           PB    4.33
 13           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 14           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
 15           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
 16           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
 17           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
 18           UK    200.     .50     .15     100
 19           RK   1200.     .25     .05     .03    TRAP             1
 20           RK   2600.     .04    .045            TRAP       4     1
```

```
 21          KK    SB33
 22          KM   RUNOFF FROM SB33
 23          KO
 24          BA     .69
 25          LS       0    84.7              0    84.7
 26          UK    200.     .40     .15     50
 27          UK    400.     .16     .15     50
 28          RK   3000.     .20     .10     .08    TRAP      2       1
 29          RK   7500.     .08     .10     .07    TRAP      1       1
 30          RK   2200.    .011    .045            TRAP      4       2     YES
 31          DX       5       5       4       4       4

 32          KK   SB35A
 33          KM   RUNOFF FROM SB35A
 34          KO
 35          BA     .61
 36          LS       0    85.7       2
 37          UK    500.     .02     .15    100
 38          RK   2500.     .01     .05     .15    TRAP      1       1
 39          RK  11100.    .007    .045            TRAP      4       2     YES
 40          DX       5               4       4

 41          KK    SB34
 42          KM   RUNOFF FROM SB34
 43          KO
 44          BA     .36
 45          LS       0    85.2
 46          UK    500.     .05     .15    100
 47          RK   4200.    .017    .045            TRAP      4       1
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 48          KK   SB35B
 49          KM   RUNOFF FROM SB35B
 50          KO
 51          BA     .24
 52          LS       0    86.0
 53          UK    500.     .02     .10    100
 54          RK   8000.    .007    .045            TRAP     10       2     YES

 55          KK  CB35AB
 56          KM   COMBINE SB35A AND 35B
 57          KO
 58          HC       2

 59          KK    SB36
 60          KM   RUNOFF FROM SB36
 61          KO
 62          BA     .87
 63          LS       0    85.1
 64          UK   1400.     .02     .15    100
 65          RK   8000.    .002     .05            TRAP     30       2     YES

 66          KK    SB37
 67          KM   RUNOFF FROM SB37
 68          KO
 69          BA     .45
 70          LS       0    84.5
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 71          UK   1200.     .10     .10     100
 72          RK   4300.     .01     .05           TRAP      3       2

 73          KK  CB3637
 74          KM   COMBINE SB36 AND SB37
 75          KO
 76          HC       2

 77          KK    SB31
 78          KM   RUNOFF FROM SB31
 79          KO
 80          BA     .72
 81          LS       0    86.0              0    86.0
 82          UK    600.     .02     .15      10
 83          UK    500.     .10     .15      90
 84          RK  12400.    .007     .05     .65    TRAP     20       1
 85          RK   1000.     .06     .05     .07    TRAP      1       1
 86          RK   2000.    .003    .045           TRAP      3       2     YES

 87          KK    SB39
 88          KM   RUNOFF FROM SB39
 89          KO
 90          BA     .11
 91          LS       0    84.8
 92          UK    500.     .15     .10     100
 93          RK   3300.     .02    .045           TRAP      2       1
 94          DX       5              6
                                     HEC-1 INPUT                                        PAGE  3

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


 95          KK    SB29
 96          KM   RUNOFF FROM SB29
 97          KO
 98          BA    2.03
 99          LS       0    85.7       5
100          UK   1500.     .02     .20     100
101          RK   9500.    .007    .045           TRAP     30       1
102          DX       5              4

103          KK    SB30
104          KM   RUNOFF FROM SB30
105          KO
106          BA     .38
107          LS       0    85.9
108          UK    700.     .02     .15     100
109          RK   6300.    .006    .045           TRAP     30       2     YES

110          KK  SB3019
111          KM   COMBINE SB30, SB31 AND SB39
112          KO
113          HC       3

114          KK    SB40
115          KM   RUNOFF FROM SB40
116          KO
117          BA     .10
118          LS       0    85.7
119          UK    400.     .20     .10     100
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120          RK   1200.     .10     .05     .05    TRAP      4       2
121          RK   1800.    .008    .045            TRAP     20       2     YES

122          KK    SB28
123          KM   READ SB28 FROM TAPE 21
124          KO
125          BI    SB28      21

126          KK  CB2840
127          KM   COMBINE SB28 AND SB40
128          KO
129          HC       2

130          KK    SB41
131          KM   RUNOFF FROM SB41
132          KO
133          BA     .30
134          LS       0    81.9
135          UK    500.     .02     .10     100
136          RK   2600.    .003     .05     .05    TRAP      4       1
137          RK   2500.    .004    .045            TRAP     20       1     YES
```



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

138          KK    SB42
139          KM   RUNOFF FROM SB42
140          KO
141          BA     .59
142          LS       0    84.8
143          UK    400.     .05     .15     100
144          RK   2500.     .03     .05     .07    TRAP      2       1
145          RK   6200.     .01    .045            TRAP     30       1
146          DX       5              4       4

147          KK  CB4142
148          KM   COMBINE SB41 AND SB42
149          KO
150          HC       2

151          KK    SB43
152          KM   RUNOFF FROM SB43
153          KO
154          BA     .66
155          LS       0    83.0              0    83.0
156          UK    200.     .30     .15      70
157          UK    300.     .01     .15      30
158          RK   2500.     .07     .05     .05    TRAP      1       2
159          RK   3000.    .007     .05     .07    TRAP      3       2
160          RK   4500.    .006    .045            TRAP     40       1     YES

161          KK    SB44
162          KM   RUNOFF FROM SB44
163          KO
164          BA    4.39
165          LS       0    85.8
166          UK    500.     .02     .15     100
167          RK  30000.     .01     .10     1.1    TRAP     20       2
168          RK   1000.     .01    .045            TRAP    100       1
```

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169          DX      5              6      4

170          KK  CB4344
171          KM   COMBINE SB43 AND SB44
172          KO              2
173          HC      2
174          ZZ
1*****************************************                                    *****************************************
*                                       *                                    *                                       *
  FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *                                    *   U.S. ARMY CORPS OF ENGINEERS        *
           FEBRUARY 1981                *                                    *  THE HYDROLOGIC ENGINEERING CENTER    *
*         REVISED 01 JUN 88             *                                    *          609 SECOND STREET            *
                                        *                                    *       DAVIS, CALIFORNIA 95616         *
  RUN DATE  09/12/1990  TIME  20:01:36  *                                    *           (916) 551-1748              *
*                                       *                                    *                                       *
*****************************************                                    *****************************************


                        DEADMAN'S WASH -- CASE 1 -- 100 YR, 24 HR DESIGN STORM
                        EXISTING CONDITIONS (LOWER WATERSHED)
                        KINEMATIC WAVE ROUTING

  5 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT           HYDROGRAPH TIME DATA
                       NMIN         15  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        144  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2    0  ENDING DATE
                     NDTIME       1145  ENDING TIME
                     ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL     .25 HOURS
                     TOTAL TIME BASE   35.75 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


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


        **************
        *            *
  7 KK  *      SB32  *
        *            *
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**************
                RUNOFF FROM SB32

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

 6 IN     TIME DATA FOR INPUT TIME SERIES
               JXMIN         30  TIME INTERVAL IN MINUTES
              JXDATE      1    0  STARTING DATE
              JXTIME          0  STARTING TIME

         SUBBASIN RUNOFF DATA

10 BA     SUBBASIN CHARACTERISTICS
               TAREA        .20  SUBBASIN AREA

          PRECIPITATION DATA

12 PB          STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI       INCREMENTAL PRECIPITATION PATTERN
              .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
              .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
              .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
              .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
              .00      .00      .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

11 LS     SCS LOSS RATE
               STRTL        .38  INITIAL ABSTRACTION
              CRVNBR      84.20  CURVE NUMBER
               RTIMP        .00  PERCENT IMPERVIOUS AREA

          KINEMATIC WAVE
18 UK       OVERLAND-FLOW ELEMENT NO. 1
                 L        200.  OVERLAND FLOW LENGTH
                 S       .5000  SLOPE
                 N        .150  ROUGHNESS COEFFICIENT
                PA       100.0  PERCENT OF SUBBASIN
              DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
19 RK       COLLECTOR CHANNEL
                 L       1200.  CHANNEL LENGTH
                 S       .2500  SLOPE
                 N        .050  CHANNEL ROUGHNESS COEFFICIENT
                CA         .03  CONTRIBUTING AREA
              SHAPE        TRAP  CHANNEL SHAPE
                WD         .00  BOTTOM WIDTH OR DIAMETER
                 Z        1.00  SIDE SLOPE
              DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
RK          MAIN CHANNEL
                 L       2600.  CHANNEL LENGTH
                 S       .0400  SLOPE
                 N        .045  CHANNEL ROUGHNESS COEFFICIENT
                CA         .20  CONTRIBUTING AREA
```

```
SHAPE        TRAP  CHANNEL SHAPE
   WD        4.00  BOTTOM WIDTH OR DIAMETER
    Z        1.00  SIDE SLOPE
DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH
```

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	7.02	1.67	.60	40.00	465.03	359.74	2.68	1.12
3	7.46	1.33	.36	400.00	465.01	359.55	2.68	18.65
4	2.67	1.40	.82	866.67	464.72	358.96	2.68	17.53

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 28.607 OUTFLOW= 28.555 BASIN STORAGE= .000 PERCENT ERROR= .182

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	2.67	1.40	15.00	463.75	360.00	2.73

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

HYDROGRAPH AT STATION SB32

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.65, TOTAL EXCESS = 2.68

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
464.	6.00	(CFS)	49.	15.	10.	10.
		(INCHES)	2.260	2.728	2.728	2.728
		(AC-FT)	24.	29.	29.	29.

CUMULATIVE AREA = .20 SQ MI

** ***

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         **************
         *            *
21 KK    *     SB33   *
         *            *
         **************
```

RUNOFF FROM SB33

KO OUTPUT CONTROL VARIABLES

```
IPRNT          3  PRINT CONTROL
IPLOT          0  PLOT CONTROL
QSCAL         0.  HYDROGRAPH PLOT SCALE
```

SUBBASIN RUNOFF DATA

BA SUBBASIN CHARACTERISTICS

TAREA	.69	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

25 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.70	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.70	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

26 UK OVERLAND-FLOW ELEMENT NO. 1

L	200.	OVERLAND FLOW LENGTH
S	.4000	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	50.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

27 UK OVERLAND-FLOW ELEMENT NO. 2

L	400.	OVERLAND FLOW LENGTH
S	.1600	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	50.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

28 RK COLLECTOR CHANNEL

L	3000.	CHANNEL LENGTH
S	.2000	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.08	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS

29 RK COLLECTOR CHANNEL

L	7500.	CHANNEL LENGTH
S	.0800	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.07	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE

WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RK	MAIN CHANNEL	
L	2200.	CHANNEL LENGTH
S	.0110	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.69	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.28	1.67	.63	40.00	814.43	360.00	2.72	1.05
2	3.97	1.67	1.27	80.00	808.81	359.28	2.72	1.05
3	3.15	1.36	.95	750.00	1610.49	360.07	2.72	13.20
4	2.13	1.33	3.72	1875.00	1374.16	365.68	2.73	8.40
5	1.34	1.38	.67	550.00	1704.69	364.77	2.73	13.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= 29.100 EXCESS= 100.361 OUTFLOW= 129.583 BASIN STORAGE= .009 PERCENT ERROR= -.102

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	1.34	1.38	15.00	1424.38	360.00	2.74

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

HYDROGRAPH AT STATION SB33

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.60, TOTAL EXCESS = 2.73

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
1424.	6.00		214.	66.	44.	44.
		(INCHES)	2.231	2.740	2.741	2.741
		(AC-FT)	106.	130.	130.	130.

CUMULATIVE AREA = .89 SQ MI

*** ***

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          *          *
32 KK     *    SB35A *
          *          *
          **************
                 RUNOFF FROM SB35A

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

           SUBBASIN RUNOFF DATA

35 BA        SUBBASIN CHARACTERISTICS
                 TAREA        .61  SUBBASIN AREA

             PRECIPITATION DATA

12 PB            STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI          INCREMENTAL PRECIPITATION PATTERN
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                 .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                 .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                 .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                 .00      .00      .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

36 LS        SCS LOSS RATE
                 STRTL        .33  INITIAL ABSTRACTION
                CRVNBR      85.70  CURVE NUMBER
                 RTIMP       2.00  PERCENT IMPERVIOUS AREA

             KINEMATIC WAVE
37 UK          OVERLAND-FLOW ELEMENT NO. 1
                     L       500.  OVERLAND FLOW LENGTH
                     S      .0200  SLOPE
                     N       .150  ROUGHNESS COEFFICIENT
                    PA      100.0  PERCENT OF SUBBASIN
                 DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
38 RK          COLLECTOR CHANNEL
                     L      2500.  CHANNEL LENGTH
                     S      .0100  SLOPE
                     N       .050  CHANNEL ROUGHNESS COEFFICIENT
                    CA        .15  CONTRIBUTING AREA
                 SHAPE       TRAP  CHANNEL SHAPE
                    WD       1.00  BOTTOM WIDTH OR DIAMETER
                     Z       1.00  SIDE SLOPE
                 DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
39 RK          MAIN CHANNEL
                     L     11100.  CHANNEL LENGTH
                     S      .0070  SLOPE
                     N       .045  CHANNEL ROUGHNESS COEFFICIENT
                    CA        .61  CONTRIBUTING AREA
                 SHAPE       TRAP  CHANNEL SHAPE
                    WD       4.00  BOTTOM WIDTH OR DIAMETER
```

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                Z        2.00  SIDE SLOPE
            DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
      ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                    PEAK                CELERITY
                                       (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

          1       1.40      1.67      2.88    100.00   1273.92   358.50       2.83       .58
          3       1.51      1.33      1.31    625.00   1210.33   363.44       2.83      7.98
          4       1.06      1.38      3.71   2775.00   2409.26   374.60       2.78     12.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=  130.114  EXCESS=   92.694 OUTFLOW=  222.346 BASIN STORAGE=     .053 PERCENT ERROR=     .184

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

          4       1.06      1.38     15.00            2392.17   375.00       2.77

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

                 HYDROGRAPH AT STATION    SB35A

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.48, TOTAL EXCESS =    2.85

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)        (HR)
                        (CFS)
+   2392.      6.25                358.        111.         75.         75.
                      (INCHES)    2.216       2.762       2.766       2.766
                       (AC-FT)    177.        221.        221.        221.

                      CUMULATIVE AREA =    1.50 SQ MI


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


          **************
          *            *
 41 KK    *     SB34   *
          *            *
          **************
                 RUNOFF FROM SB34

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

            SUBBASIN RUNOFF DATA
```

```
44 BA          SUBBASIN CHARACTERISTICS
                    TAREA          .36  SUBBASIN AREA

               PRECIPITATION DATA

12 PB               STORM         4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                    .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                    .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                    .00       .00       .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

45 LS          SCS LOSS RATE
                    STRTL         .35  INITIAL ABSTRACTION
                   CRVNBR       85.20  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
46 UK            OVERLAND-FLOW ELEMENT NO. 1
                        L        500.  OVERLAND FLOW LENGTH
                        S       .0500  SLOPE
                        N        .150  ROUGHNESS COEFFICIENT
                       PA       100.0  PERCENT OF SUBBASIN
                   DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
47 RK            MAIN CHANNEL
                        L       4200.  CHANNEL LENGTH
                        S       .0170  SLOPE
                        N        .045  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .36  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD        4.00  BOTTOM WIDTH OR DIAMETER
                        Z        1.00  SIDE SLOPE
                   DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                                COMPUTED KINEMATIC PARAMETERS
                                     VARIABLE TIME STEP
                                  (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                        PEAK                  CELERITY
                                             (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

              1       2.22      1.67       2.09    100.00    828.40    359.05       2.76       .80
              3       1.74      1.40       1.19   1050.00    786.50    361.05       2.76     14.69

NUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   53.239 OUTFLOW=   53.010 BASIN STORAGE=     .004 PERCENT ERROR=     .425

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
```

```
                    3        1.74      1.40      15.00            775.49    360.00      2.78

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

                     HYDROGRAPH AT STATION     SB34

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.56, TOTAL EXCESS =    2.77

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
   775.      6.00                   88.         27.         18.         18.
                      (INCHES)     2.260       2.777       2.780       2.780
                       (AC-FT)      43.         53.         53.         53.

                      CUMULATIVE AREA =     .36 SQ MI


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


          **************
          *            *
48 KK     *     SB35B  *
          *            *
          **************
                        RUNOFF FROM SB35B

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

            SUBBASIN RUNOFF DATA

51 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .24  SUBBASIN AREA

               PRECIPITATION DATA

12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

52 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
```

```
                CRVNBR       86.00  CURVE NUMBER
                 RTIMP         .00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
UK            OVERLAND-FLOW ELEMENT NO. 1
                     L        500.  OVERLAND FLOW LENGTH
                     S       .0200  SLOPE
                     N        .100  ROUGHNESS COEFFICIENT
                    PA       100.0  PERCENT OF SUBBASIN
                 DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
54 RK         MAIN CHANNEL
                     L       8000.  CHANNEL LENGTH
                     S       .0070  SLOPE
                     N        .045  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .24  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD       10.00  BOTTOM WIDTH OR DIAMETER
                     Z        2.00  SIDE SLOPE
                 DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
                RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                    ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
              ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                  CELERITY
                                                (MIN)     (FT)     (CFS)    (MIN)      (IN)      (FPS)

                  1       2.11     1.67      2.13    100.00    564.29    359.10      2.83       .78
                  3        .76     1.44      3.11   2000.00   1191.68    369.22      2.84     10.70

ONTINUITY SUMMARY (AC-FT) - INFLOW=   53.381  EXCESS=   36.440 OUTFLOW=   90.826 BASIN STORAGE=     .027 PERCENT ERROR=   -1.150

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                  3        .76     1.44     15.00              964.21    375.00      2.80

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

                   HYDROGRAPH AT STATION    SB35B

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.48, TOTAL EXCESS =    2.85

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                        (CFS)
+   964.      6.25                145.        45.         30.         30.
                      (INCHES)    2.245       2.792       2.797       2.797
                      (AC-FT)      72.         89.         89.         89.

                      CUMULATIVE AREA =     .60 SQ MI
```

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

              **************
              *            *
 55 KK        *    CB35AB  *
              *            *
              **************
                             COMBINE SB35A AND 35B

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

 58 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                       HYDROGRAPH AT STATION   CB35AB

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                         (CFS)
+   3356.     6.25                502.        156.        105.        105.
                      (INCHES)    2.224       2.771       2.775       2.775
                       (AC-FT)    249.        310.        311.        311.

                       CUMULATIVE AREA =    2.10 SQ MI


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

              **************
              *            *
 59 KK        *      SB36  *
              *            *
              **************
                             RUNOFF FROM SB36

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

             SUBBASIN RUNOFF DATA

 62 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .87  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION
```

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

63 LS SCS LOSS RATE

STRTL	.35	INITIAL ABSTRACTION
CRVNBR	85.10	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

64 UK OVERLAND-FLOW ELEMENT NO. 1

L	1400.	OVERLAND FLOW LENGTH
S	.0200	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

65 RK MAIN CHANNEL

L	8000.	CHANNEL LENGTH
S	.0020	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.87	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	30.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	7.29	280.00	883.23	381.04	2.73	.64
3	.19	1.54	3.43	2000.00	4083.24	385.31	2.75	9.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= 310.814 EXCESS= 128.236 OUTFLOW= 435.783 BASIN STORAGE= .404 PERCENT ERROR= .652

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.19	1.54	15.00	3849.29	390.00	2.73

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

HYDROGRAPH AT STATION SB36

```
  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.57, TOTAL EXCESS =    2.76

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                         (CFS)
  3849.       6.50                678.        217.        146.        146.
                        (INCHES)   2.121       2.713       2.726       2.726
                         (AC-FT)   336.        430.        432.        432.

                         CUMULATIVE AREA =    2.97 SQ MI


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


          **************
          *            *
 66 KK    *     SB37   *
          *            *
          **************
                         RUNOFF FROM SB37

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

            SUBBASIN RUNOFF DATA

 69 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .45  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

 70 LS          SCS LOSS RATE
                     STRTL        .37  INITIAL ABSTRACTION
                    CRVNBR      84.50  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 71 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L      1200.  OVERLAND FLOW LENGTH
                         S      .1000  SLOPE
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                    N        .100  ROUGHNESS COEFFICIENT
                   PA       100.0  PERCENT OF SUBBASIN
                DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
RK            MAIN CHANNEL
                    L       4300.  CHANNEL LENGTH
                    S       .0100  SLOPE
                    N        .050  CHANNEL ROUGHNESS COEFFICIENT
                   CA         .45  CONTRIBUTING AREA
                SHAPE        TRAP  CHANNEL SHAPE
                   WD        3.00  BOTTOM WIDTH OR DIAMETER
                    Z        2.00  SIDE SLOPE
                DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
               RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                    ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
             ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO    VOLUME    MAXIMUM
                                                                          PEAK               CELERITY
                                            (MIN)      (FT)     (CFS)    (MIN)      (IN)      (FPS)

                1        4.71      1.67      2.29    240.00    994.38    359.33      2.71      1.74
                3        1.22      1.36      1.75   1075.00    892.76    362.79      2.71     10.22

ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   65.017 OUTFLOW=   64.978 BASIN STORAGE=     .006 PERCENT ERROR=     .051

                               INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                3        1.22      1.36     15.00              848.68    360.00      2.73

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

                  HYDROGRAPH AT STATION     SB37

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.62, TOTAL EXCESS =    2.71

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                     (CFS)
   849.      6.00                107.        33.         22.         22.
                   (INCHES)     2.202       2.722       2.726       2.726
                    (AC-FT)      53.         65.         65.         65.

                  CUMULATIVE AREA =     .45 SQ MI

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

        **************
        *            *
73 KK   *    CB3637  *
        *            *
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              **************
                             COMBINE SB36 AND SB37

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

  76 HC        HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION   CB3637

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
   (CFS)       (HR)
                          (CFS)
 +   4099.     6.50                 780.        250.        168.        168.
                         (INCHES)  2.120       2.714       2.726       2.726
                          (AC-FT)   387.        495.        497.        497.

                         CUMULATIVE AREA =    3.42 SQ MI


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


              **************
              *            *
  77 KK       *      SB31  *
              *            *
              **************
                             RUNOFF FROM SB31

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

             SUBBASIN RUNOFF DATA

  80 BA        SUBBASIN CHARACTERISTICS
                     TAREA         .72  SUBBASIN AREA

               PRECIPITATION DATA

  12 PB              STORM        4.33  BASIN TOTAL PRECIPITATION

  13 PI          INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .01       .00       .00       .00       .00       .00       .00       .00
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          .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

81 LS     SCS LOSS RATE
              STRTL        .33  INITIAL ABSTRACTION
             CRVNBR      86.00  CURVE NUMBER
              RTIMP        .00  PERCENT IMPERVIOUS AREA

          LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
              STRTL        .33  INITIAL ABSTRACTION
             CRVNBR      86.00  CURVE NUMBER
              RTIMP        .00  PERCENT IMPERVIOUS AREA

          KINEMATIC WAVE
82 UK       OVERLAND-FLOW ELEMENT NO. 1
                  L       600.  OVERLAND FLOW LENGTH
                  S      .0200  SLOPE
                  N       .150  ROUGHNESS COEFFICIENT
                 PA       10.0  PERCENT OF SUBBASIN
              DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
83 UK       OVERLAND-FLOW ELEMENT NO. 2
                  L       500.  OVERLAND FLOW LENGTH
                  S      .1000  SLOPE
                  N       .150  ROUGHNESS COEFFICIENT
                 PA       90.0  PERCENT OF SUBBASIN
              DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
84 RK       COLLECTOR CHANNEL
                  L     12400.  CHANNEL LENGTH
                  S      .0070  SLOPE
                  N       .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA        .65  CONTRIBUTING AREA
              SHAPE       TRAP  CHANNEL SHAPE
                 WD      20.00  BOTTOM WIDTH OR DIAMETER
                  Z       1.00  SIDE SLOPE
              DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
85 RK       COLLECTOR CHANNEL
                  L      1000.  CHANNEL LENGTH
                  S      .0600  SLOPE
                  N       .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA        .07  CONTRIBUTING AREA
              SHAPE       TRAP  CHANNEL SHAPE
                 WD       1.00  BOTTOM WIDTH OR DIAMETER
                  Z       1.00  SIDE SLOPE
              DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
86 RK       MAIN CHANNEL
                  L      2000.  CHANNEL LENGTH
                  S      .0030  SLOPE
                  N       .045  CHANNEL ROUGHNESS COEFFICIENT
                 CA        .72  CONTRIBUTING AREA
              SHAPE       TRAP  CHANNEL SHAPE
                 WD       3.00  BOTTOM WIDTH OR DIAMETER
                  Z       2.00  SIDE SLOPE
              DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
             RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                   ***
                          COMPUTED KINEMATIC PARAMETERS
```

VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	3.34	120.00	142.95	361.39	2.86	.60
2	3.14	1.67	1.65	100.00	1558.29	358.51	2.84	1.01
3	.43	1.54	4.84	3100.00	1151.69	371.50	2.82	10.68
4	3.69	1.33	.34	250.00	1109.57	371.32	2.82	12.12
5	.74	1.36	1.05	666.67	4644.04	391.77	2.74	10.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= 497.198 EXCESS= 109.319 OUTFLOW= 605.077 BASIN STORAGE= .164 PERCENT ERROR= .210

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.74	1.36	15.00	4409.11	390.00	2.73

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

HYDROGRAPH AT STATION SB31

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.48, TOTAL EXCESS = 2.85

	PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
			(CFS)				
+	4409.	6.50		944.	302.	204.	204.
			(INCHES)	2.121	2.715	2.727	2.727
			(AC-FT)	468.	599.	602.	602.

CUMULATIVE AREA = 4.14 SQ MI

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          **************
          *            *
 87 KK    *     SB39   *
          *            *
          **************
```

RUNOFF FROM SB39

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

            SUBBASIN RUNOFF DATA

 90 BA        SUBBASIN CHARACTERISTICS
                   TAREA        .11  SUBBASIN AREA
```

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

91 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.80	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

92 UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.1500	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

93 RK MAIN CHANNEL

L	3300.	CHANNEL LENGTH
S	.0200	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.11	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	5.77	1.67	1.15	100.00	259.27	359.22	2.73	1.44
3	2.21	1.36	.85	550.00	255.16	359.84	2.73	10.85

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 16.053 OUTFLOW= 16.012 BASIN STORAGE= .000 PERCENT ERROR= .250

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	2.21	1.36	15.00	254.89	360.00	2.81

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

HYDROGRAPH AT STATION SB39

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.59, TOTAL EXCESS = 2.74

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	35.75-HR
255.	6.00		27.	8.	6.	6.
		(INCHES)	2.319	2.808	2.809	2.809
		(AC-FT)	14.	16.	16.	16.

CUMULATIVE AREA = .11 SQ MI

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          **************
          *            *
95 KK     *     SB29   *
          *            *
          **************
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RUNOFF FROM SB29

97 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

98 BA SUBBASIN CHARACTERISTICS

TAREA	2.03	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

99 LS SCS LOSS RATE

STRTL	.33	INITIAL ABSTRACTION
CRVNBR	85.70	CURVE NUMBER
RTIMP	5.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

```
100 UK          OVERLAND-FLOW ELEMENT NO. 1
                       L      1500.  OVERLAND FLOW LENGTH
                       S      .0200  SLOPE
                       N       .200  ROUGHNESS COEFFICIENT
                      PA      100.0  PERCENT OF SUBBASIN
                   DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
101 RK          MAIN CHANNEL
                       L      9500.  CHANNEL LENGTH
                       S      .0070  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA       2.03  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD      30.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                   DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
                 ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                             PEAK                  CELERITY
                                                  (MIN)     (FT)     (CFS)    (MIN)      (IN)      (FPS)

                    1        1.05      1.67      9.67    300.00   1809.04   391.10      2.85       .52
                    3         .36      1.57      2.97   2375.00   1697.88   392.37      2.85     13.32

ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=  313.380 OUTFLOW=  308.072 BASIN STORAGE=     .400 PERCENT ERROR=    1.566

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    3         .36      1.57     15.00            1686.37   390.00      2.84

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

                     HYDROGRAPH AT STATION     SB29

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.44, TOTAL EXCESS =    2.89

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                       (CFS)
  1686.      6.50                475.        154.        104.        104.
                     (INCHES)    2.178       2.818       2.844       2.844
                      (AC-FT)     236.        305.        308.        308.

                     CUMULATIVE AREA =    2.03 SQ MI

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

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                *           *
103 KK          *     SB30  *
                *           *
                **************
                              RUNOFF FROM SB30

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

                    SUBBASIN RUNOFF DATA

106 BA                SUBBASIN CHARACTERISTICS
                            TAREA         .38  SUBBASIN AREA

                      PRECIPITATION DATA

 12 PB                      STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI                  INCREMENTAL PRECIPITATION PATTERN
                            .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                            .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                            .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                            .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                            .00       .00       .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

107 LS                SCS LOSS RATE
                            STRTL         .33  INITIAL ABSTRACTION
                           CRVNBR       85.90  CURVE NUMBER
                            RTIMP         .00  PERCENT IMPERVIOUS AREA

                      KINEMATIC WAVE
108 UK                  OVERLAND-FLOW ELEMENT NO. 1
                                L        700.  OVERLAND FLOW LENGTH
                                S       .0200  SLOPE
                                N        .150  ROUGHNESS COEFFICIENT
                               PA       100.0  PERCENT OF SUBBASIN
                            DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
109 RK                  MAIN CHANNEL
                                L       6300.  CHANNEL LENGTH
                                S       .0060  SLOPE
                                N        .045  CHANNEL ROUGHNESS COEFFICIENT
                               CA         .38  CONTRIBUTING AREA
                            SHAPE        TRAP  CHANNEL SHAPE
                               WD       30.00  BOTTOM WIDTH OR DIAMETER
                                Z        2.00  SIDE SLOPE
                            DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
                           RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                        ***
                                  COMPUTED KINEMATIC PARAMETERS
                                       VARIABLE TIME STEP
                                     (DT SHOWN IS A MINIMUM)
                      ELEMENT    ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
```

									PEAK		CELERITY
					(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
	1	1.40	1.67	3.86	140.00	691.41	360.58	2.82	.60
	3	.36	1.54	2.34	1575.00	1886.42	398.22	2.83	11.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= 307.893 EXCESS= 57.508 OUTFLOW= 363.877 BASIN STORAGE= .405 PERCENT ERROR= .306

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.36	1.54	15.00		1813.97	390.00	2.82

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

HYDROGRAPH AT STATION SB30

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.84

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
1814.	6.50		556.	181.	123.	123.
		(INCHES)	2.145	2.791	2.816	2.816
		(AC-FT)	276.	359.	362.	362.

CUMULATIVE AREA = 2.41 SQ MI

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          **************
          *            *
110 KK    *   SB3019   *
          *            *
          **************
```

COMBINE SB30, SB31 AND SB39

112 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

113 HC HYDROGRAPH COMBINATION

ICOMP	3	NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION SB3019

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR

```
 (CFS)       (HR)
                        (CFS)
 6268.       6.50                 1526.        491.        332.        332.
                     (INCHES)     2.130       2.744       2.761       2.761
                      (AC-FT)      757.        975.        981.        981.

                      CUMULATIVE AREA =    6.66 SQ MI
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            **************
            *            *
114 KK      *     SB40   *
            *            *
            **************
                          RUNOFF FROM SB40

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

              SUBBASIN RUNOFF DATA

117 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .10  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

118 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
                    CRVNBR       85.70  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
119 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        400.  OVERLAND FLOW LENGTH
                         S       .2000  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
120 RK            COLLECTOR CHANNEL
```

```
                    L        1200.  CHANNEL LENGTH
                    S        .1000  SLOPE
                    N         .050  CHANNEL ROUGHNESS COEFFICIENT
                   CA          .05  CONTRIBUTING AREA
                SHAPE         TRAP  CHANNEL SHAPE
                   WD         4.00  BOTTOM WIDTH OR DIAMETER
                    Z         2.00  SIDE SLOPE
                DXMIN            4  MINIMUM NUMBER OF DX INTERVALS
121 RK        MAIN CHANNEL
                    L        1800.  CHANNEL LENGTH
                    S        .0080  SLOPE
                    N         .045  CHANNEL ROUGHNESS COEFFICIENT
                   CA          .10  CONTRIBUTING AREA
                SHAPE         TRAP  CHANNEL SHAPE
                   WD        20.00  BOTTOM WIDTH OR DIAMETER
                    Z         2.00  SIDE SLOPE
                DXMIN            2  MINIMUM NUMBER OF DX INTERVALS
               RUPSTQ          YES  ROUTE UPSTREAM HYDROGRAPH
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COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.66	1.67	.91	80.00	242.83	359.21	2.81	1.46
3	3.62	1.38	.36	300.00	242.65	359.14	2.81	13.89
4	.55	1.51	.53	600.00	6300.07	390.99	2.76	19.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= 980.553 EXCESS= 15.035 OUTFLOW= 995.215 BASIN STORAGE= .114 PERCENT ERROR= .026

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

ELEMENT	ALPHA	M	DT	DX	PEAK	TIME TO PEAK	VOLUME
4	.55	1.51	15.00		6165.06	390.00	2.77

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

HYDROGRAPH AT STATION SB40

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.51, TOTAL EXCESS = 2.82

PEAK FLOW + (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
6165.	6.50		1551.	500.	338.	338.
		(INCHES)	2.133	2.752	2.768	2.768
		(AC-FT)	769.	992.	998.	998.

CUMULATIVE AREA = 6.76 SQ MI

*** ***

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              **************
              *            *
KK            *     SB28   *
              *            *
              **************
                        READ SB28 FROM TAPE 21

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

125 BI          READ STATION     SB28 HYDROGRAPH FROM UNIT 21

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

                     HYDROGRAPH AT STATION     SB28

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                        (CFS)
+ 19829.      6.25                 4743.       1531.       1082.       1082.
                      (INCHES)     2.221       2.868       3.018       3.018
                       (AC-FT)     2352.       3037.       3196.       3196.

                      CUMULATIVE AREA =   19.85 SQ MI

                                                          ***

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

              **************
              *            *
126 KK        *    CB2840  *
              *            *
              **************
                        COMBINE SB28 AND SB40

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

129 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                     HYDROGRAPH AT STATION   CB2840

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
```

```
                                  6-HR       24-HR      72-HR     35.75-HR
+   (CFS)       (HR)
                          (CFS)
    5687.       6.50                6294.      2031.      1420.       1420.
                          (INCHES)  2.199      2.838      2.955       2.955
                           (AC-FT)  3121.      4029.      4194.       4194.

                           CUMULATIVE AREA =   26.61 SQ MI


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


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          *            *
130 KK    *      SB41  *
          *            *
          **************
                         RUNOFF FROM SB41

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

             SUBBASIN RUNOFF DATA

133 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .30  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

134 LS          SCS LOSS RATE
                      STRTL         .44  INITIAL ABSTRACTION
                     CRVNBR       81.90  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
135 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L        500.  OVERLAND FLOW LENGTH
                          S       .0200  SLOPE
                          N        .100  ROUGHNESS COEFFICIENT
                         PA       100.0  PERCENT OF SUBBASIN
                      DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
```

136 RK COLLECTOR CHANNEL

L	2600.	CHANNEL LENGTH
S	.0030	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.05	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS

137 RK MAIN CHANNEL

L	2500.	CHANNEL LENGTH
S	.0040	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.30	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	20.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	2.60	100.00	479.06	361.26	2.33	.79
3	.66	1.40	3.07	650.00	367.49	368.54	2.32	3.53
4	.36	1.54	.49	833.33	25865.71	390.99	2.94	28.49

ONTINUITY SUMMARY (AC-FT) - INFLOW= 4194.008 EXCESS= 39.660 OUTFLOW= 4226.285 BASIN STORAGE= 2.847 PERCENT ERROR= .107

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.36	1.54	15.00	25752.52	390.00	2.95

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

HYDROGRAPH AT STATION SB41

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.85, TOTAL EXCESS = 2.48

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
25753.	6.50		6366.	2054.	1435.	1435.
		(INCHES)	2.199	2.838	2.953	2.953
		(AC-FT)	3157.	4074.	4239.	4239.

CUMULATIVE AREA = 26.91 SQ MI

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

                **************
                *            *
138 KK          *     SB42   *
                *            *
                **************
                              RUNOFF FROM SB42

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

                   SUBBASIN RUNOFF DATA

141 BA                SUBBASIN CHARACTERISTICS
                            TAREA         .59  SUBBASIN AREA

                      PRECIPITATION DATA

 12 PB                      STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI                  INCREMENTAL PRECIPITATION PATTERN
                            .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                            .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                            .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                            .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                            .00       .00       .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

142 LS                SCS LOSS RATE
                            STRTL         .36  INITIAL ABSTRACTION
                           CRVNBR       84.80  CURVE NUMBER
                            RTIMP         .00  PERCENT IMPERVIOUS AREA

                      KINEMATIC WAVE
143 UK                  OVERLAND-FLOW ELEMENT NO. 1
                                  L       400.  OVERLAND FLOW LENGTH
                                  S      .0500  SLOPE
                                  N       .150  ROUGHNESS COEFFICIENT
                                 PA      100.0  PERCENT OF SUBBASIN
                             DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
144 RK                  COLLECTOR CHANNEL
                                  L      2500.  CHANNEL LENGTH
                                  S      .0300  SLOPE
                                  N       .050  CHANNEL ROUGHNESS COEFFICIENT
                                 CA        .07  CONTRIBUTING AREA
                              SHAPE       TRAP  CHANNEL SHAPE
                                 WD       2.00  BOTTOM WIDTH OR DIAMETER
                                  Z       1.00  SIDE SLOPE
                             DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
145 RK                  MAIN CHANNEL
                                  L      6200.  CHANNEL LENGTH
                                  S      .0100  SLOPE
```

```
                N        .045  CHANNEL ROUGHNESS COEFFICIENT
               CA         .59  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD       30.00  BOTTOM WIDTH OR DIAMETER
                Z        1.00  SIDE SLOPE
            DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                       PEAK                  CELERITY
                                             (MIN)     (FT)     (CFS)    (MIN)      (IN)      (FPS)

              1       2.22      1.67      1.81     80.00   1368.39    359.58      2.74       .74
              3       2.44      1.36      1.00    625.00   1316.09    359.72      2.74     10.42
              4        .43      1.57      1.98   1550.00   1205.48    365.07      2.73     13.08


CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   86.102 OUTFLOW=   85.928 BASIN STORAGE=     .026 PERCENT ERROR=     .172


                              INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL


              4        .43      1.57     15.00             989.54    360.00      2.76

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

                 HYDROGRAPH AT STATION     SB42

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.59, TOTAL EXCESS =    2.74

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                        (CFS)
   990.       6.00                141.        44.         29.         29.
                       (INCHES)   2.220      2.752       2.756       2.756
                       (AC-FT)     70.        87.         87.         87.

