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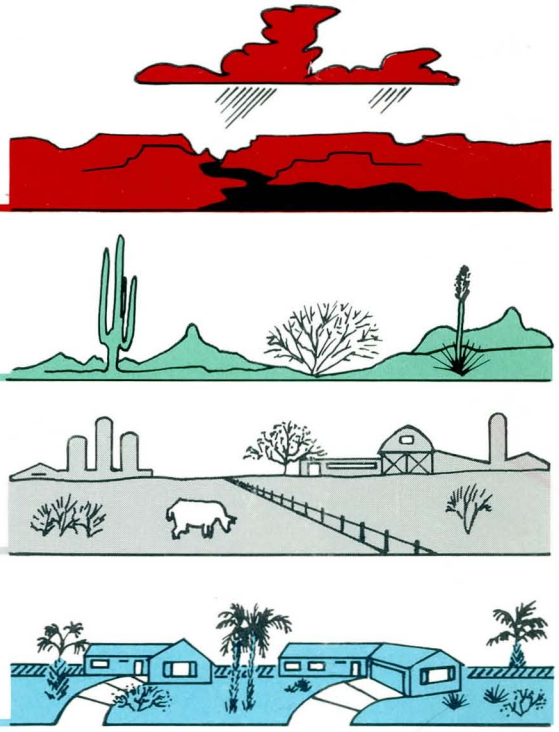

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

Addendum/Erratum
to

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

VOLUME II

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

189

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Addendum/Erratum
to

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

Prepared by

Flood Control District of Maricopa County
Hydrology Division
Watershed Management Branch

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Volume II

June 1989

Addendum/Erratum
to

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

VOLUME II

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I. INTRODUCTION

The Addendum/Erratum to Volume II of the Powerline F.R.S. Analysis contains the revised HEC-1 computer runs for the Powerline F.R.S. watershed and the HEC-2 computer runs for the Powerline F.R.S. emergency spillway.

II. Powerline F.R.S. Analysis
100 Year, 24 Hour Storm
HEC-1 Compter Output

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED  6 FEB 87           *
*                                      *
* RUN DATE  05/24/1989  TIME  14:19:16 *
*                                      *
****************************************
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*  (916) 440-3285 OR (FTS) 448-3285    *
*                                      *
****************************************
```

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

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

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. 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

```
1                                          HEC-1 INPUT                                          PAGE  1

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

        1           ID     WEEKES WASH - POWERLINE F.R.S  ANALYSIS
        2           ID     CONVERSION OF MODEL FROM TR-20
        3           ID                  100-YEAR, 24-HOUR STORM; SCS EXCESS & HYDROGRAPH
        4           ID                  DEVELOPMENT, MUSKINGUM ROUTING
        5           ID        CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
        6           ID                         POINT OF WEEKES WASH AT JUNCTION ROAD.
        7           ID                      2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
        8           ID                         AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
        9           ID                         LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
       10           ID                      3: SUPERSTITION FREEWAY IN PLACE.
       11           ID                      4: ADJUSTED WATERSHED AREAS.
       12           ID                      5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
       13           ID                      6: NO MODIFICATIONS TO POWERLINE F.R.S.
                   *DIAGRAM
       14           IT      10       0       0     300
       15           IO       5

       16           KK      15  WATERSHED 15
       17           KM      HYDROGRAPH FOR WATERSHED 15
       18           PB    3.85
```

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

33        KK    R15 ROUTE HYDROGRAPH FROM WS 15
34        KM    ROUTE HYDROGRAPH FROM WATERSHED 15
35        RM      1     .11      .3

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

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



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

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

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

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

57        KK    113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
58        KM    COMBINE HYDROGRAPHS CP 114 AND WS 13
59        HC      2
```

```
60        KK    R113 ROUTE CP 113 TO CP 112
61        KM     ROUTE HYDROGRAPH FOR CP 113
62        RM       1      .19       .3

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

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

71        KK    R112 ROUTE CP 112 TO CP 111
72        KM     ROUTE HYDROGRAPH CP 112 TO CP 111
73        RM       1      .07       .3

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

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

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



```
1

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


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

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

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

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

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

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

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

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

118        KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
119        KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
120        RS       1    ELEV    1636
121        SV       0     6.0    13.0    29.0    47.0    69.0    93.0   122.0   153.0   184.0
122        SV     217     239
123        SE    1636    1637    1638    1640    1642    1644    1646    1648    1650    1652
124        SE    1654    1655
125        SQ       0      22     194     584    1050    1604    2236    2900    3534    4108
126        SQ    4622    4860
127        ST    1650     320     2.2     1.5

128        KK   FRWAY
129        KM    DIVERT ALL FLOW THAT GO UNDER THE ROAD
130        DT   SPILL
131        DI       0    3665    5000   10000   15000
132        DQ       0       0    1335    6335   11335
```



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

133        KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
134        KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
135        RM       1      .1      .3

136        KK    WASH   ROUTE FLOWS THROUGH THE WASH
137        KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
138        RM       2     .50      .3

139        KK  RSPILL
140        KM     RETRIEVE FLOW DEIVERTED FROM THE EMERGENCY SPILLWAY
141        DR   SPILL
```

```
142        KK   IDAHO
143        KM    ROUTE THE RETRIEVED FLOW DOWN IDAYO ROAD.
144        RM       1      .1      .3

145        KK      WW
146        KM    COMBINE ALL THE FLOW FROM THE FREEWAY
147        HC       2

148        KK     RWW
149        KM    ROUTE THE FLOW TO POWERLINE F.R.S.
150        RM       4     .98      .3

151        KK    2BWW  WATERSHED 2B WEST, WEST
152        KM      HYDROGRAPH FOR WATERSHED 2B WEST, WEST
153        BA     .45
154        LS       0      82
155        UD      .4

156        KK    2BWE  WATERSHED 2B WEST, EAST
157        KM     RUNOFF FROM EAST OF IDAHO ROAD 2B WEST, EAST
158        KO       1
159        BA     .70
160        LS       0      82
161        UD      .3

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

169        KK    COO4  COMBINE FLOWS JUST NORTH OF FREEWAY
170        KM    COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
171        HC       2
```


1

HEC-1 INPUT

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

172        KK    NDIV
173        DT    EXIT
174        DI       0    1218    5000   10000
175        DQ       0       0    3782    8782

176        KK  NDROUT  ROUTE THROUGH THE FREEWAY
177        KM    ROUTE COMBINED FLOW THROUGH 3 BBL. 6 X 8 BOX CULVERTS
178        RS       1    ELEV  1622.6
179        SV       0     .02     .16    1.12    4.17   25.42
180        SE  1622.6  1623.0  1624.0  1626.0  1628.0  1630.0
181        SQ       0       0     101     372     738    1111
182        ST  1630.0    2875     2.2     1.5
```

```
183          KK    R2BW  ROUTE TO CP102
184          KM     ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
185          RM       2     .40      .3

186          KK     2BS  WATERSHED 2B SOUTH OF SUPERTITION FREEWAY
187          KM     HYDROGRAPH FOR WATERSHED 2B SOUTH
188          BA    1.91
189          LS       0      80
190          UD     .32

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

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

199          KK      R5 ROUTE HYDROGRAPH FROM WS 5 TO CP 104
200          KM      ROUTE HYDROGRAPH FOR WS 5 TO CP 104
201          RM       1     .07      .3

202          KK       4 WATERSHED 4
203          KM      HYDROGRAPH FOR WATERSHED 4
204          BA   11.85
205          LS       0      86
206          UD    1.30

207          KK     104  CONCENTRATION POINT 104
208          KM     COMBINE HYDROGRAPHS AT CP 104
209          HC       2

210          KK    R104
211          KM    ROUTE CP 104 TO 106
212          RM       2     .50      .3
```



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

213          KK       7  WATERSHED 7
214          KM    HYDROGRAPH FOR WATERSHED 7
215          BA     .61
216          LS       0      86
217          UD      .3

218          KK       6 WATERSHED 6
219          KM      HYDROGRAPH FOR WATERSHED 6
220          BA    7.86
221          LS       0      83
222          UD    1.08
```

```
223        KK     106 CONCENTRATION PT. 106, HYDROGRAPHS FROM R 5, WS 4, & WS 6
224        KM      COMBINE HYDROGRAPHS FROM R5, WS 4, AND WS 6
225        HC       3

226        KK    R106 ROUTE THE HYDROGRAPH FROM CP 106 TO WHERE NEXT WASH ENTERS.
227        KM      ROUTE HYDROGRAPH FROM CP 104 TO WHERE OTHER WASH ENTERS
228        RM       1     .27      .3

229        KK      3N WATERSHED 3N
230        KM      HYDROGRAPH FOR WATERSHED 3N
231        BA    2.89
232        LS       0      85
233        UD     .41

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

240        KK   RCULV  ROUTE FLOWS TO W103
241        KM     ROUTE THE FLOWS TO CONCENTRATION POINT W103
242        RM       2      .5      .3

243        KK      3S  WATERSHED 3 SOUTH
244        KM      HYDROGRAPH FOR WATERSHED 3 SOUTH
245        BA    2.39
246        LS       0      85
247        UD    .436

248        KK     103
249        HC       2

250        KK      3A   WATERSHED 3A
251        KM     HYDROGRAPH FOR WATERSHED 3A
252        BA    1.20
253        LS       0      86
254        UD      .4
```



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

255        KK   CP103
256        KM     CONCENTRATION POINT FOR WEST FORK OF SIPHON DRAW
257        HC       2

258        KK    W103 CONCTRATION PT. W103 WHERE UNNAMED WASH ENTERS.
259        KM      COMBINE HYDROGRAPHS FROM CP 104 AND WS 3 - SIPHON DRAW WATERSHED
260        HC       2
```

```
261          KK   RW103 ROUTE RESULTING HYDROGRAPH TO POWELINE DAM STRUCTURE
262          KM      ROUTE THE HYDROGRAPH TO POWERLINE DAM
263          RM       1     .16      .3

264          KK     PLD CONCENTRATION PT. AT POWERLINE DAM
265          KM     COMBINE HYDROGRAPHS FROM WEEKES WASH SUB-BASIN AND SIPHON DRAW SUB-BASIN
266          KO       3
267          HC       2