                       CUMULATIVE AREA =     .59 SQ MI


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


          **************
          *            *
147 KK    *    CB4142  *
          *            *
          **************
                 COMBINE SB41 AND SB42

149 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           3  PRINT CONTROL
```

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

    HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                      HYDROGRAPH AT STATION   CB4142

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                 6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
  26115.      6.50               6507.       2098.       1464.       1464.
                     (INCHES)    2.200       2.836       2.949       2.949
                      (AC-FT)    3227.       4160.       4326.       4326.

                     CUMULATIVE AREA =   27.50 SQ MI
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          **************
          *            *
151 KK    *      SB43  *
          *            *
          **************
                      RUNOFF FROM SB43

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

            SUBBASIN RUNOFF DATA

154 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .66  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB              STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                    .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                    .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                    .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                    .00      .00      .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
```

```
155 LS        SCS LOSS RATE
                   STRTL        .41  INITIAL ABSTRACTION
                  CRVNBR      83.00  CURVE NUMBER
                   RTIMP        .00  PERCENT IMPERVIOUS AREA

              LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                   STRTL        .41  INITIAL ABSTRACTION
                  CRVNBR      83.00  CURVE NUMBER
                   RTIMP        .00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
156 UK        OVERLAND-FLOW ELEMENT NO. 1
                       L       200.  OVERLAND FLOW LENGTH
                       S      .3000  SLOPE
                       N       .150  ROUGHNESS COEFFICIENT
                      PA       70.0  PERCENT OF SUBBASIN
                  DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
157 UK        OVERLAND-FLOW ELEMENT NO. 2
                       L       300.  OVERLAND FLOW LENGTH
                       S      .0100  SLOPE
                       N       .150  ROUGHNESS COEFFICIENT
                      PA       30.0  PERCENT OF SUBBASIN
                  DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
158 RK        COLLECTOR CHANNEL
                       L      2500.  CHANNEL LENGTH
                       S      .0700  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .05  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       1.00  BOTTOM WIDTH OR DIAMETER
                       Z       2.00  SIDE SLOPE
                  DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
159 RK        COLLECTOR CHANNEL
                       L      3000.  CHANNEL LENGTH
                       S      .0070  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .07  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       3.00  BOTTOM WIDTH OR DIAMETER
                       Z       2.00  SIDE SLOPE
                  DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
160 RK        MAIN CHANNEL
                       L      4500.  CHANNEL LENGTH
                       S      .0060  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .66  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD      40.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                  DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
                 RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                           (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA      M        DT       DX      PEAK   TIME TO    VOLUME   MAXIMUM
                                                                    PEAK             CELERITY
                                          (MIN)    (FT)    (CFS)   (MIN)     (IN)     (FPS)
```

1	5.44	1.67	.70	40.00	1034.48	359.31	2.57	.95
2	.99	1.67	2.67	60.00	397.56	360.09	2.56	.37
3	3.60	1.34	.87	625.00	1392.30	360.37	2.57	11.94
4	1.02	1.36	2.32	750.00	1270.97	363.70	2.56	5.39
5	.27	1.59	.81	1500.00	26421.66	391.70	2.94	30.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4325.649 EXCESS= 90.636 OUTFLOW= 4409.535 BASIN STORAGE= 5.455 PERCENT ERROR= .029

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.27	1.59	15.00	26256.02	390.00	2.94

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

HYDROGRAPH AT STATION SB43

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.75, TOTAL EXCESS = 2.58

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
26256.	6.50		6666.	2146.	1496.	1496.
		(INCHES)	2.200	2.833	2.943	2.943
		(AC-FT)	3305.	4256.	4421.	4421.

CUMULATIVE AREA = 28.16 SQ MI

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          **************
          *            *
161 KK    *      SB44  *
          *            *
          **************
```

RUNOFF FROM SB44

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

            SUBBASIN RUNOFF DATA

164 BA        SUBBASIN CHARACTERISTICS
                   TAREA       4.39  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB             STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

```
165 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      85.80  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
166 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       500.  OVERLAND FLOW LENGTH
                         S      .0200  SLOPE
                         N       .150  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                     DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
167 RK            COLLECTOR CHANNEL
                         L     30000.  CHANNEL LENGTH
                         S      .0100  SLOPE
                         N       .100  CHANNEL ROUGHNESS COEFFICIENT
                        CA       1.10  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD      20.00  BOTTOM WIDTH OR DIAMETER
                         Z       2.00  SIDE SLOPE
                     DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
168 RK            MAIN CHANNEL
                         L      1000.  CHANNEL LENGTH
                         S      .0100  SLOPE
                         N       .045  CHANNEL ROUGHNESS COEFFICIENT
                        CA       4.39  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD     100.00  BOTTOM WIDTH OR DIAMETER
                         Z       1.00  SIDE SLOPE
                     DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
                    RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH
```

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	2.88	100.00	9159.03	361.26	2.81	.58
3	.28	1.51	15.00	5000.00	2223.99	452.02	2.78	5.41
4	.17	1.63	.35	250.00	2202.88	443.67	2.77	12.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 662.190 OUTFLOW= 649.143 BASIN STORAGE= 4.079 PERCENT ERROR= 1.354

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    4        .17      1.63      15.00            2202.81    450.00      2.80

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

                     HYDROGRAPH AT STATION     SB44

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.50, TOTAL EXCESS =    2.83

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                       (CFS)
+   2203.     7.50                966.        326.        222.        222.
                     (INCHES)    2.046       2.759       2.799       2.799
                     (AC-FT)     479.        646.        655.        655.

                     CUMULATIVE AREA =    4.39 SQ MI


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


          **************
          *            *
170 KK    *    CB4344  *
          *            *
          **************
                       COMBINE SB43 AND SB44

172 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           3  PRINT CONTROL
                     IPLOT           2  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

173 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

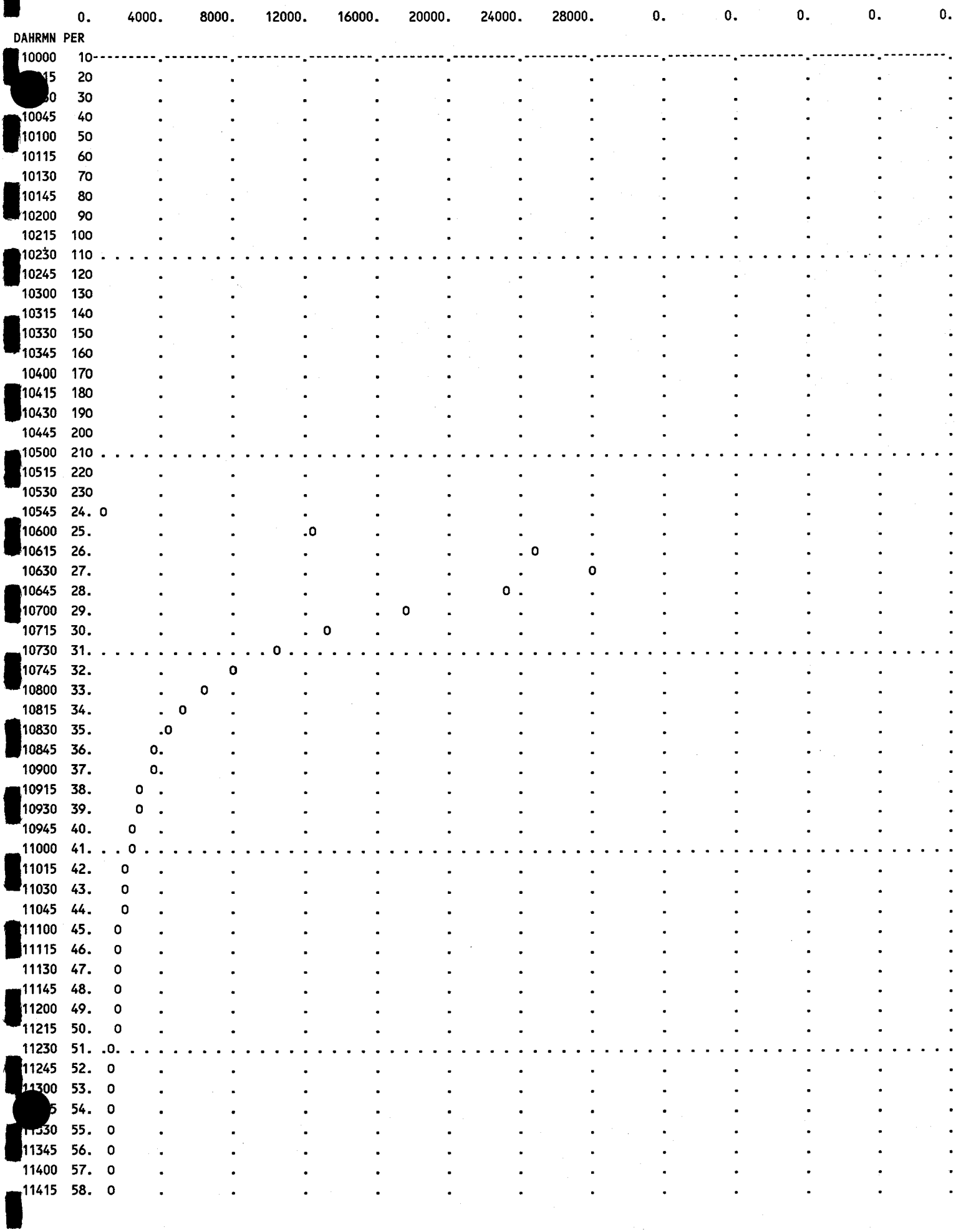
                     HYDROGRAPH AT STATION   CB4344

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                       (CFS)
+  27884.     6.50                7632.       2471.       1718.       1718.
                     (INCHES)    2.180       2.823       2.924       2.924
                     (AC-FT)     3784.       4902.       5077.       5077.

                     CUMULATIVE AREA =   32.56 SQ MI

                                                     STATION   CB4344

                     (O) OUTFLOW
```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DAHRMN PER
10000 10
10015 20
10030 30
10045 40
10100 50
10115 60
10130 70
10145 80
10200 90
10215 100
10230 110
10245 120
10300 130
10315 140
10330 150
10345 160
10400 170
10415 180
10430 190
10445 200
10500 210
10515 220
10530 230
10545 24.
10600 25.
10615 26.
10630 27.
10645 28.
10700 29.
10715 30.
10730 31.
10745 32.
10800 33.
10815 34.
10830 35.
10845 36.
10900 37.
10915 38.
10930 39.
10945 40.
11000 41.
11015 42.
11030 43.
11045 44.
11100 45.
11115 46.
11130 47.
11145 48.
11200 49.
11215 50.
11230 51.
11245 52.
11300 53.
11315 54.
11330 55.
11345 56.
11400 57.
11415 58.

11430 59. 0
11445 60. 0
11500 61. .0.
[illegible]15 62. 0
[illegible]0 63. 0
11545 64. 0
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11615 66. 0
11630 67. 0
11645 68. 0
11700 69. 0
11715 70. 0
11730 71. 0
11745 72. 0
11800 73. 0
11815 74. 0
11830 75. 0
11845 76. 0
11900 77. 0
11915 78. 0
11930 79. 0
11945 80. 0
12000 81. 0
12015 82. 0
12030 83. 0
12045 84. 0
12100 85. 0
12115 86. 0
12130 87. 0
12145 88.0
12200 89.0
12215 90.0
12230 91.0.
12245 92.0
12300 93.0
12315 94.0
12330 95.0
12345 96.0
20000 97.0
20015 98.0
20030 99.0
20045 100.0
20100 101.0.
20115 102.0
20130 103.0
20145 104.0
20200 105.0
20215 106.0
20230 107.0
20245 108.0
20300 109.0
20315 110.0
20330 111.0.
20345 112.0
20400 113.0
[illegible]5 114.0
20430 115.0
20445 116.0
20500 117.0
20515 118.0

```
20530 119.0      .         .         .         .         .         .         .         .         .         .         .         .
20545 120.0      .         .         .         .         .         .         .         .         .         .         .         .
20600 121.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
[illegible]15 122.0      .         .         .         .         .         .         .         .         .         .         .         .
[illegible]0 123.0       .         .         .         .         .         .         .         .         .         .         .         .
20645 124.0      .         .         .         .         .         .         .         .         .         .         .         .
20700 125.0      .         .         .         .         .         .         .         .         .         .         .         .
20715 126.0      .         .         .         .         .         .         .         .         .         .         .         .
20730 127.0      .         .         .         .         .         .         .         .         .         .         .         .
20745 128.0      .         .         .         .         .         .         .         .         .         .         .         .
20800 129.0      .         .         .         .         .         .         .         .         .         .         .         .
20815 130.0      .         .         .         .         .         .         .         .         .         .         .         .
20830 131.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20845 132.0      .         .         .         .         .         .         .         .         .         .         .         .
20900 133.0      .         .         .         .         .         .         .         .         .         .         .         .
20915 134.0      .         .         .         .         .         .         .         .         .         .         .         .
20930 135.0      .         .         .         .         .         .         .         .         .         .         .         .
20945 136.0      .         .         .         .         .         .         .         .         .         .         .         .
21000 137.0      .         .         .         .         .         .         .         .         .         .         .         .
21015 138.0      .         .         .         .         .         .         .         .         .         .         .         .
21030 139.0      .         .         .         .         .         .         .         .         .         .         .         .
21045 140.0      .         .         .         .         .         .         .         .         .         .         .         .
21100 141.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
21115 142.0      .         .         .         .         .         .         .         .         .         .         .         .
21130 143.0      .         .         .         .         .         .         .         .         .         .         .         .
21145 144.0--------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
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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	SB32	464.	6.00	49.	15.	10.	.20		
HYDROGRAPH AT	SB33	1424.	6.00	214.	66.	44.	.89		
HYDROGRAPH AT	SB35A	2392.	6.25	358.	111.	75.	1.50		
HYDROGRAPH AT	SB34	775.	6.00	88.	27.	18.	.36		
HYDROGRAPH AT	SB35B	964.	6.25	145.	45.	30.	.60		
2 COMBINED AT +	CB35AB	3356.	6.25	502.	156.	105.	2.10		
HYDROGRAPH AT	SB36	3849.	6.50	678.	217.	146.	2.97		
HYDROGRAPH AT +	SB37	849.	6.00	107.	33.	22.	.45		

2 COMBINED AT							
+	CB3637	4099.	6.50	780.	250.	168.	3.42
HYDROGRAPH AT							
+	SB31	4409.	6.50	944.	302.	204.	4.14
HYDROGRAPH AT							
+	SB39	255.	6.00	27.	8.	6.	.11
HYDROGRAPH AT							
	SB29	1686.	6.50	475.	154.	104.	2.03
HYDROGRAPH AT							
	SB30	1814.	6.50	556.	181.	123.	2.41
3 COMBINED AT							
	SB3019	6268.	6.50	1526.	491.	332.	6.66
HYDROGRAPH AT							
	SB40	6165.	6.50	1551.	500.	338.	6.76
HYDROGRAPH AT							
	SB28	19829.	6.25	4743.	1531.	1082.	19.85
2 COMBINED AT							
+	CB2840	25687.	6.50	6294.	2031.	1420.	26.61
HYDROGRAPH AT							
+	SB41	25753.	6.50	6366.	2054.	1435.	26.91
HYDROGRAPH AT							
+	SB42	990.	6.00	141.	44.	29.	.59
2 COMBINED AT							
	CB4142	26115.	6.50	6507.	2098.	1464.	27.50
HYDROGRAPH AT							
	SB43	26256.	6.50	6666.	2146.	1496.	28.16
HYDROGRAPH AT							
	SB44	2203.	7.50	966.	326.	222.	4.39
2 COMBINED AT							
	CB4344	27884.	6.50	7632.	2471.	1718.	32.56

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
SB32	4	.82	464.72	358.96	2.68	15.00	463.75	360.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 28.607 OUTFLOW= 28.555 BASIN STORAGE= .000 PERCENT ERROR= .182

SB33	5	.67	1704.69	364.77	2.73	15.00	1424.38	360.00	2.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= 29.100 EXCESS= 100.361 OUTFLOW= 129.583 BASIN STORAGE= .009 PERCENT ERROR= -.102

SB35A	4	3.71	2409.26	374.60	2.78	15.00	2392.17	375.00	2.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= 130.114 EXCESS= 92.694 OUTFLOW= 222.346 BASIN STORAGE= .053 PERCENT ERROR= .184

SB34	3	1.19	786.50	361.05	2.76	15.00	775.49	360.00	2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 53.239 OUTFLOW= 53.010 BASIN STORAGE= .004 PERCENT ERROR= .425

SB35B	3	3.11	1191.68	369.22	2.84	15.00	964.21	375.00	2.80

CONTINUITY SUMMARY (AC-FT) - INFLOW= 53.381 EXCESS= 36.440 OUTFLOW= 90.826 BASIN STORAGE= .027 PERCENT ERROR= -1.150

SB36	3	3.43	4083.24	385.31	2.75	15.00	3849.29	390.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= 310.814 EXCESS= 128.236 OUTFLOW= 435.783 BASIN STORAGE= .404 PERCENT ERROR= .652

SB37	3	1.75	892.76	362.79	2.71	15.00	848.68	360.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 65.017 OUTFLOW= 64.978 BASIN STORAGE= .006 PERCENT ERROR= .051

SB31	5	1.05	4644.04	391.77	2.74	15.00	4409.11	390.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= 497.198 EXCESS= 109.319 OUTFLOW= 605.077 BASIN STORAGE= .164 PERCENT ERROR= .210

SB39	3	.85	255.16	359.84	2.73	15.00	254.89	360.00	2.81

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 16.053 OUTFLOW= 16.012 BASIN STORAGE= .000 PERCENT ERROR= .250

SB29	3	2.97	1697.88	392.37	2.85	15.00	1686.37	390.00	2.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 313.380 OUTFLOW= 308.072 BASIN STORAGE= .400 PERCENT ERROR= 1.566

SB30	3	2.34	1886.42	398.22	2.83	15.00	1813.97	390.00	2.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= 307.893 EXCESS= 57.508 OUTFLOW= 363.877 BASIN STORAGE= .405 PERCENT ERROR= .306

SB40	4	.53	6300.07	390.99	2.76	15.00	6165.06	390.00	2.77

CONTINUITY SUMMARY (AC-FT) - INFLOW= 980.553 EXCESS= 15.035 OUTFLOW= 995.215 BASIN STORAGE= .114 PERCENT ERROR= .026

SB41	4	.49	25865.71	390.99	2.94	15.00	25752.52	390.00	2.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4194.008 EXCESS= 39.660 OUTFLOW= 4226.285 BASIN STORAGE= 2.847 PERCENT ERROR= .107

SB42	4	1.98	1205.48	365.07	2.73	15.00	989.54	360.00	2.76

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   86.102 OUTFLOW=   85.928 BASIN STORAGE=     .026 PERCENT ERROR=     .172

          SB43      5         .81  26421.66    391.70      2.94     15.00  26256.02    390.00        2.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4325.649 EXCESS=   90.636 OUTFLOW= 4409.535 BASIN STORAGE=    5.455 PERCENT ERROR=     .029

          SB44      4         .35   2202.88    443.67      2.77     15.00   2202.81    450.00        2.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  662.190 OUTFLOW=  649.143 BASIN STORAGE=    4.079 PERCENT ERROR=    1.354


*** NORMAL END OF HEC-1 ***
```

CASE 2
LOWER WATERSHED MODEL

```
*****************************************
*                                       *
  FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *
         FEBRUARY 1981                  *
       REVISED 01 JUN 88                *
                                        *
  RUN DATE  09/13/1990  TIME  15:17:48  *
                                        *
*****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748             *
*                                      *
****************************************
```

```
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. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

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

  1           ID   DEADMAN'S WASH - CASE 2 - 100 YEAR, 24 HOUR DESIGN STORM
  2           ID   FUTURE CONDITIONS - LOWER WATERSHED
  3           ID   KINEMATIC WAVE ROUTING
  4           IT      15                    144
  5           IO       3       0
  6           IN      30

  7           KK    SB32
  8           KM   RUNOFF FROM SB32
  9           KO
 10           BA     .20
 11           LS       0    84.2      20
 12           PB    4.33
 13           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 14           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
 15           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
 16           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
 17           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
 18           UK    200.     .50     .15     100
 19           RK   1200.     .25     .05     .03    TRAP             1
 20           RK   2600.     .04    .045            TRAP       4     1
```

```
 21          KK    SB33
 22          KM   RUNOFF FROM SB33
 23          KO
 24          BA     .69
 25          LS       0    84.7      38       0    84.7      38
 26          UK    200.     .40     .15      50
 27          UK    400.     .16     .15      50
 28          RK   3000.     .20     .10     .08    TRAP       2       1
 29          RK   7500.     .08     .10     .07    TRAP       1       1
 30          RK   2200.    .011    .045            TRAP       4       2     YES
 31          DX       5       5       4       4       4

 32          KK   SB35A
 33          KM   RUNOFF FROM SB35A
 34          KO
 35          BA     .61
 36          LS       0    85.7      54
 37          UK    500.     .02     .15     100
 38          RK   2500.     .01     .05     .15    TRAP       1       1
 39          RK   1100.    .007    .045            TRAP       4       2     YES
 40          DX       5               4       4

 41          KK    SB34
 42          KM   RUNOFF FROM SB34
 43          KO
 44          BA     .36
 45          LS       0    85.2      65
 46          UK    500.     .05     .15     100
 47          RK   4200.    .017    .045            TRAP       4       1
```



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

 48          KK   SB35B
 49          KM   RUNOFF FROM SB35B
 50          KO
 51          BA     .24
 52          LS       0    86.0      86
 53          UK    500.     .02     .10     100
 54          RK   8000.    .007    .045            TRAP      10       2     YES

 55          KK  CB35AB
 56          KM   COMBINE SB35A AND SB35B
 57          KO
 58          HC       2

 59          KK    SB36
 60          KM   RUNOFF FROM SB36
 61          KO
 62          BA     .87
 63          LS       0    85.1      51
 64          UK   1400.     .02     .15     100
 65          RK  19000.    .002     .05            TRAP      30       2     YES

 66          KK    SB37
 67          KM   RUNOFF FROM SB37
 68          KO
 69          BA     .45
 70          LS       0    84.5      35
```

```
 71          UK   1200.     .10     .10     100
 72          RK   4300.     .01     .05             TRAP      3       2

 73          KK  CB3637
 74          KM   COMBINE SB36 AND SB37
 75          KO
 76          HC       2

 77          KK    SB31
 78          KM   RUNOFF FROM SB31
 79          KO
 80          BA     .72
 81          LS       0    86.0      54       0    86.0      54
 82          UK    600.     .02     .15      10
 83          UK    500.     .10     .15      90
 84          RK  12400.    .007     .05     .65    TRAP      20       1
 85          RK   1000.     .06     .05     .07    TRAP       1       1
 86          RK   2000.    .003    .045             TRAP       3       2     YES

 87          KK    SB39
 88          KM   RUNOFF FROM SB39
 89          KO
 90          BA     .11
 91          LS       0    84.8      27
 92          UK    500.     .15     .10     100
 93          RK   3300.     .02    .045             TRAP       2       1
 94          DX       5              6
                                       HEC-1 INPUT                                          PAGE  3

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


 95          KK    SB29
 96          KM   RUNOFF FROM SB29
 97          KO              1
 98          BA    2.03
 99          LS       0    85.7      31
100          UK   1500.     .02     .20     100
101          RK   9500.    .007    .045             TRAP      30       1
102          DX       5              4

103          KK    SB30
104          KM   RUNOFF FROM SB30
105          KO
106          BA     .38
107          LS       0    85.9      43
108          UK    700.     .02     .15     100
109          RK   6300.    .006    .045             TRAP      30       2     YES

110          KK  CB3019
111          KM   COMBINE SB30, SB31 AND SB39
112          KO
113          HC       3

114          KK    SB40
115          KM   RUNOFF FROM SB40
116          KO
117          BA     .10
118          LS       0    85.7      24
119          UK    400.     .20     .10     100
```

```
120          RK   1200.     .10     .05     .05    TRAP      4       2
121          RK   1800.    .008    .045            TRAP     20       2     YES

122          KK    SB28
123          KM   READ SB28 (FROM TAPE 22)
124          KO
125          BI    SB28      22

126          KK  CB4028
127          KM   COMBINE SB40 AND SB28
128          KO
129          HC       2

130          KK    SB41
131          KM   RUNOFF FROM SB41
132          KO
133          BA     .30
134          LS       0    81.9      30
135          UK    500.     .02     .10     100
136          RK   2600.    .003     .05     .05    TRAP      4       1
137          RK   2500.    .004    .045            TRAP     20       1     YES
1                                          HEC-1 INPUT                                                    PAGE  4

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


138          KK    SB42
139          KM   RUNOFF FROM SB42
140          KO
141          BA     .59
142          LS       0    84.8      36
143          UK    400.     .05     .15     100
144          RK   2500.     .03     .05     .07    TRAP      2       1
145          RK   6200.     .01    .045            TRAP     30       1
146          DX       6              6       6

147          KK  CB4142
148          KM   COMBINE SB41 AND SB42
149          KO
150          HC       2

151          KK    SB43
152          KM   RUNOFF FROM SB43
153          KO
154          BA     .66
155          LS       0    83.0      98       0    83.0     98
156          UK    200.     .30     .15      70
157          UK    300.     .01     .15      30
158          RK   2500.     .07     .05     .05    TRAP      1       2
159          RK   3000.    .007     .05     .07    TRAP      3       2
160          RK   4500.    .006    .045            TRAP     40       1     YES

161          KK    SB44
162          KM   RUNOFF FROM SB44
163          KO
164          BA    4.39
165          LS       0    85.8      31
166          UK    500.     .02     .15     100
167          RK  30000.     .01     .10     1.1    TRAP     20       2
168          RK   1000.     .01    .045            TRAP    100       1
```

```
169          DX      5              6      4

170          KK  CB4344
171          KM   COMBINE SB43 AND SB44
172          KO              2
173          HC      2
174          ZZ
1*****************************************
*                                       *
 FLOOD HYDROGRAPH PACKAGE  (HEC-1)      *
          FEBRUARY 1981                 *
*        REVISED 01 JUN 88              *
                                        *
 RUN DATE  09/13/1990  TIME  15:17:48 *
*                                       *
*****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748             *
*                                      *
****************************************
```

```
                    DEADMAN'S WASH - CASE 2 - 100 YEAR, 24 HOUR DESIGN STORM
                    FUTURE CONDITIONS - LOWER WATERSHED
                    KINEMATIC WAVE ROUTING

5 IO          OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  IT          HYDROGRAPH TIME DATA
                     NMIN         15  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        144  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2    0  ENDING DATE
                   NDTIME       1145  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .25 HOURS
                   TOTAL TIME BASE   35.75 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


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


         **************
         *            *
7 KK     *      SB32  *
         *            *
```

```
**************
              RUNOFF FROM SB32

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

 6 IN     TIME DATA FOR INPUT TIME SERIES
               JXMIN         30  TIME INTERVAL IN MINUTES
              JXDATE      1    0  STARTING DATE
              JXTIME           0  STARTING TIME

         SUBBASIN RUNOFF DATA

10 BA     SUBBASIN CHARACTERISTICS
               TAREA        .20  SUBBASIN AREA

          PRECIPITATION DATA

12 PB          STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI       INCREMENTAL PRECIPITATION PATTERN
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
              .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
              .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
              .00       .00       .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

11 LS     SCS LOSS RATE
               STRTL        .38  INITIAL ABSTRACTION
              CRVNBR      84.20  CURVE NUMBER
               RTIMP      20.00  PERCENT IMPERVIOUS AREA

          KINEMATIC WAVE
18 UK       OVERLAND-FLOW ELEMENT NO. 1
                  L       200.  OVERLAND FLOW LENGTH
                  S      .5000  SLOPE
                  N       .150  ROUGHNESS COEFFICIENT
                 PA      100.0  PERCENT OF SUBBASIN
              DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
19 RK       COLLECTOR CHANNEL
                  L      1200.  CHANNEL LENGTH
                  S      .2500  SLOPE
                  N       .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA        .03  CONTRIBUTING AREA
              SHAPE       TRAP  CHANNEL SHAPE
                 WD        .00  BOTTOM WIDTH OR DIAMETER
                  Z       1.00  SIDE SLOPE
              DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
RK          MAIN CHANNEL
                  L      2600.  CHANNEL LENGTH
                  S      .0400  SLOPE
                  N       .045  CHANNEL ROUGHNESS COEFFICIENT
                 CA        .20  CONTRIBUTING AREA
```

```
                SHAPE        TRAP  CHANNEL SHAPE
                   WD        4.00  BOTTOM WIDTH OR DIAMETER
                    Z        1.00  SIDE SLOPE
                DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
                RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
            ELEMENT    ALPHA      M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                       PEAK                  CELERITY
                                          (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

                1       7.02     1.67       .58     40.00    497.16   358.86       3.01       1.15
                3       7.46     1.33       .35    400.00    497.17   359.19       3.01      18.97
                4       2.67     1.40       .81    866.67    497.02   359.50       3.01      17.87

ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   32.122 OUTFLOW=   32.084 BASIN STORAGE=     .000 PERCENT ERROR=     .120

                                 INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                4       2.67     1.40     15.00              496.35   360.00       3.04

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

                 HYDROGRAPH AT STATION     SB32

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.32, TOTAL EXCESS =    3.01

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
  496.      6.00                   54.         16.         11.         11.
                      (INCHES)    2.507       3.039       3.043       3.043
                      (AC-FT)      27.         32.         32.         32.

                      CUMULATIVE AREA =     .20 SQ MI


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


          **************
          *            *
 21 KK    *      SB33  *
          *            *
          **************
                         RUNOFF FROM SB33

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

SUBBASIN RUNOFF DATA

BA SUBBASIN CHARACTERISTICS

TAREA	.69	SUBBASIN AREA

PRECIPITATION DATA

12 PB	STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

25 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.70	CURVE NUMBER
RTIMP	38.00	PERCENT IMPERVIOUS AREA

LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.70	CURVE NUMBER
RTIMP	38.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

26 UK OVERLAND-FLOW ELEMENT NO. 1

L	200.	OVERLAND FLOW LENGTH
S	.4000	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	50.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

27 UK OVERLAND-FLOW ELEMENT NO. 2

L	400.	OVERLAND FLOW LENGTH
S	.1600	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	50.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

28 RK COLLECTOR CHANNEL

L	3000.	CHANNEL LENGTH
S	.2000	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.08	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS

29 RK COLLECTOR CHANNEL

L	7500.	CHANNEL LENGTH
S	.0800	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.07	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE

WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS

RK MAIN CHANNEL

L	2200.	CHANNEL LENGTH
S	.0110	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.69	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.28	1.67	.60	40.00	915.08	359.88	3.33	1.10
2	3.97	1.67	1.21	80.00	912.62	359.27	3.33	1.11
3	3.15	1.36	.92	750.00	1821.85	359.14	3.33	13.63
4	2.13	1.33	3.51	1875.00	1680.94	362.84	3.34	8.90
5	1.34	1.38	.63	550.00	2095.67	362.60	3.27	14.54

ONTINUITY SUMMARY (AC-FT) - INFLOW= 32.463 EXCESS= 122.771 OUTFLOW= 155.412 BASIN STORAGE= .009 PERCENT ERROR= -.121

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	1.34	1.38	15.00	1953.01	360.00	3.28

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

HYDROGRAPH AT STATION SB33

TOTAL RAINFALL = 4.33, TOTAL LOSS = .99, TOTAL EXCESS = 3.34

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
1953.	6.00	(CFS)	257.	78.	53.	53.
		(INCHES)	2.687	3.266	3.276	3.276
		(AC-FT)	128.	155.	156.	156.

CUMULATIVE AREA = .89 SQ MI

*** ***

****

```
119          KK    SB41
120          KM   RUNOFF FROM SB41
121          KO
122          BA     .30
123          LS       0    81.9
124          UK    500.     .02     .10     100
125          RK   2600.    .003     .05     .05    TRAP      2       1
126          RK   2500.    .004    .045            TRAP     20       4     YES

127          KK    SB42
128          KM   RUNOFF FROM SB42
129          KO
130          BA     .59
131          LS       0    84.8
132          UK    400.     .05     .15     100
133          RK   1760.     .01    .012     .07    CIRC     2.5
134          RK   6200.     .01     .05            TRAP     80       4

135          KK  CB4142
136          KM   COMBINE SB41 AND SB42
137          KO
138          HC       2
```



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


139          KK    SB43
140          KM   RUNOFF FROM SB43
141          KO
142          BA     .66
143          LS       0    83.0              0    83.0
144          UK    200.     .30     .15      70
145          UK    300.     .01     .15      30
146          RK   1450.    .006    .012     .10    2.25
147          RK   4500.    .006    .045            TRAP     40       4     YES

148          KK    SB44
149          KM   RUNOFF FROM SB44
150          KO
151          BA    1.10
152          LS       0    86.0
153          UK    500.     .02     .15     100
154          RK   2433.    .006    .012     .20    CIRC     2.5
155          RK  10600.     .01     .05            TRAP    100       5

156          KK  CB4344
157          KM   COMBINE SB443 AND SB44
158          KO              2
159          HC       2
160          ZZ
```

```
*****************************************
*                                       *
  FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *
        FEBRUARY 1981                   *
       REVISED 01 JUN 88                *
                                        *
  RUN DATE  09/12/1990  TIME  20:25:36  *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```

```
 70          KK    SB31
 71          KM   RUNOFF FROM SB31
 72          KO
 73          BA     .63
 74          LS       0    86.0              0    86.0
 75          UK    600.     .02     .15      10
 76          UK    500.     .10     .15      90
 77          RK    967.    .004    .012     .10    CIRC     2.0
 78          RK  12400.    .007     .05     .50    TRAP      16       2
 79          RK   2000.    .003    .045            TRAP      16       2     YES

 80          KK    SB39
 81          KM   RUNOFF FROM SB39
 82          KO
 83          BA     .11
 84          LS       0    84.8
 85          UK    500.     .15     .10     100
 86          RK   3300.     .02     .05            TRAP      60       4

 87          KK    SB29
 88          KM   RUNOFF FROM SB29
 89          KO
 90          BA     .47
 91          LS       0    85.6
 92          UK    500.     .02     .20     100
 93          RK   1256.   .0053    .012     .10    CIRC     2.0
                                          HEC-1 INPUT                                                    PAGE  3

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

 94          RK    4800    .007     .05            TRAP     120       4

 95          KK    SB30
 96          KM   RUNOFF FROM SB30
 97          KO
 98          BA     .38
 99          LS       0    85.9
100          UK    700.     .02     .15     100
101          RK   1500.    .004    .012     .10    CIRC    2.25
102          RK   6300.    .006     .05            TRAP     140       4     YES

103          KK  SB3019
104          KM   COMBINE SB30, SB31 AND SB39
105          KO
106          HC       3

107          KK    SB40
108          KM   RUNOFF FROM SB40
109          KO
110          BA     .10
111          LS       0    85.7
112          UK    400.     .20     .10     100
113          RK   1200.     .10     .05     .05    TRAP       4       2
114          RK   1800.    .008    .045            TRAP      20       4     YES

115          KK  SB2840
116          KM   COMBINE SB28 AND SB40
117          KO
118          HC       2
```

```
 22          KK    SB28
 23          KM   RUNOFF FROM SB28
 24          KO              2                    21
 25          BA     .32
 26          LS       0    80.0
 27          UK    300.     .04     .10     100
 28          RK   1000.   .0047    .012     .10    CIRC     1.5
 29          RK   9500.    .007    .045            TRAP      13       1

 30          KK   SB35A
 31          KM   RUNOFF FROM SB35A
 32          KO
 33          BA     .32
 34          LS       0    86.0
 35          UK    500.     .02     .15     100
 36          RK    933.   .0053    .012     .10    CIRC     2.0
 37          RK   6900.    .007     .05            TRAP     120       5

 38          KK   SB35B
 39          KM   RUNOFF FROM SB35B
 40          KO
 41          BA     .24
 42          LS       0    86.0
 43          UK    500.     .02      .1     100
 44          RK    525.   .0043    .012     .10    CIRC     1.5
 45          RK   8000.    .007     .05            TRAP     100       4
                                          HEC-1 INPUT                                          PAGE  2

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


 46          KK  CB35AB
 47          KM   COMBINE SB35A AND SB35B
 48          KO
 49          HC       2

 50          KK    SB36
 51          KM   RUNOFF FROM SB36
 52          KO
 53          BA     .87
 54          LS       0    85.1
 55          UK    500.     .02     .15     100
 56          RK   1400.    .004    .012     .15    CIRC    2.25
 57          RK   8000.    .002     .05            TRAP     325       5     YES

 58          KK    SB37
 59          KM   RUNOFF FROM SB37
 60          KO
 61          BA     .45
 62          LS       0    84.5
 63          UK    500.     .10     .10     100
 64          RK   1100.   .0045    .012     .10    CIRC     2.0
 65          RK   4300.    .010     .05            TRAP     100       4

 66          KK  SB3637
 67          KM   COMBINE SB36 AND SB37
 68          KO
 69          HC       2
```

CASE 4 MODEL
BELOW CAREFREE HIGHWAY

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   86.102 OUTFLOW=   85.759 BASIN STORAGE=     .056 PERCENT ERROR=     .333

          SB43      5         .85  23333.96    376.84      2.93     15.00  23061.92    390.00        2.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4319.599 EXCESS=   90.636 OUTFLOW= 4401.285 BASIN STORAGE=    5.514 PERCENT ERROR=     .078

          SB44      4         .42   2202.76    449.07      2.77     15.00   2202.76    450.00        2.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  662.190 OUTFLOW=  649.140 BASIN STORAGE=    4.080 PERCENT ERROR=    1.355


*** NORMAL END OF HEC-1 ***
```

```
****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*        FEBRUARY 1981                 *
*       REVISED 01 JUN 88              *
*                                      *
*  RUN DATE  09/12/1990  TIME  20:25:36 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*        DAVIS, CALIFORNIA 95616       *
*           (916) 551-1748             *
*                                      *
****************************************
```

```
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. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

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

  1           ID   DEADMAN'S WASH - CASE 4 - 2 YEAR 24 HOUR DESIGN STORM
  2           ID   EXISTING CONDITIONS ROUTED THROUGH THE RECOMMENDED STORM
  3           ID   DRAIN SYSTEM (BELOW CAREFREE HIGHWAY)
  4           ID   KINEMATIC WAVE ROUTING
  5           IT      15                    96
  6           IO       3       0
  7           IN      30

  8           KK     SB1
  9           KM   RUNOFF FROM SB1
 10           KO
 11           BA     .46
 12           LS       0    85.5
 13           PB    1.77
 14           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 15           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
 16           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
 17           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
 18           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
 19           UK    500.    .040     .10     100
 20           RK   1500.    .017    .050     .09    TRAP       2       1
 21           RK   7700.    .025    .045            TRAP       8       3
```

```
*          *
32 KK  *    SB35A  *
*          *
**************
              RUNOFF FROM SB35A

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

          SUBBASIN RUNOFF DATA

35 BA       SUBBASIN CHARACTERISTICS
                TAREA        .61  SUBBASIN AREA

            PRECIPITATION DATA

12 PB           STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI         INCREMENTAL PRECIPITATION PATTERN
                .00    .00    .00    .00    .00    .00    .00    .00    .00    .00
                .00    .00    .00    .00    .00    .00    .01    .01    .01    .01
                .02    .02    .28    .28    .04    .04    .02    .02    .01    .01
                .01    .01    .01    .01    .00    .00    .01    .00    .01    .01
                .00    .00    .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

36 LS       SCS LOSS RATE
                STRTL        .33  INITIAL ABSTRACTION
               CRVNBR      85.70  CURVE NUMBER
                RTIMP      54.00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
37 UK         OVERLAND-FLOW ELEMENT NO. 1
                  L        500.  OVERLAND FLOW LENGTH
                  S       .0200  SLOPE
                  N        .150  ROUGHNESS COEFFICIENT
                 PA       100.0  PERCENT OF SUBBASIN
               DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
38 RK         COLLECTOR CHANNEL
                  L       2500.  CHANNEL LENGTH
                  S       .0100  SLOPE
                  N        .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .15  CONTRIBUTING AREA
              SHAPE        TRAP  CHANNEL SHAPE
                 WD        1.00  BOTTOM WIDTH OR DIAMETER
                  Z        1.00  SIDE SLOPE
               DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
39 RK         MAIN CHANNEL
                  L       1100.  CHANNEL LENGTH
                  S       .0070  SLOPE
                  N        .045  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .61  CONTRIBUTING AREA
              SHAPE        TRAP  CHANNEL SHAPE
                 WD        4.00  BOTTOM WIDTH OR DIAMETER
```

```
                Z        2.00  SIDE SLOPE
            DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                           (DT SHOWN IS A MINIMUM)
        ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK                  CELERITY
                                         (MIN)     (FT)     (CFS)    (MIN)       (IN)      (FPS)

            1        1.40      1.67      2.56    100.00   1660.80   359.80       3.62       .65
            3        1.51      1.33      1.22    625.00   1591.73   359.73       3.55      8.55
            4        1.06      1.38       .33    275.00   3531.93   360.99       3.39     13.98

CONTINUITY SUMMARY (AC-FT) - INFLOW=  155.503  EXCESS=  118.252 OUTFLOW=  271.095 BASIN STORAGE=     .010 PERCENT ERROR=     .968

                             INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

            4        1.06      1.38     15.00            3427.23   360.00       3.36

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

                HYDROGRAPH AT STATION    SB35A

  TOTAL RAINFALL =    4.33, TOTAL LOSS =     .69, TOTAL EXCESS =    3.64

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                        (CFS)
+   3427.     6.00                442.        135.         91.         91.
                       (INCHES)   2.737       3.341       3.356       3.356
                       (AC-FT)    219.        267.        268.        268.

                       CUMULATIVE AREA =    1.50 SQ MI


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


          **************
          *            *
 41 KK    *      SB34  *
          *            *
          **************
                   RUNOFF FROM SB34

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

            SUBBASIN RUNOFF DATA
```

```
44 BA          SUBBASIN CHARACTERISTICS
                    TAREA          .36  SUBBASIN AREA

               PRECIPITATION DATA

12 PB               STORM         4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                    .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                    .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                    .00       .00       .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

45 LS          SCS LOSS RATE
                    STRTL         .35  INITIAL ABSTRACTION
                   CRVNBR       85.20  CURVE NUMBER
                    RTIMP       65.00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
46 UK            OVERLAND-FLOW ELEMENT NO. 1
                        L        500.  OVERLAND FLOW LENGTH
                        S       .0500  SLOPE
                        N        .150  ROUGHNESS COEFFICIENT
                       PA       100.0  PERCENT OF SUBBASIN
                   DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
47 RK            MAIN CHANNEL
                        L       4200.  CHANNEL LENGTH
                        S       .0170  SLOPE
                        N        .045  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .36  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD        4.00  BOTTOM WIDTH OR DIAMETER
                        Z        1.00  SIDE SLOPE
                   DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
      ELEMENT    ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK               CELERITY
                                       (MIN)      (FT)     (CFS)     (MIN)       (IN)      (FPS)

          1       2.22      1.67       1.90    100.00   1021.20    358.82       3.85       .88
          3       1.74      1.40       1.11   1050.00   1002.14    358.92       3.66     16.82

NUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   72.669 OUTFLOW=   70.306 BASIN STORAGE=     .004 PERCENT ERROR=    3.246

                              INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
```

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                    3        1.74      1.40      15.00            1001.54    360.00      3.64

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

                     HYDROGRAPH AT STATION     SB34

  TOTAL RAINFALL =    4.33, TOTAL LOSS =     .54, TOTAL EXCESS =    3.79

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
  1002.      6.00                115.        35.         24.         24.
                      (INCHES)   2.966      3.623       3.642       3.642
                       (AC-FT)    57.        70.         70.         70.

                      CUMULATIVE AREA =     .36 SQ MI


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


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          *            *
48 KK     *     SB35B  *
          *            *
          **************
                        RUNOFF FROM SB35B

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

             SUBBASIN RUNOFF DATA

51 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .24  SUBBASIN AREA

               PRECIPITATION DATA

12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

52 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
```

CRVNBR	86.00	CURVE NUMBER
RTIMP	86.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.0200	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

54 RK MAIN CHANNEL

L	8000.	CHANNEL LENGTH
S	.0070	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.24	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	10.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	1.91	100.00	723.95	359.94	4.11	.87
3	.76	1.44	2.89	2000.00	1517.23	369.25	3.84	11.54

ONTINUITY SUMMARY (AC-FT) - INFLOW= 69.927 EXCESS= 52.763 OUTFLOW= 122.915 BASIN STORAGE= .029 PERCENT ERROR= -.207

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.76	1.44	15.00	1276.17	360.00	3.81

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

HYDROGRAPH AT STATION SB35B

TOTAL RAINFALL = 4.33, TOTAL LOSS = .21, TOTAL EXCESS = 4.12

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
+ 1276.	6.00		200.	61.	41.	41.
		(INCHES)	3.107	3.786	3.808	3.808
		(AC-FT)	99.	121.	122.	122.

CUMULATIVE AREA = .60 SQ MI

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

          **************
          *            *
55 KK     *    CB35AB  *
          *            *
          **************
                         COMBINE SB35A AND SB35B

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

58 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION   CB35AB

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
 (CFS)        (HR)
                         (CFS)
+   4703.     6.00                642.        196.        132.        132.
                     (INCHES)    2.842       3.468       3.485       3.485
                      (AC-FT)    318.        388.        390.        390.

                     CUMULATIVE AREA =    2.10 SQ MI


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

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          *            *
59 KK     *      SB36  *
          *            *
          **************
                         RUNOFF FROM SB36

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

            SUBBASIN RUNOFF DATA

62 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .87  SUBBASIN AREA

               PRECIPITATION DATA

12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION
```

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

63 LS SCS LOSS RATE

STRTL	.35	INITIAL ABSTRACTION
CRVNBR	85.10	CURVE NUMBER
RTIMP	51.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

64 UK OVERLAND-FLOW ELEMENT NO. 1

L	1400.	OVERLAND FLOW LENGTH
S	.0200	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

65 RK MAIN CHANNEL

L	19000.	CHANNEL LENGTH
S	.0020	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.87	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	30.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	6.08	280.00	1425.58	365.75	3.53	.77
3	.19	1.54	7.60	4750.00	5010.15	391.91	3.45	10.41

CONTINUITY SUMMARY (AC-FT) - INFLOW= 390.304 EXCESS= 165.294 OUTFLOW= 545.692 BASIN STORAGE= 1.372 PERCENT ERROR= 1.536

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.19	1.54	15.00	4643.40	390.00	3.43

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

HYDROGRAPH AT STATION SB36

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TOTAL RAINFALL =    4.33, TOTAL LOSS =     .77, TOTAL EXCESS =    3.56

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+ (CFS)       (HR)
                         (CFS)
  4643.       6.50                872.        272.        184.        184.
                        (INCHES)   2.730       3.408       3.432       3.432
                         (AC-FT)    432.        540.        544.        544.

                         CUMULATIVE AREA =    2.97 SQ MI


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


          **************
          *            *
66 KK     *     SB37   *
          *            *
          **************
                         RUNOFF FROM SB37

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

            SUBBASIN RUNOFF DATA

69 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .45  SUBBASIN AREA

               PRECIPITATION DATA

12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

70 LS          SCS LOSS RATE
                     STRTL        .37  INITIAL ABSTRACTION
                    CRVNBR      84.50  CURVE NUMBER
                     RTIMP      35.00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
71 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L      1200.  OVERLAND FLOW LENGTH
                         S      .1000  SLOPE
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                N        .100  ROUGHNESS COEFFICIENT
               PA       100.0  PERCENT OF SUBBASIN
            DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
RK        MAIN CHANNEL
                L       4300.  CHANNEL LENGTH
                S       .0100  SLOPE
                N        .050  CHANNEL ROUGHNESS COEFFICIENT
               CA         .45  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD        3.00  BOTTOM WIDTH OR DIAMETER
                Z        2.00  SIDE SLOPE
            DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                           (DT SHOWN IS A MINIMUM)
ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                             PEAK                  CELERITY
                                (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

   1        4.71      1.67      2.15    240.00   1145.07   359.42       3.28       1.86
   3        1.22      1.36      1.66   1075.00   1078.27   360.78       3.28      10.76

ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   78.631 OUTFLOW=   78.699 BASIN STORAGE=     .006 PERCENT ERROR=    -.094

                             INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

   3        1.22      1.36     15.00            1069.54   360.00       3.27

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

                HYDROGRAPH AT STATION     SB37

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.05, TOTAL EXCESS =    3.28

PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                 6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                     (CFS)
  1070.      6.00                129.        39.         27.         27.
                   (INCHES)     2.675       3.259       3.273       3.273
                    (AC-FT)      64.         78.         79.         79.

                  CUMULATIVE AREA =     .45 SQ MI

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

        **************
        *            *
73 KK   *    CB3637  *
        *            *
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              **************
                             COMBINE SB36 AND SB37

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

 76 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION   CB3637

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
  (CFS)        (HR)
                          (CFS)
 +   4908.     6.50                 992.        311.        211.        211.
                      (INCHES)     2.698       3.383       3.411       3.411
                       (AC-FT)      492.        617.        622.        622.

                       CUMULATIVE AREA =    3.42 SQ MI


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


              **************
              *            *
 77 KK        *      SB31  *
              *            *
              **************
                             RUNOFF FROM SB31

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

             SUBBASIN RUNOFF DATA

 80 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .72  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

 47 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

81 LS     SCS LOSS RATE
              STRTL        .33  INITIAL ABSTRACTION
             CRVNBR      86.00  CURVE NUMBER
              RTIMP      54.00  PERCENT IMPERVIOUS AREA

            LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
              STRTL        .33  INITIAL ABSTRACTION
             CRVNBR      86.00  CURVE NUMBER
              RTIMP      54.00  PERCENT IMPERVIOUS AREA

          KINEMATIC WAVE
82 UK       OVERLAND-FLOW ELEMENT NO. 1
                 L       600.  OVERLAND FLOW LENGTH
                 S      .0200  SLOPE
                 N       .150  ROUGHNESS COEFFICIENT
                PA       10.0  PERCENT OF SUBBASIN
             DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
83 UK       OVERLAND-FLOW ELEMENT NO. 2
                 L       500.  OVERLAND FLOW LENGTH
                 S      .1000  SLOPE
                 N       .150  ROUGHNESS COEFFICIENT
                PA       90.0  PERCENT OF SUBBASIN
             DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
84 RK       COLLECTOR CHANNEL
                 L     12400.  CHANNEL LENGTH
                 S      .0070  SLOPE
                 N       .050  CHANNEL ROUGHNESS COEFFICIENT
                CA        .65  CONTRIBUTING AREA
             SHAPE       TRAP  CHANNEL SHAPE
                WD      20.00  BOTTOM WIDTH OR DIAMETER
                 Z       1.00  SIDE SLOPE
             DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
85 RK       COLLECTOR CHANNEL
                 L      1000.  CHANNEL LENGTH
                 S      .0600  SLOPE
                 N       .050  CHANNEL ROUGHNESS COEFFICIENT
                CA        .07  CONTRIBUTING AREA
             SHAPE       TRAP  CHANNEL SHAPE
                WD       1.00  BOTTOM WIDTH OR DIAMETER
                 Z       1.00  SIDE SLOPE
             DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
86 RK       MAIN CHANNEL
                 L      2000.  CHANNEL LENGTH
                 S      .0030  SLOPE
                 N       .045  CHANNEL ROUGHNESS COEFFICIENT
                CA        .72  CONTRIBUTING AREA
             SHAPE       TRAP  CHANNEL SHAPE
                WD       3.00  BOTTOM WIDTH OR DIAMETER
                 Z       2.00  SIDE SLOPE
             DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
            RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
```

VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	2.88	120.00	193.73	359.60	3.65	.69
2	3.14	1.67	1.55	100.00	1813.99	359.12	3.64	1.07
3	.43	1.54	4.19	3100.00	1632.24	363.24	3.63	12.34
4	3.69	1.33	.31	250.00	1629.26	367.39	3.63	13.35
5	.74	1.36	1.00	666.67	5526.85	391.84	3.45	11.07

ONTINUITY SUMMARY (AC-FT) - INFLOW= 622.239 EXCESS= 140.068 OUTFLOW= 761.262 BASIN STORAGE= .205 PERCENT ERROR= .110

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.74	1.36	15.00	5094.57	390.00	3.45

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

HYDROGRAPH AT STATION SB31

TOTAL RAINFALL = 4.33, TOTAL LOSS = .68, TOTAL EXCESS = 3.65

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
+ 5095.	6.50		1221.	381.	258.	258.
		(INCHES)	2.743	3.422	3.454	3.454
		(AC-FT)	606.	756.	763.	763.

CUMULATIVE AREA = 4.14 SQ MI

** ***

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          **************
          *            *
 87 KK    *     SB39   *
          *            *
          **************
```

RUNOFF FROM SB39

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

            SUBBASIN RUNOFF DATA

 90 BA        SUBBASIN CHARACTERISTICS
                   TAREA        .11  SUBBASIN AREA
```

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

91 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.80	CURVE NUMBER
RTIMP	27.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

92 UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.1500	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

93 RK MAIN CHANNEL

L	3300.	CHANNEL LENGTH
S	.0200	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.11	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	5.77	1.67	1.12	100.00	282.43	359.50	3.16	1.49
3	2.21	1.36	.82	550.00	280.03	359.34	3.16	11.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 18.577 OUTFLOW= 18.546 BASIN STORAGE= .000 PERCENT ERROR= .164

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	2.21	1.36	15.00	279.31	360.00	3.27

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

HYDROGRAPH AT STATION SB39

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.16, TOTAL EXCESS = 3.17

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
279.	6.00		32.	10.	6.	6.
		(INCHES)	2.698	3.257	3.266	3.266
		(AC-FT)	16.	19.	19.	19.

CUMULATIVE AREA = .11 SQ MI

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              **************
              *            *
95 KK         *     SB29   *
              *            *
              **************
```

RUNOFF FROM SB29

97 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	1	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

98 BA SUBBASIN CHARACTERISTICS

TAREA	2.03	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

LS SCS LOSS RATE

STRTL	.33	INITIAL ABSTRACTION
CRVNBR	85.70	CURVE NUMBER
RTIMP	31.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

```
100 UK          OVERLAND-FLOW ELEMENT NO. 1
                       L      1500.  OVERLAND FLOW LENGTH
                       S      .0200  SLOPE
                       N       .200  ROUGHNESS COEFFICIENT
                      PA      100.0  PERCENT OF SUBBASIN
                   DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
101 RK          MAIN CHANNEL
                       L      9500.  CHANNEL LENGTH
                       S      .0070  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA       2.03  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD      30.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                   DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
                 ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                             PEAK                  CELERITY
                                                (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

                    1        1.05     1.67      8.71    300.00   2258.81   381.63      3.25       .57
                    3         .36     1.57      2.72   2375.00   2164.50   389.69      3.24     14.57

ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=  355.907 OUTFLOW=  350.522 BASIN STORAGE=     .435 PERCENT ERROR=    1.391

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    3         .36     1.57     15.00            2158.34   390.00      3.24

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

                     HYDROGRAPH AT STATION     SB29

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.04, TOTAL EXCESS =    3.29

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
  2158.      6.50                    556.        175.        119.        119.
                      (INCHES)     2.547       3.213       3.244       3.244
                      (AC-FT)       276.        348.        351.        351.

                      CUMULATIVE AREA =    2.03 SQ MI

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

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                *            *
103 KK          *      SB30  *
                *            *
                **************
                              RUNOFF FROM SB30

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

                SUBBASIN RUNOFF DATA

106 BA            SUBBASIN CHARACTERISTICS
                        TAREA         .38  SUBBASIN AREA

                  PRECIPITATION DATA

 12 PB                  STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI              INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                        .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                        .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                        .00       .00       .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

107 LS            SCS LOSS RATE
                        STRTL         .33  INITIAL ABSTRACTION
                       CRVNBR       85.90  CURVE NUMBER
                        RTIMP       43.00  PERCENT IMPERVIOUS AREA

                  KINEMATIC WAVE
108 UK              OVERLAND-FLOW ELEMENT NO. 1
                              L       700.  OVERLAND FLOW LENGTH
                              S      .0200  SLOPE
                              N       .150  ROUGHNESS COEFFICIENT
                             PA      100.0  PERCENT OF SUBBASIN
                          DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
109 RK              MAIN CHANNEL
                              L      6300.  CHANNEL LENGTH
                              S      .0060  SLOPE
                              N       .045  CHANNEL ROUGHNESS COEFFICIENT
                             CA        .38  CONTRIBUTING AREA
                          SHAPE       TRAP  CHANNEL SHAPE
                             WD      30.00  BOTTOM WIDTH OR DIAMETER
                              Z       2.00  SIDE SLOPE
                          DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
                         RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                   ***
                                COMPUTED KINEMATIC PARAMETERS
                                     VARIABLE TIME STEP
                                   (DT SHOWN IS A MINIMUM)
                  ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO    VOLUME   MAXIMUM
```

						PEAK		CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
1	1.40	1.67	3.36	140.00	923.17	359.03	3.46	.69
3	.36	1.54	2.15	1575.00	2383.55	395.00	3.27	12.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= 351.190 EXCESS= 70.511 OUTFLOW= 420.393 BASIN STORAGE= .410 PERCENT ERROR= .213

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.36	1.54	15.00		2363.01	390.00	3.26

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

HYDROGRAPH AT STATION SB30

TOTAL RAINFALL = 4.33, TOTAL LOSS = .85, TOTAL EXCESS = 3.48

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	35.75-HR
(CFS)	(HR)					
		(CFS)				
+ 2363.	6.50		664.	209.	142.	142.
		(INCHES)	2.562	3.232	3.264	3.264
		(AC-FT)	329.	415.	419.	419.

CUMULATIVE AREA = 2.41 SQ MI

*** ***

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          **************
          *            *
110 KK    *   CB3019   *
          *            *
          **************
```

COMBINE SB30, SB31 AND SB39

112 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

113 HC HYDROGRAPH COMBINATION

ICOMP	3	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CB3019

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	35.75-HR

```
+  (CFS)      (HR)
                        (CFS)
  7505.      6.50                1914.       600.       407.       407.
                      (INCHES)    2.672      3.350      3.382      3.382
                       (AC-FT)     949.      1190.      1201.      1201.

                       CUMULATIVE AREA =    6.66 SQ MI
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          **************
          *            *
114 KK    *      SB40  *
          *            *
          **************
                         RUNOFF FROM SB40

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

              SUBBASIN RUNOFF DATA

117 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .10  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

118 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
                    CRVNBR       85.70  CURVE NUMBER
                     RTIMP       24.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
119 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        400.  OVERLAND FLOW LENGTH
                         S       .2000  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
120 RK            COLLECTOR CHANNEL
```

	L	1200.	CHANNEL LENGTH
	S	.1000	SLOPE
	N	.050	CHANNEL ROUGHNESS COEFFICIENT
	CA	.05	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	4.00	BOTTOM WIDTH OR DIAMETER
	Z	2.00	SIDE SLOPE
	DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
121 RK	MAIN CHANNEL		
	L	1800.	CHANNEL LENGTH
	S	.0080	SLOPE
	N	.045	CHANNEL ROUGHNESS COEFFICIENT
	CA	.10	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	20.00	BOTTOM WIDTH OR DIAMETER
	Z	2.00	SIDE SLOPE
	DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
	RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.66	1.67	.89	80.00	259.73	359.91	3.18	1.50
3	3.62	1.38	.35	300.00	259.65	359.83	3.18	14.15
4	.55	1.51	.50	600.00	7539.46	391.12	3.38	20.20

CONTINUITY SUMMARY (AC-FT) - INFLOW= 1201.237 EXCESS= 16.968 OUTFLOW= 1217.827 BASIN STORAGE= .138 PERCENT ERROR= .020

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.55	1.51	15.00	7364.63	390.00	3.39

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

HYDROGRAPH AT STATION SB40

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.15, TOTAL EXCESS = 3.18

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	35.75-HR
7365.	6.50		1945.	610.	413.	413.
		(INCHES)	2.675	3.355	3.386	3.386
		(AC-FT)	964.	1209.	1221.	1221.

CUMULATIVE AREA = 6.76 SQ MI

*** ***

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              **************
              *            *
KK            *     SB28   *
              *            *
              **************
                          READ SB28 (FROM TAPE 22)

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

125 BI          READ STATION     SB28 HYDROGRAPH FROM UNIT 22

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

                        HYDROGRAPH AT STATION     SB28

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                         (CFS)
+  22633.     6.50                  5359.       1695.       1195.       1195.
                      (INCHES)     2.510       3.176       3.334       3.334
                       (AC-FT)     2657.       3363.       3530.       3530.

                       CUMULATIVE AREA =   19.85 SQ MI

                                                          ***

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

              **************
              *            *
126 KK        *    CB4028  *
              *            *
              **************
                          COMBINE SB40 AND SB28

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

129 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                        HYDROGRAPH AT STATION   CB4028

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
```

```
                                  6-HR       24-HR      72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
     998.     6.50                7301.      2303.      1608.       1608.
                      (INCHES)    2.550      3.218      3.347       3.347
                       (AC-FT)    3620.      4568.      4751.       4751.

                       CUMULATIVE AREA =   26.61 SQ MI


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


          **************
          *            *
130 KK    *     SB41   *
          *            *
          **************
                         RUNOFF FROM SB41

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

             SUBBASIN RUNOFF DATA

133 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .30  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

134 LS          SCS LOSS RATE
                     STRTL         .44  INITIAL ABSTRACTION
                    CRVNBR       81.90  CURVE NUMBER
                     RTIMP       30.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 175 UK           OVERLAND-FLOW ELEMENT NO. 1
                         L        500.  OVERLAND FLOW LENGTH
                         S       .0200  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
```

```
136 RK          COLLECTOR CHANNEL
                       L      2600.  CHANNEL LENGTH
                       S      .0030  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .05  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       4.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                  DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
137 RK          MAIN CHANNEL
                       L      2500.  CHANNEL LENGTH
                       S      .0040  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .30  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD      20.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                  DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
                 RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	2.13	100.00	705.04	358.24	3.03	.78
3	.66	1.40	2.63	650.00	633.82	364.09	3.03	4.12
4	.36	1.54	.46	833.33	30187.09	390.91	3.34	30.08

```
ONTINUITY SUMMARY (AC-FT) - INFLOW= 4751.117  EXCESS=   48.545 OUTFLOW= 4795.401 BASIN STORAGE=    2.949 PERCENT ERROR=     .027

                             INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                 4        .36      1.54      15.00           30006.55    390.00      3.35

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

                 HYDROGRAPH AT STATION     SB41

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.30, TOTAL EXCESS =    3.03

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                 6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                      (CFS)
+  30007.     6.50              7395.       2332.       1627.       1627.
                    (INCHES)    2.555       3.223       3.350       3.350
                     (AC-FT)    3667.       4626.       4808.       4808.

                 CUMULATIVE AREA =   26.91 SQ MI
```

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

              **************
              *            *
138 KK        *     SB42   *
              *            *
              **************
                             RUNOFF FROM SB42

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

                   SUBBASIN RUNOFF DATA

141 BA                SUBBASIN CHARACTERISTICS
                           TAREA         .59  SUBBASIN AREA

                      PRECIPITATION DATA

 12 PB                     STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI                  INCREMENTAL PRECIPITATION PATTERN
                           .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                           .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                           .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                           .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                           .00       .00       .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

142 LS                SCS LOSS RATE
                           STRTL         .36  INITIAL ABSTRACTION
                          CRVNBR       84.80  CURVE NUMBER
                           RTIMP       36.00  PERCENT IMPERVIOUS AREA

                      KINEMATIC WAVE
143 UK                 OVERLAND-FLOW ELEMENT NO. 1
                                L       400.  OVERLAND FLOW LENGTH
                                S      .0500  SLOPE
                                N       .150  ROUGHNESS COEFFICIENT
                               PA      100.0  PERCENT OF SUBBASIN
                           DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
144 RK                 COLLECTOR CHANNEL
                                L      2500.  CHANNEL LENGTH
                                S      .0300  SLOPE
                                N       .050  CHANNEL ROUGHNESS COEFFICIENT
                               CA        .07  CONTRIBUTING AREA
                            SHAPE       TRAP  CHANNEL SHAPE
                               WD       2.00  BOTTOM WIDTH OR DIAMETER
                                Z       1.00  SIDE SLOPE
                           DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
145 RK                 MAIN CHANNEL
                                L      6200.  CHANNEL LENGTH
                                S      .0100  SLOPE
```

N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.59	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	30.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.22	1.67	1.45	66.67	1534.59	358.70	3.30	.77
3	2.44	1.36	.65	416.67	1516.16	359.88	3.30	10.64
4	.43	1.57	1.26	1033.33	1440.55	362.68	3.30	13.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 104.153 OUTFLOW= 103.883 BASIN STORAGE= .029 PERCENT ERROR= .231

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.43	1.57	15.00	1388.28	360.00	3.28

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

HYDROGRAPH AT STATION SB42

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.02, TOTAL EXCESS = 3.31

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
1388.	6.00		170.	52.	35.	35.
		(INCHES)	2.675	3.265	3.279	3.279
		(AC-FT)	84.	103.	103.	103.

CUMULATIVE AREA = .59 SQ MI

*** ***

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              **************
              *            *
147 KK        *   CB4142   *
              *            *
              **************
```

COMBINE SB41 AND SB42

149 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL

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

HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                      HYDROGRAPH AT STATION   CB4142

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
 30384.      6.50                7561.       2384.       1662.       1662.
                    (INCHES)     2.556       3.223       3.348       3.348
                     (AC-FT)     3749.       4728.       4911.       4911.

                     CUMULATIVE AREA =   27.50 SQ MI


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


          **************
          *            *
151 KK    *      SB43  *
          *            *
          **************
                       RUNOFF FROM SB43

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

            SUBBASIN RUNOFF DATA

154 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .66  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB              STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                    .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                    .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                    .00       .00       .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
```

```
155 LS        SCS LOSS RATE
                   STRTL        .41  INITIAL ABSTRACTION
                  CRVNBR      83.00  CURVE NUMBER
                   RTIMP      98.00  PERCENT IMPERVIOUS AREA

              LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                   STRTL        .41  INITIAL ABSTRACTION
                  CRVNBR      83.00  CURVE NUMBER
                   RTIMP      98.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
156 UK          OVERLAND-FLOW ELEMENT NO. 1
                       L       200.  OVERLAND FLOW LENGTH
                       S      .3000  SLOPE
                       N       .150  ROUGHNESS COEFFICIENT
                      PA       70.0  PERCENT OF SUBBASIN
                   DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
157 UK          OVERLAND-FLOW ELEMENT NO. 2
                       L       300.  OVERLAND FLOW LENGTH
                       S      .0100  SLOPE
                       N       .150  ROUGHNESS COEFFICIENT
                      PA       30.0  PERCENT OF SUBBASIN
                   DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
158 RK          COLLECTOR CHANNEL
                       L      2500.  CHANNEL LENGTH
                       S      .0700  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .05  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       1.00  BOTTOM WIDTH OR DIAMETER
                       Z       2.00  SIDE SLOPE
                   DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
159 RK          COLLECTOR CHANNEL
                       L      3000.  CHANNEL LENGTH
                       S      .0070  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .07  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       3.00  BOTTOM WIDTH OR DIAMETER
                       Z       2.00  SIDE SLOPE
                   DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
160 RK          MAIN CHANNEL
                       L      4500.  CHANNEL LENGTH
                       S      .0060  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .66  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD      40.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                   DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M        DT        DX      PEAK   TIME TO    VOLUME   MAXIMUM
                                                                     PEAK              CELERITY
                                          (MIN)      (FT)    (CFS)   (MIN)      (IN)     (FPS)
```

1	5.44	1.67	.52	33.33	1437.12	359.95	4.29	1.07
2	.99	1.67	2.19	60.00	611.43	358.30	4.28	.46
3	3.60	1.34	.54	416.67	2046.58	358.78	4.29	12.95
4	1.02	1.36	1.38	500.00	2026.77	361.14	4.29	6.05
5	.27	1.59	.77	1500.00	30722.98	391.23	3.37	32.59

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4911.398 EXCESS= 151.171 OUTFLOW= 5055.322 BASIN STORAGE= 5.647 PERCENT ERROR= .032

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.27	1.59	15.00	30499.46	390.00	3.38

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

HYDROGRAPH AT STATION SB43

TOTAL RAINFALL = 4.33, TOTAL LOSS = .04, TOTAL EXCESS = 4.29

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
30499.	6.50		7807.	2461.	1716.	1716.
		(INCHES)	2.577	3.250	3.375	3.375
		(AC-FT)	3871.	4882.	5070.	5070.

CUMULATIVE AREA = 28.16 SQ MI

*** ***

```
          **************
          *            *
161 KK    *     SB44   *
          *            *
          **************
```

RUNOFF FROM SB44

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

            SUBBASIN RUNOFF DATA

164 BA        SUBBASIN CHARACTERISTICS
                   TAREA       4.39  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB             STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI          INCREMENTAL PRECIPITATION PATTERN
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

```
165 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      85.80  CURVE NUMBER
                     RTIMP      31.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
166 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       500.  OVERLAND FLOW LENGTH
                         S      .0200  SLOPE
                         N       .150  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                     DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
167 RK            COLLECTOR CHANNEL
                         L     30000.  CHANNEL LENGTH
                         S      .0100  SLOPE
                         N       .100  CHANNEL ROUGHNESS COEFFICIENT
                        CA       1.10  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD      20.00  BOTTOM WIDTH OR DIAMETER
                         Z       2.00  SIDE SLOPE
                     DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
168 RK            MAIN CHANNEL
                         L      1000.  CHANNEL LENGTH
                         S      .0100  SLOPE
                         N       .045  CHANNEL ROUGHNESS COEFFICIENT
                        CA       4.39  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD     100.00  BOTTOM WIDTH OR DIAMETER
                         Z       1.00  SIDE SLOPE
                     DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
                    RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH
```

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	2.66	100.00	10897.28	360.27	3.28	.63
3	.28	1.51	14.04	5000.00	2927.50	428.61	3.25	5.94
4	.17	1.63	.31	250.00	2865.74	436.74	3.24	13.30

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 771.169 OUTFLOW= 758.909 BASIN STORAGE= 4.050 PERCENT ERROR= 1.065

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    4        .17      1.63      15.00            2865.64    435.00      3.27

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

                     HYDROGRAPH AT STATION     SB44

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.04, TOTAL EXCESS =    3.29

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                       (CFS)
+   2866.     7.25                1172.       381.        259.        259.
                     (INCHES)     2.483      3.230       3.272       3.272
                      (AC-FT)     581.        756.        766.        766.

                     CUMULATIVE AREA =    4.39 SQ MI


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


          **************
          *            *
170 KK    *    CB4344  *
          *            *
          **************
                       COMBINE SB43 AND SB44

172 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          2  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

173 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

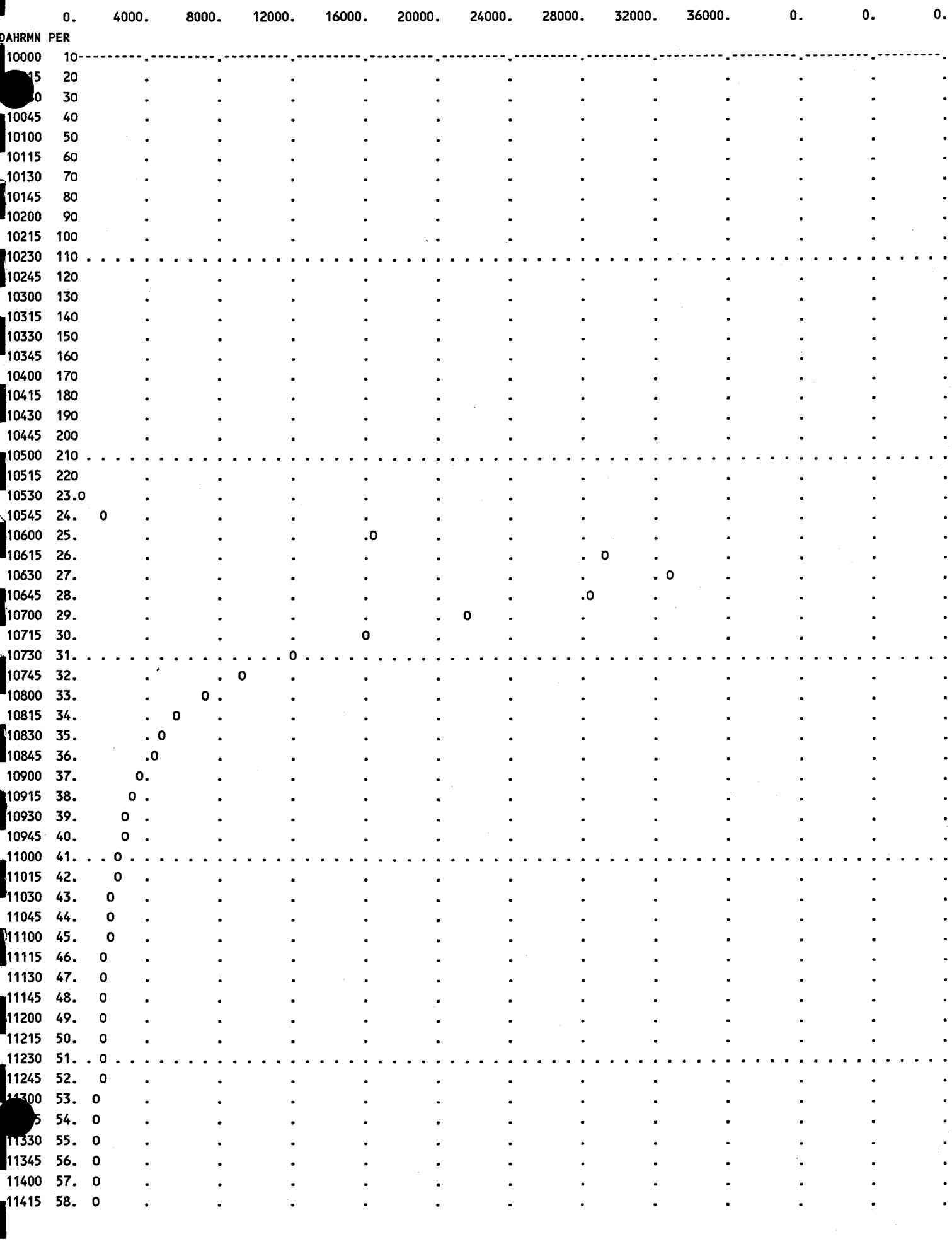
                     HYDROGRAPH AT STATION   CB4344

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                       (CFS)
+  32861.     6.50                8979.      2842.       1975.       1975.
                     (INCHES)     2.564      3.247       3.361       3.361
                      (AC-FT)     4452.      5637.       5836.       5836.

                     CUMULATIVE AREA =   32.56 SQ MI

                                                     STATION   CB4344

                     (O) OUTFLOW
```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10200 90
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10245 120
10300 130
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10330 150
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10400 170
10415 180
10430 190
10445 200
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10515 220
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10545 24.
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10630 27.
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10845 36.
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10930 39.
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11115 46.
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11900 77. 0
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12045 84. 0
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12115 86. 0
12130 87. 0
12145 88. 0
12200 89. 0
12215 90. 0
12230 91. 0
12245 92. 0
12300 93.0
12315 94.0
12330 95.0
12345 96.0
20000 97.0
20015 98.0
20030 99.0
20045 100.0
20100 101.0.
20115 102.0
20130 103.0
20145 104.0
20200 105.0
20215 106.0
20230 107.0
20245 108.0
20300 109.0
20315 110.0
20330 111.0.
20345 112.0
20400 113.0
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20445 116.0
20500 117.0
20515 118.0