268          KK     RES RESERVOIR ROUTING THROUGH THE STRUCTURE
269          KM     RESERVOIR RATING CURVE
270          RS       1    ELEV  1568.2
271          SV       0     175     380     700    1100    1600    2175    2875    3675    4200
272          SV    4600    5525    6725    7925    8910    9100
273          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
274          SE  1584.1  1586.1  1588.1  1590.1  1591.0  1592.0
275          SQ       0      75      92     106     119     130     141     150     159     165
276          SQ     500    1000    5000   10000   15000   20000   25000   30000   35000
277          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
278          SE  1583.9  1584.2  1585.6  1586.9  1587.9  1588.8  1589.6  1590.3  1591.0
279          SS  1583.3       0       0       0
280          ST  1589.1   13358     2.2     1.5
281          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   16          15
                V
                V
   33         R15
                .
                .
   36           .          14
                .           .
                .           .
   41           .           .          16
                .           .           .
                .           .           .
   46        114.......................
                V
                V
   49        R114
                .
                .
   52           .          13
                .           .
                .           .
   57        113............
                V
                V
   60        R113
```

```
            .
            .
63          .          12
            .           .
            .           .
68        112............
            V
            V
71       R112
            .
            .
74          .          11
            .           .
            .           .
79          .           .          17
            .           .           .
            .           .           .
84          .           .           .          10
            .           .           .           .
            .           .           .           .
89        111.................................
            V
            V
92       RD111
            .
            .
95          .          2A
            .           .
            .           .
100       CP2A............
            .
            .
104         .-------->    FLOW
103      DIVERT
            V
            V
107       RR2A
            .
            .
110         .          2BE
            .           .
            .           .
115       102B............
            V
            V
118      DET2BE
            .
            .
130         .-------->   SPILL
128       FRWAY
            V
            V
133       CHAN
            V
            V
136       WASH
            .
            .
```

```
141          .          .<-------   SPILL
139          .      RSPILL
             .          V
             .          V
142          .       IDAHO
             .          .
             .          .
145         WW............
             V
             V
148         RWW
             .
             .
151          .        2BWW
             .          .
             .          .
156          .          .        2BWE
             .          .          V
             .          .          V
162          .          .      DET2BW
             .          .          .
             .          .          .
169          .        COO4............
             .          .
             .          .
173          .          .------->    EXIT
172          .        NDIV
             .          V
             .          V
176          .      NDROUT
             .          V
             .          V
183          .        R2BW
             .          .
             .          .
186          .          .         2BS
             .          .          .
             .          .          .
191         102........................
             .
             .
194          .          5
             .          V
             .          V
199          .         R5
             .          .
             .          .
202          .          .          4
             .          .          .
             .          .          .
207          .        104............
             .          V
             .          V
210          .       R104
             .          .
             .          .
```

```
213          .          .          7
             .          .          .
             .          .          .
218          .          .          .          6
             .          .          .          .
             .          .          .          .
223          .        106.......................
             .          V
             .          V
226          .       R106
             .          .
             .          .
229          .          .         3N
             .          .          V
             .          .          V
234          .          .        CULV
             .          .          V
             .          .          V
240          .          .       RCULV
             .          .          .
             .          .          .
243          .          .          .          3S
             .          .          .          .
             .          .          .          .
248          .          .        103............
             .          .          .
             .          .          .
250          .          .          .          3A
             .          .          .          .
             .          .          .          .
255          .          .       CP103............
             .          .          .
             .          .          .
258          .        W103............
             .          V
             .          V
261          .       RW103
             .          .
             .          .
264       PLD............
            V
            V
268       RES
```