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20530 119.0      .         .         .         .         .         .         .         .         .         .         .         .
20545 120.0      .         .         .         .         .         .         .         .         .         .         .         .
20600 121.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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20645 124.0      .         .         .         .         .         .         .         .         .         .         .         .
20700 125.0      .         .         .         .         .         .         .         .         .         .         .         .
20715 126.0      .         .         .         .         .         .         .         .         .         .         .         .
20730 127.0      .         .         .         .         .         .         .         .         .         .         .         .
20745 128.0      .         .         .         .         .         .         .         .         .         .         .         .
20800 129.0      .         .         .         .         .         .         .         .         .         .         .         .
20815 130.0      .         .         .         .         .         .         .         .         .         .         .         .
20830 131.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20845 132.0      .         .         .         .         .         .         .         .         .         .         .         .
20900 133.0      .         .         .         .         .         .         .         .         .         .         .         .
20915 134.0      .         .         .         .         .         .         .         .         .         .         .         .
20930 135.0      .         .         .         .         .         .         .         .         .         .         .         .
20945 136.0      .         .         .         .         .         .         .         .         .         .         .         .
21000 137.0      .         .         .         .         .         .         .         .         .         .         .         .
21015 138.0      .         .         .         .         .         .         .         .         .         .         .         .
21030 139.0      .         .         .         .         .         .         .         .         .         .         .         .
21045 140.0      .         .         .         .         .         .         .         .         .         .         .         .
21100 141.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
21115 142.0      .         .         .         .         .         .         .         .         .         .         .         .
21130 143.0      .         .         .         .         .         .         .         .         .         .         .         .
21145 144.0--------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
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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	SB32	496.	6.00	54.	16.	11.	.20		
HYDROGRAPH AT	SB33	1953.	6.00	257.	78.	53.	.89		
HYDROGRAPH AT	SB35A	3427.	6.00	442.	135.	91.	1.50		
HYDROGRAPH AT	SB34	1002.	6.00	115.	35.	24.	.36		
HYDROGRAPH AT	SB35B	1276.	6.00	200.	61.	41.	.60		
2 COMBINED AT	CB35AB	4703.	6.00	642.	196.	132.	2.10		
HYDROGRAPH AT	SB36	4643.	6.50	872.	272.	184.	2.97		
HYDROGRAPH AT	SB37	1070.	6.00	129.	39.	27.	.45		

2 COMBINED AT							
+	CB3637	4908.	6.50	992.	311.	211.	3.42
HYDROGRAPH AT							
+	SB31	5095.	6.50	1221.	381.	258.	4.14
HYDROGRAPH AT							
+	SB39	279.	6.00	32.	10.	6.	.11
HYDROGRAPH AT							
	SB29	2158.	6.50	556.	175.	119.	2.03
HYDROGRAPH AT							
	SB30	2363.	6.50	664.	209.	142.	2.41
3 COMBINED AT							
	CB3019	7505.	6.50	1914.	600.	407.	6.66
HYDROGRAPH AT							
	SB40	7365.	6.50	1945.	610.	413.	6.76
HYDROGRAPH AT							
	SB28	22633.	6.50	5359.	1695.	1195.	19.85
2 COMBINED AT							
+	CB4028	29998.	6.50	7301.	2303.	1608.	26.61
HYDROGRAPH AT							
+	SB41	30007.	6.50	7395.	2332.	1627.	26.91
HYDROGRAPH AT							
+	SB42	1388.	6.00	170.	52.	35.	.59
2 COMBINED AT							
+	CB4142	30384.	6.50	7561.	2384.	1662.	27.50
HYDROGRAPH AT							
	SB43	30499.	6.50	7807.	2461.	1716.	28.16
HYDROGRAPH AT							
	SB44	2866.	7.25	1172.	381.	259.	4.39
2 COMBINED AT							
	CB4344	32861.	6.50	8979.	2842.	1975.	32.56

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

							INTERPOLATED TO COMPUTATION INTERVAL		
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
SB32	4	.81	497.02	359.50	3.01	15.00	496.35	360.00	3.04

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 32.122 OUTFLOW= 32.084 BASIN STORAGE= .000 PERCENT ERROR= .120

SB33	5	.63	2095.67	362.60	3.27	15.00	1953.01	360.00	3.28

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=   32.463 EXCESS=  122.771 OUTFLOW=  155.412 BASIN STORAGE=     .009 PERCENT ERROR=    -.121

          SB35A     4        .33   3531.93    360.99      3.39     15.00   3427.23    360.00        3.36

CONTINUITY SUMMARY (AC-FT) - INFLOW=  155.503 EXCESS=  118.252 OUTFLOW=  271.095 BASIN STORAGE=     .010 PERCENT ERROR=     .968

           SB34     3       1.11   1002.14    358.92      3.66     15.00   1001.54    360.00        3.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   72.669 OUTFLOW=   70.306 BASIN STORAGE=     .004 PERCENT ERROR=    3.246

           SB35B     3       2.89   1517.23    369.25      3.84     15.00   1276.17    360.00        3.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=   69.927 EXCESS=   52.763 OUTFLOW=  122.915 BASIN STORAGE=     .029 PERCENT ERROR=    -.207

           SB36     3       7.60   5010.15    391.91      3.45     15.00   4643.40    390.00        3.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=  390.304 EXCESS=  165.294 OUTFLOW=  545.692 BASIN STORAGE=    1.372 PERCENT ERROR=    1.536

           SB37     3       1.66   1078.27    360.78      3.28     15.00   1069.54    360.00        3.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   78.631 OUTFLOW=   78.699 BASIN STORAGE=     .006 PERCENT ERROR=    -.094

           SB31     5       1.00   5526.85    391.84      3.45     15.00   5094.57    390.00        3.45

CONTINUITY SUMMARY (AC-FT) - INFLOW=  622.239 EXCESS=  140.068 OUTFLOW=  761.262 BASIN STORAGE=     .205 PERCENT ERROR=     .110

           SB39     3        .82    280.03    359.34      3.16     15.00    279.31    360.00        3.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   18.577 OUTFLOW=   18.546 BASIN STORAGE=     .000 PERCENT ERROR=     .164

           SB29     3       2.72   2164.50    389.69      3.24     15.00   2158.34    390.00        3.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  355.907 OUTFLOW=  350.522 BASIN STORAGE=     .435 PERCENT ERROR=    1.391

           SB30     3       2.15   2383.55    395.00      3.27     15.00   2363.01    390.00        3.26

CONTINUITY SUMMARY (AC-FT) - INFLOW=  351.190 EXCESS=   70.511 OUTFLOW=  420.393 BASIN STORAGE=     .410 PERCENT ERROR=     .213

           SB40     4        .50   7539.46    391.12      3.38     15.00   7364.63    390.00        3.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= 1201.237 EXCESS=   16.968 OUTFLOW= 1217.827 BASIN STORAGE=     .138 PERCENT ERROR=     .020

           SB41     4        .46  30187.09    390.91      3.34     15.00  30006.55    390.00        3.35

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4751.117 EXCESS=   48.545 OUTFLOW= 4795.401 BASIN STORAGE=    2.949 PERCENT ERROR=     .027

           SB42     4       1.26   1440.55    362.68      3.30     15.00   1388.28    360.00        3.28
```

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  104.153 OUTFLOW=  103.883 BASIN STORAGE=     .029 PERCENT ERROR=     .231

          SB43      5         .77  30722.98    391.23      3.37     15.00  30499.46    390.00        3.38

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4911.398 EXCESS=  151.171 OUTFLOW= 5055.322 BASIN STORAGE=    5.647 PERCENT ERROR=     .032

          SB44      4         .31   2865.74    436.74      3.24     15.00   2865.64    435.00        3.27

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  771.169 OUTFLOW=  758.909 BASIN STORAGE=    4.050 PERCENT ERROR=    1.065


*** NORMAL END OF HEC-1 ***
```

CASE 3
LOWER WATERSHED MODEL

```
****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*          FEBRUARY 1981               *
*        REVISED 01 JUN 88             *
*                                      *
*  RUN DATE  09/12/1990  TIME  20:10:36 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*        DAVIS, CALIFORNIA 95616       *
*           (916) 551-1748             *
*                                      *
****************************************
```

```
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. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

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

  1           ID   DEADMAN'S WASH --- CASE 3 -100 YEAR. 24 HOUR DESIGN STORM
  2           ID   EXISTING CONDITIONS
  3           ID   KINMATIC WAVE ROUTING. LOWER WATERSHED. 28-44
  4           IT      15                   144
  5           IO       3       0
  6           IN      30

  7           KK    SB32
  8           KM   RUNOFF FROM SB32
  9           KO
 10           BA      .2
 11           LS       0    84.2
 12           PB    4.33
 13           PC       0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 14           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
 15           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
 16           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
 17           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
 18           UK    200.     .5     .15     100
 19           RK   1200.    .25     .05     .03     TRAP            1
 20           RK   2600.    .040    .045            TRAP      4     1
```

```
 21          KK    SB33
 22          KM   RUNOFF FROM SB33
 23          KO
 24          BA     .69
 25          LS       0    84.7              0    84.7
 26          UK    200.     .40     .15      50
 27          UK    400.     .16     .15      50
 28          RK   3000.      .2      .1     .08    TRAP      2       1
 29          RK   7500.     .08     .10     .07    TRAP      1       1
 30          RK   2200.    .011     .05            TRAP     60       5     YES
 31          DX       5       5       4       4       4

 32          KK   SB35A
 33          KM   RUNOFF FROM SB35A
 34          KO
 35          BA     .61
 36          LS       0    85.7       2
 37          UK    500.     .02     .15     100
 38          RK   2500.     .01     .05     .15    TRAP      1       1
 39          RK  11100.    .007     .05            TRAP    120       5     YES
 40          DX       5               4       4

 41          KK    SB34
 42          KM   RUNOFF FROM SB34
 43          KO
 44          BA     .36
 45          LS       0    85.2
 46          UK    500.    .050     .15     100
 47          RK   4200.    .017    .045            TRAP      4       1
                                          HEC-1 INPUT                                          PAGE  2

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


 48          KK   SB35B
 49          KM   RUNOFF FROM SB35B
 50          KO
 51          BA     .24
 52          LS       0    86.0
 53          UK    500.     .02      .1     100
 54          RK   8000.    .007     .05            TRAP    100       4     YES

 55          KK  CB35AB
 56          KM   COMBINE SB35A AND SB35B
 57          KO
 58          HC       2

 59          KK    SB36
 60          KM   RUNOFF FROM SB36
 61          KO
 62          BA     .87
 63          LS       0    85.1
 64          UK   1400.     .02     .15    100.
 65          RK   8000.    .002     .05            TRAP    325       5     YES

 66          KK    SB37
 67          KM   RUNOFF FRON SB37
 68          KO
 69          BA     .45
 70          LS       0    84.5
```

```
 71          UK   1200.     .10      .1     100
 72          RK   4300.    .010     .05            TRAP     100       4

 73          KK  CB3637
 74          KM   COMBINE SB36 AND SB37
 75          KO
 76          HC       2

 77          KK    SB31
 78          KM   RUNOFF FROM SB31
 79          KO
 80          BA     .72
 81          LS       0    86.0              0    86.0
 82          UK    600.     .02     .15     10
 83          UK    500.     .10     .15     90
 84          RK   12400    .007     .05    .65    TRAP      20       1
 85          RK   1000.     .06     .05    .07    TRAP       1       1
 86          RK   2000.    .003     .02           TRAP      16       2     YES

 87          KK    SB39
 88          KM   RUNOFF FROM SB39
 89          KO
 90          BA     .11
 91          LS       0    84.8
 92          UK    500.     .15      .1     100
 93          RK   3300.     .02     .05            TRAP      60       4
 94          DX       5              6
                                          HEC-1 INPUT                                          PAGE  3

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


 95          KK    SB29
 96          KM   RUNOFF FROM SB29
 97          KO              1
 98          BA    2.03
 99          LS       0    85.7       5
100          UK   1500.     .02      .2     100
101          RK   9500.    .007     .05            TRAP     120       4
102          DX       5              4

103          KK    SB30
104          KM   RUNOFF FROM SB30
105          KO
106          BA     .38
107          LS       0    85.9
108          UK    700.     .02     .15     100
109          RK   6300.    .006     .05            TRAP     140       4     YES

110          KK  CB3391
111          KM   COMBINE SB30,SB31 AND SB39
112          KO
113          HC       3

114          KK    SB40
115          KM   RUNOFF FROM SB40
116          KO
117          BA      .1
118          LS       0    85.7
119          UK    400.      .2      .1     100
```

```
120          RK   1200.      .1     .05     .05    TRAP      4      2
121          RK   1800.    .008    .045            TRAP     20      2    YES

122          KK    SB28
123          KM   READ SB28 (FROM TAPE 21)
124          KO
125          BI    SB28      21

126          KK  CB4028
127          KM   COMBINE SB28 AND SB40
128          KO
129          HC       2

130          KK    SB41
131          KM   RUNOFF FROM SB41
132          KO
133          BA     .30
134          LS       0    81.9
135          UK    500.     .02      .1     100
136          RK   2600.    .003     .05     .05    TRAP      4      1
137          RK   2500.    .004    .045            TRAP     20      1    YES
1                                          HEC-1 INPUT                                                    PAGE  4

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


138          KK    SB42
139          KM   RUNOFF FROM SB42
140          KO
141          BA     .59
142          LS       0    84.8
143          UK    400.     .05     .15     100
144          RK   2500.     .03     .05     .07    TRAP      2      1
145          RK   6200.    .010     .05            TRAP     80      4
146          DX       5              4       4

147          KK  CB4142
148          KM   COMBINE SB41 AND SB42
149          KO
150          HC       2

151          KK    SB43
152          KM   RUNOFF FROM SB43
153          KO
154          BA     .66
155          LS       0    83.0              0    83.0
156          UK    200.      .3     .15      70
157          UK    300.     .01     .15      30
158          RK   2500.     .07     .05     .05    TRAP      1      2
159          RK   3000.    .007     .05     .07    TRAP      3      2
160          RK   4500.    .006    .045            TRAP     40      1    YES

161          KK    SB44
162          KM   RUNOFF FROM SB44
163          KO
164          BA    4.39
165          LS       0    85.8
166          UK    500.     .02     .15     100
167          RK  30000.     .01      .1     1.1    TRAP     20      2
168          RK   1000.     .01     .05            TRAP    100      5
```

```
169          DX      5              6      4

170          KK  CB4344
171          KM   COMBINE SB43 AND 44
172          KO              2
173          HC      2
174          ZZ
1*****************************************
*                                       *
 FLOOD HYDROGRAPH PACKAGE  (HEC-1)      *
          FEBRUARY 1981                 *
*        REVISED 01 JUN 88              *
                                        *
 RUN DATE  09/12/1990  TIME  20:10:36   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*        DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748              *
*                                       *
*****************************************
```

```
                    DEADMAN'S WASH --- CASE 3 -100 YEAR. 24 HOUR DESIGN STORM
                    EXISTING CONDITIONS
                    KINMATIC WAVE ROUTING. LOWER WATERSHED. 28-44

 5 IO          OUTPUT CONTROL VARIABLES
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  IT           HYDROGRAPH TIME DATA
                     NMIN         15  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1    0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        144  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2    0  ENDING DATE
                   NDTIME       1145  ENDING TIME
                    ICENT         19  CENTURY MARK

               COMPUTATION INTERVAL     .25 HOURS
                    TOTAL TIME BASE   35.75 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


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


          **************
          *            *
 7 KK     *      SB32  *
          *            *
```

```
**************
                RUNOFF FROM SB32

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

 6 IN     TIME DATA FOR INPUT TIME SERIES
               JXMIN         30  TIME INTERVAL IN MINUTES
              JXDATE      1   0  STARTING DATE
              JXTIME          0  STARTING TIME

         SUBBASIN RUNOFF DATA

10 BA     SUBBASIN CHARACTERISTICS
               TAREA        .20  SUBBASIN AREA

          PRECIPITATION DATA

12 PB          STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI       INCREMENTAL PRECIPITATION PATTERN
              .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
              .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
              .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
              .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
              .00      .00      .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

11 LS     SCS LOSS RATE
               STRTL        .38  INITIAL ABSTRACTION
              CRVNBR      84.20  CURVE NUMBER
               RTIMP        .00  PERCENT IMPERVIOUS AREA

          KINEMATIC WAVE
18 UK       OVERLAND-FLOW ELEMENT NO. 1
                 L        200.  OVERLAND FLOW LENGTH
                 S       .5000  SLOPE
                 N        .150  ROUGHNESS COEFFICIENT
                PA       100.0  PERCENT OF SUBBASIN
             DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
19 RK       COLLECTOR CHANNEL
                 L       1200.  CHANNEL LENGTH
                 S       .2500  SLOPE
                 N        .050  CHANNEL ROUGHNESS COEFFICIENT
                CA         .03  CONTRIBUTING AREA
             SHAPE        TRAP  CHANNEL SHAPE
                WD         .00  BOTTOM WIDTH OR DIAMETER
                 Z        1.00  SIDE SLOPE
             DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
RK          MAIN CHANNEL
                 L       2600.  CHANNEL LENGTH
                 S       .0400  SLOPE
                 N        .045  CHANNEL ROUGHNESS COEFFICIENT
                CA         .20  CONTRIBUTING AREA
```

```
                SHAPE        TRAP  CHANNEL SHAPE
                   WD        4.00  BOTTOM WIDTH OR DIAMETER
                    Z        1.00  SIDE SLOPE
                DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
                RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
            ELEMENT    ALPHA      M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                       PEAK                  CELERITY
                                          (MIN)      (FT)    (CFS)    (MIN)       (IN)      (FPS)

                1        7.02     1.67       .60     40.00   465.03   359.74       2.68      1.12
                3        7.46     1.33       .36    400.00   465.01   359.55       2.68     18.65
                4        2.67     1.40       .82    866.67   464.72   358.96       2.68     17.53

ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   28.607 OUTFLOW=   28.555 BASIN STORAGE=     .000 PERCENT ERROR=     .182

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                4        2.67     1.40     15.00             463.75   360.00       2.73

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

                  HYDROGRAPH AT STATION     SB32

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.65, TOTAL EXCESS =    2.68

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                     (CFS)
   464.      6.00                49.         15.         10.         10.
                   (INCHES)     2.260       2.728       2.728       2.728
                    (AC-FT)      24.         29.         29.         29.

                  CUMULATIVE AREA =     .20 SQ MI


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


        **************
        *            *
21 KK   *      SB33  *
        *            *
        **************
                  RUNOFF FROM SB33

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

SUBBASIN RUNOFF DATA

BA SUBBASIN CHARACTERISTICS

TAREA	.69	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

25 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.70	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.70	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

26 UK OVERLAND-FLOW ELEMENT NO. 1

L	200.	OVERLAND FLOW LENGTH
S	.4000	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	50.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

27 UK OVERLAND-FLOW ELEMENT NO. 2

L	400.	OVERLAND FLOW LENGTH
S	.1600	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	50.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

28 RK COLLECTOR CHANNEL

L	3000.	CHANNEL LENGTH
S	.2000	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.08	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	2.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS

29 RK COLLECTOR CHANNEL

L	7500.	CHANNEL LENGTH
S	.0800	SLOPE
N	.100	CHANNEL ROUGHNESS COEFFICIENT
CA	.07	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE

WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS

RK MAIN CHANNEL

L	2200.	CHANNEL LENGTH
S	.0110	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.69	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	60.00	BOTTOM WIDTH OR DIAMETER
Z	5.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.28	1.67	.63	40.00	814.43	360.00	2.72	1.05
2	3.97	1.67	1.27	80.00	808.81	359.28	2.72	1.05
3	3.15	1.36	.95	750.00	1610.49	360.07	2.72	13.20
4	2.13	1.33	3.72	1875.00	1374.16	365.68	2.73	8.40
5	.31	1.53	.92	550.00	1693.67	366.06	2.73	9.91

ONTINUITY SUMMARY (AC-FT) - INFLOW= 29.100 EXCESS= 100.361 OUTFLOW= 129.446 BASIN STORAGE= .015 PERCENT ERROR= -.000

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.31	1.53	15.00	1336.90	360.00	2.71

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

HYDROGRAPH AT STATION SB33

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.60, TOTAL EXCESS = 2.73

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
+ 1337.	6.00	(CFS)	210.	65.	44.	44.
		(INCHES)	2.190	2.707	2.708	2.708
		(AC-FT)	104.	128.	129.	129.

CUMULATIVE AREA = .89 SQ MI

*** ***

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          *          *
32 KK     *    SB35A *
          *          *
          **************
                    RUNOFF FROM SB35A

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

             SUBBASIN RUNOFF DATA

35 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .61  SUBBASIN AREA

               PRECIPITATION DATA

12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

36 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      85.70  CURVE NUMBER
                     RTIMP       2.00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
37 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       500.  OVERLAND FLOW LENGTH
                         S      .0200  SLOPE
                         N       .150  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                     DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
38 RK            COLLECTOR CHANNEL
                         L      2500.  CHANNEL LENGTH
                         S      .0100  SLOPE
                         N       .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA        .15  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD       1.00  BOTTOM WIDTH OR DIAMETER
                         Z       1.00  SIDE SLOPE
                     DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
39 RK            MAIN CHANNEL
                         L     11100.  CHANNEL LENGTH
                         S      .0070  SLOPE
                         N       .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA        .61  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD     120.00  BOTTOM WIDTH OR DIAMETER
```

```
                Z        5.00  SIDE SLOPE
            DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
        ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK                CELERITY
                                          (MIN)     (FT)    (CFS)    (MIN)      (IN)      (FPS)

            1       1.40      1.67      2.88    100.00   1273.92   358.50      2.83       .58
            3       1.51      1.33      1.31    625.00   1210.33   363.44      2.83      7.98
            4        .14      1.58      5.99   2775.00   2049.21   386.39      2.75      7.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=  128.540  EXCESS=   92.694 OUTFLOW=  219.664 BASIN STORAGE=     .371 PERCENT ERROR=     .542

                                 INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

            4        .14      1.58     15.00            1954.38   390.00      2.71

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

                 HYDROGRAPH AT STATION    SB35A

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.48, TOTAL EXCESS =    2.85

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)        (HR)
                        (CFS)
+   1954.      6.50                339.        109.         73.         73.
                      (INCHES)    2.100       2.701       2.714       2.714
                       (AC-FT)     168.        216.        217.        217.

                      CUMULATIVE AREA =    1.50 SQ MI


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


          **************
          *            *
 41 KK    *      SB34  *
          *            *
          **************
                 RUNOFF FROM SB34

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

            SUBBASIN RUNOFF DATA
```

```
44 BA          SUBBASIN CHARACTERISTICS
                    TAREA          .36  SUBBASIN AREA

               PRECIPITATION DATA

12 PB               STORM         4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                    .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                    .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                    .00       .00       .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

45 LS          SCS LOSS RATE
                    STRTL         .35  INITIAL ABSTRACTION
                   CRVNBR       85.20  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
46 UK            OVERLAND-FLOW ELEMENT NO. 1
                        L        500.  OVERLAND FLOW LENGTH
                        S       .0500  SLOPE
                        N        .150  ROUGHNESS COEFFICIENT
                       PA       100.0  PERCENT OF SUBBASIN
                   DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
47 RK            MAIN CHANNEL
                        L       4200.  CHANNEL LENGTH
                        S       .0170  SLOPE
                        N        .045  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .36  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD        4.00  BOTTOM WIDTH OR DIAMETER
                        Z        1.00  SIDE SLOPE
                   DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
      ELEMENT    ALPHA       M         DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK               CELERITY
                                       (MIN)      (FT)     (CFS)     (MIN)       (IN)      (FPS)

          1       2.22      1.67       2.09    100.00    828.40    359.05       2.76       .80
          3       1.74      1.40       1.19   1050.00    786.50    361.05       2.76     14.69

NUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   53.239 OUTFLOW=   53.010 BASIN STORAGE=     .004 PERCENT ERROR=     .425

                              INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
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                    3        1.74      1.40      15.00            775.49    360.00      2.78

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

                     HYDROGRAPH AT STATION     SB34

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.56, TOTAL EXCESS =    2.77

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
   775.      6.00                  88.        27.         18.         18.
                      (INCHES)    2.260      2.777       2.780       2.780
                       (AC-FT)     43.        53.         53.         53.

                      CUMULATIVE AREA =     .36 SQ MI


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


          **************
          *            *
48 KK     *     SB35B  *
          *            *
          **************
                       RUNOFF FROM SB35B

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

            SUBBASIN RUNOFF DATA

51 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .24  SUBBASIN AREA

               PRECIPITATION DATA

12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

52 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
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                CRVNBR       86.00  CURVE NUMBER
                 RTIMP         .00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
UK            OVERLAND-FLOW ELEMENT NO. 1
                     L        500.  OVERLAND FLOW LENGTH
                     S       .0200  SLOPE
                     N        .100  ROUGHNESS COEFFICIENT
                    PA       100.0  PERCENT OF SUBBASIN
                 DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
54 RK         MAIN CHANNEL
                     L       8000.  CHANNEL LENGTH
                     S       .0070  SLOPE
                     N        .050  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .24  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD      100.00  BOTTOM WIDTH OR DIAMETER
                     Z        4.00  SIDE SLOPE
                 DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
                RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                   ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
              ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                  CELERITY
                                                (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

                  1       2.11     1.67      2.13    100.00    564.29   359.10      2.83       .78
                  3        .16     1.58      5.26   2000.00    956.67   380.67      2.79      6.34

ONTINUITY SUMMARY (AC-FT) - INFLOW=   53.381  EXCESS=   36.440 OUTFLOW=   89.337 BASIN STORAGE=     .132 PERCENT ERROR=     .391

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                  3        .16     1.58     15.00             889.26   375.00      2.86

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

                   HYDROGRAPH AT STATION    SB35B

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.48, TOTAL EXCESS =    2.85

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                        (CFS)
+   889.      6.25                145.        46.         31.         31.
                      (INCHES)    2.251       2.843       2.856       2.856
                      (AC-FT)      72.         91.         91.         91.

                      CUMULATIVE AREA =     .60 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
55 KK     *    CB35AB  *
          *            *
          **************
                         COMBINE SB35A AND SB35B

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

58 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                       HYDROGRAPH AT STATION   CB35AB

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
 (CFS)        (HR)
                        (CFS)
+   2620.     6.50                483.        155.        104.        104.
                     (INCHES)    2.140       2.741       2.755       2.755
                      (AC-FT)     240.        307.        309.        309.

                      CUMULATIVE AREA =    2.10 SQ MI


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

          **************
          *            *
59 KK     *      SB36  *
          *            *
          **************
                         RUNOFF FROM SB36

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

            SUBBASIN RUNOFF DATA

62 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .87  SUBBASIN AREA

               PRECIPITATION DATA

12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION
```

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

63 LS SCS LOSS RATE

STRTL	.35	INITIAL ABSTRACTION
CRVNBR	85.10	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

64 UK OVERLAND-FLOW ELEMENT NO. 1

L	1400.	OVERLAND FLOW LENGTH
S	.0200	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

65 RK MAIN CHANNEL

L	8000.	CHANNEL LENGTH
S	.0020	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.87	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	325.00	BOTTOM WIDTH OR DIAMETER
Z	5.00	SIDE SLOPE
DXMIN	4	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	7.29	280.00	883.23	381.04	2.73	.64
3	.03	1.63	7.38	2000.00	2967.87	415.16	2.72	4.52

CONTINUITY SUMMARY (AC-FT) - INFLOW= 308.540 EXCESS= 128.236 OUTFLOW= 431.416 BASIN STORAGE= 2.031 PERCENT ERROR= .762

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.03	1.63	15.00	2687.02	420.00	2.72

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

HYDROGRAPH AT STATION SB36

```
  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.57, TOTAL EXCESS =    2.76

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
 (CFS)        (HR)
                          (CFS)
  2687.       7.00                642.        214.        146.        146.
                         (INCHES)   2.009      2.683       2.719       2.719
                          (AC-FT)   318.       425.        431.        431.

                          CUMULATIVE AREA =    2.97 SQ MI


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


          **************
          *            *
 66 KK    *     SB37   *
          *            *
          **************
                         RUNOFF FROM SB37

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

            SUBBASIN RUNOFF DATA

 69 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .45  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

 70 LS          SCS LOSS RATE
                      STRTL        .37  INITIAL ABSTRACTION
                     CRVNBR      84.50  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 71 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L      1200.  OVERLAND FLOW LENGTH
                          S      .1000  SLOPE
```

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                N        .100  ROUGHNESS COEFFICIENT
               PA       100.0  PERCENT OF SUBBASIN
            DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
RK        MAIN CHANNEL
                L       4300.  CHANNEL LENGTH
                S       .0100  SLOPE
                N        .050  CHANNEL ROUGHNESS COEFFICIENT
               CA         .45  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD      100.00  BOTTOM WIDTH OR DIAMETER
                Z        4.00  SIDE SLOPE
            DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                       PEAK                  CELERITY
                                             (MIN)     (FT)     (CFS)    (MIN)      (IN)      (FPS)

             1        4.71     1.67      2.29    240.00    994.38    359.33      2.71      1.74
             3         .19     1.58      2.58   1075.00    818.56    366.75      2.70      6.95

ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   65.017 OUTFLOW=   64.820 BASIN STORAGE=     .035 PERCENT ERROR=     .248

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

             3         .19     1.58     15.00              618.33    360.00      2.70

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

                 HYDROGRAPH AT STATION     SB37

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.62, TOTAL EXCESS =    2.71

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                        (CFS)
   618.      6.00                 104.        33.         22.         22.
                      (INCHES)    2.152       2.697       2.703       2.703
                      (AC-FT)      52.         65.         65.         65.

                     CUMULATIVE AREA =     .45 SQ MI

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

        **************
        *            *
73 KK   *    CB3637  *
        *            *
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**************
                COMBINE SB36 AND SB37

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

 76 HC      HYDROGRAPH COMBINATION
                 ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

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

                HYDROGRAPH AT STATION   CB3637

PEAK FLOW    TIME                      MAXIMUM AVERAGE FLOW
                              6-HR       24-HR      72-HR     35.75-HR
 (CFS)       (HR)
                     (CFS)
+   2820.    7.00              738.       247.       168.       168.
                 (INCHES)     2.006      2.684      2.717      2.717
                  (AC-FT)     366.       490.       496.       496.

                 CUMULATIVE AREA =    3.42 SQ MI


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


**************
*            *
 77 KK      *      SB31  *
*            *
**************
                RUNOFF FROM SB31

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

            SUBBASIN RUNOFF DATA

 80 BA      SUBBASIN CHARACTERISTICS
                 TAREA        .72  SUBBASIN AREA

            PRECIPITATION DATA

 12 PB           STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI        INCREMENTAL PRECIPITATION PATTERN
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                 .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                 .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                 .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                 .00      .00      .01      .00      .00      .00      .00      .00      .00      .00
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        .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

81 LS     SCS LOSS RATE
              STRTL        .33  INITIAL ABSTRACTION
             CRVNBR      86.00  CURVE NUMBER
              RTIMP        .00  PERCENT IMPERVIOUS AREA

          LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
              STRTL        .33  INITIAL ABSTRACTION
             CRVNBR      86.00  CURVE NUMBER
              RTIMP        .00  PERCENT IMPERVIOUS AREA

          KINEMATIC WAVE
82 UK       OVERLAND-FLOW ELEMENT NO. 1
                 L       600.  OVERLAND FLOW LENGTH
                 S      .0200  SLOPE
                 N       .150  ROUGHNESS COEFFICIENT
                PA       10.0  PERCENT OF SUBBASIN
             DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
83 UK       OVERLAND-FLOW ELEMENT NO. 2
                 L       500.  OVERLAND FLOW LENGTH
                 S      .1000  SLOPE
                 N       .150  ROUGHNESS COEFFICIENT
                PA       90.0  PERCENT OF SUBBASIN
             DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
84 RK       COLLECTOR CHANNEL
                 L     12400.  CHANNEL LENGTH
                 S      .0070  SLOPE
                 N       .050  CHANNEL ROUGHNESS COEFFICIENT
                CA        .65  CONTRIBUTING AREA
             SHAPE       TRAP  CHANNEL SHAPE
                WD      20.00  BOTTOM WIDTH OR DIAMETER
                 Z       1.00  SIDE SLOPE
             DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
85 RK       COLLECTOR CHANNEL
                 L      1000.  CHANNEL LENGTH
                 S      .0600  SLOPE
                 N       .050  CHANNEL ROUGHNESS COEFFICIENT
                CA        .07  CONTRIBUTING AREA
             SHAPE       TRAP  CHANNEL SHAPE
                WD       1.00  BOTTOM WIDTH OR DIAMETER
                 Z       1.00  SIDE SLOPE
             DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
86 RK       MAIN CHANNEL
                 L      2000.  CHANNEL LENGTH
                 S      .0030  SLOPE
                 N       .020  CHANNEL ROUGHNESS COEFFICIENT
                CA        .72  CONTRIBUTING AREA
             SHAPE       TRAP  CHANNEL SHAPE
                WD      16.00  BOTTOM WIDTH OR DIAMETER
                 Z       2.00  SIDE SLOPE
             DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
            RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
```

VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	3.34	120.00	142.95	361.39	2.86	.60
2	3.14	1.67	1.65	100.00	1558.29	358.51	2.84	1.01
3	.43	1.54	4.84	3100.00	1151.69	371.50	2.82	10.68
4	3.69	1.33	.34	250.00	1109.57	371.32	2.82	12.12
5	.87	1.48	.59	666.67	3073.20	421.03	2.71	18.77

ONTINUITY SUMMARY (AC-FT) - INFLOW= 495.536 EXCESS= 109.319 OUTFLOW= 598.547 BASIN STORAGE= .207 PERCENT ERROR= 1.009

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.87	1.48	15.00	3017.89	420.00	2.71

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

HYDROGRAPH AT STATION SB31

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.48, TOTAL EXCESS = 2.85

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
+ 3018.	7.00		898.	298.	202.	202.
		(INCHES)	2.016	2.679	2.708	2.708
		(AC-FT)	445.	591.	598.	598.

CUMULATIVE AREA = 4.14 SQ MI

** ***

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          **************
          *            *
87 KK     *     SB39   *
          *            *
          **************
```

RUNOFF FROM SB39

89 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

90 BA SUBBASIN CHARACTERISTICS

TAREA	.11	SUBBASIN AREA

PRECIPITATION DATA

12 PB STORM 4.33 BASIN TOTAL PRECIPITATION

PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

91 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.80	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

92 UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.1500	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

93 RK MAIN CHANNEL

L	3300.	CHANNEL LENGTH
S	.0200	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.11	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	60.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	6	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	5.77	1.67	1.15	100.00	259.27	359.22	2.73	1.44
3	.40	1.55	1.47	550.00	243.29	361.23	2.73	6.23

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 16.053 OUTFLOW= 15.993 BASIN STORAGE= .003 PERCENT ERROR= .353

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.40	1.55	15.00	240.81	360.00	2.73

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

HYDROGRAPH AT STATION SB39

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.59, TOTAL EXCESS = 2.74

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	35.75-HR
241.	6.00		26.	8.	5.	5.
		(INCHES)	2.220	2.732	2.734	2.734
		(AC-FT)	13.	16.	16.	16.

CUMULATIVE AREA = .11 SQ MI

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          **************
          *            *
95 KK     *     SB29   *
          *            *
          **************
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RUNOFF FROM SB29

97 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	1	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

98 BA SUBBASIN CHARACTERISTICS

TAREA	2.03	SUBBASIN AREA

PRECIPITATION DATA

12 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

13 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

99 LS SCS LOSS RATE

STRTL	.33	INITIAL ABSTRACTION
CRVNBR	85.70	CURVE NUMBER
RTIMP	5.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

```
100 UK          OVERLAND-FLOW ELEMENT NO. 1
                       L      1500.  OVERLAND FLOW LENGTH
                       S      .0200  SLOPE
                       N       .200  ROUGHNESS COEFFICIENT
                      PA      100.0  PERCENT OF SUBBASIN
                  DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
101 RK          MAIN CHANNEL
                       L      9500.  CHANNEL LENGTH
                       S      .0070  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA       2.03  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD     120.00  BOTTOM WIDTH OR DIAMETER
                       Z       4.00  SIDE SLOPE
                  DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
                 RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
                ELEMENT    ALPHA      M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                  CELERITY
                                                (MIN)      (FT)     (CFS)    (MIN)      (IN)      (FPS)

                   1        1.05     1.67      9.67    300.00   1809.04   391.10      2.85       .52
                   3         .13     1.60      5.11   2375.00   1655.81   399.57      2.84      7.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=  313.380 OUTFLOW=  307.294 BASIN STORAGE=     .774 PERCENT ERROR=    1.695

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                   3         .13     1.60     15.00            1592.04   405.00      2.84

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

                     HYDROGRAPH AT STATION     SB29

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.44, TOTAL EXCESS =    2.89

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                      (CFS)
  1592.      6.75                469.        153.        104.        104.
                    (INCHES)    2.146       2.811       2.840       2.840
                     (AC-FT)     232.        304.        308.        308.

                    CUMULATIVE AREA =    2.03 SQ MI

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

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                *            *
103 KK          *      SB30  *
                *            *
                **************
                              RUNOFF FROM SB30

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

                SUBBASIN RUNOFF DATA

106 BA            SUBBASIN CHARACTERISTICS
                        TAREA         .38  SUBBASIN AREA

                  PRECIPITATION DATA

 12 PB                  STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI              INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                        .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                        .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                        .00       .00       .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

107 LS            SCS LOSS RATE
                        STRTL         .33  INITIAL ABSTRACTION
                       CRVNBR       85.90  CURVE NUMBER
                        RTIMP         .00  PERCENT IMPERVIOUS AREA

                  KINEMATIC WAVE
108 UK              OVERLAND-FLOW ELEMENT NO. 1
                              L       700.  OVERLAND FLOW LENGTH
                              S      .0200  SLOPE
                              N       .150  ROUGHNESS COEFFICIENT
                             PA      100.0  PERCENT OF SUBBASIN
                          DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
109 RK              MAIN CHANNEL
                              L      6300.  CHANNEL LENGTH
                              S      .0060  SLOPE
                              N       .050  CHANNEL ROUGHNESS COEFFICIENT
                             CA        .38  CONTRIBUTING AREA
                          SHAPE       TRAP  CHANNEL SHAPE
                             WD     140.00  BOTTOM WIDTH OR DIAMETER
                              Z       4.00  SIDE SLOPE
                          DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
                         RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                                   ***
                                COMPUTED KINEMATIC PARAMETERS
                                     VARIABLE TIME STEP
                                   (DT SHOWN IS A MINIMUM)
                  ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO    VOLUME   MAXIMUM
```

						PEAK		CELERITY
		(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
1	1.40	1.67	3.86	140.00	691.41	360.58	2.82	.60
3	.11	1.60	3.89	1575.00	1731.50	406.08	2.82	6.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= 307.525 EXCESS= 57.508 OUTFLOW= 362.710 BASIN STORAGE= .968 PERCENT ERROR= .371

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

3	.11	1.60	15.00		1731.34	405.00	2.82

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

HYDROGRAPH AT STATION SB30

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.84

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
+ 1731.	6.75		546.	181.	123.	123.
		(INCHES)	2.108	2.787	2.820	2.820
		(AC-FT)	271.	358.	362.	362.