```
(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             FEBRUARY 1981            *
*           REVISED  6 FEB 87          *
*                                      *
*  RUN DATE  05/24/1989  TIME  14:19:16 *
*                                      *
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```

```
************************************ *
*                                  *
*   U.S. ARMY CORPS OF ENGINEERS   *
* THE HYDROLOGIC ENGINEERING CENTER *
*         609 SECOND STREET        *
*      DAVIS, CALIFORNIA 95616     *
* (916) 440-3285 OR (FTS) 448-3285 *
*                                  *
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                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                100-YEAR, 24-HOUR STORM; SCS EXCESS & HYDROGRAPH
                                DEVELOPMENT, MUSKINGUM ROUTING
                       CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION ROAD.
                                     2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     3: SUPERSTITION FREEWAY IN PLACE.
                                     4: ADJUSTED WATERSHED AREAS.
                                     5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
                                     6: NO MODIFICATIONS TO POWERLINE F.R.S.

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

     IT          HYDROGRAPH TIME DATA
                       NMIN         10  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3    0  ENDING DATE
                     NDTIME       0150  ENDING TIME
                      ICENT         19  CENTURY MARK

                  COMPUTATION INTERVAL     .17 HOURS
                       TOTAL TIME BASE   49.83 HOURS

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

 WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG
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          *            *
 156 KK   *     2BWE   *       WATERSHED 2B WEST, EAST
          *            *
          **************

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

              SUBBASIN RUNOFF DATA

 159 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .70  SUBBASIN AREA

                 PRECIPITATION DATA

  18 PB                STORM        3.85  BASIN TOTAL PRECIPITATION
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20 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.02	.02	.07
.13	.18	.03	.02	.02	.02	.01	.01	.02	.01
.01	.01	.01	.01	.01	.01	.01	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00							

160 LS SCS LOSS RATE

STRTL	.44	INITIAL ABSTRACTION
CRVNBR	82.00	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

161 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	.30	LAG

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

UNIT HYDROGRAPH

11 END-OF-PERIOD ORDINATES

325.	864.	762.	385.	193.	94.	46.	23.	11.	6.
2.									

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HYDROGRAPH AT STATION 2BWE

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DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	.00	.00	.00	0.	*	2		0100	151	.00	.00	.00	0.
1		0010	2	.01	.01	.00	0.	*	2		0110	152	.00	.00	.00	0.
1		0020	3	.01	.01	.00	0.	*	2		0120	153	.00	.00	.00	0.
1		0030	4	.01	.01	.00	0.	*	2		0130	154	.00	.00	.00	0.
1		0040	5	.01	.01	.00	0.	*	2		0140	155	.00	.00	.00	0.
1		0050	6	.01	.01	.00	0.	*	2		0150	156	.00	.00	.00	0.
1		0100	7	.01	.01	.00	0.	*	2		0200	157	.00	.00	.00	0.
1		0110	8	.01	.01	.00	0.	*	2		0210	158	.00	.00	.00	0.
1		0120	9	.01	.01	.00	0.	*	2		0220	159	.00	.00	.00	0.
1		0130	10	.01	.01	.00	0.	*	2		0230	160	.00	.00	.00	0.
1		0140	11	.01	.01	.00	0.	*	2		0240	161	.00	.00	.00	0.
1		0150	12	.01	.01	.00	0.	*	2		0250	162	.00	.00	.00	0.
1		0200	13	.01	.01	.00	0.	*	2		0300	163	.00	.00	.00	0.

1	0210	14	.01	.01	.00	0.	*	2	0310	164	.00	.00	.00	0.
1	0220	15	.01	.01	.00	0.	*	2	0320	165	.00	.00	.00	0.
1	0230	16	.01	.01	.00	0.	*	2	0330	166	.00	.00	.00	0.
1	0240	17	.01	.01	.00	0.	*	2	0340	167	.00	.00	.00	0.
1	0250	18	.01	.01	.00	0.	*	2	0350	168	.00	.00	.00	0.
1	0300	19	.01	.01	.00	0.	*	2	0400	169	.00	.00	.00	0.
1	0310	20	.01	.01	.00	0.	*	2	0410	170	.00	.00	.00	0.
1	0320	21	.01	.01	.00	0.	*	2	0420	171	.00	.00	.00	0.
1	0330	22	.01	.01	.00	0.	*	2	0430	172	.00	.00	.00	0.
1	0340	23	.01	.01	.00	0.	*	2	0440	173	.00	.00	.00	0.
1	0350	24	.01	.01	.00	0.	*	2	0450	174	.00	.00	.00	0.
1	0400	25	.01	.01	.00	0.	*	2	0500	175	.00	.00	.00	0.
1	0410	26	.01	.01	.00	0.	*	2	0510	176	.00	.00	.00	0.
1	0420	27	.01	.01	.00	0.	*	2	0520	177	.00	.00	.00	0.
1	0430	28	.01	.01	.00	0.	*	2	0530	178	.00	.00	.00	0.
1	0440	29	.01	.01	.00	0.	*	2	0540	179	.00	.00	.00	0.
1	0450	30	.01	.01	.00	0.	*	2	0550	180	.00	.00	.00	0.
1	0500	31	.01	.01	.00	0.	*	2	0600	181	.00	.00	.00	0.
1	0510	32	.01	.01	.00	0.	*	2	0610	182	.00	.00	.00	0.
1	0520	33	.01	.01	.00	0.	*	2	0620	183	.00	.00	.00	0.
1	0530	34	.01	.01	.00	0.	*	2	0630	184	.00	.00	.00	0.
1	0540	35	.01	.01	.00	0.	*	2	0640	185	.00	.00	.00	0.
1	0550	36	.01	.01	.00	0.	*	2	0650	186	.00	.00	.00	0.
1	0600	37	.01	.01	.00	0.	*	2	0700	187	.00	.00	.00	0.
1	0610	38	.01	.01	.00	0.	*	2	0710	188	.00	.00	.00	0.
1	0620	39	.01	.01	.00	0.	*	2	0720	189	.00	.00	.00	0.
1	0630	40	.01	.01	.00	0.	*	2	0730	190	.00	.00	.00	0.
1	0640	41	.01	.01	.00	0.	*	2	0740	191	.00	.00	.00	0.
1	0650	42	.01	.01	.00	0.	*	2	0750	192	.00	.00	.00	0.
1	0700	43	.01	.01	.00	0.	*	2	0800	193	.00	.00	.00	0.
1	0710	44	.01	.01	.00	0.	*	2	0810	194	.00	.00	.00	0.
1	0720	45	.01	.01	.00	0.	*	2	0820	195	.00	.00	.00	0.
1	0730	46	.01	.01	.00	0.	*	2	0830	196	.00	.00	.00	0.
1	0740	47	.01	.01	.00	0.	*	2	0840	197	.00	.00	.00	0.
1	0750	48	.01	.01	.00	0.	*	2	0850	198	.00	.00	.00	0.
1	0800	49	.01	.01	.00	0.	*	2	0900	199	.00	.00	.00	0.
1	0810	50	.02	.01	.00	0.	*	2	0910	200	.00	.00	.00	0.
1	0820	51	.02	.02	.00	1.	*	2	0920	201	.00	.00	.00	0.
1	0830	52	.02	.02	.00	1.	*	2	0930	202	.00	.00	.00	0.
1	0840	53	.02	.02	.00	2.	*	2	0940	203	.00	.00	.00	0.
1	0850	54	.02	.02	.00	3.	*	2	0950	204	.00	.00	.00	0.
1	0900	55	.02	.02	.00	3.	*	2	1000	205	.00	.00	.00	0.
1	0910	56	.02	.02	.00	4.	*	2	1010	206	.00	.00	.00	0.
1	0920	57	.02	.02	.00	5.	*	2	1020	207	.00	.00	.00	0.
1	0930	58	.02	.02	.00	6.	*	2	1030	208	.00	.00	.00	0.
1	0940	59	.02	.02	.00	7.	*	2	1040	209	.00	.00	.00	0.
1	0950	60	.02	.02	.00	9.	*	2	1050	210	.00	.00	.00	0.
1	1000	61	.02	.02	.00	10.	*	2	1100	211	.00	.00	.00	0.
1	1010	62	.03	.02	.01	11.	*	2	1110	212	.00	.00	.00	0.
1	1020	63	.03	.02	.01	13.	*	2	1120	213	.00	.00	.00	0.
1	1030	64	.03	.02	.01	15.	*	2	1130	214	.00	.00	.00	0.
1	1040	65	.04	.03	.01	18.	*	2	1140	215	.00	.00	.00	0.
1	1050	66	.04	.03	.01	23.	*	2	1150	216	.00	.00	.00	0.
1	1100	67	.05	.03	.01	28.	*	2	1200	217	.00	.00	.00	0.
1	1110	68	.05	.04	.02	34.	*	2	1210	218	.00	.00	.00	0.
1	1120	69	.06	.04	.02	41.	*	2	1220	219	.00	.00	.00	0.

1	1130	70	.07	.04	.03	50.	*	2	1230	220	.00	.00	.00	0.
1	1140	71	.27	.15	.12	90.	*	2	1240	221	.00	.00	.00	0.
1	1150	72	.49	.21	.28	230.	*	2	1250	222	.00	.00	.00	0.
1	1200	73	.71	.22	.49	509.	*	2	1300	223	.00	.00	.00	0.
1	1210	74	.11	.03	.08	716.	*	2	1310	224	.00	.00	.00	0.
1	1220	75	.09	.02	.07	602.	*	2	1320	225	.00	.00	.00	0.
1	1230	76	.07	.02	.06	398.	*	2	1330	226	.00	.00	.00	0.
1	1240	77	.06	.01	.05	275.	*	2	1340	227	.00	.00	.00	0.
1	1250	78	.04	.01	.03	197.	*	2	1350	228	.00	.00	.00	0.
1	1300	79	.02	.00	.02	140.	*	2	1400	229	.00	.00	.00	0.
1	1310	80	.06	.01	.05	108.	*	2	1410	230	.00	.00	.00	0.
1	1320	81	.05	.01	.04	107.	*	2	1420	231	.00	.00	.00	0.
1	1330	82	.03	.01	.03	105.	*	2	1430	232	.00	.00	.00	0.
1	1340	83	.03	.01	.02	91.	*	2	1440	233	.00	.00	.00	0.
1	1350	84	.03	.01	.02	76.	*	2	1450	234	.00	.00	.00	0.
1	1400	85	.03	.01	.02	67.	*	2	1500	235	.00	.00	.00	0.
1	1410	86	.02	.00	.02	61.	*	2	1510	236	.00	.00	.00	0.
1	1420	87	.02	.00	.02	56.	*	2	1520	237	.00	.00	.00	0.
1	1430	88	.02	.00	.02	52.	*	2	1530	238	.00	.00	.00	0.
1	1440	89	.02	.00	.01	48.	*	2	1540	239	.00	.00	.00	0.
1	1450	90	.02	.00	.01	44.	*	2	1550	240	.00	.00	.00	0.
1	1500	91	.02	.00	.01	42.	*	2	1600	241	.00	.00	.00	0.
1	1510	92	.02	.00	.01	41.	*	2	1610	242	.00	.00	.00	0.
1	1520	93	.02	.00	.01	40.	*	2	1620	243	.00	.00	.00	0.
1	1530	94	.02	.00	.01	38.	*	2	1630	244	.00	.00	.00	0.
1	1540	95	.02	.00	.01	36.	*	2	1640	245	.00	.00	.00	0.
1	1550	96	.02	.00	.01	35.	*	2	1650	246	.00	.00	.00	0.
1	1600	97	.02	.00	.01	35.	*	2	1700	247	.00	.00	.00	0.
1	1610	98	.02	.00	.01	34.	*	2	1710	248	.00	.00	.00	0.
1	1620	99	.02	.00	.01	34.	*	2	1720	249	.00	.00	.00	0.
1	1630	100	.02	.00	.01	34.	*	2	1730	250	.00	.00	.00	0.
1	1640	101	.01	.00	.01	34.	*	2	1740	251	.00	.00	.00	0.
1	1650	102	.01	.00	.01	32.	*	2	1750	252	.00	.00	.00	0.
1	1700	103	.01	.00	.01	30.	*	2	1800	253	.00	.00	.00	0.
1	1710	104	.01	.00	.01	29.	*	2	1810	254	.00	.00	.00	0.
1	1720	105	.01	.00	.01	29.	*	2	1820	255	.00	.00	.00	0.
1	1730	106	.01	.00	.01	29.	*	2	1830	256	.00	.00	.00	0.
1	1740	107	.01	.00	.01	29.	*	2	1840	257	.00	.00	.00	0.
1	1750	108	.01	.00	.01	28.	*	2	1850	258	.00	.00	.00	0.
1	1800	109	.01	.00	.01	27.	*	2	1900	259	.00	.00	.00	0.
1	1810	110	.01	.00	.01	25.	*	2	1910	260	.00	.00	.00	0.
1	1820	111	.01	.00	.01	24.	*	2	1920	261	.00	.00	.00	0.
1	1830	112	.01	.00	.01	24.	*	2	1930	262	.00	.00	.00	0.
1	1840	113	.01	.00	.01	23.	*	2	1940	263	.00	.00	.00	0.
1	1850	114	.01	.00	.01	23.	*	2	1950	264	.00	.00	.00	0.
1	1900	115	.01	.00	.01	23.	*	2	2000	265	.00	.00	.00	0.
1	1910	116	.01	.00	.01	23.	*	2	2010	266	.00	.00	.00	0.
1	1920	117	.01	.00	.01	23.	*	2	2020	267	.00	.00	.00	0.
1	1930	118	.01	.00	.01	23.	*	2	2030	268	.00	.00	.00	0.
1	1940	119	.01	.00	.01	23.	*	2	2040	269	.00	.00	.00	0.
1	1950	120	.01	.00	.01	23.	*	2	2050	270	.00	.00	.00	0.
1	2000	121	.01	.00	.01	22.	*	2	2100	271	.00	.00	.00	0.
1	2010	122	.01	.00	.01	20.	*	2	2110	272	.00	.00	.00	0.
1	2020	123	.01	.00	.01	19.	*	2	2120	273	.00	.00	.00	0.
1	2030	124	.01	.00	.01	18.	*	2	2130	274	.00	.00	.00	0.

1	2040	125	.01	.00	.01	18.	*	2	2140	275	.00	.00	.00	0.
1	2050	126	.01	.00	.01	18.	*	2	2150	276	.00	.00	.00	0.
1	2100	127	.01	.00	.01	18.	*	2	2200	277	.00	.00	.00	0.
1	2110	128	.01	.00	.01	18.	*	2	2210	278	.00	.00	.00	0.
1	2120	129	.01	.00	.01	18.	*	2	2220	279	.00	.00	.00	0.
1	2130	130	.01	.00	.01	18.	*	2	2230	280	.00	.00	.00	0.
1	2140	131	.01	.00	.01	18.	*	2	2240	281	.00	.00	.00	0.
1	2150	132	.01	.00	.01	18.	*	2	2250	282	.00	.00	.00	0.
1	2200	133	.01	.00	.01	18.	*	2	2300	283	.00	.00	.00	0.
1	2210	134	.01	.00	.01	18.	*	2	2310	284	.00	.00	.00	0.
1	2220	135	.01	.00	.01	18.	*	2	2320	285	.00	.00	.00	0.
1	2230	136	.01	.00	.01	18.	*	2	2330	286	.00	.00	.00	0.
1	2240	137	.01	.00	.01	18.	*	2	2340	287	.00	.00	.00	0.
1	2250	138	.01	.00	.01	19.	*	2	2350	288	.00	.00	.00	0.
1	2300	139	.02	.00	.01	23.	*	3	0000	289	.00	.00	.00	0.
1	2310	140	.01	.00	.01	26.	*	3	0010	290	.00	.00	.00	0.
1	2320	141	.01	.00	.01	24.	*	3	0020	291	.00	.00	.00	0.
1	2330	142	.01	.00	.01	21.	*	3	0030	292	.00	.00	.00	0.
1	2340	143	.01	.00	.00	18.	*	3	0040	293	.00	.00	.00	0.
1	2350	144	.00	.00	.00	15.	*	3	0050	294	.00	.00	.00	0.
2	0000	145	.00	.00	.00	11.	*	3	0100	295	.00	.00	.00	0.
2	0010	146	.00	.00	.00	6.	*	3	0110	296	.00	.00	.00	0.
2	0020	147	.00	.00	.00	3.	*	3	0120	297	.00	.00	.00	0.
2	0030	148	.00	.00	.00	1.	*	3	0130	298	.00	.00	.00	0.
2	0040	149	.00	.00	.00	1.	*	3	0140	299	.00	.00	.00	0.
2	0050	150	.00	.00	.00	0.	*	3	0150	300	.00	.00	.00	0.
							*							

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

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.83-HR
+ (CFS)	(HR)					
		(CFS)				
+ 716.	12.17		127.	39.	19.	19.
		(INCHES)	1.683	2.075	2.075	2.075
		(AC-FT)	63.	77.	77.	77.

CUMULATIVE AREA = .70 SQ MI

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

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              *            *
264 KK        *     PLD    *      CONCENTRATION PT. AT POWERLINE DAM
              *            *
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266 KO            OUTPUT CONTROL VARIABLES
                        IPRNT          3  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE

267 HC            HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION      PLD

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.83-HR
+   (CFS)      (HR)
                          (CFS)
+   14311.     13.67                8801.       2836.       1367.       1367.
                         (INCHES)   1.738       2.241       2.242       2.242
                          (AC-FT)   4364.       5626.       5629.       5629.

                          CUMULATIVE AREA =   47.07 SQ MI
```