CUMULATIVE AREA = 2.41 SQ MI

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          **************
          *            *
110 KK    *   CB3391   *
          *            *
          **************
```

COMBINE SB30,SB31 AND SB39

112 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

113 HC HYDROGRAPH COMBINATION

ICOMP	3	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CB3391

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR

```
(CFS)      (HR)
                    (CFS)
4691.      7.00                1466.       487.       330.       330.
                 (INCHES)      2.047      2.718      2.749      2.749
                  (AC-FT)       727.       966.       976.       976.

                 CUMULATIVE AREA =    6.66 SQ MI


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


          **************
          *            *
114 KK    *      SB40  *
          *            *
          **************
                        RUNOFF FROM SB40

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

             SUBBASIN RUNOFF DATA

117 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .10  SUBBASIN AREA

                PRECIPITATION DATA

12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

13 PI             INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

118 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
                    CRVNBR       85.70  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
119 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        400.  OVERLAND FLOW LENGTH
                         S       .2000  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
120 RK            COLLECTOR CHANNEL
```

```
                    L       1200.  CHANNEL LENGTH
                    S       .1000  SLOPE
                    N        .050  CHANNEL ROUGHNESS COEFFICIENT
                   CA         .05  CONTRIBUTING AREA
                SHAPE        TRAP  CHANNEL SHAPE
                   WD        4.00  BOTTOM WIDTH OR DIAMETER
                    Z        2.00  SIDE SLOPE
               DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
121 RK        MAIN CHANNEL
                    L       1800.  CHANNEL LENGTH
                    S       .0080  SLOPE
                    N        .045  CHANNEL ROUGHNESS COEFFICIENT
                   CA         .10  CONTRIBUTING AREA
                SHAPE        TRAP  CHANNEL SHAPE
                   WD       20.00  BOTTOM WIDTH OR DIAMETER
                    Z        2.00  SIDE SLOPE
               DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
              RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                      PEAK                  CELERITY
                                             (MIN)     (FT)    (CFS)    (MIN)      (IN)      (FPS)

             1        6.66     1.67       .91     80.00   242.83   359.21      2.81      1.46
             3        3.62     1.38       .36    300.00   242.65   359.14      2.81     13.89
             4         .55     1.51       .58    600.00  4704.01   421.10      2.75     17.24

CONTINUITY SUMMARY (AC-FT) - INFLOW=  976.450  EXCESS=   15.035 OUTFLOW=  992.505 BASIN STORAGE=     .179 PERCENT ERROR=    -.121

                                  INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

             4         .55     1.51     15.00            4656.58   420.00      2.76

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

                 HYDROGRAPH AT STATION     SB40

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.51, TOTAL EXCESS =    2.82

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
  4657.      7.00                1491.       496.        337.        337.
                      (INCHES)    2.051      2.729       2.760       2.760
                      (AC-FT)      739.       984.        995.        995.

                     CUMULATIVE AREA =    6.76 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
KK            *     SB28   *
              *            *
              **************
                          READ SB28 (FROM TAPE 21)

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

125 BI          READ STATION     SB28 HYDROGRAPH FROM UNIT 21

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

                        HYDROGRAPH AT STATION     SB28

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                          (CFS)
+ 19829.      6.25                  4743.       1531.       1082.       1082.
                      (INCHES)      2.221       2.868       3.018       3.018
                       (AC-FT)      2352.       3037.       3196.       3196.

                       CUMULATIVE AREA =   19.85 SQ MI

                                                          ***

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

              **************
              *            *
126 KK        *    CB4028  *
              *            *
              **************
                          COMBINE SB28 AND SB40

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

129 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                        HYDROGRAPH AT STATION   CB4028

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
```

```
                                  6-HR       24-HR      72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
     2182.     6.25                6234.      2027.      1418.       1418.
                       (INCHES)    2.178      2.832      2.952       2.952
                        (AC-FT)    3091.      4021.      4191.       4191.

                       CUMULATIVE AREA =   26.61 SQ MI


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


          **************
          *            *
130 KK    *      SB41  *
          *            *
          **************
                         RUNOFF FROM SB41

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

             SUBBASIN RUNOFF DATA

133 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .30  SUBBASIN AREA

                PRECIPITATION DATA

 12 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

134 LS          SCS LOSS RATE
                      STRTL         .44  INITIAL ABSTRACTION
                     CRVNBR       81.90  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
135 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L        500.  OVERLAND FLOW LENGTH
                          S       .0200  SLOPE
                          N        .100  ROUGHNESS COEFFICIENT
                         PA       100.0  PERCENT OF SUBBASIN
                      DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
```

```
136 RK          COLLECTOR CHANNEL
                       L      2600.  CHANNEL LENGTH
                       S      .0030  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .05  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       4.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                  DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
137 RK          MAIN CHANNEL
                       L      2500.  CHANNEL LENGTH
                       S      .0040  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .30  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD      20.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                  DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
                 RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
                 ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                            PEAK                  CELERITY
                                                (MIN)      (FT)    (CFS)    (MIN)      (IN)      (FPS)

                     1       2.11     1.67      2.60    100.00   479.06   361.26      2.33       .79
                     3        .66     1.40      3.07    650.00   367.49   368.54      2.32      3.53
                     4        .36     1.54       .51    833.33 22499.71   376.11      2.94     27.15

ONTINUITY SUMMARY (AC-FT) - INFLOW= 4190.784  EXCESS=   39.660 OUTFLOW= 4221.479 BASIN STORAGE=    2.877 PERCENT ERROR=     .144

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                     4        .36     1.54     15.00           22272.59   390.00      2.95

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

                   HYDROGRAPH AT STATION     SB41

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.85, TOTAL EXCESS =    2.48

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                        (CFS)
+  22273.     6.50                6304.       2049.       1433.       1433.
                      (INCHES)     2.178       2.831       2.950       2.950
                       (AC-FT)     3126.       4064.       4235.       4235.

                     CUMULATIVE AREA =   26.91 SQ MI
```

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

                 **************
                 *            *
138 KK           *     SB42   *
                 *            *
                 **************
                              RUNOFF FROM SB42

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

                    SUBBASIN RUNOFF DATA

141 BA                SUBBASIN CHARACTERISTICS
                            TAREA         .59  SUBBASIN AREA

                      PRECIPITATION DATA

 12 PB                      STORM        4.33  BASIN TOTAL PRECIPITATION

 13 PI                  INCREMENTAL PRECIPITATION PATTERN
                            .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                            .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                            .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                            .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                            .00       .00       .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

142 LS                SCS LOSS RATE
                            STRTL         .36  INITIAL ABSTRACTION
                           CRVNBR       84.80  CURVE NUMBER
                            RTIMP         .00  PERCENT IMPERVIOUS AREA

                      KINEMATIC WAVE
143 UK                  OVERLAND-FLOW ELEMENT NO. 1
                                L        400.  OVERLAND FLOW LENGTH
                                S       .0500  SLOPE
                                N        .150  ROUGHNESS COEFFICIENT
                               PA       100.0  PERCENT OF SUBBASIN
                            DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
144 RK                  COLLECTOR CHANNEL
                                L       2500.  CHANNEL LENGTH
                                S       .0300  SLOPE
                                N        .050  CHANNEL ROUGHNESS COEFFICIENT
                               CA         .07  CONTRIBUTING AREA
                            SHAPE        TRAP  CHANNEL SHAPE
                               WD        2.00  BOTTOM WIDTH OR DIAMETER
                                Z        1.00  SIDE SLOPE
                            DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
145 RK                  MAIN CHANNEL
                                L       6200.  CHANNEL LENGTH
                                S       .0100  SLOPE
```

```
                N        .050  CHANNEL ROUGHNESS COEFFICIENT
               CA         .59  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD       80.00  BOTTOM WIDTH OR DIAMETER
                Z        4.00  SIDE SLOPE
            DXMIN           4  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                      PEAK                  CELERITY
                                          (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

             1        2.22      1.67      1.81     80.00   1368.39   359.58      2.74       .74
             3        2.44      1.36      1.00    625.00   1316.09   359.72      2.74     10.42
             4         .22      1.57      3.24   1550.00   1047.81   367.43      2.73      7.98

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   86.102 OUTFLOW=   85.759 BASIN STORAGE=     .056 PERCENT ERROR=     .333

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

             4         .22      1.57     15.00            890.22   375.00      2.70

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

                 HYDROGRAPH AT STATION     SB42

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.59, TOTAL EXCESS =    2.74

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                        (CFS)
   890.       6.25                   136.        43.         29.         29.
                      (INCHES)      2.147      2.696       2.702       2.702
                       (AC-FT)       68.        85.         85.         85.

                      CUMULATIVE AREA =     .59 SQ MI


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


          **************
          *            *
147 KK    *    CB4142  *
          *            *
          **************
                     COMBINE SB41 AND SB42

149 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
```

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                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                      HYDROGRAPH AT STATION   CB4142

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
 22717.      6.50                 6440.       2092.       1462.       1462.
                    (INCHES)      2.177       2.828       2.945       2.945
                     (AC-FT)      3193.       4149.       4320.       4320.

                     CUMULATIVE AREA =   27.50 SQ MI


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


          **************
          *            *
151 KK    *      SB43  *
          *            *
          **************
                       RUNOFF FROM SB43

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

            SUBBASIN RUNOFF DATA

154 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .66  SUBBASIN AREA

              PRECIPITATION DATA

 12 PB              STORM       4.33  BASIN TOTAL PRECIPITATION

 13 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                    .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                    .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                    .00       .00       .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
```

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155 LS        SCS LOSS RATE
                   STRTL        .41  INITIAL ABSTRACTION
                  CRVNBR      83.00  CURVE NUMBER
                   RTIMP        .00  PERCENT IMPERVIOUS AREA

            LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                   STRTL        .41  INITIAL ABSTRACTION
                  CRVNBR      83.00  CURVE NUMBER
                   RTIMP        .00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
156 UK        OVERLAND-FLOW ELEMENT NO. 1
                       L       200.  OVERLAND FLOW LENGTH
                       S      .3000  SLOPE
                       N       .150  ROUGHNESS COEFFICIENT
                      PA       70.0  PERCENT OF SUBBASIN
                   DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
157 UK        OVERLAND-FLOW ELEMENT NO. 2
                       L       300.  OVERLAND FLOW LENGTH
                       S      .0100  SLOPE
                       N       .150  ROUGHNESS COEFFICIENT
                      PA       30.0  PERCENT OF SUBBASIN
                   DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
158 RK        COLLECTOR CHANNEL
                       L      2500.  CHANNEL LENGTH
                       S      .0700  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .05  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       1.00  BOTTOM WIDTH OR DIAMETER
                       Z       2.00  SIDE SLOPE
                   DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
159 RK        COLLECTOR CHANNEL
                       L      3000.  CHANNEL LENGTH
                       S      .0070  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .07  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD       3.00  BOTTOM WIDTH OR DIAMETER
                       Z       2.00  SIDE SLOPE
                   DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
160 RK        MAIN CHANNEL
                       L      4500.  CHANNEL LENGTH
                       S      .0060  SLOPE
                       N       .045  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .66  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
                      WD      40.00  BOTTOM WIDTH OR DIAMETER
                       Z       1.00  SIDE SLOPE
                   DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
                  RUPSTQ        YES  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                      PEAK                  CELERITY
                                          (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)
```

1	5.44	1.67	.70	40.00	1034.48	359.31	2.57	.95
2	.99	1.67	2.67	60.00	397.56	360.09	2.56	.37
3	3.60	1.34	.87	625.00	1392.30	360.37	2.57	11.94
4	1.02	1.36	2.32	750.00	1270.97	363.70	2.56	5.39
5	.27	1.59	.85	1500.00	23333.96	376.84	2.93	29.46

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4319.599 EXCESS= 90.636 OUTFLOW= 4401.285 BASIN STORAGE= 5.514 PERCENT ERROR= .078

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.27	1.59	15.00	23061.92	390.00	2.94

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

HYDROGRAPH AT STATION SB43

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.75, TOTAL EXCESS = 2.58

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
23062.	6.50		6594.	2139.	1494.	1494.
		(INCHES)	2.177	2.824	2.938	2.938
		(AC-FT)	3270.	4242.	4413.	4413.

CUMULATIVE AREA = 28.16 SQ MI

*** ***

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          **************
          *            *
161 KK    *     SB44   *
          *            *
          **************
```

RUNOFF FROM SB44

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

            SUBBASIN RUNOFF DATA

164 BA        SUBBASIN CHARACTERISTICS
                    TAREA       4.39  SUBBASIN AREA

              PRECIPITATION DATA

12 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

13 PI           INCREMENTAL PRECIPITATION PATTERN
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

```
165 LS          SCS LOSS RATE
                     STRTL        .33  INITIAL ABSTRACTION
                    CRVNBR      85.80  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
166 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       500.  OVERLAND FLOW LENGTH
                         S      .0200  SLOPE
                         N       .150  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
                     DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
167 RK            COLLECTOR CHANNEL
                         L     30000.  CHANNEL LENGTH
                         S      .0100  SLOPE
                         N       .100  CHANNEL ROUGHNESS COEFFICIENT
                        CA       1.10  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD      20.00  BOTTOM WIDTH OR DIAMETER
                         Z       2.00  SIDE SLOPE
                     DXMIN          6  MINIMUM NUMBER OF DX INTERVALS
168 RK            MAIN CHANNEL
                         L      1000.  CHANNEL LENGTH
                         S      .0100  SLOPE
                         N       .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA       4.39  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD     100.00  BOTTOM WIDTH OR DIAMETER
                         Z       5.00  SIDE SLOPE
                     DXMIN          4  MINIMUM NUMBER OF DX INTERVALS
                    RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH
```

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	2.88	100.00	9159.03	361.26	2.81	.58
3	.28	1.51	15.00	5000.00	2223.99	452.02	2.78	5.41
4	.20	1.57	.42	250.00	2202.76	449.07	2.77	9.83

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 662.190 OUTFLOW= 649.140 BASIN STORAGE= 4.080 PERCENT ERROR= 1.355

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    4        .20      1.57      15.00            2202.76    450.00      2.80

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

                     HYDROGRAPH AT STATION     SB44

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.50, TOTAL EXCESS =    2.83

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                      (CFS)
+   2203.     7.50                964.        325.        222.        222.
                    (INCHES)     2.042       2.755       2.795       2.795
                     (AC-FT)     478.        645.        654.        654.

                    CUMULATIVE AREA =    4.39 SQ MI


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


          **************
          *            *
170 KK    *    CB4344  *
          *            *
          **************
                       COMBINE SB43 AND 44

172 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          3  PRINT CONTROL
                     IPLOT          2  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

173 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

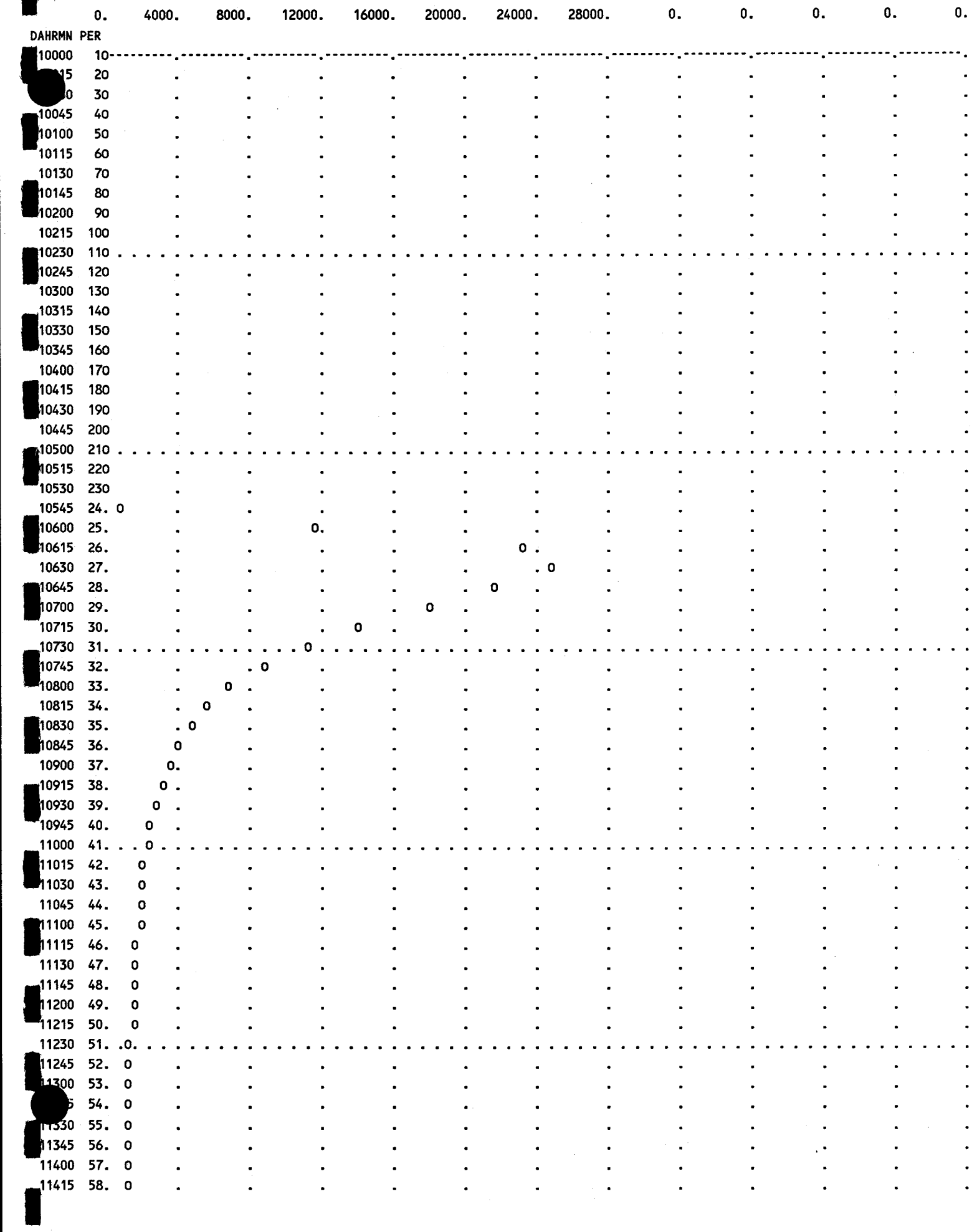
                     HYDROGRAPH AT STATION   CB4344

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                      (CFS)
+  24650.     6.50                7559.       2464.       1715.       1715.
                    (INCHES)     2.159       2.815       2.919       2.919
                     (AC-FT)     3748.       4887.       5067.       5067.

                    CUMULATIVE AREA =   32.56 SQ MI

                                                     STATION   CB4344

                     (O) OUTFLOW
```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11800 73. 0
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11915 78. 0
11930 79. 0
11945 80. 0
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12030 83. 0
12045 84. 0
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12130 87. 0
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12200 89. 0
12215 90.0
12230 91.0
12245 92.0
12300 93.0
12315 94.0
12330 95.0
12345 96.0
20000 97.0
20015 98.0
20030 99.0
20045 100.0
20100 101.0
20115 102.0
20130 103.0
20145 104.0
20200 105.0
20215 106.0
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20300 109.0
20315 110.0
20330 111.0
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20430 115.0
20445 116.0
20500 117.0
20515 118.0

```
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20545 120.0      .         .         .         .         .         .         .         .         .         .         .         .
20600 121.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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20645 124.0      .         .         .         .         .         .         .         .         .         .         .         .
20700 125.0      .         .         .         .         .         .         .         .         .         .         .         .
20715 126.0      .         .         .         .         .         .         .         .         .         .         .         .
20730 127.0      .         .         .         .         .         .         .         .         .         .         .         .
20745 128.0      .         .         .         .         .         .         .         .         .         .         .         .
20800 129.0      .         .         .         .         .         .         .         .         .         .         .         .
20815 130.0      .         .         .         .         .         .         .         .         .         .         .         .
20830 131.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
20845 132.0      .         .         .         .         .         .         .         .         .         .         .         .
20900 133.0      .         .         .         .         .         .         .         .         .         .         .         .
20915 134.0      .         .         .         .         .         .         .         .         .         .         .         .
20930 135.0      .         .         .         .         .         .         .         .         .         .         .         .
20945 136.0      .         .         .         .         .         .         .         .         .         .         .         .
21000 137.0      .         .         .         .         .         .         .         .         .         .         .         .
21015 138.0      .         .         .         .         .         .         .         .         .         .         .         .
21030 139.0      .         .         .         .         .         .         .         .         .         .         .         .
21045 140.0      .         .         .         .         .         .         .         .         .         .         .         .
21100 141.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
21115 142.0      .         .         .         .         .         .         .         .         .         .         .         .
21130 143.0      .         .         .         .         .         .         .         .         .         .         .         .
21145 144.0-------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
```

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	SB32	464.	6.00	49.	15.	10.	.20		
	HYDROGRAPH AT	SB33	1337.	6.00	210.	65.	44.	.89		
	HYDROGRAPH AT	SB35A	1954.	6.50	339.	109.	73.	1.50		
	HYDROGRAPH AT	SB34	775.	6.00	88.	27.	18.	.36		
	HYDROGRAPH AT	SB35B	889.	6.25	145.	46.	31.	.60		
+	2 COMBINED AT	CB35AB	2620.	6.50	483.	155.	104.	2.10		
+	HYDROGRAPH AT	SB36	2687.	7.00	642.	214.	146.	2.97		
+	HYDROGRAPH AT	SB37	618.	6.00	104.	33.	22.	.45		

2 COMBINED AT							
+	CB3637	2820.	7.00	738.	247.	168.	3.42
HYDROGRAPH AT							
+	SB31	3018.	7.00	898.	298.	202.	4.14
HYDROGRAPH AT							
+	SB39	241.	6.00	26.	8.	5.	.11
HYDROGRAPH AT							
	SB29	1592.	6.75	469.	153.	104.	2.03
HYDROGRAPH AT							
	SB30	1731.	6.75	546.	181.	123.	2.41
3 COMBINED AT							
	CB3391	4691.	7.00	1466.	487.	330.	6.66
HYDROGRAPH AT							
	SB40	4657.	7.00	1491.	496.	337.	6.76
HYDROGRAPH AT							
	SB28	19829.	6.25	4743.	1531.	1082.	19.85
2 COMBINED AT							
+	CB4028	22182.	6.25	6234.	2027.	1418.	26.61
HYDROGRAPH AT							
+	SB41	22273.	6.50	6304.	2049.	1433.	26.91
HYDROGRAPH AT							
+	SB42	890.	6.25	136.	43.	29.	.59
2 COMBINED AT							
	CB4142	22717.	6.50	6440.	2092.	1462.	27.50
HYDROGRAPH AT							
	SB43	23062.	6.50	6594.	2139.	1494.	28.16
HYDROGRAPH AT							
	SB44	2203.	7.50	964.	325.	222.	4.39
2 COMBINED AT							
	CB4344	24650.	6.50	7559.	2464.	1715.	32.56

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

						INTERPOLATED TO COMPUTATION INTERVAL			
ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
SB32	4	.82	464.72	358.96	2.68	15.00	463.75	360.00	2.73

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 28.607 OUTFLOW= 28.555 BASIN STORAGE= .000 PERCENT ERROR= .182

SB33	5	.92	1693.67	366.06	2.73	15.00	1336.90	360.00	2.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= 29.100 EXCESS= 100.361 OUTFLOW= 129.446 BASIN STORAGE= .015 PERCENT ERROR= -.000

SB35A	4	5.99	2049.21	386.39	2.75	15.00	1954.38	390.00	2.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= 128.540 EXCESS= 92.694 OUTFLOW= 219.664 BASIN STORAGE= .371 PERCENT ERROR= .542

SB34	3	1.19	786.50	361.05	2.76	15.00	775.49	360.00	2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 53.239 OUTFLOW= 53.010 BASIN STORAGE= .004 PERCENT ERROR= .425

SB35B	3	5.26	956.67	380.67	2.79	15.00	889.26	375.00	2.86

CONTINUITY SUMMARY (AC-FT) - INFLOW= 53.381 EXCESS= 36.440 OUTFLOW= 89.337 BASIN STORAGE= .132 PERCENT ERROR= .391

SB36	3	7.38	2967.87	415.16	2.72	15.00	2687.02	420.00	2.72

CONTINUITY SUMMARY (AC-FT) - INFLOW= 308.540 EXCESS= 128.236 OUTFLOW= 431.416 BASIN STORAGE= 2.031 PERCENT ERROR= .762

SB37	3	2.58	818.56	366.75	2.70	15.00	618.33	360.00	2.70

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 65.017 OUTFLOW= 64.820 BASIN STORAGE= .035 PERCENT ERROR= .248

SB31	5	.59	3073.20	421.03	2.71	15.00	3017.89	420.00	2.71

CONTINUITY SUMMARY (AC-FT) - INFLOW= 495.536 EXCESS= 109.319 OUTFLOW= 598.547 BASIN STORAGE= .207 PERCENT ERROR= 1.009

SB39	3	1.47	243.29	361.23	2.73	15.00	240.81	360.00	2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 16.053 OUTFLOW= 15.993 BASIN STORAGE= .003 PERCENT ERROR= .353

SB29	3	5.11	1655.81	399.57	2.84	15.00	1592.04	405.00	2.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 313.380 OUTFLOW= 307.294 BASIN STORAGE= .774 PERCENT ERROR= 1.695

SB30	3	3.89	1731.50	406.08	2.82	15.00	1731.34	405.00	2.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= 307.525 EXCESS= 57.508 OUTFLOW= 362.710 BASIN STORAGE= .968 PERCENT ERROR= .371

SB40	4	.58	4704.01	421.10	2.75	15.00	4656.58	420.00	2.76

CONTINUITY SUMMARY (AC-FT) - INFLOW= 976.450 EXCESS= 15.035 OUTFLOW= 992.505 BASIN STORAGE= .179 PERCENT ERROR= -.121

SB41	4	.51	22499.71	376.11	2.94	15.00	22272.59	390.00	2.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4190.784 EXCESS= 39.660 OUTFLOW= 4221.479 BASIN STORAGE= 2.877 PERCENT ERROR= .144

SB42	4	3.24	1047.81	367.43	2.73	15.00	890.22	375.00	2.70

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                    DEADMAN'S WASH - CASE 4 - 2 YEAR 24 HOUR DESIGN STORM
                    EXISTING CONDITIONS ROUTED THROUGH THE RECOMMENDED STORM
                    DRAIN SYSTEM (BELOW CAREFREE HIGHWAY)
                    KINEMATIC WAVE ROUTING

 6 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          3  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                   NMIN         15  MINUTES IN COMPUTATION INTERVAL
                  IDATE      1    0  STARTING DATE
                  ITIME       0000  STARTING TIME
                     NQ         96  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE      1    0  ENDING DATE
                 NDTIME       2345  ENDING TIME
                 ICENT          19  CENTURY MARK

             COMPUTATION INTERVAL     .25 HOURS
                  TOTAL TIME BASE   23.75 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


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


         **************
         *            *
 8 KK    *       SB1  *
         *            *
         **************
                    RUNOFF FROM SB1

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

 7 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         30  TIME INTERVAL IN MINUTES
                 JXDATE      1    0  STARTING DATE
                 JXTIME          0  STARTING TIME

           SUBBASIN RUNOFF DATA
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11 BA        SUBBASIN CHARACTERISTICS
                 TAREA          .46  SUBBASIN AREA

             PRECIPITATION DATA

13 PB            STORM         1.77  BASIN TOTAL PRECIPITATION

14 PI          INCREMENTAL PRECIPITATION PATTERN
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                 .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                 .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                 .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                 .00      .00      .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

12 LS        SCS LOSS RATE
                 STRTL          .34  INITIAL ABSTRACTION
                CRVNBR        85.50  CURVE NUMBER
                 RTIMP          .00  PERCENT IMPERVIOUS AREA

             KINEMATIC WAVE
19 UK          OVERLAND-FLOW ELEMENT NO. 1
                     L         500.  OVERLAND FLOW LENGTH
                     S        .0400  SLOPE
                     N         .100  ROUGHNESS COEFFICIENT
                    PA        100.0  PERCENT OF SUBBASIN
                 DXMIN            5  MINIMUM NUMBER OF DX INTERVALS
20 RK          COLLECTOR CHANNEL
                     L        1500.  CHANNEL LENGTH
                     S        .0170  SLOPE
                     N         .050  CHANNEL ROUGHNESS COEFFICIENT
                    CA          .09  CONTRIBUTING AREA
                 SHAPE         TRAP  CHANNEL SHAPE
                    WD         2.00  BOTTOM WIDTH OR DIAMETER
                     Z         1.00  SIDE SLOPE
                 DXMIN            2  MINIMUM NUMBER OF DX INTERVALS
21 RK          MAIN CHANNEL
                     L        7700.  CHANNEL LENGTH
                     S        .0250  SLOPE
                     N         .045  CHANNEL ROUGHNESS COEFFICIENT
                    CA          .46  CONTRIBUTING AREA
                 SHAPE         TRAP  CHANNEL SHAPE
                    WD         8.00  BOTTOM WIDTH OR DIAMETER
                     Z         3.00  SIDE SLOPE
                 DXMIN            2  MINIMUM NUMBER OF DX INTERVALS
                RUPSTQ           NO  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                           (DT SHOWN IS A MINIMUM)
   ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                              PEAK                  CELERITY
                                  (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

       1       2.98      1.67      3.95    100.00    151.45   367.46       .64       .42
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                    3       1.84      1.36      1.52    500.00    146.11    368.03       .64      5.50
                    4       1.58      1.40      5.18   2566.67    122.59    378.75       .63      8.26

NUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   16.062 OUTFLOW=   15.449 BASIN STORAGE=     .143 PERCENT ERROR=    2.929

                                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    4       1.58      1.40     15.00              105.61    375.00       .63

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

                     HYDROGRAPH AT STATION      SB1

  TOTAL RAINFALL =    1.77, TOTAL LOSS =    1.12, TOTAL EXCESS =     .65

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                        (CFS)
   106.      6.25                  24.         8.          8.          8.
                     (INCHES)      .476       .627        .627        .627
                      (AC-FT)      12.         15.         15.         15.

                     CUMULATIVE AREA =     .46 SQ MI


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


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          *            *
 22 KK    *      SB28  *
          *            *
          **************
                       RUNOFF FROM SB28

 24 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           2  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          96  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .250  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 25 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .32  SUBBASIN AREA

            PRECIPITATION DATA

 13 PB                STORM        1.77  BASIN TOTAL PRECIPITATION
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14 PI          INCREMENTAL PRECIPITATION PATTERN
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                 .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                 .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                 .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                 .00      .00      .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

26 LS         SCS LOSS RATE
                 STRTL       .50  INITIAL ABSTRACTION
                CRVNBR     80.00  CURVE NUMBER
                 RTIMP       .00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
27 UK           OVERLAND-FLOW ELEMENT NO. 1
                     L      300.  OVERLAND FLOW LENGTH
                     S     .0400  SLOPE
                     N      .100  ROUGHNESS COEFFICIENT
                    PA     100.0  PERCENT OF SUBBASIN
                 DXMIN         5  MINIMUM NUMBER OF DX INTERVALS
28 RK           COLLECTOR CHANNEL
                     L     1000.  CHANNEL LENGTH
                     S     .0047  SLOPE
                     N      .012  CHANNEL ROUGHNESS COEFFICIENT
                    CA       .10  CONTRIBUTING AREA
                 SHAPE      CIRC  CHANNEL SHAPE
                    WD      1.50  BOTTOM WIDTH OR DIAMETER
                     Z       .00  SIDE SLOPE
                 DXMIN         2  MINIMUM NUMBER OF DX INTERVALS
29 RK           MAIN CHANNEL
                     L     9500.  CHANNEL LENGTH
                     S     .0070  SLOPE
                     N      .045  CHANNEL ROUGHNESS COEFFICIENT
                    CA       .32  CONTRIBUTING AREA
                 SHAPE      TRAP  CHANNEL SHAPE
                    WD     13.00  BOTTOM WIDTH OR DIAMETER
                     Z      1.00  SIDE SLOPE
                 DXMIN         2  MINIMUM NUMBER OF DX INTERVALS
                RUPSTQ        NO  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                           (DT SHOWN IS A MINIMUM)
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ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.98	1.67	3.56	60.00	62.77	367.61	.42	.28
3	4.91	1.25	.65	333.33	61.07	367.11	.42	8.52
4	.64	1.50	14.35	3166.67	30.48	411.64	.40	3.68

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CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=    7.301 OUTFLOW=    6.899 BASIN STORAGE=     .161 PERCENT ERROR=    3.306
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                                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                           4          .64       1.50       15.00                28.77    405.00        .40

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

                            HYDROGRAPH AT STATION     SB28

   TOTAL RAINFALL =     1.77, TOTAL LOSS =     1.34, TOTAL EXCESS =     .43

 PEAK FLOW      TIME                             MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR      23.75-HR
+    (CFS)       (HR)
                              (CFS)
       29.      6.75                    10.           3.          3.           3.
                           (INCHES)    .281         .401        .401         .401
                           (AC-FT)       5.           7.          7.           7.

                           CUMULATIVE AREA =      .32 SQ MI

                                                            STATION     SB28

                            (O) OUTFLOW
           0.         4.         8.        12.        16.        20.        24.        28.        32.         0.         0.         0.         0.
                                                                                                             (L) PRECIP,   (X) EXCESS
          .0         .0         .0         .0         .0         .0         .0         .0         .0         .6         .4         .2         .0
 DAHRMN PER
 10000   10---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
 10015   20         .         .         .         .         .         .         .         .         .         .         .         .
 10030   30         .         .         .         .         .         .         .         .         .         .         .         .
 10045   40         .         .         .         .         .         .         .         .         .         .         .         .
 10100   50         .         .         .         .         .         .         .         .         .         .         .         .
 10115   60         .         .         .         .         .         .         .         .         .         .         .         .
 10130   70         .         .         .         .         .         .         .         .         .         .         .         .
 10145   80         .         .         .         .         .         .         .         .         .         .         .         .
 10200   90         .         .         .         .         .         .         .         .         .         .         .         .
 10215  100         .         .         .         .         .         .         .         .         .         .         .         .
 10230  110 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 10245  120         .         .         .         .         .         .         .         .         .         .         .         .
 10300  130         .         .         .         .         .         .         .         .         .         .         .         .
 10315  140         .         .         .         .         .         .         .         .         .         .         .         .
 10330  150         .         .         .         .         .         .         .         .         .         .         .         .
 10345  160         .         .         .         .         .         .         .         .         .         .         .         .
 10400  170         .         .         .         .         .         .         .         .         .         .         .         .
 10415  180         .         .         .         .         .         .         .         .         .         .         .        L.
 10430  190         .         .         .         .         .         .         .         .         .         .         .        L.
 10445  200         .         .         .         .         .         .         .         .         .         .         .        L.
 10500  210 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .L.
 10515  220         .         .         .         .         .         .         .         .         .         .         .       LL.
 10530  230         .         .         .         .         .         .         .         .         .         .         .       LL.
 10545  24.  O      .         .         .         .         .         .         .         .         .   LLLLLLLLLLLLLLLLLLLLLLLLX.
 10600  25.      O  .         .         .         .         .         .         .         .         .   LLLLLLLLLLLLLLLLLLXXXXXXX.
 10615  26.         .         .        .O         .         .         .         .         .         .         .         .     LLLX.
 [illegible]0  27.         .         .         .         .         .     O   .         .         .         .         .         .     LLXX.
 10645  28.         .         .         .         .         .         .         . O       .         .         .         .        X.
 10700  29.         .         .         .         .         .         .       O .         .         .         .         .        X.
 10715  30.         .         .         .         .         . O       .         .         .         .         .         .        L.
 10730  31. . . . . . . . . . . . . . . . . . . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .L.
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10745  32.          .         .         .  O      .         .         .         .         .         .         .         .         L.
10800  33.          .         .      O  .         .         .         .         .         .         .         .         .         L.
10815  34.          .         .   O     .         .         .         .         .         .         .         .         .         L.
[illegible]30  35.          .         O         .         .         .         .         .         .         .         .         .         L.
[illegible]45  36.          .      O  .         .         .         .         .         .         .         .         .         .         .
10900  37.          .     O   .         .         .         .         .         .         .         .         .         .         .
10915  38.          .   O     .         .         .         .         .         .         .         .         .         .         .
10930  39.          .  O      .         .         .         .         .         .         .         .         .         .         .
10945  40.          . O       .         .         .         .         .         .         .         .         .         .         .
11000  41. . . . . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11015  42.         .O        .         .         .         .         .         .         .         .         .         .         .
11030  43.         O         .         .         .         .         .         .         .         .         .         .         .
11045  44.         O         .         .         .         .         .         .         .         .         .         .         .
11100  45.        O.         .         .         .         .         .         .         .         .         .         .         .
11115  46.        O.         .         .         .         .         .         .         .         .         .         .         .
11130  47.        O.         .         .         .         .         .         .         .         .         .         .         .
11145  48.       O .         .         .         .         .         .         .         .         .         .         .         .
11200  49.       O .         .         .         .         .         .         .         .         .         .         .         .
11215  50.       O .         .         .         .         .         .         .         .         .         .         .         .
11230  51. . . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11245  52.      O  .         .         .         .         .         .         .         .         .         .         .         .
11300  53.      O  .         .         .         .         .         .         .         .         .         .         .         .
11315  54.      O  .         .         .         .         .         .         .         .         .         .         .         .
11330  55.      O  .         .         .         .         .         .         .         .         .         .         .         .
11345  56.      O  .         .         .         .         .         .         .         .         .         .         .         .
11400  57.      O  .         .         .         .         .         .         .         .         .         .         .         .
11415  58.      O  .         .         .         .         .         .         .         .         .         .         .         .
11430  59.     O   .         .         .         .         .         .         .         .         .         .         .         .
11445  60.     O   .         .         .         .         .         .         .         .         .         .         .         .
11500  61. . . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11515  62.     O   .         .         .         .         .         .         .         .         .         .         .         .
11530  63.     O   .         .         .         .         .         .         .         .         .         .         .         .
11545  64.     O   .         .         .         .         .         .         .         .         .         .         .         .
11600  65.     O   .         .         .         .         .         .         .         .         .         .         .         .
11615  66.    O    .         .         .         .         .         .         .         .         .         .         .         .
11630  67.    O    .         .         .         .         .         .         .         .         .         .         .         .
11645  68.    O    .         .         .         .         .         .         .         .         .         .         .         .
11700  69.    O    .         .         .         .         .         .         .         .         .         .         .         .
11715  70.    O    .         .         .         .         .         .         .         .         .         .         .         .
11730  71. . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11745  72.    O    .         .         .         .         .         .         .         .         .         .         .         .
11800  73.    O    .         .         .         .         .         .         .         .         .         .         .         .
11815  74.    O    .         .         .         .         .         .         .         .         .         .         .         .
11830  75.    O    .         .         .         .         .         .         .         .         .         .         .         .
11845  76.    O    .         .         .         .         .         .         .         .         .         .         .         .
11900  77.    O    .         .         .         .         .         .         .         .         .         .         .         .
11915  78.    O    .         .         .         .         .         .         .         .         .         .         .         .
11930  79.    O    .         .         .         .         .         .         .         .         .         .         .         .
11945  80.  O      .         .         .         .         .         .         .         .         .         .         .         .
12000  81. . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
12015  82.  O      .         .         .         .         .         .         .         .         .         .         .         .
12030  83.  O      .         .         .         .         .         .         .         .         .         .         .         .
12045  84.  O      .         .         .         .         .         .         .         .         .         .         .         .
12100  85.  O      .         .         .         .         .         .         .         .         .         .         .         .
[illegible]15  86.  O      .         .         .         .         .         .         .         .         .         .         .         .
[illegible]0  87.  O      .         .         .         .         .         .         .         .         .         .         .         .
12145  88.  O      .         .         .         .         .         .         .         .         .         .         .         .
12200  89.  O      .         .         .         .         .         .         .         .         .         .         .         .
12215  90.  O      .         .         .         .         .         .         .         .         .         .         .         .
12230  91. .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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12245  92.  0     .         .         .         .         .         .         .         .         .         .         .         .
12300  93.  0     .         .         .         .         .         .         .         .         .         .         .         .
12315  94.  0     .         .         .         .         .         .         .         .         .         .         .         .
[illegible]30  95.  0     .         .         .         .         .         .         .         .         .         .         .         .
[illegible]5  96.--0------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.


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          *            *
 30 KK    *     SB35A  *
          *            *
          **************
                         RUNOFF FROM SB35A

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

             SUBBASIN RUNOFF DATA

 33 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .32  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB                STORM        1.77  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

 34 LS          SCS LOSS RATE
                      STRTL         .33  INITIAL ABSTRACTION
                     CRVNBR       86.00  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 35 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        500.  OVERLAND FLOW LENGTH
                         S       .0200  SLOPE
                         N        .150  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                      DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
 36 RK            COLLECTOR CHANNEL
                         L        933.  CHANNEL LENGTH
                         S       .0053  SLOPE
```

	N	.012	CHANNEL ROUGHNESS COEFFICIENT
	CA	.10	CONTRIBUTING AREA
	SHAPE	CIRC	CHANNEL SHAPE
	WD	2.00	BOTTOM WIDTH OR DIAMETER
	Z	.00	SIDE SLOPE
	DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
37 RK	MAIN CHANNEL		
	L	6900.	CHANNEL LENGTH
	S	.0070	SLOPE
	N	.050	CHANNEL ROUGHNESS COEFFICIENT
	CA	.32	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	120.00	BOTTOM WIDTH OR DIAMETER
	Z	5.00	SIDE SLOPE
	DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
	RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	7.22	100.00	69.23	387.90	.65	.23
3	5.48	1.25	.54	311.00	69.16	387.35	.65	9.53
4	.14	1.58	15.00	1725.00	37.56	443.68	.62	1.81

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 11.589 OUTFLOW= 10.659 BASIN STORAGE= .370 PERCENT ERROR= 4.826

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.14	1.58	15.00	36.19	435.00	.62

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

HYDROGRAPH AT STATION SB35A

TOTAL RAINFALL = 1.77, TOTAL LOSS = 1.09, TOTAL EXCESS = .68

	PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
			(CFS)				
+	36.	7.25		15.	5.	5.	5.
			(INCHES)	.442	.618	.618	.618
			(AC-FT)	8.	11.	11.	11.

CUMULATIVE AREA = .32 SQ MI

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              **************
              *            *
38 KK         *    SB35B   *
              *            *
              **************
                      RUNOFF FROM SB35B

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

            SUBBASIN RUNOFF DATA

41 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .24  SUBBASIN AREA

               PRECIPITATION DATA

13 PB               STORM       1.77  BASIN TOTAL PRECIPITATION

14 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                    .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                    .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                    .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                    .00      .00      .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

42 LS          SCS LOSS RATE
                    STRTL        .33  INITIAL ABSTRACTION
                   CRVNBR      86.00  CURVE NUMBER
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
43 UK            OVERLAND-FLOW ELEMENT NO. 1
                       L       500.  OVERLAND FLOW LENGTH
                       S      .0200  SLOPE
                       N       .100  ROUGHNESS COEFFICIENT
                      PA      100.0  PERCENT OF SUBBASIN
                   DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
44 RK            COLLECTOR CHANNEL
                       L       525.  CHANNEL LENGTH
                       S      .0043  SLOPE
                       N       .012  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .10  CONTRIBUTING AREA
                   SHAPE       CIRC  CHANNEL SHAPE
                      WD       1.50  BOTTOM WIDTH OR DIAMETER
                       Z        .00  SIDE SLOPE
                   DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
45 RK            MAIN CHANNEL
                       L      8000.  CHANNEL LENGTH
                       S      .0070  SLOPE
                       N       .050  CHANNEL ROUGHNESS COEFFICIENT
                      CA        .24  CONTRIBUTING AREA
                   SHAPE       TRAP  CHANNEL SHAPE
```

WD	100.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	5.15	100.00	67.13	374.98	.66	.32
3	4.70	1.25	.33	175.00	66.62	374.91	.66	8.87
4	.16	1.58	15.00	2000.00	24.99	438.62	.62	1.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 8.692 OUTFLOW= 7.978 BASIN STORAGE= .351 PERCENT ERROR= 4.173

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.16	1.58	15.00		24.62	450.00	.62

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

HYDROGRAPH AT STATION SB35B

TOTAL RAINFALL = 1.77, TOTAL LOSS = 1.09, TOTAL EXCESS = .68

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
25.	7.50		11.	4.	4.	4.
		(INCHES)	.437	.617	.617	.617
		(AC-FT)	6.	8.	8.	8.

CUMULATIVE AREA = .24 SQ MI

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          *            *
46 KK     *   CB35AB   *
          *            *
          **************
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COMBINE SB35A AND SB35B

KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

```
49 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                     HYDROGRAPH AT STATION   CB35AB

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
+  (CFS)      (HR)
                        (CFS)
    60.       7.25                 26.         9.          9.          9.
                     (INCHES)      .439       .617        .617        .617
                      (AC-FT)      13.        18.         18.         18.

                      CUMULATIVE AREA =     .56 SQ MI


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


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          *            *
50 KK     *     SB36   *
          *            *
          **************
                        RUNOFF FROM SB36

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

            SUBBASIN RUNOFF DATA

53 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .87  SUBBASIN AREA

               PRECIPITATION DATA

13 PB               STORM       1.77  BASIN TOTAL PRECIPITATION

14 PI            INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                    .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                    .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                    .00       .00       .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

54 LS          SCS LOSS RATE
                    STRTL        .35  INITIAL ABSTRACTION
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                CRVNBR       85.10  CURVE NUMBER
                 RTIMP         .00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
UK            OVERLAND-FLOW ELEMENT NO. 1
                     L        500.  OVERLAND FLOW LENGTH
                     S       .0200  SLOPE
                     N        .150  ROUGHNESS COEFFICIENT
                    PA       100.0  PERCENT OF SUBBASIN
                 DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
56 RK         COLLECTOR CHANNEL
                     L       1400.  CHANNEL LENGTH
                     S       .0040  SLOPE
                     N        .012  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .15  CONTRIBUTING AREA
                 SHAPE        CIRC  CHANNEL SHAPE
                    WD        2.25  BOTTOM WIDTH OR DIAMETER
                     Z         .00  SIDE SLOPE
                 DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
57 RK         MAIN CHANNEL
                     L       8000.  CHANNEL LENGTH
                     S       .0020  SLOPE
                     N        .050  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .87  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD      325.00  BOTTOM WIDTH OR DIAMETER
                     Z        5.00  SIDE SLOPE
                 DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
                RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
                 ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                            PEAK                  CELERITY
                                                (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

                    1        1.40      1.67      7.56    100.00    167.38    390.39       .61       .22
                    3        4.85      1.25       .85    466.67    167.15    390.19       .61      9.16
                    4         .03      1.63     15.00   1333.33    102.26    519.06       .56      1.23

ONTINUITY SUMMARY (AC-FT) - INFLOW=   18.440  EXCESS=   29.499 OUTFLOW=   42.539 BASIN STORAGE=    4.003 PERCENT ERROR=    2.913

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    4         .03      1.63     15.00             100.69    525.00       .56

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

                     HYDROGRAPH AT STATION     SB36

OTAL RAINFALL =    1.77, TOTAL LOSS =    1.13, TOTAL EXCESS =     .64

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
 (CFS)       (HR)
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                    (CFS)
+    101.     8.75                55.        22.        22.        22.
                  (INCHES)      .361       .557       .557       .557
                   (AC-FT)       28.        42.        42.        42.

                   CUMULATIVE AREA =    1.43 SQ MI


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          *            *
 58 KK    *      SB37  *
          *            *
          **************
                  RUNOFF FROM SB37

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

              SUBBASIN RUNOFF DATA

 61 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .45  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB               STORM        1.77  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

 62 LS          SCS LOSS RATE
                     STRTL         .37  INITIAL ABSTRACTION
                    CRVNBR       84.50  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 63 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        500.  OVERLAND FLOW LENGTH
                         S       .1000  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
 64 RK            COLLECTOR CHANNEL
                         L       1100.  CHANNEL LENGTH
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                S       .0045  SLOPE
                N        .012  CHANNEL ROUGHNESS COEFFICIENT
               CA         .10  CONTRIBUTING AREA
            SHAPE        CIRC  CHANNEL SHAPE
               WD        2.00  BOTTOM WIDTH OR DIAMETER
                Z         .00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
65 RK        MAIN CHANNEL
                L       4300.  CHANNEL LENGTH
                S       .0100  SLOPE
                N        .050  CHANNEL ROUGHNESS COEFFICIENT
               CA         .45  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD      100.00  BOTTOM WIDTH OR DIAMETER
                Z        4.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                      PEAK                  CELERITY
                                          (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

             1        4.71      1.67      2.80    100.00    177.61   360.97        .60       .60
             3        5.04      1.25       .61    366.67    171.85   363.22        .59     10.00
             4         .19      1.58      7.48   1433.33     99.29   383.16        .58      3.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   14.594 OUTFLOW=   13.936 BASIN STORAGE=     .250 PERCENT ERROR=    2.799

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

             4         .19      1.58     15.00              89.58   390.00        .58

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

                HYDROGRAPH AT STATION     SB37

  TOTAL RAINFALL =    1.77, TOTAL LOSS =    1.16, TOTAL EXCESS =     .61

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                        (CFS)
+    90.      6.50                21.         7.          7.          7.
                      (INCHES)    .434        .581        .581        .581
                       (AC-FT)     10.         14.         14.         14.

                      CUMULATIVE AREA =     .45 SQ MI

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              *            *
 KK           *   SB3637   *
              *            *
              **************
                              COMBINE SB36 AND SB37

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

 69 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                ***

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

                        HYDROGRAPH AT STATION   SB3637

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                         (CFS)
   112.       8.75                   74.         29.         29.         29.
                      (INCHES)      .364        .562        .562        .562
                       (AC-FT)       36.         56.         56.         56.

                       CUMULATIVE AREA =    1.88 SQ MI


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


              **************
              *            *
 70 KK        *      SB31  *
              *            *
              **************
                              RUNOFF FROM SB31

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

            SUBBASIN RUNOFF DATA

 73 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .63  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB                STORM        1.77  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
```

```
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                .00       .00       .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

74 LS         SCS LOSS RATE
                  STRTL        .33  INITIAL ABSTRACTION
                 CRVNBR      86.00  CURVE NUMBER
                  RTIMP        .00  PERCENT IMPERVIOUS AREA

            LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                  STRTL        .33  INITIAL ABSTRACTION
                 CRVNBR      86.00  CURVE NUMBER
                  RTIMP        .00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
75 UK       OVERLAND-FLOW ELEMENT NO. 1
                    L       600.  OVERLAND FLOW LENGTH
                    S      .0200  SLOPE
                    N       .150  ROUGHNESS COEFFICIENT
                   PA       10.0  PERCENT OF SUBBASIN
                 DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
76 UK       OVERLAND-FLOW ELEMENT NO. 2
                    L       500.  OVERLAND FLOW LENGTH
                    S      .1000  SLOPE
                    N       .150  ROUGHNESS COEFFICIENT
                   PA       90.0  PERCENT OF SUBBASIN
                 DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
77 RK       COLLECTOR CHANNEL
                    L       967.  CHANNEL LENGTH
                    S      .0040  SLOPE
                    N       .012  CHANNEL ROUGHNESS COEFFICIENT
                   CA        .10  CONTRIBUTING AREA
                SHAPE       CIRC  CHANNEL SHAPE
                   WD       2.00  BOTTOM WIDTH OR DIAMETER
                    Z        .00  SIDE SLOPE
                 DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
78 RK       COLLECTOR CHANNEL
                    L     12400.  CHANNEL LENGTH
                    S      .0070  SLOPE
                    N       .050  CHANNEL ROUGHNESS COEFFICIENT
                   CA        .50  CONTRIBUTING AREA
                SHAPE       TRAP  CHANNEL SHAPE
                   WD      16.00  BOTTOM WIDTH OR DIAMETER
                    Z       2.00  SIDE SLOPE
                 DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
79 RK       MAIN CHANNEL
                    L      2000.  CHANNEL LENGTH
                    S      .0030  SLOPE
                    N       .045  CHANNEL ROUGHNESS COEFFICIENT
                   CA        .63  CONTRIBUTING AREA
                SHAPE       TRAP  CHANNEL SHAPE
                   WD      16.00  BOTTOM WIDTH OR DIAMETER
                    Z       2.00  SIDE SLOPE
```

```
DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
RUPSTQ       YES  ROUTE UPSTREAM HYDROGRAPH

                                   ***
                    COMPUTED KINEMATIC PARAMETERS
                         VARIABLE TIME STEP
                       (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	8.48	120.00	12.37	386.77	.65	.24
2	3.14	1.67	3.67	100.00	208.27	365.50	.67	.45
3	4.76	1.25	.58	322.33	199.34	365.47	.66	9.19
4	.53	1.48	15.00	4133.33	98.36	417.19	.64	4.20
5	.39	1.48	2.48	666.67	178.87	407.31	.58	4.48

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=   56.380  EXCESS=   22.816 OUTFLOW=   77.554 BASIN STORAGE=     .860 PERCENT ERROR=     .988

                    INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
```

5	.39	1.48	15.00		176.45	405.00	.58

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

                HYDROGRAPH AT STATION     SB31

TOTAL RAINFALL =    1.77, TOTAL LOSS =    1.09, TOTAL EXCESS =     .68
```

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
176.	6.75		105.	40.	40.	40.
		(INCHES)	.390	.581	.581	.581
		(AC-FT)	52.	78.	78.	78.

```
                CUMULATIVE AREA =    2.51 SQ MI

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

          **************
          *            *
80 KK     *      SB39  *
          *            *
          **************
                RUNOFF FROM SB39

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

SUBBASIN RUNOFF DATA

83 BA SUBBASIN CHARACTERISTICS

TAREA	.11	SUBBASIN AREA

PRECIPITATION DATA

13 PB

STORM	1.77	BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

84 LS SCS LOSS RATE

STRTL	.36	INITIAL ABSTRACTION
CRVNBR	84.80	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

85 UK OVERLAND-FLOW ELEMENT NO. 1

L	500.	OVERLAND FLOW LENGTH
S	.1500	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

86 RK MAIN CHANNEL

L	3300.	CHANNEL LENGTH
S	.0200	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.11	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	60.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	5.77	1.67	2.29	100.00	51.73	360.27	.61	.73
3	.40	1.55	6.11	1100.00	29.46	374.57	.60	3.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 3.648 OUTFLOW= 3.511 BASIN STORAGE= .050 PERCENT ERROR= 2.391

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    3        .40      1.55      15.00              29.31    375.00       .60

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

                     HYDROGRAPH AT STATION     SB39

   TOTAL RAINFALL =    1.77, TOTAL LOSS =    1.15, TOTAL EXCESS =     .62

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
  (CFS)       (HR)
                       (CFS)
+     29.     6.25                    5.          2.          2.          2.
                     (INCHES)       .456        .601        .601        .601
                      (AC-FT)        3.          4.          4.          4.

                      CUMULATIVE AREA =     .11 SQ MI


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


          **************
          *            *
  87 KK   *      SB29  *
          *            *
          **************
                        RUNOFF FROM SB29

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

             SUBBASIN RUNOFF DATA

  90 BA         SUBBASIN CHARACTERISTICS
                      TAREA         .47  SUBBASIN AREA

              PRECIPITATION DATA

  13 PB               STORM        1.77  BASIN TOTAL PRECIPITATION

  14 PI           INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

  91 LS         SCS LOSS RATE
```

```
                STRTL        .34  INITIAL ABSTRACTION
               CRVNBR      85.60  CURVE NUMBER
                RTIMP        .00  PERCENT IMPERVIOUS AREA

          KINEMATIC WAVE
92 UK       OVERLAND-FLOW ELEMENT NO. 1
                    L       500.  OVERLAND FLOW LENGTH
                    S      .0200  SLOPE
                    N       .200  ROUGHNESS COEFFICIENT
                   PA      100.0  PERCENT OF SUBBASIN
               DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
93 RK       COLLECTOR CHANNEL
                    L      1256.  CHANNEL LENGTH
                    S      .0053  SLOPE
                    N       .012  CHANNEL ROUGHNESS COEFFICIENT
                   CA        .10  CONTRIBUTING AREA
               SHAPE       CIRC  CHANNEL SHAPE
                   WD       2.00  BOTTOM WIDTH OR DIAMETER
                    Z        .00  SIDE SLOPE
               DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
94 RK       MAIN CHANNEL
                    L      4800.  CHANNEL LENGTH
                    S      .0070  SLOPE
                    N       .050  CHANNEL ROUGHNESS COEFFICIENT
                   CA        .47  CONTRIBUTING AREA
               SHAPE       TRAP  CHANNEL SHAPE
                   WD     120.00  BOTTOM WIDTH OR DIAMETER
                    Z       4.00  SIDE SLOPE
               DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
              RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH

                                        ***
                        COMPUTED KINEMATIC PARAMETERS
                             VARIABLE TIME STEP
                           (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.05	1.67	9.54	100.00	82.20	392.14	.63	.17
3	5.48	1.25	.77	418.67	78.41	401.53	.63	9.05
4	.13	1.60	11.52	1600.00	63.86	422.88	.61	2.31

```
ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   16.532 OUTFLOW=   15.236 BASIN STORAGE=     .383 PERCENT ERROR=    5.518

                             INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
```

4	.13	1.60	15.00		63.34	420.00	.61

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

                HYDROGRAPH AT STATION     SB29

 TOTAL RAINFALL =    1.77, TOTAL LOSS =    1.11, TOTAL EXCESS =     .66

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     23.75-HR
```

```
 (CFS)      (HR)
                      (CFS)
   63.      7.00                  22.         8.         8.         8.
                   (INCHES)      .439       .606       .606       .606
                    (AC-FT)       11.        15.        15.        15.

                    CUMULATIVE AREA =     .47 SQ MI


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


          **************
          *            *
 95 KK    *      SB30  *
          *            *
          **************
                         RUNOFF FROM SB30

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

             SUBBASIN RUNOFF DATA

 98 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .38  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB               STORM        1.77  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

 99 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
                    CRVNBR       85.90  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
100 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        700.  OVERLAND FLOW LENGTH
                         S       .0200  SLOPE
                         N        .150  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
101 RK            COLLECTOR CHANNEL
```

	L	1500.	CHANNEL LENGTH
	S	.0040	SLOPE
	N	.012	CHANNEL ROUGHNESS COEFFICIENT
	CA	.10	CONTRIBUTING AREA
	SHAPE	CIRC	CHANNEL SHAPE
	WD	2.25	BOTTOM WIDTH OR DIAMETER
	Z	.00	SIDE SLOPE
	DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
102 RK	MAIN CHANNEL		
	L	6300.	CHANNEL LENGTH
	S	.0060	SLOPE
	N	.050	CHANNEL ROUGHNESS COEFFICIENT
	CA	.38	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	140.00	BOTTOM WIDTH OR DIAMETER
	Z	4.00	SIDE SLOPE
	DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
	RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	9.81	140.00	66.80	393.37	.64	.24
3	4.85	1.25	1.01	500.00	63.55	402.44	.64	8.22
4	.11	1.60	11.29	1575.00	98.49	452.60	.60	2.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= 15.200 EXCESS= 13.662 OUTFLOW= 27.125 BASIN STORAGE= 1.002 PERCENT ERROR= 2.548

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.11	1.60	15.00		96.92	450.00	.59

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

HYDROGRAPH AT STATION SB30

TOTAL RAINFALL = 1.77, TOTAL LOSS = 1.10, TOTAL EXCESS = .67

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
97.	7.50		38.	14.	14.	14.
		(INCHES)	.421	.595	.595	.595
		(AC-FT)	19.	27.	27.	27.

CUMULATIVE AREA = .85 SQ MI

*** ***

```
              **************
              *            *
   KK         *   SB3019   *
              *            *
              **************
                             COMBINE SB30, SB31 AND SB39

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

  106 HC          HYDROGRAPH COMBINATION
                        ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                       HYDROGRAPH AT STATION   SB3019

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     23.75-HR
+  (CFS)       (HR)
                         (CFS)
    235.       7.25                148.        55.         55.         55.
                        (INCHES)   .397       .585        .585        .585
                         (AC-FT)    73.       108.        108.        108.

                         CUMULATIVE AREA =    3.47 SQ MI


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


              **************
              *            *
  107 KK      *      SB40  *
              *            *
              **************
                             RUNOFF FROM SB40

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

                SUBBASIN RUNOFF DATA

  110 BA          SUBBASIN CHARACTERISTICS
                        TAREA        .10  SUBBASIN AREA

                  PRECIPITATION DATA

   13 PB                STORM       1.77  BASIN TOTAL PRECIPITATION
```

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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					

111 LS SCS LOSS RATE

STRTL	.33	INITIAL ABSTRACTION
CRVNBR	85.70	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

112 UK OVERLAND-FLOW ELEMENT NO. 1

L	400.	OVERLAND FLOW LENGTH
S	.2000	SLOPE
N	.100	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

113 RK COLLECTOR CHANNEL

L	1200.	CHANNEL LENGTH
S	.1000	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.05	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

114 RK MAIN CHANNEL

L	1800.	CHANNEL LENGTH
S	.0080	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.10	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	20.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.66	1.67	1.65	80.00	56.18	359.78	.66	.81
3	3.62	1.38	.71	400.00	54.45	360.01	.64	9.36
4	.59	1.45	1.79	600.00	238.87	439.76	.59	5.59

ONTINUITY SUMMARY (AC-FT) - INFLOW= 108.233 EXCESS= 3.543 OUTFLOW= 111.419 BASIN STORAGE= .297 PERCENT ERROR= .055

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.59	1.45	15.00	238.07	450.00	.59

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

HYDROGRAPH AT STATION SB40

TOTAL RAINFALL = 1.77, TOTAL LOSS = 1.11, TOTAL EXCESS = .66

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 238.	7.50		152.	57.	57.	57.
		(INCHES)	.396	.586	.586	.586
		(AC-FT)	75.	111.	111.	111.

CUMULATIVE AREA = 3.57 SQ MI

*** ***

```
115 KK     **************
           *            *
           *   SB2840   *
           *            *
           **************
```

COMBINE SB28 AND SB40

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

118 HC         HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
```

***

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

HYDROGRAPH AT STATION SB2840

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
+ 256.	7.25		162.	60.	60.	60.
		(INCHES)	.387	.570	.570	.570
		(AC-FT)	80.	118.	118.	118.

CUMULATIVE AREA = 3.89 SQ MI

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

              **************
              *            *
119 KK        *     SB41   *
              *            *
              **************
                             RUNOFF FROM SB41

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

              SUBBASIN RUNOFF DATA

122 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .30  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB               STORM        1.77  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

123 LS          SCS LOSS RATE
                     STRTL         .44  INITIAL ABSTRACTION
                    CRVNBR       81.90  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
124 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        500.  OVERLAND FLOW LENGTH
                         S       .0200  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
125 RK            COLLECTOR CHANNEL
                         L       2600.  CHANNEL LENGTH
                         S       .0030  SLOPE
                         N        .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .05  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD        2.00  BOTTOM WIDTH OR DIAMETER
                         Z        1.00  SIDE SLOPE
                     DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
126 RK            MAIN CHANNEL
                         L       2500.  CHANNEL LENGTH
```

S	.0040	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.30	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	20.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	6.43	100.00	47.41	384.69	.48	.26
3	.77	1.36	7.31	866.67	41.34	396.28	.47	1.98
4	.42	1.45	2.98	833.33	278.45	413.05	.56	4.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= 118.340 EXCESS= 7.975 OUTFLOW= 125.076 BASIN STORAGE= .642 PERCENT ERROR= .472

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.42	1.45	15.00	276.78	420.00	.56

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

HYDROGRAPH AT STATION SB41

TOTAL RAINFALL = 1.77, TOTAL LOSS = 1.27, TOTAL EXCESS = .50

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
277.	7.00		172.	64.	64.	64.
		(INCHES)	.382	.560	.560	.560
		(AC-FT)	85.	125.	125.	125.

CUMULATIVE AREA = 4.19 SQ MI

*** ***

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**************
*            *
*     SB42   *
*            *
**************
```

127 KK

RUNOFF FROM SB42

129 KO OUTPUT CONTROL VARIABLES

```
                IPRNT          3  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE

          SUBBASIN RUNOFF DATA

130 BA      SUBBASIN CHARACTERISTICS
                TAREA        .59  SUBBASIN AREA

            PRECIPITATION DATA

 13 PB          STORM       1.77  BASIN TOTAL PRECIPITATION

 14 PI        INCREMENTAL PRECIPITATION PATTERN
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                .00      .00      .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

131 LS      SCS LOSS RATE
                STRTL        .36  INITIAL ABSTRACTION
               CRVNBR      84.80  CURVE NUMBER
                RTIMP        .00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
132 UK        OVERLAND-FLOW ELEMENT NO. 1
                  L        400.  OVERLAND FLOW LENGTH
                  S       .0500  SLOPE
                  N        .150  ROUGHNESS COEFFICIENT
                 PA       100.0  PERCENT OF SUBBASIN
               DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
133 RK        COLLECTOR CHANNEL
                  L       1760.  CHANNEL LENGTH
                  S       .0100  SLOPE
                  N        .012  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .07  CONTRIBUTING AREA
              SHAPE        CIRC  CHANNEL SHAPE
                 WD        2.50  BOTTOM WIDTH OR DIAMETER
                  Z         .00  SLOPE
               DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
134 RK        MAIN CHANNEL
                  L       6200.  CHANNEL LENGTH
                  S       .0100  SLOPE
                  N        .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .59  CONTRIBUTING AREA
              SHAPE        TRAP  CHANNEL SHAPE
                 WD       80.00  BOTTOM WIDTH OR DIAMETER
                  Z        4.00  SLOPE
               DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
              RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                                VARIABLE TIME STEP
```

(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.22	1.67	4.35	80.00	168.01	370.52	.60	.31
3	7.81	1.25	.79	586.67	165.78	370.31	.60	12.41
4	.22	1.57	9.87	2066.67	105.80	396.26	.59	3.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 19.566 OUTFLOW= 18.455 BASIN STORAGE= .324 PERCENT ERROR= 4.024

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.22	1.57	15.00		95.71	405.00	.58

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

HYDROGRAPH AT STATION SB42

TOTAL RAINFALL = 1.77, TOTAL LOSS = 1.15, TOTAL EXCESS = .62

	PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
			(CFS)				
+	96.	6.75		27.	9.	9.	9.
			(INCHES)	.428	.579	.579	.579
			(AC-FT)	13.	18.	18.	18.

CUMULATIVE AREA = .59 SQ MI

** ***

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              **************
              *            *
135 KK        *   CB4142   *
              *            *
              **************
```

COMBINE SB41 AND SB42

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

138 HC        HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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***

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

HYDROGRAPH AT STATION CB4142

```
PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                          (CFS)
  364.        6.75                198.         73.         73.         73.
                        (INCHES)   .386        .562        .562        .562
                         (AC-FT)    98.        143.        143.        143.

                         CUMULATIVE AREA =    4.78 SQ MI
```

*** ***

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          **************
          *            *
139 KK    *     SB43   *
          *            *
          **************
                         RUNOFF FROM SB43

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

              SUBBASIN RUNOFF DATA

142 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .66  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB               STORM       1.77  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

143 LS          SCS LOSS RATE
                     STRTL        .41  INITIAL ABSTRACTION
                    CRVNBR      83.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

                LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                     STRTL        .41  INITIAL ABSTRACTION
                    CRVNBR      83.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA
```

```
                KINEMATIC WAVE
144 UK            OVERLAND-FLOW ELEMENT NO. 1
                        L        200.  OVERLAND FLOW LENGTH
                        S       .3000  SLOPE
                        N        .150  ROUGHNESS COEFFICIENT
                       PA        70.0  PERCENT OF SUBBASIN
                    DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
145 UK            OVERLAND-FLOW ELEMENT NO. 2
                        L        300.  OVERLAND FLOW LENGTH
                        S       .0100  SLOPE
                        N        .150  ROUGHNESS COEFFICIENT
                       PA        30.0  PERCENT OF SUBBASIN
                    DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
146 RK            COLLECTOR CHANNEL
                        L       1450.  CHANNEL LENGTH
                        S       .0060  SLOPE
                        N        .012  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .10  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD         .00  BOTTOM WIDTH OR DIAMETER
                        Z        1.00  SIDE SLOPE
                    DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
147 RK            MAIN CHANNEL
                        L       4500.  CHANNEL LENGTH
                        S       .0060  SLOPE
                        N        .045  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .66  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD       40.00  BOTTOM WIDTH OR DIAMETER
                        Z        4.00  SIDE SLOPE
                    DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
                   RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	5.44	1.67	1.50	40.00	166.88	359.60	.50	.52
2	.99	1.67	7.38	60.00	31.89	390.10	.52	.14
3	4.82	1.33	.77	483.33	174.11	361.33	.50	10.51
4	.33	1.51	4.45	1500.00	407.97	414.10	.55	5.62

```
ONTINUITY SUMMARY (AC-FT) - INFLOW=  143.270  EXCESS=   19.110 OUTFLOW=  159.196 BASIN STORAGE=    1.329 PERCENT ERROR=    1.142

                              INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                    4         .33      1.51      15.00              396.68    420.00       .55

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

                     HYDROGRAPH AT STATION     SB43

   TOTAL RAINFALL =    1.77, TOTAL LOSS =    1.23, TOTAL EXCESS =     .54
```

```
PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     23.75-HR
 (CFS)        (HR)
                          (CFS)
   397.       7.00                218.        81.         81.         81.
                         (INCHES)   .373       .548        .548        .548
                          (AC-FT)   108.       159.        159.        159.

                          CUMULATIVE AREA =    5.44 SQ MI


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


            **************
            *            *
148 KK      *     SB44   *
            *            *
            **************
                          RUNOFF FROM SB44

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

              SUBBASIN RUNOFF DATA

151 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.10  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB                STORM       1.77  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