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	15	1890.	12.00	295.	91.	44.	1.76		
+	ROUTED TO	R15	1886.	12.17	295.	91.	44.	1.76		
+	HYDROGRAPH AT	14	1280.	12.00	179.	55.	26.	1.11		
+	HYDROGRAPH AT	16	1979.	12.17	391.	121.	58.	2.16		
+	3 COMBINED AT	114	4890.	12.17	865.	266.	128.	5.03		
+	ROUTED TO	R114	4521.	12.33	865.	266.	128.	5.03		
+	HYDROGRAPH AT	13	1922.	12.00	242.	75.	36.	1.29		
+	2 COMBINED AT	113	5124.	12.33	1106.	341.	164.	6.32		
+	ROUTED TO	R113	4890.	12.50	1106.	341.	164.	6.32		
+	HYDROGRAPH AT	12	1646.	12.17	275.	86.	41.	1.32		
+	2 COMBINED AT	112	5838.	12.33	1379.	427.	205.	7.64		
+	ROUTED TO	R112	5795.	12.50	1379.	427.	205.	7.64		
+	HYDROGRAPH AT	11	1040.	12.00	161.	50.	24.	.70		
+	HYDROGRAPH AT	17	447.	12.00	60.	18.	9.	.37		
+	HYDROGRAPH AT	10	647.	12.00	87.	27.	13.	.54		

	4 COMBINED AT								
+		111	6621.	12.33	1684.	522.	252.	9.25	
	ROUTED TO								
+		RD111	6187.	13.00	1682.	522.	252.	9.25	
	HYDROGRAPH AT								
+		2A	1227.	12.17	197.	61.	29.	1.09	
	2 COMBINED AT								
+		CP2A	6348.	13.00	1874.	583.	281.	10.34	
	DIVERSION TO								
+		FLOW	0.	13.00	0.	0.	0.	10.34	
	HYDROGRAPH AT								
+		DIVERT	6348.	13.00	1874.	583.	281.	10.34	
	ROUTED TO								
+		RR2A	5940.	13.50	1872.	583.	281.	10.34	
	HYDROGRAPH AT								
+		2BE	957.	12.33	220.	68.	33.	1.22	
	2 COMBINED AT								
+		102B	6160.	13.50	2087.	651.	314.	11.56	
	ROUTED TO								
+		DET2BE	5922.	13.67	2070.	651.	314.	11.56	
+									1651.90 13.67
	DIVERSION TO								
+		SPILL	2257.	13.33	228.	57.	27.	11.56	
	HYDROGRAPH AT								
+		FRWAY	3665.	13.33	1842.	594.	286.	11.56	
	ROUTED TO								
+		CHAN	3681.	13.50	1842.	594.	286.	11.56	
	ROUTED TO								
+		WASH	3650.	14.50	1837.	594.	286.	11.56	
	HYDROGRAPH AT								
+		RSPILL	2257.	13.67	228.	57.	27.	.00	
	ROUTED TO								
+		IDAHO	2269.	13.67	228.	57.	27.	.00	
	2 COMBINED AT								
+		WW	5412.	13.83	2065.	651.	314.	11.56	
	ROUTED TO								
+		RWW	4535.	14.83	2057.	651.	314.	11.56	

	HYDROGRAPH AT								
+		2BWW	387.	12.33	81.	25.	12.	.45	
	HYDROGRAPH AT								
+		2BWE	716.	12.17	127.	39.	19.	.70	
	ROUTED TO								
+		DET2BW	300.	12.67	111.	39.	19.	.70	
+									1630.74 12.67
	2 COMBINED AT								
+		CO04	537.	12.50	190.	64.	31.	1.15	
	DIVERSION TO								
+		EXIT	0.	12.50	0.	0.	0.	1.15	
	HYDROGRAPH AT								
+		NDIV	537.	12.50	190.	64.	31.	1.15	
	ROUTED TO								
+		NDROUT	530.	12.67	190.	64.	31.	1.15	
+									1626.87 12.67
	ROUTED TO								
+		R2BW	506.	13.00	190.	64.	31.	1.15	
	HYDROGRAPH AT								
+		2BS	1724.	12.17	320.	99.	47.	1.91	
	3 COMBINED AT								
+		102	4809.	14.83	2413.	813.	392.	14.62	
	HYDROGRAPH AT								
+		5	3882.	12.67	1134.	353.	170.	5.65	
	ROUTED TO								
+		R5	3907.	12.67	1134.	353.	170.	5.65	
	HYDROGRAPH AT								
+		4	5614.	13.17	2433.	768.	370.	11.85	
	2 COMBINED AT								
+		104	8660.	12.83	3564.	1121.	540.	17.50	
	ROUTED TO								
+		R104	8251.	13.50	3558.	1121.	540.	17.50	
	HYDROGRAPH AT								
+		7	727.	12.17	127.	40.	19.	.61	
	HYDROGRAPH AT								
+		6	3788.	13.00	1459.	456.	220.	7.86	
	3 COMBINED AT								
+		106	11740.	13.33	5127.	1617.	779.	25.97	

	ROUTED TO								
+		R106	11406.	13.67	5120.	1617.	779.	25.97	
	HYDROGRAPH AT								
+		3N	2763.	12.33	582.	181.	87.	2.89	
	ROUTED TO								
+		CULV	2537.	12.33	582.	181.	87.	2.89	
+									1668.66 12.33
	ROUTED TO								
+		RCULV	2246.	12.83	581.	181.	87.	2.89	
	HYDROGRAPH AT								
+		3S	2227.	12.33	481.	149.	72.	2.39	
	2 COMBINED AT								
+		103	3399.	12.67	1061.	330.	159.	5.28	
	HYDROGRAPH AT								
+		3A	1197.	12.33	250.	78.	37.	1.20	
	2 COMBINED AT								
+		CP103	4327.	12.50	1311.	408.	196.	6.48	
	2 COMBINED AT								
+		W103	13110.	13.50	6394.	2024.	975.	32.45	
	ROUTED TO								
+		RW103	13027.	13.67	6388.	2024.	975.	32.45	
	2 COMBINED AT								
+		PLD	14311.	13.67	8801.	2836.	1367.	47.07	
	ROUTED TO								
+		RES	1609.	21.17	1490.	742.	416.	47.07	
+									1584.41 21.17

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BE

PLAN 1 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1651.90	1.90	182.	5922.	1.00	13.67	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BW

PLAN 1 .....

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

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

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

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

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

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	21875.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1584.41	.00	4745.	1609.	.00	21.17	.00

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

III. Powerline F.R.S. Analysis
Year, 24 Hour Storm with Areal Reduction
HEC-1 Compter Output

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *            FEBRUARY 1981             *
 *          REVISED  6 FEB 87           *
 *                                      *
 *  RUN DATE  05/11/1989  TIME  14:24:03 *
 *                                      *
 ****************************************
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****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*  (916) 440-3285 OR (FTS) 448-3285    *
*                                      *
****************************************
```

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

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

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. 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

```
                                        HEC-1 INPUT                                                    PAGE  1
1

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

  1           ID     WEEKES WASH - POWERLINE F.R.S  ANALYSIS
  2           ID     CONVERSION OF MODEL FROM TR-20
  3           ID                 100-YEAR, 24-HOUR STORM; SCS EXCESS & HYDROGRAPH
  4           ID                 DEVELOPMENT, MUSKINGUM ROUTING
  5           ID                 AERIAL REDUCTION BY NOAA MEMO : HYDRO-40.
  6           ID        CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
  7           ID                         POINT OF WEEKES WASH AT JUNCTION ROAD.
  8           ID                      2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
  9           ID                         AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
 10           ID                         LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
 11           ID                      3: SUPERSTITION FREEWAY IN PLACE.
 12           ID                      4: ADJUSTED WATERSHED AREAS.
 13           ID                      5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
 14           ID                      6: NO MODIFICATIONS TO POWERLINE F.R.S.
              *DIAGRAM
 15           IT      10       0       0     300
 16           IO       5
```

```
17          IN      15
18          JD    3.85     .01
19          PC       0    .002    .005    .008    .011    .014    .017    .020    .023    .026
20          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
21          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
22          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
23          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
24          PC    .735    .758    .766    .791    .804    .815    .825    .834    .842    .849
25          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
26          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
27          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
28          PC    .983    .986    .992    .995    .998   1.000   1.000   1.000   1.000   1.000
29          JD    3.66      10
30          JD    3.54      20
31          JD    3.47      30
32          JD    3.43      40
33          JD    3.39      50

34          KK      15  WATERSHED 15
35          KM      HYDROGRAPH FOR WATERSHED 15
36          BA    1.76
37          LS       0      80
38          UD     .18

39          KK     R15 ROUTE HYDROGRAPH FROM WS 15
40          KM     ROUTE HYDROGRAPH FROM WATERSHED 15
41          RM       1     .11      .3