152 LS          SCS LOSS RATE
                      STRTL        .33  INITIAL ABSTRACTION
                     CRVNBR      86.00  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
153 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L       500.  OVERLAND FLOW LENGTH
                          S      .0200  SLOPE
                          N       .150  ROUGHNESS COEFFICIENT
```

	PA	100.0	PERCENT OF SUBBASIN
	DXMIN	5	MINIMUM NUMBER OF DX INTERVALS
154 RK	COLLECTOR CHANNEL		
	L	2433.	CHANNEL LENGTH
	S	.0060	SLOPE
	N	.012	CHANNEL ROUGHNESS COEFFICIENT
	CA	.20	CONTRIBUTING AREA
	SHAPE	CIRC	CHANNEL SHAPE
	WD	2.50	BOTTOM WIDTH OR DIAMETER
	Z	.00	SIDE SLOPE
	DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
155 RK	MAIN CHANNEL		
	L	10600.	CHANNEL LENGTH
	S	.0100	SLOPE
	N	.050	CHANNEL ROUGHNESS COEFFICIENT
	CA	1.10	CONTRIBUTING AREA
	SHAPE	TRAP	CHANNEL SHAPE
	WD	100.00	BOTTOM WIDTH OR DIAMETER
	Z	5.00	SIDE SLOPE
	DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
	RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	7.22	100.00	237.98	387.90	.65	.23
3	6.05	1.25	1.14	811.00	237.55	387.42	.65	11.85
4	.20	1.57	15.00	3533.33	147.05	427.80	.62	3.61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 39.837 OUTFLOW= 36.573 BASIN STORAGE= 1.159 PERCENT ERROR= 5.283

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.20	1.57	15.00	137.63	435.00	.62

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

HYDROGRAPH AT STATION SB44

TOTAL RAINFALL = 1.77, TOTAL LOSS = 1.09, TOTAL EXCESS = .68

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	23.75-HR
		(CFS)				
138.	7.25		53.	19.	19.	19.
		(INCHES)	.448	.620	.620	.620
		(AC-FT)	26.	36.	36.	36.

CUMULATIVE AREA = 1.10 SQ MI

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

              ***************
              *             *
156 KK        *    CB4344   *
              *             *
              ***************
                             COMBINE SB443 AND SB44

158 KO             OUTPUT CONTROL VARIABLES
                         IPRNT           3  PRINT CONTROL
                         IPLOT           2  PLOT CONTROL
                         QSCAL          0.  HYDROGRAPH PLOT SCALE

159 HC             HYDROGRAPH COMBINATION
                         ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                     ***

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

                           HYDROGRAPH AT STATION   CB4344

PEAK FLOW      TIME                             MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR        72-HR      23.75-HR
+   (CFS)      (HR)
                             (CFS)
    533.       7.00                     271.          99.          99.          99.
                          (INCHES)      .385         .560         .560         .560
                           (AC-FT)      134.         195.         195.         195.

                        CUMULATIVE AREA =     6.54 SQ MI

                                                              STATION   CB4344

                           (O) OUTFLOW
            0.       50.      100.      150.      200.      250.      300.      350.      400.      450.      500.      550.        0.
AHRMN PER
10000  10---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
10015  20         .         .         .         .         .         .         .         .         .         .         .         .
10030  30         .         .         .         .         .         .         .         .         .         .         .         .
10045  40         .         .         .         .         .         .         .         .         .         .         .         .
10100  50         .         .         .         .         .         .         .         .         .         .         .         .
10115  60         .         .         .         .         .         .         .         .         .         .         .         .
10130  70         .         .         .         .         .         .         .         .         .         .         .         .
10145  80         .         .         .         .         .         .         .         .         .         .         .         .
10200  90         .         .         .         .         .         .         .         .         .         .         .         .
10215 100         .         .         .         .         .         .         .         .         .         .         .         .
10230 110 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
10245 120         .         .         .         .         .         .         .         .         .         .         .         .
10300 130         .         .         .         .         .         .         .         .         .         .         .         .
10315 140         .         .         .         .         .         .         .         .         .         .         .         .
10330 150         .         .         .         .         .         .         .         .         .         .         .         .
10345 160         .         .         .         .         .         .         .         .         .         .         .         .
10400 170         .         .         .         .         .         .         .         .         .         .         .         .
10415 180         .         .         .         .         .         .         .         .         .         .         .         .
10430 190         .         .         .         .         .         .         .         .         .         .         .         .
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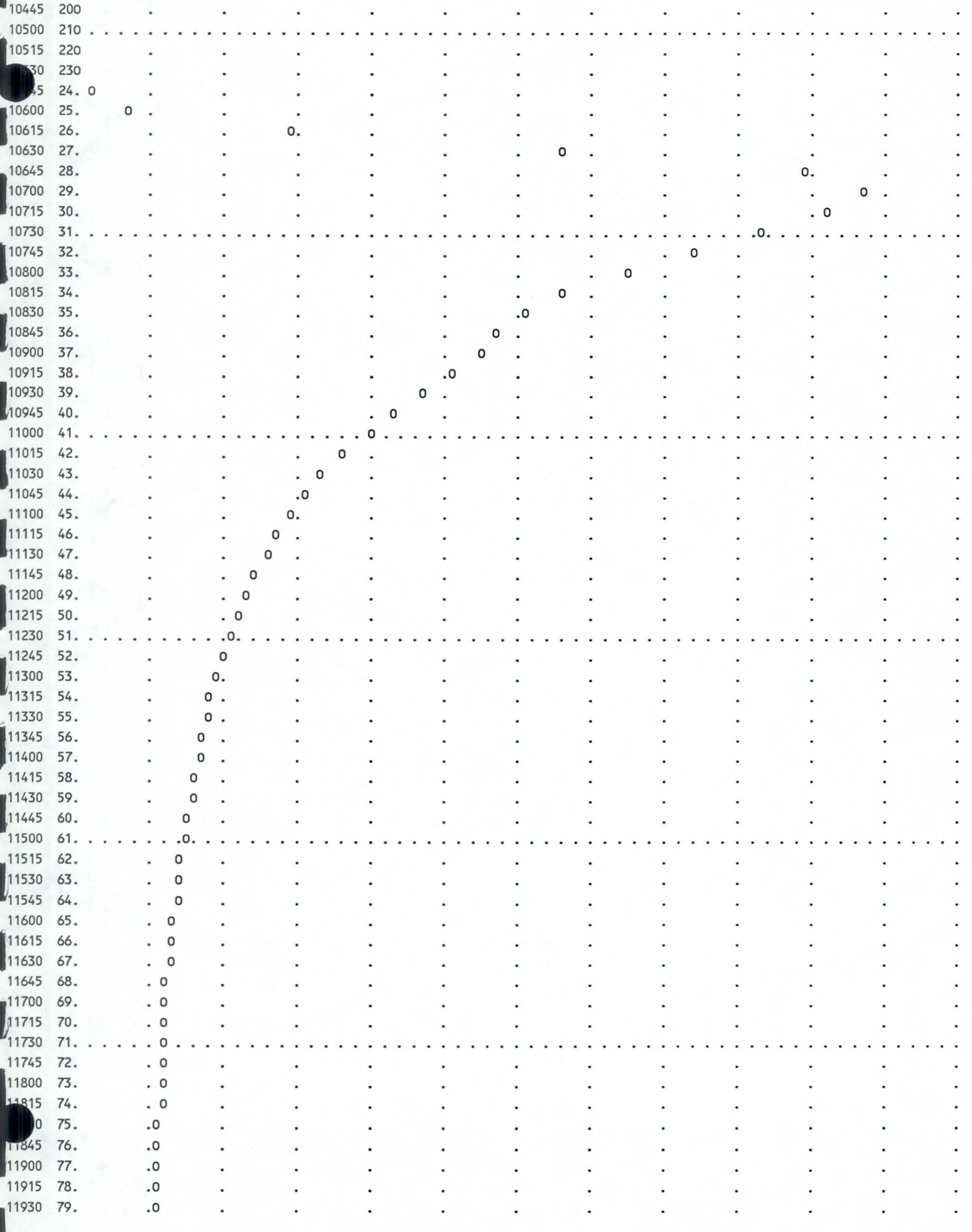

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11945  80.        O        .         .         .         .         .         .         .         .         .         .         .
12000  81. . . . . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
12015  82.        O        .         .         .         .         .         .         .         .         .         .         .
12030  83.        O        .         .         .         .         .         .         .         .         .         .         .
12045  84.       O.        .         .         .         .         .         .         .         .         .         .         .
12100  85.       O.        .         .         .         .         .         .         .         .         .         .         .
12115  86.       O.        .         .         .         .         .         .         .         .         .         .         .
12130  87.       O.        .         .         .         .         .         .         .         .         .         .         .
12145  88.       O.        .         .         .         .         .         .         .         .         .         .         .
12200  89.      O .        .         .         .         .         .         .         .         .         .         .         .
12215  90.      O .        .         .         .         .         .         .         .         .         .         .         .
12230  91. . . . O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
12245  92.      O .        .         .         .         .         .         .         .         .         .         .         .
12300  93.      O .        .         .         .         .         .         .         .         .         .         .         .
12315  94.      O .        .         .         .         .         .         .         .         .         .         .         .
12330  95.     O  .        .         .         .         .         .         .         .         .         .         .         .
12345  96.------O--.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
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1

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	SB1	106.	6.25	24.	8.	8.	.46		
HYDROGRAPH AT	SB28	29.	6.75	10.	3.	3.	.32		
HYDROGRAPH AT	SB35A	36.	7.25	15.	5.	5.	.32		
HYDROGRAPH AT	SB35B	25.	7.50	11.	4.	4.	.24		
2 COMBINED AT	CB35AB	60.	7.25	26.	9.	9.	.56		
HYDROGRAPH AT	SB36	101.	8.75	55.	22.	22.	1.43		
HYDROGRAPH AT	SB37	90.	6.50	21.	7.	7.	.45		
2 COMBINED AT	SB3637	112.	8.75	74.	29.	29.	1.88		
HYDROGRAPH AT	SB31	176.	6.75	105.	40.	40.	2.51		
HYDROGRAPH AT	SB39	29.	6.25	5.	2.	2.	.11		
HYDROGRAPH AT	SB29	63.	7.00	22.	8.	8.	.47		

HYDROGRAPH AT							
+	SB30	97.	7.50	38.	14.	14.	.85
3 COMBINED AT							
	SB3019	235.	7.25	148.	55.	55.	3.47
HYDROGRAPH AT							
+	SB40	238.	7.50	152.	57.	57.	3.57
2 COMBINED AT							
	SB2840	256.	7.25	162.	60.	60.	3.89
HYDROGRAPH AT							
	SB41	277.	7.00	172.	64.	64.	4.19
HYDROGRAPH AT							
	SB42	96.	6.75	27.	9.	9.	.59
2 COMBINED AT							
	CB4142	364.	6.75	198.	73.	73.	4.78
HYDROGRAPH AT							
	SB43	397.	7.00	218.	81.	81.	5.44
HYDROGRAPH AT							
+	SB44	138.	7.25	53.	19.	19.	1.10
2 COMBINED AT							
+	CB4344	533.	7.00	271.	99.	99.	6.54

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
SB1	4	5.18	122.59	378.75	.63	15.00	105.61	375.00	.63

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 16.062 OUTFLOW= 15.449 BASIN STORAGE= .143 PERCENT ERROR= 2.929

SB28	4	14.35	30.48	411.64	.40	15.00	28.77	405.00	.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 7.301 OUTFLOW= 6.899 BASIN STORAGE= .161 PERCENT ERROR= 3.306

SB35A	4	15.00	37.56	443.68	.62	15.00	36.19	435.00	.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 11.589 OUTFLOW= 10.659 BASIN STORAGE= .370 PERCENT ERROR= 4.826

SB35B	4	15.00	24.99	438.62	.62	15.00	24.62	450.00	.62

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 8.692 OUTFLOW= 7.978 BASIN STORAGE= .351 PERCENT ERROR= 4.173

SB36	4	15.00	102.26	519.06	.56	15.00	100.69	525.00	.56

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=   18.440 EXCESS=   29.499 OUTFLOW=   42.539 BASIN STORAGE=    4.003 PERCENT ERROR=    2.913

          SB37     4       7.48    99.29   383.16      .58    15.00    89.58   390.00        .58

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   14.594 OUTFLOW=   13.936 BASIN STORAGE=     .250 PERCENT ERROR=    2.799

          SB31     5       2.48   178.87   407.31      .58    15.00   176.45   405.00        .58

CONTINUITY SUMMARY (AC-FT) - INFLOW=   56.380 EXCESS=   22.816 OUTFLOW=   77.554 BASIN STORAGE=     .860 PERCENT ERROR=     .988

          SB39     3       6.11    29.46   374.57      .60    15.00    29.31   375.00        .60

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=    3.648 OUTFLOW=    3.511 BASIN STORAGE=     .050 PERCENT ERROR=    2.391

          SB29     4      11.52    63.86   422.88      .61    15.00    63.34   420.00        .61

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   16.532 OUTFLOW=   15.236 BASIN STORAGE=     .383 PERCENT ERROR=    5.518

          SB30     4      11.29    98.49   452.60      .60    15.00    96.92   450.00        .59

CONTINUITY SUMMARY (AC-FT) - INFLOW=   15.200 EXCESS=   13.662 OUTFLOW=   27.125 BASIN STORAGE=    1.002 PERCENT ERROR=    2.548

          SB40     4       1.79   238.87   439.76      .59    15.00   238.07   450.00        .59

CONTINUITY SUMMARY (AC-FT) - INFLOW=  108.233 EXCESS=    3.543 OUTFLOW=  111.419 BASIN STORAGE=     .297 PERCENT ERROR=     .055

          SB41     4       2.98   278.45   413.05      .56    15.00   276.78   420.00        .56

CONTINUITY SUMMARY (AC-FT) - INFLOW=  118.340 EXCESS=    7.975 OUTFLOW=  125.076 BASIN STORAGE=     .642 PERCENT ERROR=     .472

          SB42     4       9.87   105.80   396.26      .59    15.00    95.71   405.00        .58

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   19.566 OUTFLOW=   18.455 BASIN STORAGE=     .324 PERCENT ERROR=    4.024

          SB43     4       4.45   407.97   414.10      .55    15.00   396.68   420.00        .55

CONTINUITY SUMMARY (AC-FT) - INFLOW=  143.270 EXCESS=   19.110 OUTFLOW=  159.196 BASIN STORAGE=    1.329 PERCENT ERROR=    1.142

          SB44     4      15.00   147.05   427.80      .62    15.00   137.63   435.00        .62

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   39.837 OUTFLOW=   36.573 BASIN STORAGE=    1.159 PERCENT ERROR=    5.283


** NORMAL END OF HEC-1 ***
```

CASE 5
LOWER WATERSHED MODEL

```
****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*        FEBRUARY 1981                 *
*       REVISED 01 JUN 88              *
*                                      *
*  RUN DATE  09/12/1990  TIME  20:17:34 *
*                                      *
****************************************
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```
****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*          (916) 551-1748              *
*                                      *
****************************************
```

```
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. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

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

  1           ID   DEADMAN'S WASH - CASE 5 - 100 YEAR 24 HOUR DESIGN STORM
  2           ID   EXISTING CONDITIONS ROUTED THROUGH THE RECOMMENDED CHANNEL
  3           ID   SYSTEM AUGMENTED BY THE RECOMMENDED STORM DRAIN SYSTEM
  4           ID   KINEMATIC WAVE ROUTING
  5           IT     15                  144
  6           IO      3       0
  7           IN     30

  8           KK    SB32
  9           KM   RUNOFF FROM SB32
 10           KO
 11           BA     .20
 12           LS      0    84.2
 13           PB    4.33
 14           PC      0    .005    .009    .010    .013    .019    .021    .028    .032    .044
 15           PC    .057    .100    .660    .745    .776    .800    .816    .830    .840    .850
 16           PC    .861    .868    .878    .884    .891    .900    .905    .912    .919    .923
 17           PC    .930    .934    .939    .944    .950    .958    .961    .963    .969    .971
 18           PC    .974    .979    .981    .985    .989    .991    .993    .996   1.000
 19           UK    200.     .50     .15     100
 20           RK   1200.     .25     .05     .03    TRAP            1
 21           RK   2600.    .040    .045            TRAP       4    1
```

```
 22          KK    SB33
 23          KM   RUNOFF FROM SB33
 24          KO
 25          BA     .69
 26          LS       0    84.7              0    84.7
 27          UK    200.     .40     .15     50
 28          UK    400.     .16     .15     50
 29          RK   3000.     .20     .10    .08    TRAP      2       1
 30          RK   7500.     .08     .10    .07    TRAP      1       1
 31          RK   2200.    .011     .05           TRAP     60       5     YES

 32          KK   SB35A
 33          KM   RUNOFF FROM SB35A
 34          KO
 35          BA     .61
 36          LS       0    85.7      2
 37          UK    500.     .02     .15    100
 38          RK    933.   .0053    .012     .1    CIRC    2.0
 39          RK  11100.    .007     .05           TRAP    120       5     YES

 40          KK    SB34
 41          KM   RUNOFF FROM SB34
 42          KO
 43          BA     .36
 44          LS       0    85.2
 45          UK    500.    .050     .15    100
 46          RK   4200.    .017    .045           TRAP      4       1
1                                          HEC-1 INPUT                                                    PAGE  2

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


 47          KK   SB35B
 48          KM   RUNOFF FROM SB35B
 49          KO
 50          BA     .24
 51          LS       0    86.0
 52          UK    500.     .02      .1    100
 53          RK    525.   .0043    .012      .1    CIRC    1.5
 54          RK   8000.    .007     .05           TRAP    100       4     YES

 55          KK  CB35AB
 56          KM   COMBINE SB35A AND SB35B
 57          KO
 58          HC       2

 59          KK    SB36
 60          KM   RUNOFF FROM SB36
 61          KO
 62          BA     .87
 63          LS       0    85.1
 64          UK   1400.     .02     .15    100
 65          RK   1400.    .004    .012     .15    CIRC   2.25
 66          RK   8000.    .002     .05           TRAP    325       5     YES

 67          KK    SB37
 68          KM   RUNOFF FROM SB37
 69          KO
 70          BA     .45
```

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120          LS       0    85.7
121          UK    400.      .2      .1     100
122          RK   1200.      .1     .05     .05    TRAP       4       2
123          RK   1800.    .008    .045            TRAP      20       4     YES

124          KK    SB28
125          KM   READ SB28 (FROM TAPE 21)
126          KO
127          BI    SB28      21

128          KK  CB2840
129          KM   COMBINE SB28 AND SB40
130          KO
131          HC       2

132          KK    SB41
133          KM   RUNOFF FROM SB41
134          KO
135          BA      .3
136          LS       0    81.9
137          UK    500.     .02     .10     100
138          RK   2600.    .003     .05     .05    TRAP       4       1
139          RK   2500.    .004    .045            TRAP      20       4     YES
                                          HEC-1 INPUT                                                    PAGE  4

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


140          KK    SB42
141          KM   RUNOFF FROM SB42
142          KO
143          BA     .59
144          LS       0    84.8
145          UK    400.     .05     .15     100
146          RK   1760.     .01    .012     .07    CIRC     2.5
147          RK   6200.    .010     .05            TRAP      80       4

148          KK  CB4142
149          KM   COMBINE SB41 AND SB42
150          KO
151          HC       2

152          KK    SB43
153          KM   RUNOFF FROM SB43
154          KO
155          BA     .66
156          LS       0    83.0               0    83.0
157          UK    200.     .30     .15      70
158          UK    300.     .01     .15      30
159          RK   1450.    .006    .012     .10    CIRC    2.25
160          RK   4500.    .006    .045            TRAP      40       4     YES

161          KK    SB44
162          KM   RUNOFF FROM SB44
163          KO
164          BA    4.39
165          LS       0    85.8
166          UK    500.     .02     .15     100
167          RK   2433.    .006    .012     .20    CIRC     2.5
168          RK  30000.     .01     .05            TRAP     100       5
```

```
169          KK  CB4344
170          KM   COMBINE SB43 AND SB44
171          KO              2
172          HC       2
173          ZZ
```

```
****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*        FEBRUARY 1981                 *
*       REVISED 01 JUN 88              *
*                                      *
* RUN DATE  09/12/1990  TIME  20:17:34 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
* THE HYDROLOGIC ENGINEERING CENTER    *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*          (916) 551-1748              *
*                                      *
****************************************
```

```
DEADMAN'S WASH - CASE 5 - 100 YEAR 24 HOUR DESIGN STORM
EXISTING CONDITIONS ROUTED THROUGH THE RECOMMENDED CHANNEL
SYSTEM AUGMENTED BY THE RECOMMENDED STORM DRAIN SYSTEM
KINEMATIC WAVE ROUTING

6 IO        OUTPUT CONTROL VARIABLES
                 IPRNT          3  PRINT CONTROL
                 IPLOT          0  PLOT CONTROL
                 QSCAL         0.  HYDROGRAPH PLOT SCALE

  IT        HYDROGRAPH TIME DATA
                  NMIN         15  MINUTES IN COMPUTATION INTERVAL
                 IDATE      1    0  STARTING DATE
                 ITIME        0000  STARTING TIME
                    NQ        144  NUMBER OF HYDROGRAPH ORDINATES
                NDDATE      2    0  ENDING DATE
                NDTIME       1145  ENDING TIME
                 ICENT         19  CENTURY MARK

          COMPUTATION INTERVAL     .25 HOURS
               TOTAL TIME BASE   35.75 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
```

** ***

```
        **************
        *            *
8 KK    *     SB32   *
        *            *
```

```
**************
                RUNOFF FROM SB32

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

 7 IN        TIME DATA FOR INPUT TIME SERIES
                JXMIN         30  TIME INTERVAL IN MINUTES
               JXDATE      1   0  STARTING DATE
               JXTIME          0  STARTING TIME

           SUBBASIN RUNOFF DATA

 11 BA       SUBBASIN CHARACTERISTICS
                TAREA        .20  SUBBASIN AREA

             PRECIPITATION DATA

 13 PB          STORM       4.33  BASIN TOTAL PRECIPITATION

 14 PI         INCREMENTAL PRECIPITATION PATTERN
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
                .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
                .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
                .00      .00      .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

 12 LS       SCS LOSS RATE
                STRTL        .38  INITIAL ABSTRACTION
               CRVNBR      84.20  CURVE NUMBER
                RTIMP        .00  PERCENT IMPERVIOUS AREA

             KINEMATIC WAVE
 19 UK         OVERLAND-FLOW ELEMENT NO. 1
                  L        200.  OVERLAND FLOW LENGTH
                  S       .5000  SLOPE
                  N        .150  ROUGHNESS COEFFICIENT
                 PA       100.0  PERCENT OF SUBBASIN
               DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
 20 RK         COLLECTOR CHANNEL
                  L       1200.  CHANNEL LENGTH
                  S       .2500  SLOPE
                  N        .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .03  CONTRIBUTING AREA
               SHAPE        TRAP  CHANNEL SHAPE
                 WD         .00  BOTTOM WIDTH OR DIAMETER
                  Z        1.00  SIDE SLOPE
               DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
 RK            MAIN CHANNEL
                  L       2600.  CHANNEL LENGTH
                  S       .0400  SLOPE
                  N        .045  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .20  CONTRIBUTING AREA
```

SHAPE	TRAP	CHANNEL SHAPE
WD	4.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	7.02	1.67	.60	40.00	465.03	359.74	2.68	1.12
3	7.46	1.33	.36	400.00	465.01	359.55	2.68	18.65
4	2.67	1.40	.82	866.67	464.72	358.96	2.68	17.53

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 28.607 OUTFLOW= 28.555 BASIN STORAGE= .000 PERCENT ERROR= .182

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	2.67	1.40	15.00	463.75	360.00	2.73

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

HYDROGRAPH AT STATION SB32

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.65, TOTAL EXCESS = 2.68

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR (CFS)	24-HR	72-HR	35.75-HR
464.	6.00		49.	15.	10.	10.
		(INCHES)	2.260	2.728	2.728	2.728
		(AC-FT)	24.	29.	29.	29.

CUMULATIVE AREA = .20 SQ MI

** ***

```
          **************
          *            *
22 KK     *     SB33   *
          *            *
          **************
```

RUNOFF FROM SB33

24 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

```
          SUBBASIN RUNOFF DATA

   BA       SUBBASIN CHARACTERISTICS
                 TAREA         .69  SUBBASIN AREA

            PRECIPITATION DATA

 13 PB           STORM        4.33  BASIN TOTAL PRECIPITATION

 14 PI        INCREMENTAL PRECIPITATION PATTERN
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                 .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                 .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                 .00       .00       .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

 26 LS       SCS LOSS RATE
                 STRTL         .36  INITIAL ABSTRACTION
                CRVNBR       84.70  CURVE NUMBER
                 RTIMP         .00  PERCENT IMPERVIOUS AREA

             LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                 STRTL         .36  INITIAL ABSTRACTION
                CRVNBR       84.70  CURVE NUMBER
                 RTIMP         .00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
 27 UK        OVERLAND-FLOW ELEMENT NO. 1
                    L        200.  OVERLAND FLOW LENGTH
                    S       .4000  SLOPE
                    N        .150  ROUGHNESS COEFFICIENT
                   PA        50.0  PERCENT OF SUBBASIN
                DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
 28 UK        OVERLAND-FLOW ELEMENT NO. 2
                    L        400.  OVERLAND FLOW LENGTH
                    S       .1600  SLOPE
                    N        .150  ROUGHNESS COEFFICIENT
                   PA        50.0  PERCENT OF SUBBASIN
                DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
 29 RK        COLLECTOR CHANNEL
                    L       3000.  CHANNEL LENGTH
                    S       .2000  SLOPE
                    N        .100  CHANNEL ROUGHNESS COEFFICIENT
                   CA         .08  CONTRIBUTING AREA
                SHAPE        TRAP  CHANNEL SHAPE
                   WD        2.00  BOTTOM WIDTH OR DIAMETER
                    Z        1.00  SIDE SLOPE
                DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
 30 RK        COLLECTOR CHANNEL
                    L       7500.  CHANNEL LENGTH
                    S       .0800  SLOPE
                    N        .100  CHANNEL ROUGHNESS COEFFICIENT
                   CA         .07  CONTRIBUTING AREA
                SHAPE        TRAP  CHANNEL SHAPE
```

WD	1.00	BOTTOM WIDTH OR DIAMETER
Z	1.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RK	MAIN CHANNEL	
L	2200.	CHANNEL LENGTH
S	.0110	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.69	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	60.00	BOTTOM WIDTH OR DIAMETER
Z	5.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.28	1.67	.63	40.00	814.43	360.00	2.72	1.05
2	3.97	1.67	1.27	80.00	808.81	359.28	2.72	1.05
3	3.15	1.36	1.24	1000.00	1606.46	358.94	2.72	13.40
4	2.13	1.33	4.92	2500.00	1309.28	367.93	2.71	8.47
5	.31	1.53	1.22	733.33	1646.31	366.54	2.72	10.01

ONTINUITY SUMMARY (AC-FT) - INFLOW= 29.100 EXCESS= 100.361 OUTFLOW= 129.037 BASIN STORAGE= .014 PERCENT ERROR= .316

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

5	.31	1.53	15.00	1323.93	360.00	2.71

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

HYDROGRAPH AT STATION SB33

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.60, TOTAL EXCESS = 2.73

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
1324.	6.00		210.	65.	43.	43.
		(INCHES)	2.189	2.706	2.707	2.707
		(AC-FT)	104.	128.	128.	128.

CUMULATIVE AREA = .89 SQ MI

*** ***

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```
          *           *
32 KK     *     SB35A *
          *           *
          **************
                    RUNOFF FROM SB35A

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

             SUBBASIN RUNOFF DATA

35 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .61  SUBBASIN AREA

               PRECIPITATION DATA

13 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

36 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
                    CRVNBR       85.70  CURVE NUMBER
                     RTIMP        2.00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
37 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        500.  OVERLAND FLOW LENGTH
                         S       .0200  SLOPE
                         N        .150  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
38 RK            COLLECTOR CHANNEL
                         L        933.  CHANNEL LENGTH
                         S       .0053  SLOPE
                         N        .012  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .10  CONTRIBUTING AREA
                     SHAPE        CIRC  CHANNEL SHAPE
                        WD        2.00  BOTTOM WIDTH OR DIAMETER
                         Z         .00  SIDE SLOPE
                     DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
39 RK            MAIN CHANNEL
                         L      11100.  CHANNEL LENGTH
                         S       .0070  SLOPE
                         N        .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .61  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD      120.00  BOTTOM WIDTH OR DIAMETER
```

```
 71          LS       0    84.5
 72          UK    1200.     .10     .10     100
 73          RK    1100.   .0045    .012      .1    CIRC     2.0
 74          RK    4300.     .01     .05            TRAP     100       4

 75          KK   CB3637
 76          KM    COMBINE SB36 AND SB37
 77          KO
 78          HC       2

 79          KK    SB31
 80          KM    RUNOFF FROM SB31
 81          KO
 82          BA     .72
 83          LS       0    86.0              0    86.0
 84          UK     600.     .02     .15      10
 85          UK     500.     .10     .15      90
 86          RK     967.    .004    .012     .10    CIRC     2.0
 87          RK   12400.    .007     .05     .65    TRAP      16       2
 88          RK    2000.    .003     .02            TRAP      16       2     YES

 89          KK    SB39
 90          KM    RUNOFF FROM SB39
 91          KO
 92          BA     .11
 93          LS       0    84.8
 94          UK     500.     .15     .10     100
```



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

 95          RK    3300.     .02     .05            TRAP      60       4

 96          KK    SB29
 97          KM    RUNOFF FROM SB29
 98          KO               1
 99          BA    2.03
100          LS       0    85.7       5
101          UK    1500.     .02     .20     100
102          RK    1256.   .0053    .012     .10    CIRC     2.0
103          RK    9500.    .007     .05            TRAP     120       4

104          KK    SB30
105          KM    RUNOFF FROM SB30
106          KO
107          BA     .38
108          LS       0    85.9
109          UK     700.     .02     .15     100
110          RK    1500.    .004    .012     .10    CIRC    2.25
111          RK    6300.    .006     .05            TRAP     140       4     YES

112          KK   CB3019
113          KM    COMBINE SB30, SB31 AND SB39
114          KO
115          HC       3

116          KK    SB40
117          KM    RUNOFF FROM SB40
118          KO
119          BA     .10
```

```
                Z        5.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
        ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK                CELERITY
                                          (MIN)     (FT)    (CFS)    (MIN)      (IN)      (FPS)

              1     1.40      1.67      2.88    100.00   1273.92   358.50      2.83       .58
              3     5.48      1.25       .35    311.00   1273.35   361.32      2.83     14.99
              4      .14      1.58      8.12   3700.00   1880.11   388.93      2.74      7.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=  128.497  EXCESS=   92.694 OUTFLOW=  218.997 BASIN STORAGE=     .289 PERCENT ERROR=     .861

                                 INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

              4      .14      1.58     15.00            1831.67   390.00      2.73

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

                 HYDROGRAPH AT STATION    SB35A

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.48, TOTAL EXCESS =    2.85

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR      24-HR      72-HR    35.75-HR
  (CFS)       (HR)
                        (CFS)
+   1832.     6.50                342.       110.        74.        74.
                      (INCHES)   2.119      2.717      2.730      2.730
                       (AC-FT)    170.       217.       218.       218.

                      CUMULATIVE AREA =    1.50 SQ MI


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


         **************
         *            *
 40 KK   *      SB34  *
         *            *
         **************
                 RUNOFF FROM SB34

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

            SUBBASIN RUNOFF DATA
```

43 BA SUBBASIN CHARACTERISTICS

TAREA .36 SUBBASIN AREA

PRECIPITATION DATA

13 PB STORM 4.33 BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

44 LS SCS LOSS RATE

STRTL .35 INITIAL ABSTRACTION

CRVNBR 85.20 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

45 UK OVERLAND-FLOW ELEMENT NO. 1

L 500. OVERLAND FLOW LENGTH

S .0500 SLOPE

N .150 ROUGHNESS COEFFICIENT

PA 100.0 PERCENT OF SUBBASIN

DXMIN 5 MINIMUM NUMBER OF DX INTERVALS

46 RK MAIN CHANNEL

L 4200. CHANNEL LENGTH

S .0170 SLOPE

N .045 CHANNEL ROUGHNESS COEFFICIENT

CA .36 CONTRIBUTING AREA

SHAPE TRAP CHANNEL SHAPE

WD 4.00 BOTTOM WIDTH OR DIAMETER

Z 1.00 SIDE SLOPE

DXMIN 2 MINIMUM NUMBER OF DX INTERVALS

RUPSTQ NO ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS

VARIABLE TIME STEP

(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.22	1.67	2.09	100.00	828.40	359.05	2.76	.80
3	1.74	1.40	1.56	1400.00	783.53	361.20	2.76	14.92

NUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 53.239 OUTFLOW= 53.002 BASIN STORAGE= .004 PERCENT ERROR= .439

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    3        1.74      1.40      15.00            771.39    360.00      2.77

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

                     HYDROGRAPH AT STATION     SB34

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.56, TOTAL EXCESS =    2.77

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                        (CFS)
   771.      6.00                   87.        27.        18.         18.
                      (INCHES)    2.247      2.765      2.768       2.768
                       (AC-FT)      43.        53.        53.         53.

                      CUMULATIVE AREA =     .36 SQ MI


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


          **************
          *            *
47 KK     *     SB35B  *
          *            *
          **************
                       RUNOFF FROM SB35B

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

            SUBBASIN RUNOFF DATA

50 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .24  SUBBASIN AREA

               PRECIPITATION DATA

13 PB                STORM        4.33  BASIN TOTAL PRECIPITATION

14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

51 LS          SCS LOSS RATE
                     STRTL         .33  INITIAL ABSTRACTION
```

```
                CRVNBR       86.00  CURVE NUMBER
                 RTIMP         .00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
UK            OVERLAND-FLOW ELEMENT NO. 1
                     L        500.  OVERLAND FLOW LENGTH
                     S       .0200  SLOPE
                     N        .100  ROUGHNESS COEFFICIENT
                    PA       100.0  PERCENT OF SUBBASIN
                 DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
53 RK         COLLECTOR CHANNEL
                     L        525.  CHANNEL LENGTH
                     S       .0043  SLOPE
                     N        .012  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .10  CONTRIBUTING AREA
                 SHAPE        CIRC  CHANNEL SHAPE
                    WD        1.50  BOTTOM WIDTH OR DIAMETER
                     Z         .00  SIDE SLOPE
                 DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
54 RK         MAIN CHANNEL
                     L       8000.  CHANNEL LENGTH
                     S       .0070  SLOPE
                     N        .050  CHANNEL ROUGHNESS COEFFICIENT
                    CA         .24  CONTRIBUTING AREA
                 SHAPE        TRAP  CHANNEL SHAPE
                    WD      100.00  BOTTOM WIDTH OR DIAMETER
                     Z        4.00  SIDE SLOPE
                 DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
                RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                              COMPUTED KINEMATIC PARAMETERS
                                   VARIABLE TIME STEP
                                (DT SHOWN IS A MINIMUM)
                ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
                                                                          PEAK                  CELERITY
                                                (MIN)      (FT)     (CFS)    (MIN)      (IN)      (FPS)

                   1        2.11      1.67      2.13    100.00    564.29   359.10      2.83       .78
                   3        4.70      1.25       .22    175.00    554.35   358.98      2.83     13.54
                   4         .16      1.58      7.06   2666.67    969.82   378.92      2.77      6.30

ONTINUITY SUMMARY (AC-FT) - INFLOW=   53.136  EXCESS=   36.440 OUTFLOW=   88.755 BASIN STORAGE=     .131 PERCENT ERROR=     .771

                                   INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                   4         .16      1.58     15.00              830.83   375.00      2.77

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

                    HYDROGRAPH AT STATION    SB35B

OTAL RAINFALL =    4.33, TOTAL LOSS =    1.48, TOTAL EXCESS =    2.85

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+   (CFS)      (HR)
```

```
                    (CFS)
+    831.     6.25                140.        45.        30.        30.
                (INCHES)        2.173      2.760      2.773      2.773
                 (AC-FT)         70.        88.        89.        89.

                 CUMULATIVE AREA =     .60 SQ MI


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


          **************
          *            *
 55 KK    *   CB35AB   *
          *            *
          **************
                   COMBINE SB35A AND SB35B

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

 58 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

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

                     HYDROGRAPH AT STATION   CB35AB

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                    6-HR       24-HR      72-HR     35.75-HR
  (CFS)       (HR)
                    (CFS)
+    2471.     6.50                482.        154.       104.       104.
                (INCHES)        2.135      2.729      2.742      2.742
                 (AC-FT)        239.        306.       307.       307.

                 CUMULATIVE AREA =    2.10 SQ MI


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


          **************
          *            *
 59 KK    *      SB36  *
          *            *
          **************
                   RUNOFF FROM SB36

 61 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
```

```
            QSCAL          0.  HYDROGRAPH PLOT SCALE

      SUBBASIN RUNOFF DATA

BA      SUBBASIN CHARACTERISTICS
            TAREA        .87  SUBBASIN AREA

        PRECIPITATION DATA

13 PB       STORM       4.33  BASIN TOTAL PRECIPITATION

14 PI     INCREMENTAL PRECIPITATION PATTERN
            .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
            .00      .00      .00      .00      .00      .00      .01      .01      .01      .01
            .02      .02      .28      .28      .04      .04      .02      .02      .01      .01
            .01      .01      .01      .01      .00      .00      .01      .00      .01      .01
            .00      .00      .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

63 LS   SCS LOSS RATE
            STRTL       .35  INITIAL ABSTRACTION
           CRVNBR     85.10  CURVE NUMBER
            RTIMP       .00  PERCENT IMPERVIOUS AREA

        KINEMATIC WAVE
64 UK     OVERLAND-FLOW ELEMENT NO. 1
              L      1400.  OVERLAND FLOW LENGTH
              S      .0200  SLOPE
              N       .150  ROUGHNESS COEFFICIENT
             PA      100.0  PERCENT OF SUBBASIN
           DXMIN         5  MINIMUM NUMBER OF DX INTERVALS
65 RK     COLLECTOR CHANNEL
              L      1400.  CHANNEL LENGTH
              S      .0040  SLOPE
              N       .012  CHANNEL ROUGHNESS COEFFICIENT
             CA        .15  CONTRIBUTING AREA
          SHAPE       CIRC  CHANNEL SHAPE
             WD       2.25  BOTTOM WIDTH OR DIAMETER
              Z        .00  SIDE SLOPE
           DXMIN         2  MINIMUM NUMBER OF DX INTERVALS
66 RK     MAIN CHANNEL
              L      8000.  CHANNEL LENGTH
              S      .0020  SLOPE
              N       .050  CHANNEL ROUGHNESS COEFFICIENT
             CA        .87  CONTRIBUTING AREA
          SHAPE       TRAP  CHANNEL SHAPE
             WD     325.00  BOTTOM WIDTH OR DIAMETER
              Z       5.00  SIDE SLOPE
           DXMIN         2  MINIMUM NUMBER OF DX INTERVALS
          RUPSTQ       YES  ROUTE UPSTREAM HYDROGRAPH

                                          ***
                     COMPUTED KINEMATIC PARAMETERS
                          VARIABLE TIME STEP
                        (DT SHOWN IS A MINIMUM)
      ELEMENT    ALPHA       M        DT        DX      PEAK    TIME TO     VOLUME    MAXIMUM
```

						PEAK		CELERITY
			(MIN)	(FT)	(CFS)	(MIN)	(IN)	(FPS)
1	1.40	1.67	7.29	280.00	883.23	381.04	2.73	.64
3	4.85	1.25	.61	466.67	872.46	380.95	2.73	12.75
4	.03	1.63	9.90	2666.67	2880.86	412.98	2.71	4.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= 307.133 EXCESS= 128.236 OUTFLOW= 429.827 BASIN STORAGE= 1.678 PERCENT ERROR= .888

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.03	1.63	15.00	2459.81	420.00	2.71

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

HYDROGRAPH AT STATION SB36

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.57, TOTAL EXCESS = 2.76

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	35.75-HR
(CFS)	(HR)					
		(CFS)				
2460.	7.00		643.	214.	145.	145.
		(INCHES)	2.014	2.676	2.708	2.708
		(AC-FT)	319.	424.	429.	429.