42          KK      14 WATERSHED 14
43          KM     HYDROGRAPH FOR WATERSHED 14
44          BA    1.11
45          LS       0      79
46          UD     .15
```



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

47          KK      16 WATERSHED 16
48          KM     HYDROGRAPH FOR WATERSHED 16
49          BA    2.16
50          LS       0      82
51          UD     .35

52          KK     114 CONCENTRATION PT. 114 (INCLUDES WATERSHEDS 14, 15, & 16)
53          KM     COMBINE ALL THREE HYDROGRAPHS AT CP 114
54          HC       3

55          KK    R114 ROUTE CP 114
56          KM     ROUTE HYDROGRAPH FROM CP114 TO CP 113
57          RM       1     .17      .3
```

```
58          KK      13 WATERSHED 13
59          KM     HYDROGRAPH FOR WATERSHED 13
60          BA    1.29
61          LS       0       83
62          UD    .126

63          KK     113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
64          KM     COMBINE HYDROGRAPHS CP 114 AND WS 13
65          HC       2

66          KK    R113 ROUTE CP 113 TO CP 112
67          KM     ROUTE HYDROGRAPH FOR CP 113
68          RM       1      .19       .3

69          KK      12 WATERSHED 12
70          KM     HYDROGRAPH FOR WATERSHED 12
71          BA    1.32
72          LS       0       86
73          UD     .27

74          KK     112 CONCENTRATION PT. 112 FOR HYDROGRAPHS FROM CP 113 AND WS 12.
75          KM     COMBINE HYDROGRAPH FROM CP 113 AND WS 12
76          HC       2

77          KK    R112 ROUTE CP 112 TO CP 111
78          KM     ROUTE HYDROGRAPH CP 112 TO CP 111
79          RM       1      .07       .3

80          KK      11 WATERSHED 11
81          KM     HYDROGRAPH FOR WATERSHED 11
82          BA     .70
83          LS       0       89
84          UD    .186

85          KK      17 WATERSHED 17
86          KM     HYDROGRAPH FOR WATERSHED 17
87          BA     .37
88          LS       0       79
89          UD    .138
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1

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


90          KK      10   WATERSHED 10
91          KM      HYDROGRAPH FOR WATERSHED 10
92          BA     .54
93          LS       0       79
94          UD     .14

95          KK     111 CONCENTRATION PT. 111
96          KM     COMBINE HYDROGRAPHS FROM CP 112, WS 11, AND WS 17
97          HC       4
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 98        KK   RD111 ROUTE CP 111 TO PT AT WHICH BREAKOUT WOULD OCCUR.
 99        KM     ROUTE HYDROGRAPH CP111 TO THE POINT AT WHICH THE BREAKOUT OCCURS.
100        RM       5     .64      .3

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

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

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

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

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

121        KK    102B  CONCENTRATION POINT NORTH OF FREEWAY
122        KM     CONCENTRATION POINT NORTH OF SUPERSTITION FREEWAY AT DETENTION AREA
123        HC       2

124        KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
125        KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
126        RS       1    ELEV    1636
127        SV       0     6.0    13.0    29.0    47.0    69.0    93.0   122.0   153.0   184.0
128        SV     217     239
129        SE    1636    1637    1638    1640    1642    1644    1646    1648    1650    1652
130        SE    1654    1655
131        SQ       0      22     194     584    1050    1604    2236    2900    3534    4108
132        SQ    4622    4860
133        ST    1650     320     2.2     1.5
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1

HEC-1 INPUT

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

134        KK   FRWAY
135        KM    DIVERT ALL FLOW THAT GO UNDER THE ROAD
136        DT   SPILL
137        DI       0    3665    5000   10000   15000
138        DQ       0       0    1335    6335   11335
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139          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
140          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
141          RM       1      .1      .3

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

145          KK  RSPILL
146          KM     RETRIEVE FLOW DEIVERTED FROM THE EMERGENCY SPILLWAY
147          DR   SPILL

148          KK   IDAHO
149          KM    ROUTE THE RETRIEVED FLOW DOWN IDAYO ROAD.
150          RM       1      .1      .3

151          KK      WW
152          KM    COMBINE ALL THE FLOW FROM THE FREEWAY
153          HC       2

154          KK     RWW
155          KM    ROUTE THE FLOW TO POWERLINE F.R.S.
156          RM       4     .98      .3

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

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

167          KK  DET2BW  ROUTE THROUGH THE DETENTION NORTH OF THE FREEWAY  (N. DIVERSION DAM)
168          KM      ROUTE FLOWS THROUGH THE DETENTION NORTH OF THE SUPERSTITION FREEWAY
169          RS       1    ELEV  1623.5
170          SV       0      .6     8.3    17.5    28.2    36.0    48.6
171          SE  1623.5  1624.0  1626.0  1628.0  1630.0  1632.0  1634.0
172          SQ       0       0      31      93     135     169     208
173          ST  1630.0     110     2.2     1.5
```



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

174          KK    CO04  COMBINE FLOWS JUST NORTH OF FREEWAY
175          KM    COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
176          HC       2
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```
177        KK    NDIV
178        DT    EXIT
179        DI       0    1218    5000   10000
180        DQ       0       0    3782    8782

181        KK  NDROUT  ROUTE THROUGH THE FREEWAY
182        KM    ROUTE COMBINED FLOW THROUGH 3 BBL. 6 X 8 BOX CULVERTS
183        RS       1    ELEV  1622.6
184        SV       0     .02     .16    1.12    4.17   25.42
185        SE  1622.6  1623.0  1624.0  1626.0  1628.0  1630.0
186        SQ       0       0     101     372     738    1111
187        ST  1630.0    2875     2.2     1.5

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

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

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

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

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

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

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



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

215        KK    R104
216        KM    ROUTE CP 104 TO 106
217        RM       2     .50      .3
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218          KK       7  WATERSHED 7
219          KM    HYDROGRAPH FOR WATERSHED 7
220          BA     .61
221          LS       0      86
222          UD      .3

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

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

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

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

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

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

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

253          KK     103
254          HC       2
```



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

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

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

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

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

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

273          KK     RES RESERVOIR ROUTING THROUGH THE STRUCTURE
274          KM     RESERVOIR RATING CURVE
275          RS       1    ELEV  1568.2
276          SV       0     175     380     700    1100    1600    2175    2875    3675    4200
277          SV    4600    5525    6725    7925    8500    9100
278          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
279          SE  1584.1  1586.1  1588.1  1590.1  1591.0  1592.0
280          SQ       0      75      92     106     119     130     141     150     159     165
281          SQ     500    1000    5000   10000   15000   20000   25000   30000   35000
282          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
283          SE  1583.9  1584.2  1585.6  1586.9  1587.9  1588.8  1589.6  1590.3  1591.0
284          SS  1583.3       0       0       0
285          ST  1589.1   13358     2.2     1.5
286          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   34          15
                V
                V
   39         R15
                .
                .
   42           .          14
                .           .
                .           .
   47           .           .          16
                .           .           .
                .           .           .
   52         114.......................
                V
                V
   55        R114
                .
```

```
                .
58              .          13
                .           .
                .           .
63            113............
                V
                V
66           R113
                .
                .
69              .          12
                .           .
                .           .
74            112............
                V
                V
77           R112
                .
                .
80              .          11
                .           .
                .           .
85              .           .          17
                .           .           .
                .           .           .
90              .           .           .          10
                .           .           .           .
                .           .           .           .
95            111.................................
                V
                V
98           RD111
                .
                .
101             .          2A
                .           .
                .           .
106          CP2A............
                .
                .
110             .-------->    FLOW
109         DIVERT
                V
                V
113          RR2A
                .
                .
116             .         2BE
                .           .
                .           .
121          102B............
                V
                V
124         DET2BE
                .
                .
136             .-------->   SPILL
134          FRWAY
```

```
            V
            V
139       CHAN
            V
            V
142       WASH
            .
            .
147         .          .<-------   SPILL
145         .      RSPILL
            .          V
            .          V
148         .       IDAHO
            .          .
            .          .
151        WW............
            V
            V
154       RWW
            .
            .
157         .        2BWW
            .          .
            .          .
162         .          .       2BWE
            .          .          V
            .          .          V
167         .          .     DET2BW
            .          .          .
            .          .          .
174         .        COO4............
            .          .
            .          .
178         .          .------->   EXIT
177         .        NDIV
            .          V
            .          V
181         .      NDROUT
            .          V
            .          V
188         .        R2BW
            .          .
            .          .
191         .          .        2BS
            .          .          .
            .          .          .
196       102........................
            .
            .
199         .          5
            .          V
            .          V
204         .         R5
            .          .
            .          .
```

```
207          .          .          4
             .          .          .
             .          .          .
212          .        104............
             .          V
             .          V
215          .       R104
             .          .
             .          .
218          .          .          7
             .          .          .
             .          .          .
223          .          .          .          6
             .          .          .          .
             .          .          .          .
228          .        106........................
             .          V
             .          V
231          .       R106
             .          .
             .          .
234          .          .         3N
             .          .          V
             .          .          V
239          .          .       CULV
             .          .          V
             .          .          V
245          .          .      RCULV
             .          .          .
             .          .          .
248          .          .          .          3S
             .          .          .          .
             .          .          .          .
253          .          .        103............
             .          .          .
             .          .          .
255          .          .          .          3A
             .          .          .          .
             .          .          .          .
260          .          .      CP103............
             .          .          .
             .          .          .
263          .       W103............
             .          V
             .          V
266          .      RW103
             .          .
             .          .
269        PLD............
             V
             V
273        RES
(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *            FEBRUARY 1981             *
 *          REVISED  6 FEB 87           *
 *                                      *
 *  RUN DATE  05/11/1989  TIME  14:24:03 *
 *                                      *
 ****************************************
```

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

```
                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                100-YEAR, 24-HOUR STORM; SCS EXCESS & HYDROGRAPH
                                DEVELOPMENT, MUSKINGUM ROUTING
                                AERIAL REDUCTION BY NOAA MEMO : HYDRO-40.
                       CONDITIONS:   1: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION ROAD.
                                     2: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     3: SUPERSTITION FREEWAY IN PLACE.
                                     4: ADJUSTED WATERSHED AREAS.
                                     5: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
                                     6: NO MODIFICATIONS TO POWERLINE F.R.S.

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

    IT          HYDROGRAPH TIME DATA
                       NMIN         10  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      3    0  ENDING DATE
                     NDTIME       0150  ENDING TIME
                     ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .17 HOURS
                      TOTAL TIME BASE   49.83 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
```

```
18 JD          INDEX STORM NO. 1
                     STRM        3.85  PRECIPITATION DEPTH
                     TRDA         .01  TRANSPOSITION DRAINAGE AREA

19 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .02       .02       .07
                    .13       .18       .03       .02       .02       .02       .01       .01       .02       .01
                    .01       .01       .01       .01       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00

29 JD          INDEX STORM NO. 2
                     STRM        3.66  PRECIPITATION DEPTH
                     TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 0 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .02       .02       .07
                    .13       .18       .03       .02       .02       .02       .01       .01       .02       .01
                    .01       .01       .01       .01       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00
```

30 JD INDEX STORM NO. 3

STRM 3.54 PRECIPITATION DEPTH

TRDA 20.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.02	.02	.07
.13	.18	.03	.02	.02	.02	.01	.01	.02	.01
.01	.01	.01	.01	.01	.01	.01	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00							

31 JD INDEX STORM NO. 4

STRM 3.47 PRECIPITATION DEPTH

TRDA 30.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.02	.02	.07
.13	.18	.03	.02	.02	.02	.01	.01	.02	.01
.01	.01	.01	.01	.01	.01	.01	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00							

```
 32 JD          INDEX STORM NO. 5
                      STRM        3.43  PRECIPITATION DEPTH
                      TRDA       40.00  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .02       .02       .07
                     .13       .18       .03       .02       .02       .02       .01       .01       .02       .01
                     .01       .01       .01       .01       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00

 33 JD          INDEX STORM NO. 6
                      STRM        3.39  PRECIPITATION DEPTH
                      TRDA       50.00  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .02       .02       .07
                     .13       .18       .03       .02       .02       .02       .01       .01       .02       .01
                     .01       .01       .01       .01       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00

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

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

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

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

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

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

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


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


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

 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      PLD
                      TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     49.83-HR
+   (CFS)       (HR)
                          (CFS)
+   14311.     13.67                8801.       2836.       1367.        1367.
                       (INCHES)     1.738       2.241       2.242        2.242
                        (AC-FT)     4364.       5626.       5629.        5629.

                       CUMULATIVE AREA =   47.07 SQ MI
```