CUMULATIVE AREA = 2.97 SQ MI

*** ***

```
          **************
          *            *
67 KK     *      SB37  *
          *            *
          **************
```

RUNOFF FROM SB37

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

            SUBBASIN RUNOFF DATA

70 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .45  SUBBASIN AREA

               PRECIPITATION DATA

13 PB               STORM       4.33  BASIN TOTAL PRECIPITATION

14 PI            INCREMENTAL PRECIPITATION PATTERN
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

```
71 LS          SCS LOSS RATE
                    STRTL        .37  INITIAL ABSTRACTION
                   CRVNBR      84.50  CURVE NUMBER
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
72 UK            OVERLAND-FLOW ELEMENT NO. 1
                        L      1200.  OVERLAND FLOW LENGTH
                        S      .1000  SLOPE
                        N       .100  ROUGHNESS COEFFICIENT
                       PA      100.0  PERCENT OF SUBBASIN
                    DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
73 RK            COLLECTOR CHANNEL
                        L      1100.  CHANNEL LENGTH
                        S      .0045  SLOPE
                        N       .012  CHANNEL ROUGHNESS COEFFICIENT
                       CA        .10  CONTRIBUTING AREA
                    SHAPE       CIRC  CHANNEL SHAPE
                       WD       2.00  BOTTOM WIDTH OR DIAMETER
                        Z        .00  SIDE SLOPE
                    DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
74 RK            MAIN CHANNEL
                        L      4300.  CHANNEL LENGTH
                        S      .0100  SLOPE
                        N       .050  CHANNEL ROUGHNESS COEFFICIENT
                       CA        .45  CONTRIBUTING AREA
                    SHAPE       TRAP  CHANNEL SHAPE
                       WD     100.00  BOTTOM WIDTH OR DIAMETER
                        Z       4.00  SIDE SLOPE
                    DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
                   RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH
```

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	4.71	1.67	2.29	240.00	994.38	359.33	2.71	1.74
3	5.04	1.25	.43	366.67	969.03	359.30	2.71	14.13
4	.19	1.58	3.41	1433.33	814.59	366.63	2.70	7.01

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 65.017 OUTFLOW= 64.747 BASIN STORAGE= .032 PERCENT ERROR= .367

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

```
                    4        .19      1.58      15.00            608.51    375.00      2.69

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

                     HYDROGRAPH AT STATION     SB37

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.62, TOTAL EXCESS =    2.71

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                       (CFS)
+    609.     6.25                103.        32.         22.         22.
                     (INCHES)     2.134       2.682       2.688       2.688
                      (AC-FT)      51.         64.         65.         65.

                     CUMULATIVE AREA =     .45 SQ MI


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


          **************
          *            *
 75 KK    *    CB3637  *
          *            *
          **************
                       COMBINE SB36 AND SB37

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

 78 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                     HYDROGRAPH AT STATION   CB3637

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+ (CFS)       (HR)
                       (CFS)
+   2612.     6.75                739.       246.        167.        167.
                     (INCHES)     2.009       2.675       2.706       2.706
                      (AC-FT)      366.        488.        494.        494.

                     CUMULATIVE AREA =    3.42 SQ MI
```

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

              **************
              *            *
79 KK         *     SB31   *
              *            *
              **************
                             RUNOFF FROM SB31

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

                   SUBBASIN RUNOFF DATA

82 BA                SUBBASIN CHARACTERISTICS
                          TAREA        .72  SUBBASIN AREA

                     PRECIPITATION DATA

13 PB                     STORM       4.33  BASIN TOTAL PRECIPITATION

14 PI                  INCREMENTAL PRECIPITATION PATTERN
                          .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                          .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                          .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                          .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                          .00       .00       .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

83 LS                SCS LOSS RATE
                          STRTL        .33  INITIAL ABSTRACTION
                         CRVNBR      86.00  CURVE NUMBER
                          RTIMP        .00  PERCENT IMPERVIOUS AREA

                       LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT
                          STRTL        .33  INITIAL ABSTRACTION
                         CRVNBR      86.00  CURVE NUMBER
                          RTIMP        .00  PERCENT IMPERVIOUS AREA

                     KINEMATIC WAVE
84 UK                  OVERLAND-FLOW ELEMENT NO. 1
                                L       600.  OVERLAND FLOW LENGTH
                                S      .0200  SLOPE
                                N       .150  ROUGHNESS COEFFICIENT
                               PA       10.0  PERCENT OF SUBBASIN
                            DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
85 UK                  OVERLAND-FLOW ELEMENT NO. 2
                                L       500.  OVERLAND FLOW LENGTH
                                S      .1000  SLOPE
                                N       .150  ROUGHNESS COEFFICIENT
                               PA       90.0  PERCENT OF SUBBASIN
                            DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
86 RK                  COLLECTOR CHANNEL
```

```
                L        967.  CHANNEL LENGTH
                S       .0040  SLOPE
                N        .012  CHANNEL ROUGHNESS COEFFICIENT
               CA         .10  CONTRIBUTING AREA
            SHAPE        CIRC  CHANNEL SHAPE
               WD        2.00  BOTTOM WIDTH OR DIAMETER
                Z         .00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
87 RK        COLLECTOR CHANNEL
                L      12400.  CHANNEL LENGTH
                S       .0070  SLOPE
                N        .050  CHANNEL ROUGHNESS COEFFICIENT
               CA         .65  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD       16.00  BOTTOM WIDTH OR DIAMETER
                Z        2.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
88 RK        MAIN CHANNEL
                L       2000.  CHANNEL LENGTH
                S       .0030  SLOPE
                N        .020  CHANNEL ROUGHNESS COEFFICIENT
               CA         .72  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD       16.00  BOTTOM WIDTH OR DIAMETER
                Z        2.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                        ***
                    COMPUTED KINEMATIC PARAMETERS
                         VARIABLE TIME STEP
                      (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	3.34	120.00	142.95	361.39	2.86	.60
2	3.14	1.67	1.65	100.00	1558.29	358.51	2.84	1.01
3	4.76	1.25	.39	322.33	1670.43	360.11	2.84	13.68
4	.53	1.48	7.19	4133.33	1045.38	376.00	2.82	9.58
5	.87	1.48	.59	666.67	3007.59	407.22	2.72	18.73

```
ONTINUITY SUMMARY (AC-FT) - INFLOW=  493.521  EXCESS=  109.319 OUTFLOW=  601.520 BASIN STORAGE=     .164 PERCENT ERROR=     .192

                    INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

                 5        .87      1.48      15.00            2890.55    420.00      2.73

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

                HYDROGRAPH AT STATION     SB31

 OTAL RAINFALL =    4.33, TOTAL LOSS =    1.48, TOTAL EXCESS =    2.85

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
```

```
                    (CFS)
+   2891.     7.00                911.       301.       204.       204.
                  (INCHES)      2.047      2.702      2.729      2.729
                   (AC-FT)       452.       597.       603.       603.

                   CUMULATIVE AREA =    4.14 SQ MI


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


         **************
         *            *
 89 KK   *      SB39  *
         *            *
         **************
                  RUNOFF FROM SB39

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

            SUBBASIN RUNOFF DATA

 92 BA         SUBBASIN CHARACTERISTICS
                     TAREA         .11  SUBBASIN AREA

               PRECIPITATION DATA

 13 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 14 PI           INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

 93 LS         SCS LOSS RATE
                     STRTL         .36  INITIAL ABSTRACTION
                    CRVNBR       84.80  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

               KINEMATIC WAVE
 94 UK           OVERLAND-FLOW ELEMENT NO. 1
                         L        500.  OVERLAND FLOW LENGTH
                         S       .1500  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
 95 RK           MAIN CHANNEL
                         L       3300.  CHANNEL LENGTH
```

```
                S       .0200  SLOPE
                N        .050  CHANNEL ROUGHNESS COEFFICIENT
               CA         .11  CONTRIBUTING AREA
            SHAPE        TRAP  CHANNEL SHAPE
               WD       60.00  BOTTOM WIDTH OR DIAMETER
                Z        4.00  SIDE SLOPE
            DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
           RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
        ELEMENT    ALPHA      M        DT        DX       PEAK    TIME TO     VOLUME    MAXIMUM
                                                                     PEAK                CELERITY
                                      (MIN)      (FT)     (CFS)    (MIN)       (IN)      (FPS)

            1       5.77     1.67      1.15    100.00    259.27   359.22       2.73      1.44
            3        .40     1.55      2.84   1100.00    245.24   360.57       2.72      6.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=   16.053 OUTFLOW=   15.964 BASIN STORAGE=     .003 PERCENT ERROR=     .537

                                INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

            3        .40     1.55     15.00              240.98   360.00       2.75

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

                 HYDROGRAPH AT STATION     SB39

  TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.59, TOTAL EXCESS =    2.74

 PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                        (CFS)
   241.       6.00                 26.         8.          5.          5.
                      (INCHES)    2.233       2.747       2.749       2.749
                       (AC-FT)     13.         16.         16.         16.

                      CUMULATIVE AREA =     .11 SQ MI


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


          **************
          *            *
 96 KK    *     SB29   *
          *            *
          **************
                 RUNOFF FROM SB29

 98 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           3  PRINT CONTROL
```

```
                IPLOT          1  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE

          SUBBASIN RUNOFF DATA

 99 BA      SUBBASIN CHARACTERISTICS
                TAREA       2.03  SUBBASIN AREA

            PRECIPITATION DATA

 13 PB          STORM       4.33  BASIN TOTAL PRECIPITATION

 14 PI        INCREMENTAL PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                .00       .00       .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

100 LS      SCS LOSS RATE
                STRTL        .33  INITIAL ABSTRACTION
               CRVNBR      85.70  CURVE NUMBER
                RTIMP       5.00  PERCENT IMPERVIOUS AREA

            KINEMATIC WAVE
101 UK        OVERLAND-FLOW ELEMENT NO. 1
                  L       1500.  OVERLAND FLOW LENGTH
                  S       .0200  SLOPE
                  N        .200  ROUGHNESS COEFFICIENT
                 PA       100.0  PERCENT OF SUBBASIN
              DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
102 RK        COLLECTOR CHANNEL
                  L       1256.  CHANNEL LENGTH
                  S       .0053  SLOPE
                  N        .012  CHANNEL ROUGHNESS COEFFICIENT
                 CA         .10  CONTRIBUTING AREA
              SHAPE        CIRC  CHANNEL SHAPE
                 WD        2.00  BOTTOM WIDTH OR DIAMETER
                  Z         .00  SIDE SLOPE
              DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
103 RK        MAIN CHANNEL
                  L       9500.  CHANNEL LENGTH
                  S       .0070  SLOPE
                  N        .050  CHANNEL ROUGHNESS COEFFICIENT
                 CA        2.03  CONTRIBUTING AREA
              SHAPE        TRAP  CHANNEL SHAPE
                 WD      120.00  BOTTOM WIDTH OR DIAMETER
                  Z        4.00  SIDE SLOPE
              DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
             RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
```

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.05	1.67	9.67	300.00	1809.04	391.10	2.85	.52
3	5.48	1.25	.56	418.67	1754.86	390.94	2.85	12.57
4	.13	1.60	6.71	3166.67	1637.74	400.47	2.83	7.86

ONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 313.380 OUTFLOW= 306.880 BASIN STORAGE= .860 PERCENT ERROR= 1.800

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.13	1.60	15.00	1591.30	405.00	2.83

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

HYDROGRAPH AT STATION SB29

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.44, TOTAL EXCESS = 2.89

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
1591.	6.75		465.	153.	104.	104.
		(INCHES)	2.132	2.799	2.830	2.830
		(AC-FT)	231.	303.	306.	306.

CUMULATIVE AREA = 2.03 SQ MI

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              **************
              *            *
104 KK        *      SB30  *
              *            *
              **************
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RUNOFF FROM SB30

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

            SUBBASIN RUNOFF DATA

107 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .38  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB               STORM       4.33  BASIN TOTAL PRECIPITATION
```

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

108 LS SCS LOSS RATE

STRTL	.33	INITIAL ABSTRACTION
CRVNBR	85.90	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

109 UK OVERLAND-FLOW ELEMENT NO. 1

L	700.	OVERLAND FLOW LENGTH
S	.0200	SLOPE
N	.150	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN
DXMIN	5	MINIMUM NUMBER OF DX INTERVALS

110 RK COLLECTOR CHANNEL

L	1500.	CHANNEL LENGTH
S	.0040	SLOPE
N	.012	CHANNEL ROUGHNESS COEFFICIENT
CA	.10	CONTRIBUTING AREA
SHAPE	CIRC	CHANNEL SHAPE
WD	2.25	BOTTOM WIDTH OR DIAMETER
Z	.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS

111 RK MAIN CHANNEL

L	6300.	CHANNEL LENGTH
S	.0060	SLOPE
N	.050	CHANNEL ROUGHNESS COEFFICIENT
CA	.38	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	140.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	1.40	1.67	3.86	140.00	691.41	360.58	2.82	.60
3	4.85	1.25	.63	500.00	672.23	364.11	2.82	13.17
4	.11	1.60	5.19	2100.00	1725.08	413.39	2.80	6.74

ONTINUITY SUMMARY (AC-FT) - INFLOW= 306.360 EXCESS= 57.508 OUTFLOW= 360.026 BASIN STORAGE= .814 PERCENT ERROR= .832

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4 .11 1.60 15.00 1654.45 405.00 2.80

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

HYDROGRAPH AT STATION SB30

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.84

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
+ 1654.	6.75		541.	179.	122.	122.
		(INCHES)	2.087	2.764	2.797	2.797
		(AC-FT)	268.	355.	359.	359.

CUMULATIVE AREA = 2.41 SQ MI

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              **************
              *            *
112 KK        *   CB3019   *
              *            *
              **************
```

COMBINE SB30, SB31 AND SB39

114 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

115 HC HYDROGRAPH COMBINATION

ICOMP	3	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CB3019

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
+ 4559.	6.75		1475.	488.	331.	331.
		(INCHES)	2.059	2.725	2.754	2.754
		(AC-FT)	731.	968.	978.	978.

CUMULATIVE AREA = 6.66 SQ MI

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

              **************
              *            *
116 KK        *     SB40   *
              *            *
              **************
                             RUNOFF FROM SB40

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

                SUBBASIN RUNOFF DATA

119 BA            SUBBASIN CHARACTERISTICS
                       TAREA         .10  SUBBASIN AREA

                  PRECIPITATION DATA

 13 PB                 STORM        4.33  BASIN TOTAL PRECIPITATION

 14 PI              INCREMENTAL PRECIPITATION PATTERN
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                       .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                       .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                       .00       .00       .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

120 LS            SCS LOSS RATE
                       STRTL         .33  INITIAL ABSTRACTION
                      CRVNBR       85.70  CURVE NUMBER
                       RTIMP         .00  PERCENT IMPERVIOUS AREA

                  KINEMATIC WAVE
121 UK              OVERLAND-FLOW ELEMENT NO. 1
                             L       400.  OVERLAND FLOW LENGTH
                             S      .2000  SLOPE
                             N       .100  ROUGHNESS COEFFICIENT
                            PA      100.0  PERCENT OF SUBBASIN
                         DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
122 RK              COLLECTOR CHANNEL
                             L      1200.  CHANNEL LENGTH
                             S      .1000  SLOPE
                             N       .050  CHANNEL ROUGHNESS COEFFICIENT
                            CA        .05  CONTRIBUTING AREA
                         SHAPE       TRAP  CHANNEL SHAPE
                            WD       4.00  BOTTOM WIDTH OR DIAMETER
                             Z       2.00  SIDE SLOPE
                         DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
123 RK              MAIN CHANNEL
                             L      1800.  CHANNEL LENGTH
```

S	.0080	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.10	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	20.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	6.66	1.67	.91	80.00	242.83	359.21	2.81	1.46
3	3.62	1.38	.47	400.00	242.63	359.09	2.81	14.13
4	.59	1.45	.71	600.00	4577.01	407.09	2.75	14.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= 978.125 EXCESS= 15.035 OUTFLOW= 992.820 BASIN STORAGE= .171 PERCENT ERROR= .017

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.59	1.45	15.00	4564.54	420.00	2.76

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

HYDROGRAPH AT STATION SB40

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.51, TOTAL EXCESS = 2.82

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
4565.	7.00		1498.	496.	337.	337.
		(INCHES)	2.060	2.731	2.760	2.760
		(AC-FT)	743.	985.	995.	995.

CUMULATIVE AREA = 6.76 SQ MI

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**************
*            *
*      SB28  *
*            *
**************
```

124 KK

READ SB28 (FROM TAPE 21)

126 KO OUTPUT CONTROL VARIABLES

```
                    IPRNT          3  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

BI          READ STATION     SB28 HYDROGRAPH FROM UNIT 21

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

                     HYDROGRAPH AT STATION     SB28

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     35.75-HR
 (CFS)       (HR)
                       (CFS)
+  19829.     6.25                4743.       1531.       1082.       1082.
                    (INCHES)      2.221       2.868       3.018       3.018
                     (AC-FT)      2352.       3037.       3196.       3196.

                    CUMULATIVE AREA =   19.85 SQ MI

                                                          ***

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

          **************
          *            *
128 KK    *    CB2840  *
          *            *
          **************
                       COMBINE SB28 AND SB40

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

131 HC      HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

                     HYDROGRAPH AT STATION   CB2840

PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                  6-HR       24-HR       72-HR     35.75-HR
+ (CFS)       (HR)
                       (CFS)
 22412.     6.50                6241.       2027.       1419.       1419.
                    (INCHES)      2.180       2.833       2.953       2.953
                     (AC-FT)      3095.       4021.       4191.       4191.

                    CUMULATIVE AREA =   26.61 SQ MI
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** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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          *            *
132 KK    *     SB41   *
          *            *
          **************
                         RUNOFF FROM SB41

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

             SUBBASIN RUNOFF DATA

135 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .30  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB               STORM        4.33  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                     .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                     .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                     .00       .00       .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

136 LS          SCS LOSS RATE
                     STRTL         .44  INITIAL ABSTRACTION
                    CRVNBR       81.90  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
137 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L        500.  OVERLAND FLOW LENGTH
                         S       .0200  SLOPE
                         N        .100  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
                     DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
138 RK            COLLECTOR CHANNEL
                         L       2600.  CHANNEL LENGTH
                         S       .0030  SLOPE
                         N        .050  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .05  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD        4.00  BOTTOM WIDTH OR DIAMETER
                         Z        1.00  SIDE SLOPE
                     DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
139 RK            MAIN CHANNEL
```

L	2500.	CHANNEL LENGTH
S	.0040	SLOPE
N	.045	CHANNEL ROUGHNESS COEFFICIENT
CA	.30	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	20.00	BOTTOM WIDTH OR DIAMETER
Z	4.00	SIDE SLOPE
DXMIN	2	MINIMUM NUMBER OF DX INTERVALS
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

***

COMPUTED KINEMATIC PARAMETERS
VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.11	1.67	2.60	100.00	479.06	361.26	2.33	.79
3	.66	1.40	4.05	866.67	361.58	367.75	2.32	3.57
4	.42	1.45	.76	833.33	22586.26	391.36	2.94	18.16

ONTINUITY SUMMARY (AC-FT) - INFLOW= 4191.029 EXCESS= 39.660 OUTFLOW= 4222.312 BASIN STORAGE= 3.337 PERCENT ERROR= .119

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.42	1.45	15.00	22582.12	390.00	2.95

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

HYDROGRAPH AT STATION SB41

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.85, TOTAL EXCESS = 2.48

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
+ 22582.	6.50		6312.	2050.	1434.	1434.
		(INCHES)	2.180	2.832	2.951	2.951
		(AC-FT)	3130.	4066.	4235.	4235.

CUMULATIVE AREA = 26.91 SQ MI

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*            *
KK    *  SB42  *
*            *
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RUNOFF FROM SB42

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

            SUBBASIN RUNOFF DATA

143 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .59  SUBBASIN AREA

              PRECIPITATION DATA

 13 PB              STORM       4.33  BASIN TOTAL PRECIPITATION

 14 PI          INCREMENTAL PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                    .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                    .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                    .00       .00       .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

144 LS        SCS LOSS RATE
                    STRTL        .36  INITIAL ABSTRACTION
                   CRVNBR      84.80  CURVE NUMBER
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
145 UK          OVERLAND-FLOW ELEMENT NO. 1
                        L       400.  OVERLAND FLOW LENGTH
                        S      .0500  SLOPE
                        N       .150  ROUGHNESS COEFFICIENT
                       PA      100.0  PERCENT OF SUBBASIN
                    DXMIN          5  MINIMUM NUMBER OF DX INTERVALS
146 RK          COLLECTOR CHANNEL
                        L      1760.  CHANNEL LENGTH
                        S      .0100  SLOPE
                        N       .012  CHANNEL ROUGHNESS COEFFICIENT
                       CA        .07  CONTRIBUTING AREA
                    SHAPE       CIRC  CHANNEL SHAPE
                       WD       2.50  BOTTOM WIDTH OR DIAMETER
                        Z        .00  SIDE SLOPE
                    DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
147 RK          MAIN CHANNEL
                        L      6200.  CHANNEL LENGTH
                        S      .0100  SLOPE
                        N       .050  CHANNEL ROUGHNESS COEFFICIENT
                       CA        .59  CONTRIBUTING AREA
                    SHAPE       TRAP  CHANNEL SHAPE
                       WD      80.00  BOTTOM WIDTH OR DIAMETER
                        Z       4.00  SIDE SLOPE
                    DXMIN          2  MINIMUM NUMBER OF DX INTERVALS
                   RUPSTQ         NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
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VARIABLE TIME STEP
(DT SHOWN IS A MINIMUM)

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	2.22	1.67	1.81	80.00	1368.39	359.58	2.74	.74
3	7.81	1.25	.52	586.67	1352.83	359.59	2.74	18.88
4	.22	1.57	4.24	2066.67	1062.49	366.04	2.73	8.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .000 EXCESS= 86.102 OUTFLOW= 85.792 BASIN STORAGE= .038 PERCENT ERROR= .316

INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

4	.22	1.57	15.00	817.92	375.00	2.72

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

HYDROGRAPH AT STATION SB42

TOTAL RAINFALL = 4.33, TOTAL LOSS = 1.59, TOTAL EXCESS = 2.74

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	35.75-HR
		(CFS)				
818.	6.25		138.	43.	29.	29.
		(INCHES)	2.168	2.716	2.722	2.722
		(AC-FT)	68.	85.	86.	86.

CUMULATIVE AREA = .59 SQ MI

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              **************
              *            *
148 KK        *   CB4142   *
              *            *
              **************
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COMBINE SB41 AND SB42

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

151 HC        HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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*** *** *** *** ***

HYDROGRAPH AT STATION CB4142

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW (CFS) 6-HR	24-HR	72-HR	35.75-HR
22986.	6.50	6449.	2093.	1462.	1462.
	(INCHES)	2.180	2.830	2.946	2.946
	(AC-FT)	3198.	4151.	4321.	4321.

CUMULATIVE AREA = 27.50 SQ MI

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          **************
          *            *
152 KK    *     SB43   *
          *            *
          **************
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RUNOFF FROM SB43

154 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

SUBBASIN RUNOFF DATA

155 BA SUBBASIN CHARACTERISTICS

TAREA	.66	SUBBASIN AREA

PRECIPITATION DATA

13 PB

STORM	4.33	BASIN TOTAL PRECIPITATION

14 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.02	.02	.28	.28	.04	.04	.02	.02	.01	.01
.01	.01	.01	.01	.00	.00	.01	.00	.01	.01
.00	.00	.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				

156 LS SCS LOSS RATE

STRTL	.41	INITIAL ABSTRACTION
CRVNBR	83.00	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

LOSS RATE VARIABLES FOR SECOND OVERLAND FLOW ELEMENT

STRTL	.41	INITIAL ABSTRACTION
CRVNBR	83.00	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

```
TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.75, TOTAL EXCESS =    2.58

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                         (CFS)
 23154.       6.50                6617.       2151.       1501.       1501.
                       (INCHES)    2.184       2.840       2.953       2.953
                        (AC-FT)    3281.       4266.       4436.       4436.

                        CUMULATIVE AREA =   28.16 SQ MI


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


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          *            *
161 KK    *     SB44   *
          *            *
          **************
                         RUNOFF FROM SB44

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

              SUBBASIN RUNOFF DATA

164 BA          SUBBASIN CHARACTERISTICS
                      TAREA       4.39  SUBBASIN AREA

                PRECIPITATION DATA

 13 PB                STORM       4.33  BASIN TOTAL PRECIPITATION

 14 PI            INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .01       .01       .01       .01
                      .02       .02       .28       .28       .04       .04       .02       .02       .01       .01
                      .01       .01       .01       .01       .00       .00       .01       .00       .01       .01
                      .00       .00       .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

165 LS          SCS LOSS RATE
                      STRTL        .33  INITIAL ABSTRACTION
                     CRVNBR      85.80  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
166 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L        500.  OVERLAND FLOW LENGTH
                          S       .0200  SLOPE
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                    N        .150  ROUGHNESS COEFFICIENT
                   PA       100.0  PERCENT OF SUBBASIN
                DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
167 RK        COLLECTOR CHANNEL
                    L       2433.  CHANNEL LENGTH
                    S       .0060  SLOPE
                    N        .012  CHANNEL ROUGHNESS COEFFICIENT
                   CA         .20  CONTRIBUTING AREA
                SHAPE        CIRC  CHANNEL SHAPE
                   WD        2.50  BOTTOM WIDTH OR DIAMETER
                    Z         .00  SIDE SLOPE
                DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
168 RK        MAIN CHANNEL
                    L      30000.  CHANNEL LENGTH
                    S       .0100  SLOPE
                    N        .050  CHANNEL ROUGHNESS COEFFICIENT
                   CA        4.39  CONTRIBUTING AREA
                SHAPE        TRAP  CHANNEL SHAPE
                   WD      100.00  BOTTOM WIDTH OR DIAMETER
                    Z        5.00  SIDE SLOPE
                DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
               RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                             (DT SHOWN IS A MINIMUM)
          ELEMENT    ALPHA      M        DT        DX      PEAK   TIME TO    VOLUME   MAXIMUM
                                                                     PEAK             CELERITY
                                          (MIN)     (FT)    (CFS)   (MIN)     (IN)     (FPS)

             1        1.40     1.67      2.88    100.00   9159.03   361.26     2.81       .58
             3        6.05     1.25       .73    811.00   9039.09   360.86     2.81     18.58
             4         .20     1.57     14.59  10000.00   3694.03   402.09     2.77     11.43

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000  EXCESS=  662.190 OUTFLOW=  648.212 BASIN STORAGE=    2.512 PERCENT ERROR=    1.731

                             INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL

             4         .20     1.57     15.00            3511.34   405.00     2.77

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

                HYDROGRAPH AT STATION     SB44

   TOTAL RAINFALL =    4.33, TOTAL LOSS =    1.50, TOTAL EXCESS =    2.83

PEAK FLOW     TIME                      MAXIMUM AVERAGE FLOW
                                   6-HR       24-HR       72-HR     35.75-HR
+  (CFS)      (HR)
                   (CFS)
   3511.      6.75                992.        324.        220.        220.
                 (INCHES)       2.102       2.747       2.772       2.772
                  (AC-FT)        492.        643.        649.        649.

                 CUMULATIVE AREA =    4.39 SQ MI
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              **************
              *            *
169 KK        *    CB4344  *
              *            *
              **************
                             COMBINE SB43 AND SB44

171 KO              OUTPUT CONTROL VARIABLES
                          IPRNT          3  PRINT CONTROL
                          IPLOT          2  PLOT CONTROL
                          QSCAL         0.  HYDROGRAPH PLOT SCALE

172 HC              HYDROGRAPH COMBINATION
                          ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                           HYDROGRAPH AT STATION   CB4344

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     35.75-HR
  (CFS)       (HR)
                            (CFS)
+  26392.     6.50                  7610.       2475.       1721.       1721.
                          (INCHES)  2.173       2.827       2.929       2.929
                           (AC-FT)  3773.       4908.       5085.       5085.

                          CUMULATIVE AREA =   32.56 SQ MI

                                                     STATION   CB4344

                           (O) OUTFLOW
        0.     4000.     8000.    12000.    16000.    20000.    24000.    28000.        0.        0.        0.        0.        0.
DAHRMN PER
  10000   10---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
  10015   20         .         .         .         .         .         .         .         .         .         .         .         .
  10030   30         .         .         .         .         .         .         .         .         .         .         .         .
  10045   40         .         .         .         .         .         .         .         .         .         .         .         .
  10100   50         .         .         .         .         .         .         .         .         .         .         .         .
  10115   60         .         .         .         .         .         .         .         .         .         .         .         .
  10130   70         .         .         .         .         .         .         .         .         .         .         .         .
  10145   80         .         .         .         .         .         .         .         .         .         .         .         .
  10200   90         .         .         .         .         .         .         .         .         .         .         .         .
  10215  100         .         .         .         .         .         .         .         .         .         .         .         .
  10230  110 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
  10245  120         .         .         .         .         .         .         .         .         .         .         .         .
  10300  130         .         .         .         .         .         .         .         .         .         .         .         .
  [illegible]5  140  .         .         .         .         .         .         .         .         .         .         .         .
  [illegible]330 150 .         .         .         .         .         .         .         .         .         .         .         .
  10345  160         .         .         .         .         .         .         .         .         .         .         .         .
  10400  170         .         .         .         .         .         .         .         .         .         .         .         .
  10415  180         .         .         .         .         .         .         .         .         .         .         .         .
```

```
10430 190          .         .         .         .         .         .         .         .         .         .         .         .
10445 200          .         .         .         .         .         .         .         .         .         .         .         .
10500 210 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
10515 220          .         .         .         .         .         .         .         .         .         .         .         .
      230          .         .         .         .         .         .         .         .         .         .         .         .
10545 24.    0     .         .         .         .         .         .         .         .         .         .         .         .
10600 25.          .         .       0.          .         .         .         .         .         .         .         .         .
10615 26.          .         .         .         .         .       0 .         .         .         .         .         .         .
10630 27.          .         .         .         .         .         .       0 .         .         .         .         .         .
10645 28.          .         .         .         .         .       0         .         .         .         .         .         .
10700 29.          .         .         .         .     0   .         .         .         .         .         .         .         .
10715 30.          .         .         .   0     .         .         .         .         .         .         .         .         .
10730 31. . . . . . . . . . . . . . . 0 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
10745 32.          .       0         .         .         .         .         .         .         .         .         .         .
10800 33.          .     0   .         .         .         .         .         .         .         .         .         .         .
10815 34.          .   0     .         .         .         .         .         .         .         .         .         .         .
10830 35.          .0        .         .         .         .         .         .         .         .         .         .         .
10845 36.          0         .         .         .         .         .         .         .         .         .         .         .
10900 37.        0 .         .         .         .         .         .         .         .         .         .         .         .
10915 38.      0   .         .         .         .         .         .         .         .         .         .         .         .
10930 39.      0   .         .         .         .         .         .         .         .         .         .         .         .
10945 40.    0     .         .         .         .         .         .         .         .         .         .         .         .
11000 41. . . 0 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11015 42.    0     .         .         .         .         .         .         .         .         .         .         .         .
11030 43.    0     .         .         .         .         .         .         .         .         .         .         .         .
11045 44.    0     .         .         .         .         .         .         .         .         .         .         .         .
11100 45.  0       .         .         .         .         .         .         .         .         .         .         .         .
11115 46.  0       .         .         .         .         .         .         .         .         .         .         .         .
11130 47.  0       .         .         .         .         .         .         .         .         .         .         .         .
11145 48.  0       .         .         .         .         .         .         .         .         .         .         .         .
11200 49.  0       .         .         .         .         .         .         .         .         .         .         .         .
11215 50.  0       .         .         .         .         .         .         .         .         .         .         .         .
11230 51. .0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11245 52. 0        .         .         .         .         .         .         .         .         .         .         .         .
11300 53. 0        .         .         .         .         .         .         .         .         .         .         .         .
11315 54. 0        .         .         .         .         .         .         .         .         .         .         .         .
11330 55. 0        .         .         .         .         .         .         .         .         .         .         .         .
11345 56. 0        .         .         .         .         .         .         .         .         .         .         .         .
11400 57. 0        .         .         .         .         .         .         .         .         .         .         .         .
11415 58. 0        .         .         .         .         .         .         .         .         .         .         .         .
11430 59. 0        .         .         .         .         .         .         .         .         .         .         .         .
11445 60. 0        .         .         .         .         .         .         .         .         .         .         .         .
11500 61. .0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11515 62. 0        .         .         .         .         .         .         .         .         .         .         .         .
11530 63. 0        .         .         .         .         .         .         .         .         .         .         .         .
11545 64. 0        .         .         .         .         .         .         .         .         .         .         .         .
11600 65. 0        .         .         .         .         .         .         .         .         .         .         .         .
11615 66. 0        .         .         .         .         .         .         .         .         .         .         .         .
11630 67. 0        .         .         .         .         .         .         .         .         .         .         .         .
11645 68. 0        .         .         .         .         .         .         .         .         .         .         .         .
11700 69. 0        .         .         .         .         .         .         .         .         .         .         .         .
11715 70. 0        .         .         .         .         .         .         .         .         .         .         .         .
11730 71. 0 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
11745 72. 0        .         .         .         .         .         .         .         .         .         .         .         .
11800 73. 0        .         .         .         .         .         .         .         .         .         .         .         .
      74. 0        .         .         .         .         .         .         .         .         .         .         .         .
      75. 0        .         .         .         .         .         .         .         .         .         .         .         .
11845 76. 0        .         .         .         .         .         .         .         .         .         .         .         .
11900 77. 0        .         .         .         .         .         .         .         .         .         .         .         .
11915 78. 0        .         .         .         .         .         .         .         .         .         .         .         .
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11930 79. 0
11945 80. 0
12000 81. 0
12015 82. 0
12030 83. 0
12045 84. 0
12100 85. 0
12115 86. 0
12130 87. 0
12145 88. 0
12200 89.0
12215 90.0
12230 91.0.
12245 92.0
12300 93.0
12315 94.0
12330 95.0
12345 96.0
20000 97.0
20015 98.0
20030 99.0
20045 100.0
20100 101.0.
20115 102.0
20130 103.0
20145 104.0
20200 105.0
20215 106.0
20230 107.0
20245 108.0
20300 109.0
20315 110.0
20330 111.0.
20345 112.0
20400 113.0
20415 114.0
20430 115.0
20445 116.0
20500 117.0
20515 118.0
20530 119.0
20545 120.0
20600 121.0.
20615 122.0
20630 123.0
20645 124.0
20700 125.0
20715 126.0
20730 127.0
20745 128.0
20800 129.0
20815 130.0
20830 131.0.
20845 132.0
20900 133.0
20915 134.0
20930 135.0
20945 136.0
21000 137.0
21015 138.0

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21030 139.0      .         .         .         .         .         .         .         .         .         .         .         .
21045 140.0      .         .         .         .         .         .         .         .         .         .         .         .
21100 141.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
21115 142.0      .         .         .         .         .         .         .         .         .         .         .         .
21130 143.0      .         .         .         .         .         .         .         .         .         .         .         .
21145 144.0--------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
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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	SB32	464.	6.00	49.	15.	10.	.20		
HYDROGRAPH AT	SB33	1324.	6.00	210.	65.	43.	.89		
HYDROGRAPH AT	SB35A	1832.	6.50	342.	110.	74.	1.50		
HYDROGRAPH AT	SB34	771.	6.00	87.	27.	18.	.36		
HYDROGRAPH AT	SB35B	831.	6.25	140.	45.	30.	.60		
2 COMBINED AT	CB35AB	2471.	6.50	482.	154.	104.	2.10		
HYDROGRAPH AT	SB36	2460.	7.00	643.	214.	145.	2.97		
HYDROGRAPH AT	SB37	609.	6.25	103.	32.	22.	.45		
2 COMBINED AT	CB3637	2612.	6.75	739.	246.	167.	3.42		
HYDROGRAPH AT	SB31	2891.	7.00	911.	301.	204.	4.14		
HYDROGRAPH AT	SB39	241.	6.00	26.	8.	5.	.11		
HYDROGRAPH AT	SB29	1591.	6.75	465.	153.	104.	2.03		
HYDROGRAPH AT	SB30	1654.	6.75	541.	179.	122.	2.41		
3 COMBINED AT	CB3019	4559.	6.75	1475.	488.	331.	6.66		
HYDROGRAPH AT	SB40	4565.	7.00	1498.	496.	337.	6.76		

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HYDROGRAPH AT
                    SB28     19829.    6.25       4743.      1531.      1082.      19.85

2 COMBINED AT
                  CB2840     22412.    6.50       6241.      2027.      1419.      26.61

HYDROGRAPH AT
+                   SB41     22582.    6.50       6312.      2050.      1434.      26.91

HYDROGRAPH AT
+                   SB42       818.    6.25        138.        43.        29.        .59

2 COMBINED AT
+                 CB4142     22986.    6.50       6449.      2093.      1462.      27.50

HYDROGRAPH AT
                    SB43     23154.    6.50       6617.      2151.      1501.      28.16

HYDROGRAPH AT
                    SB44      3511.    6.75        992.       324.       220.       4.39

2 COMBINED AT
                  CB4344     26392.    6.50       7610.      2475.      1721.      32.56
```

SUMMARY OF KINEMATIC WAVE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
SB32	4	.82	464.72	358.96	2.68	15.00	463.75	360.00	2.73

```
ONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   28.607 OUTFLOW=   28.555 BASIN STORAGE=     .000 PERCENT ERROR=     .182
```

SB33	5	1.22	1646.31	366.54	2.72	15.00	1323.93	360.00	2.71

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=   29.100 EXCESS=  100.361 OUTFLOW=  129.037 BASIN STORAGE=     .014 PERCENT ERROR=     .316
```

SB35A	4	8.12	1880.11	388.93	2.74	15.00	1831.67	390.00	2.73

```
ONTINUITY SUMMARY (AC-FT) - INFLOW=  128.497 EXCESS=   92.694 OUTFLOW=  218.997 BASIN STORAGE=     .289 PERCENT ERROR=     .861
```

SB34	3	1.56	783.53	361.20	2.76	15.00	771.39	360.00	2.77

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   53.239 OUTFLOW=   53.002 BASIN STORAGE=     .004 PERCENT ERROR=     .439
```

SB35B	4	7.06	969.82	378.92	2.77	15.00	830.83	375.00	2.77

```
ONTINUITY SUMMARY (AC-FT) - INFLOW=   53.136 EXCESS=   36.440 OUTFLOW=   88.755 BASIN STORAGE=     .131 PERCENT ERROR=     .771
```

SB36	4	9.90	2880.86	412.98	2.71	15.00	2459.81	420.00	2.71

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=  307.133 EXCESS=  128.236 OUTFLOW=  429.827 BASIN STORAGE=    1.678 PERCENT ERROR=     .888

          SB37      4        3.41    814.59    366.63      2.70     15.00    608.51    375.00        2.69

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   65.017 OUTFLOW=   64.747 BASIN STORAGE=     .032 PERCENT ERROR=     .367

          SB31      5         .59   3007.59    407.22      2.72     15.00   2890.55    420.00        2.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=  493.521 EXCESS=  109.319 OUTFLOW=  601.520 BASIN STORAGE=     .164 PERCENT ERROR=     .192

          SB39      3        2.84    245.24    360.57      2.72     15.00    240.98    360.00        2.75

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   16.053 OUTFLOW=   15.964 BASIN STORAGE=     .003 PERCENT ERROR=     .537

          SB29      4        6.71   1637.74    400.47      2.83     15.00   1591.30    405.00        2.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  313.380 OUTFLOW=  306.880 BASIN STORAGE=     .860 PERCENT ERROR=    1.800

          SB30      4        5.19   1725.08    413.39      2.80     15.00   1654.45    405.00        2.80

CONTINUITY SUMMARY (AC-FT) - INFLOW=  306.360 EXCESS=   57.508 OUTFLOW=  360.026 BASIN STORAGE=     .814 PERCENT ERROR=     .832

          SB40      4         .71   4577.01    407.09      2.75     15.00   4564.54    420.00        2.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=  978.125 EXCESS=   15.035 OUTFLOW=  992.820 BASIN STORAGE=     .171 PERCENT ERROR=     .017

          SB41      4         .76  22586.26    391.36      2.94     15.00  22582.12    390.00        2.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4191.029 EXCESS=   39.660 OUTFLOW= 4222.312 BASIN STORAGE=    3.337 PERCENT ERROR=     .119

          SB42      4        4.24   1062.49    366.04      2.73     15.00    817.92    375.00        2.72

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=   86.102 OUTFLOW=   85.792 BASIN STORAGE=     .038 PERCENT ERROR=     .316

          SB43      4        1.14  23245.23    392.03      2.95     15.00  23154.13    390.00        2.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= 4321.009 EXCESS=   90.636 OUTFLOW= 4426.030 BASIN STORAGE=    5.968 PERCENT ERROR=    -.461

          SB44      4       14.59   3694.03    402.09      2.77     15.00   3511.34    405.00        2.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=     .000 EXCESS=  662.190 OUTFLOW=  648.212 BASIN STORAGE=    2.512 PERCENT ERROR=    1.731


*** NORMAL END OF HEC-1 ***
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                KINEMATIC WAVE
157 UK            OVERLAND-FLOW ELEMENT NO. 1
                        L        200.  OVERLAND FLOW LENGTH
                        S       .3000  SLOPE
                        N        .150  ROUGHNESS COEFFICIENT
                       PA        70.0  PERCENT OF SUBBASIN
                    DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
158 UK            OVERLAND-FLOW ELEMENT NO. 2
                        L        300.  OVERLAND FLOW LENGTH
                        S       .0100  SLOPE
                        N        .150  ROUGHNESS COEFFICIENT
                       PA        30.0  PERCENT OF SUBBASIN
                    DXMIN           5  MINIMUM NUMBER OF DX INTERVALS
159 RK            COLLECTOR CHANNEL
                        L       1450.  CHANNEL LENGTH
                        S       .0060  SLOPE
                        N        .012  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .10  CONTRIBUTING AREA
                    SHAPE        CIRC  CHANNEL SHAPE
                       WD        2.25  BOTTOM WIDTH OR DIAMETER
                        Z         .00  SIDE SLOPE
                    DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
160 RK            MAIN CHANNEL
                        L       4500.  CHANNEL LENGTH
                        S       .0060  SLOPE
                        N        .045  CHANNEL ROUGHNESS COEFFICIENT
                       CA         .66  CONTRIBUTING AREA
                    SHAPE        TRAP  CHANNEL SHAPE
                       WD       40.00  BOTTOM WIDTH OR DIAMETER
                        Z        4.00  SIDE SLOPE
                    DXMIN           2  MINIMUM NUMBER OF DX INTERVALS
                   RUPSTQ         YES  ROUTE UPSTREAM HYDROGRAPH

                                                  ***
                          COMPUTED KINEMATIC PARAMETERS
                               VARIABLE TIME STEP
                            (DT SHOWN IS A MINIMUM)
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ELEMENT	ALPHA	M	DT (MIN)	DX (FT)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	MAXIMUM CELERITY (FPS)
1	5.44	1.67	.70	40.00	1034.48	359.31	2.57	.95
2	.99	1.67	2.67	60.00	397.56	360.09	2.56	.37
3	5.94	1.25	.50	483.33	1413.50	359.73	2.57	16.08
4	.33	1.51	1.14	1500.00	23245.23	392.03	2.95	21.97

```
CONTINUITY SUMMARY (AC-FT) - INFLOW= 4321.009  EXCESS=   90.636 OUTFLOW= 4426.030 BASIN STORAGE=    5.968 PERCENT ERROR=    -.461

                          INTERPOLATED TO SPECIFIED COMPUTATION INTERVAL
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4	.33	1.51	15.00		23154.13	390.00	2.95

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

                HYDROGRAPH AT STATION     SB43
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