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

HYDROGRAPH AT STATION PLD
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.83-HR
+ (CFS)	(HR)					
		(CFS)				
+ 13228.	13.67		8150.	2628.	1266.	1266.
		(INCHES)	1.610	2.076	2.077	2.077
		(AC-FT)	4041.	5212.	5215.	5215.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.83-HR
+ (CFS)	(HR)					
		(CFS)				
+ 12549.	13.67		7741.	2497.	1203.	1203.
		(INCHES)	1.529	1.973	1.974	1.974
		(AC-FT)	3839.	4953.	4956.	4956.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.83-HR
+ (CFS)	(HR)					
		(CFS)				
+ 12154.	13.67		7504.	2421.	1167.	1167.
		(INCHES)	1.482	1.913	1.914	1.914
		(AC-FT)	3721.	4803.	4806.	4806.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
TRANSPOSITION AREA 40.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.83-HR
+ (CFS)	(HR)					
		(CFS)				
+ 11930.	13.67		7368.	2378.	1146.	1146.
		(INCHES)	1.455	1.879	1.880	1.880
		(AC-FT)	3654.	4717.	4720.	4720.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
TRANSPOSITION AREA 50.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.83-HR
+ (CFS)	(HR)					
		(CFS)				
+ 11706.	13.67		7235.	2335.	1125.	1125.
		(INCHES)	1.429	1.845	1.846	1.846
		(AC-FT)	3587.	4632.	4635.	4635.

CUMULATIVE AREA = 47.07 SQ MI

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

INTERPOLATED HYDROGRAPH AT PLD

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	49.83-HR
+ (CFS)	(HR)					
		(CFS)				
+ 11767.	13.67		7271.	2347.	1131.	1131.
		(INCHES)	1.436	1.854	1.855	1.855
		(AC-FT)	3605.	4655.	4658.	4658.

CUMULATIVE AREA = 47.07 SQ MI

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	15	1771.	12.00	278.	85.	41.	1.76		
+	ROUTED TO	R15	1770.	12.17	278.	85.	41.	1.76		
+	HYDROGRAPH AT	14	1206.	12.00	169.	52.	25.	1.11		
+	HYDROGRAPH AT	16	1857.	12.17	368.	113.	55.	2.16		
+	3 COMBINED AT	114	4533.	12.17	804.	247.	119.	5.03		
+	ROUTED TO	R114	4190.	12.33	804.	247.	119.	5.03		
+	HYDROGRAPH AT	13	1821.	12.00	230.	71.	34.	1.29		
+	2 COMBINED AT	113	4741.	12.33	1026.	316.	152.	6.32		
+	ROUTED TO	R113	4523.	12.50	1025.	316.	152.	6.32		
+	HYDROGRAPH AT	12	1565.	12.17	262.	81.	39.	1.32		
+	2 COMBINED AT	112	5391.	12.33	1278.	395.	190.	7.64		
+	ROUTED TO	R112	5355.	12.50	1278.	395.	190.	7.64		
+	HYDROGRAPH AT	11	999.	12.00	155.	48.	23.	.70		
+	HYDROGRAPH AT	17	427.	12.00	57.	18.	8.	.37		
+	HYDROGRAPH AT	10	615.	12.00	83.	25.	12.	.54		

	4 COMBINED AT								
+		111	6109.	12.33	1558.	483.	233.	9.25	
	ROUTED TO								
+		RD111	5709.	13.00	1557.	483.	233.	9.25	
	HYDROGRAPH AT								
+		2A	1163.	12.17	187.	58.	28.	1.09	
	2 COMBINED AT								
+		CP2A	5839.	13.00	1728.	537.	259.	10.34	
	DIVERSION TO								
+		FLOW	0.	.17	0.	0.	0.	10.34	
	HYDROGRAPH AT								
+		DIVERT	5839.	13.00	1728.	537.	259.	10.34	
	ROUTED TO								
+		RR2A	5465.	13.50	1726.	537.	259.	10.34	
	HYDROGRAPH AT								
+		2BE	904.	12.33	209.	64.	31.	1.22	
	2 COMBINED AT								
+		102B	5621.	13.50	1907.	595.	287.	11.56	
	ROUTED TO								
+		DET2BE	5333.	13.67	1892.	595.	287.	11.56	
+									1650.99 13.67
	DIVERSION TO								
+		SPILL	1668.	13.67	138.	34.	17.	11.56	
	HYDROGRAPH AT								
+		FRWAY	3665.	13.50	1754.	560.	270.	11.56	
	ROUTED TO								
+		CHAN	3667.	13.50	1754.	560.	270.	11.56	
	ROUTED TO								
+		WASH	3639.	14.50	1749.	560.	270.	11.56	
	HYDROGRAPH AT								
+		RSPILL	1668.	13.67	138.	34.	17.	11.56	
	ROUTED TO								
+		IDAHO	1552.	13.83	138.	34.	17.	11.56	
	2 COMBINED AT								
+		WW	4766.	13.83	1887.	595.	287.	11.56	
	ROUTED TO								
+		RWW	3968.	14.83	1878.	595.	287.	11.56	

	HYDROGRAPH AT								
+		2BWW	370.	12.33	78.	24.	12.	.45	
	HYDROGRAPH AT								
+		2BWE	682.	12.17	121.	37.	18.	.70	
	ROUTED TO								
+		DET2BW	245.	12.67	105.	37.	18.	.70	
+									1629.86 13.00
	2 COMBINED AT								
+		COO4	485.	12.33	180.	60.	29.	1.15	
	DIVERSION TO								
+		EXIT	0.	.17	0.	0.	0.	1.15	
	HYDROGRAPH AT								
+		NDIV	485.	12.33	180.	60.	29.	1.15	
	ROUTED TO								
+		NDROUT	471.	12.50	180.	60.	29.	1.15	
+									1626.15 12.33
	ROUTED TO								
+		R2BW	448.	13.00	179.	60.	29.	1.15	
	HYDROGRAPH AT								
+		2BS	1615.	12.17	301.	93.	45.	1.91	
	3 COMBINED AT								
+		102	4116.	15.00	2153.	729.	351.	14.62	
	HYDROGRAPH AT								
+		5	3624.	12.67	1060.	330.	159.	5.65	
	ROUTED TO								
+		R5	3646.	12.67	1060.	330.	159.	5.65	
	HYDROGRAPH AT								
+		4	5150.	13.17	2238.	706.	340.	11.85	
	2 COMBINED AT								
+		104	7710.	12.83	3187.	1001.	482.	17.50	
	ROUTED TO								
+		R104	7356.	13.50	3182.	1001.	482.	17.50	
	HYDROGRAPH AT								
+		7	696.	12.17	122.	38.	18.	.61	
	HYDROGRAPH AT								
+		6	3505.	13.00	1353.	423.	204.	7.86	
	3 COMBINED AT								
+		106	10132.	13.33	4442.	1399.	674.	25.97	

	ROUTED TO								
+		R106	9852.	13.67	4435.	1399.	674.	25.97	
	HYDROGRAPH AT								
+		3N	2600.	12.33	548.	170.	82.	2.89	
	ROUTED TO								
+		CULV	2396.	12.33	548.	170.	82.	2.89	
+									1668.23 12.33
	ROUTED TO								
+		RCULV	2120.	12.83	548.	170.	82.	2.89	
	HYDROGRAPH AT								
+		3S	2099.	12.33	454.	141.	68.	2.39	
	2 COMBINED AT								
+		103	3191.	12.67	993.	308.	149.	5.28	
	HYDROGRAPH AT								
+		3A	1139.	12.33	238.	74.	36.	1.20	
	2 COMBINED AT								
+		CP103	4051.	12.50	1224.	380.	183.	6.48	
	2 COMBINED AT								
+		W103	11126.	13.50	5454.	1725.	831.	32.45	
	ROUTED TO								
+		RW103	11056.	13.67	5450.	1725.	831.	32.45	
	2 COMBINED AT								
+		PLD	11767.	13.67	7271.	2347.	1131.	47.07	
	ROUTED TO								
+		RES	467.	26.17	428.	275.	190.	47.07	
+									1583.81 26.17

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BE

PLAN 1 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1651.90	1.90	182.	5922.	1.00	13.67	.00

PLAN 2 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1651.60	1.60	178.	5411.	1.00	13.67	.00

PLAN 3 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1651.36	1.36	174.	5039.	.83	13.67	.00

PLAN 4 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1651.20	1.20	172.	4806.	.67	13.67	.00

PLAN 5 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1651.10	1.10	170.	4656.	.67	13.67	.00

PLAN 6 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1650.99	.99	168.	4513.	.67	13.67	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BW

PLAN 1 .....

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

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

PLAN 2 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1630.45	.45	30.	215.	.67	12.83	.00

PLAN 3 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1630.27	.27	29.	173.	.67	12.83	.00

PLAN 4 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1630.08	.08	29.	142.	.33	13.00	.00

PLAN 5 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1629.97	.00	28.	134.	.00	13.00	.00

PLAN 6 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1629.86	.00	27.	132.	.00	13.00	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

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

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

PLAN 2 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1626.42	.00	2.	449.	.00	12.50	.00

PLAN 3 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1626.30	.00	2.	426.	.00	12.50	.00

PLAN 4 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1626.23	.00	1.	413.	.00	12.50	.00

PLAN 5 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1626.19	.00	1.	406.	.00	12.50	.00

PLAN 6 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1626.15	.00	1.	400.	.00	12.33	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	21875.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1584.41	.00	4745.	1609.	.00	21.17	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	21875.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1584.25	.00	4671.	1156.	.00	24.33	.00

PLAN 3 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	21875.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1584.11	.00	4607.	858.	.00	25.17	.00

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	21875.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1584.00	.00	4548.	660.	.00	25.67	.00

PLAN 5 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	21875.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1583.91	.00	4506.	521.	.00	26.00	.00

PLAN 6 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	21875.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1583.81	.00	4453.	447.	.00	26.17	.00

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

IV. Powerline F.R.S. Analysis
Probable Maximum Flood, 6 Hour Duration
HEC-1 Compter Output

```
1****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981             *
*          REVISED  6 FEB 87           *
*                                      *
* RUN DATE  05/12/1989  TIME  10:09:10 *
*                                      *
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****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
* THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
* (916) 440-3285 OR (FTS) 448-3285     *
*                                      *
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X     X  XXXXXXX   XXXXX          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  XXXXXXX   XXXXX         XXX
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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

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1                                        HEC-1 INPUT
                         PAGE  1

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

        1          ID     WEEKES WASH - POWERLINE F.R.S  ANALYSIS
        2          ID     CONVERSION OF MODEL FROM TR-20
        3          ID                  1/2 PMF, & FULL PMF 6 HR. STORM ; SCS UNIT HYDROGRAPH
        4          ID                  DEVELOPMENT, MUSKINGUM ROUTING
        5          ID        CONDITIONS:   A: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
        6          ID                         POINT OF WEEKES WASH AT JUNCTION ROAD.
        7          ID                      B: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
        8          ID                         AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
        9          ID                         LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
       10          ID                      C: SUPERSTITION FREEWAY IN PLACE.
       11          ID                      D: ADJUSTED WATERSHED AREAS.
       12          ID                      E: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
       13          ID
       14          ID        PLANS:        1: ORIGINAL POWERLINE ANALYSIS.
       15          ID                      2: ALTERNATIVE B - RAISE STRUCTURE.
       16          ID                      3: ADJUSTED CURVE NUMBERS.
       17          ID                      4: ALT. B WITH ADJUSTED CURVE NUMBERS.
                  *DIAGRAM
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 18          IT      3       0       0     300
 19          IO      5
 20          JP      4
 21          JR    FLOW      .5     1.0

 22          KK     15  WATERSHED 15
 23          KM     HYDROGRAPH FOR WATERSHED 15
 24          PB   10.91
 25          IN     60
 26          PI    .40     .73    7.02    1.63    0.82     .31
 27          BA   1.76
 28          LS      0      80
 29          UD    .18
 30          KP      3
 31          BA   1.76
 32          LS      0      83
 33          UD    .18
 34          KP      4
 35          BA   1.76
 36          LS      0      83
 37          UD    .18

 38          KK    R15 ROUTE HYDROGRAPH FROM WS 15
 39          KM    ROUTE HYDROGRAPH FROM WATERSHED 15
 40          RM      2     .11      .3

 41          KK     14 WATERSHED 14
 42          KM    HYDROGRAPH FOR WATERSHED 14
 43          BA   1.11
 44          LS      0      79
 45          UD    .15
 46          KP      3
 47          BA   1.11
 48          LS      0      82
 49          UD    .15
 50          KP      4
 51          BA   1.11
1                                          HEC-1 INPUT
                     PAGE  2

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

 52          LS      0      82
 53          UD    .15

 54          KK     16 WATERSHED 16
 55          KM    HYDROGRAPH FOR WATERSHED 16
 56          BA   2.16
 57          LS      0      82
 58          UD    .35
 59          KP      3
 60          BA   2.16
 61          LS      0      85
 62          UD    .35
 63          KP      4
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 64          BA    2.16
 65          LS      0      85
 66          UD     .35

 67          KK     114 CONCENTRATION PT. 114 (INCLUDES WATERSHEDS 14, 15, & 16)
 68          KM     COMBINE ALL THREE HYDROGRAPHS AT CP 114
 69          HC      3

 70          KK    R114 ROUTE CP 114
 71          KM     ROUTE HYDROGRAPH FROM CP114 TO CP 113
 72          RM      3     .17      .3

 73          KK      13 WATERSHED 13
 74          KM     HYDROGRAPH FOR WATERSHED 13
 75          BA    1.29
 76          LS      0      83
 77          UD    .126
 78          KP      3
 79          BA    1.29
 80          LS      0      86
 81          UD    .126
 82          KP      4
 83          BA    1.29
 84          LS      0      86
 85          UD    .126

 86          KK     113 CONCENTRATION PT 113 FOR HYDROGRAPHS CP 114 AND WS 13
 87          KM     COMBINE HYDROGRAPHS CP 114 AND WS 13
 88          HC      2

 89          KK    R113 ROUTE CP 113 TO CP 112
 90          KM     ROUTE HYDROGRAPH FOR CP 113
 91          RM      3     .19      .3

 92          KK      12 WATERSHED 12
 93          KM     HYDROGRAPH FOR WATERSHED 12
 94          BA    1.32
 95          LS      0      86
 96          UD     .27
 97          KP      3
 98          BA    1.32
 99          LS      0      89
1                                        HEC-1 INPUT
                     PAGE  3

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

 100         UD     .27
 101         KP      4
 102         BA    1.32
 103         LS      0      89
 104         UD     .27
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105          KK     112 CONCENTRATION PT. 112 FOR HYDROGRAPHS FROM CP 113 AND WS 12.
106          KM     COMBINE HYDROGRAPH FROM CP 113 AND WS 12
107          HC       2

108          KK    R112 ROUTE CP 112 TO CP 111
109          KM     ROUTE HYDROGRAPH CP 112 TO CP 111
110          RM       1     .07      .3

111          KK      11 WATERSHED 11
112          KM     HYDROGRAPH FOR WATERSHED 11
113          BA     .70
114          LS       0      89
115          UD    .186
116          KP       3
117          BA     .70
118          LS       0      92
119          UD    .186
120          KP       4
121          BA     .70
122          LS       0      92
123          UD    .186

124          KK      17 WATERSHED 17
125          KM     HYDROGRAPH FOR WATERSHED 17
126          BA     .37
127          LS       0      79
128          UD    .138
129          KP       3
130          BA     .37
131          LS       0      82
132          UD    .138
133          KP       4
134          BA     .37
135          LS       0      82
136          UD    .138

137          KK      10   WATERSHED 10
138          KM     HYDROGRAPH FOR WATERSHED 10
139          BA     .54
140          LS       0      79
141          UD     .14
142          KP       3
143          BA     .54
144          LS       0      82
145          UD     .14
146          KP       4
147          BA     .54
148          LS       0      82
149          UD     .14
1                                          HEC-1 INPUT
                    PAGE  4
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LINE ID.......1.......2.......3.......4.......5.......6.......7.......8.......9....  ..10

 150          KK     111 CONCENTRATION PT. 111
 151          KM     COMBINE HYDROGRAPHS FROM CP 112, WS 11, AND WS 17
 152          HC       4

 153          KK   RD111 ROUTE CP 111 TO PT AT WHICH BREAKOUT WOULD OCCUR.
 154          KM     ROUTE HYDROGRAPH CP111 TO THE POINT AT WHICH THE BREAKOUT OCCURS.
 155          RM       8     .64      .3

 156          KK      2A  WATERSHED 2A
 157          KM      HYDROGRAPH FOR WATERSHED 2A
 158          BA    1.09
 159          LS       0      82
 160          UD     .22
 161          KP       3
 162          BA    1.09
 163          LS       0      85
 164          UD     .22
 165          KP       4
 166          BA    1.09
 167          LS       0      85
 168          UD     .22

 169          KK    CP2A  CONCENTRATION POINT 2A
 170          KM    COMBINE ROUTED HYDROGRAPH FROM CP 111 AND WATERSHED 2A.
 171          HC       2

 172          KK    FLOW    POINT OF DIVERSION FOR WEEKES WASH
 173          DT  DIVERT
 174          DI       0    6500    7000    9000   10000   15000
 175          DQ       0       0     260    1300    1880    4600

 176          KK    RR2A ROUTE REMAINING HYDROGRAPH TO SUPERSTITION FREWAY
 177          KM     ROUTE THE REMAINING HYDROGRAPH TO DETENTION NORTH OF SUPERSTITION FREEWAY
 178          RM       6     .42      .3

 179          KK     2BE WATERSHED 2B EAST
 180          KM     HYDROGRAPH FOR WATERSHED 2B EAST
 181          BA    1.22
 182          LS       0      82
 183          UD     .48
 184          KP       3
 185          BA    1.22
 186          LS       0      85
 187          UD     .48
 188          KP       4
 189          BA    1.22
 190          LS       0      85
 191          UD     .48
1                                        HEC-1 INPUT
                      PAGE  5
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LINE ID.......1.......2.......3.......4.......5.......6.......7.......8.......9....  ..10

192          KK    102B  CONCENTRATION POINT NORTH OF FREEWAY
193          KM     CONCENTRATION POINT NORTH OF SUPERSTITION FREEWAY AT DETENTION AREA
194          HC       2

195          KK  DET2BE   ROUTE THROUGH FREEWAY  (WEEKES WASH DETENTION BASIN)
196          KM      ROUTE FLOW THROUGH WEEKES WASH DETENTION BASIN AND THEN FREEWAY
197          KM      PRINCIPLE OUTLET IS 2-12 X 12 (FOOT) BOX CULVERTS
198          KM      INVERT IS AT 1636; EMERGENCY SPILLWAY CREST IS AT 1650.
199          RS       1    ELEV    1636
200          SV       0     6.0    13.0    29.0    47.0    69.0    93.0   122.0   153.0   184.0
201          SV     217     239
202          SE    1636    1637    1638    1640    1642    1644    1646    1648    1650    1652
203          SE    1654    1655
204          SQ       0      22     194     584    1050    1604    2236    2900    3534    4108
205          SQ    4622    4860
206          ST    1650     320     2.2     1.5

207          KK   FRWAY
208          KM    DIVERT ALL FLOWS FROM EMERGENCY SPILLWAY
209          DT   SPILL
210          DI       0    3665    5000   10000   15000
211          DQ       0       0    1335    6335   11335

212          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
213          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
214          RM       2      .1      .3

215          KK    WASH   ROUTE FLOWS THROUGH THE WASH
216          KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
217          RM       7     .50      .3

218          KK  RSPILL
219          KM    RETRIEVE FLOW DIVERTED FROM THE EMERGENCY SPILLWAY
220          DR   SPILL

221          KK   IDAHO
222          KM    ROUTE THE RETRIEVED FLOW DOWN IDAHO RD.
223          RM       2      .1      .3

224          KK      WW
225          KM     COMBINE ALL FLOWS FROM FREEWAY
226          HC       2

227          KK     RWW
228          KM     ROUTE FLOWS TO POWERLINE F.R.S.
229          RM      12     .98      .3

230          KK    2BWW  WATERSHED 2B WEST, WEST
231          KM      HYDROGRAPH FOR WATERSHED 2B WEST, WEST
232          BA     .45
233          LS       0      82
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234          UD      .4
235          KP       3
236          BA     .45
1                                        HEC-1 INPUT
                     PAGE  6

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

237          LS       0      85
238          UD      .4
239          KP       4
240          BA     .45
241          LS       0      85
242          UD      .4

243          KK    2BWE  WATERSHED 2B WEST, EAST
244          KM     RUNOFF FROM EAST OF IDAHO ROAD 2B WEST, EAST
245          BA     .70
246          LS       0      82
247          UD      .3
248          KP       3
249          BA     .70
250          LS       0      85
251          UD      .3
252          KP       4
253          BA     .70
254          LS       0      85
255          UD      .3

256          KK    16BW  ROUTE THROUGH THE DETENTION NORTH OF THE FREEWAY  (N. DIVERSION DAM)
257          KM      ROUTE FLOWS THROUGH THE DETENTION NORTH OF THE SUPERSTITION FREEWAY
258          RS       1    ELEV  1623.5
259          SV       0      .6     8.3    17.5    28.2    36.0    48.6
260          SE  1623.5  1624.0  1626.0  1628.0  1630.0  1632.0  1634.0
261          SQ       0       0      31      93     135     169     208
262          ST  1630.0     110     2.2     1.5

263          KK    CO04  COMBINE FLOWS JUST NORTH OF FREEWAY
264          KM    COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
265          HC       2

266          KK    NDIV
267          KM    DIVERSION OF FLOW OVER THE NORTH DIVERSION DAM.
268          DT    EXIT
269          DI       0    1218    5000   10000
270          DQ       0       0    3782    8782

271          KK  NDROUT  ROUTE THROUGH THE FREEWAY
272          KM    ROUTE COMBINED FLOW THROUGH 2 - 10  X 8  BOX CULVERTS
273          RS       1    ELEV  1622.6
274          SV       0    0.02    0.16    1.12    4.17   25.42
275          SE  1622.6  1623.0  1624.0  1626.0  1628.0  1630.0
276          SQ       0       0     101     372     738    1111
277          ST  1630.0    2875     2.2     1.5
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 278          KK    R2BW  ROUTE TO CP102
 279          KM     ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
 280          RM       5     .40      .3
1                                                HEC-1 INPUT
                       PAGE  7

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


 281          KK     2BS  WATERSHED 2B SOUTH OF SUPERTITION FREEWAY
 282          KM     HYDROGRAPH FOR WATERSHED 2B SOUTH
 283          BA    1.91
 284          LS       0      80
 285          UD     .32
 286          KP       3
 287          BA    1.91
 288          LS       0      83
 289          UD     .32
 290          KP       4
 291          BA    1.91
 292          LS       0      83
 293          UD     .32

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

 297          KK       5 WATERSHED 5 ( BEGINNING OF SIPHON DRAW WATERSHED)
 298          KM     HYDROGRAPH FOR WS 5 (BEGINNING OF THE WATERSHED FOR SIPHON DRAW TO THE DAM)
 299          BA    5.65
 300          LS       0      85
 301          UD     .71
 302          KP       3
 303          BA    5.65
 304          LS       0      88
 305          UD     .71
 306          KP       4
 307          BA    5.65
 308          LS       0      88
 309          UD     .71

 310          KK      R5 ROUTE HYDROGRAPH FROM WS 5 TO CP 104
 311          KM      ROUTE HYDROGRAPH FOR WS 5 TO CP 104
 312          RM       1     .07      .3

 313          KK       4 WATERSHED 4
 314          KM      HYDROGRAPH FOR WATERSHED 4
 315          BA   11.85
 316          LS       0      86
 317          UD    1.30
 318          KP       3
 319          BA   11.85
 320          LS       0      89
 321          UD    1.30
 322          KP       4
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323          BA   11.85
324          LS       0      89
325          UD    1.30
1                                                HEC-1 INPUT
                       PAGE  8

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


326          KK     104  CONCENTRATION POINT 104
327          KM     COMBINE HYDROGRAPHS AT CP 104
328          HC       2

329          KK    R104
330          KM    ROUTE CP 104 TO 106
331          RM       7     .50      .3

332          KK       7  WATERSHED 7
333          KM    HYDROGRAPH FOR WATERSHED 7
334          BA     .61
335          LS       0      86
336          UD      .3
337          KP       3
338          BA     .61
339          LS       0      89
340          UD      .3
341          KP       4
342          BA     .61
343          LS       0      89
344          UD      .3

345          KK       6 WATERSHED 6
346          KM      HYDROGRAPH FOR WATERSHED 6
347          BA    7.86
348          LS       0      83
349          UD    1.08
350          KP       3
351          BA    7.86
352          LS       0      86
353          UD    1.08
354          KP       4
355          BA    7.86
356          LS       0      86
357          UD    1.08

358          KK     106 CONCENTRATION PT. 106, HYDROGRAPHS FROM R 5, WS 4, & WS 6
359          KM      COMBINE HYDROGRAPHS FROM R5, WS 4, AND WS 6
360          HC       3

361          KK    R106 ROUTE THE HYDROGRAPH FROM CP 106 TO WHERE NEXT WASH ENTERS.
362          KM      ROUTE HYDROGRAPH FROM CP 104 TO WHERE OTHER WASH ENTERS
363          RM       4     .27      .3
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364          KK      3N WATERSHED 3N
365          KM      HYDROGRAPH FOR WATERSHED 3N
366          BA    2.89
367          LS       0      85
368          UD     .41
369          KP       3
370          BA    2.89
371          LS       0      88
372          UD     .41
373          KP       4
1                                          HEC-1 INPUT
                     PAGE  9

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

374          BA    2.89
375          LS       0      88
376          UD     .41

377          KK    CULV   ROUTE FLOWS THROUGH CULVERTS
378          KM     ROUTE FLOWS THROUGH THE CULVERTS
379          RS     1.0    ELEV    1665
380          SV       0     .15     .60     1.5     3.1     5.6     9.1    13.7   19.45   26.35
381          SE    1665  1665.5    1666  1666.5    1667  1667.5    1668  1668.5    1669  1669.5
382          SQ       0     119     375     688    1063    1462    1938    2375    2875    3375
383          ST  1669.5    5700     2.2     1.5

384          KK   RCULV  ROUTE FLOWS TO W103
385          KM     ROUTE THE FLOWS TO CONCENTRATION POINT W103
386          RM       7      .5      .3

387          KK      3S  WATERSHED 3 SOUTH
388          KM      HYDROGRAPH FOR WATERSHED 3 SOUTH
389          BA    2.39
390          LS       0      85
391          UD    .436
392          KP       3
393          BA    2.39
394          LS       0      88
395          UD    .436
396          KP       4
397          BA    2.39
398          LS       0      88
399          UD    .436

400          KK     103
401          HC       2

402          KK      3A   WATERSHED 3A
403          KM     HYDROGRAPH FOR WATERSHED 3A
404          BA    1.20
405          LS       0      86
406          UD      .4
407          KP       3
408          BA    1.20
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409          LS       0      89
410          UD      .4
411          KP       4
412          BA    1.20
413          LS       0      89
414          UD      .4

415          KK   CP103
416          KM     CONCENTRATION POINT FOR WEST FORK OF SIPHON DRAW
417          HC       2
1                                        HEC-1 INPUT
                    PAGE 10

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


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

421          KK   RW103 ROUTE RESULTING HYDROGRAPH TO POWELINE DAM STRUCTURE
422          KM      ROUTE THE HYDROGRAPH TO POWERLINE DAM
423          RM       2     .16      .3

424          KK     PLD CONCENTRATION PT. AT POWERLINE DAM
425          KM     COMBINE HYDROGRAPHS FROM WEEKES WASH SUB-BASIN AND SIPHON DRAW SUB-BASIN
426          KO       3
427          HC       2

428          KK     RES RESERVOIR ROUTING THROUGH THE STRUCTURE
429          KM     RESERVOIR RATING CURVE
430          KM     EXISTING DAM - FUTURE LAND USE CONDITIONS UPSTREAM
431          RS       1    ELEV  1568.2
432          SV       0     175     380     700    1100    1600    2175    2875    3675    4200
433          SV    4600    5525    6725    7925    8500    9100    9700   10300
434          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
435          SE  1584.1  1586.1  1588.1  1590.1  1591.0  1592.0  1593.0  1594.0
436          SQ       0      75      92     106     119     130     141     150     159     165
437          SQ     500    1000    5000   10000   20000   30000  40000   50000   70000   80000
438          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
439          SE  1583.9  1584.2  1585.6  1586.9  1588.8  1590.3  1591.7  1593.0  1595.3  1596.3
440          SS  1583.3       0       0       0
441          ST  1589.1   13358     2.2     1.5
442          KP       2
443          KM     DAM RAISE BY 5.0 FEET
444          RS       1    ELEV  1568.2
445          SV       0     175     380     700    1100    1600    2175    2875    3675    4200
446          SV    4600    5525    6725    7925    8500    9100    9700   10300
447          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
448          SE  1584.1  1586.1  1588.1  1590.1  1591.0  1592.0  1593.0  1594.0
449          SQ       0      75      92     106     119     130     141     150     159     165
450          SQ     500    1000    5000   10000   20000   30000   40000   50000   70000   80000
451          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
452          SE  1583.9  1584.2  1585.6  1586.9  1588.8  1590.3  1591.7  1593.0  1595.3  1596.3
453          SS  1583.3       0       0       0
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454          ST  1594.1   13358     2.2     1.5
455          KP       3
456          KM    EXISTING DAM CONDITIONS - INCREASE IN CURVE NUMBERS
457          RS       1    ELEV  1568.2
458          SV       0     175     380     700    1100    1600    2175    2875    3675    4200
459          SV    4600    5525    6725    7925    8500    9100    9700   10300
460          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
461          SE  1584.1  1586.1  1588.1  1590.1  1591.0  1592.0  1593.0  1594.0
462          SQ       0      75      92     106     119     130     141     150     159     165
463          SQ     500    1000    5000   10000   20000   30000   40000   50000   70000   80000
464          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
465          SE  1583.9  1584.2  1585.6  1586.9  1588.8  1590.3  1591.7  1593.0  1595.3  1596.3
466          SS  1583.3       0       0       0
467          ST  1589.1   13358     2.2     1.5
468          KP       4
1                                                HEC-1 INPUT
                       PAGE 11

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

469          KM    RAISE DAM BY 5.0 FEET - INCREASED CURVE NUMBERS
470          RS       1    ELEV  1568.2
471          SV       0     175     380     700    1100    1600    2175    2875    3675    4200
472          SV    4600    5525    6725    7925    8500    9100    9700   10300
473          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
474          SE  1584.1  1586.1  1588.1  1590.1  1591.0  1592.0  1593.0  1594.0
475          SQ       0      75      92     106     119     130     141     150     159     165
476          SQ     500    1000    5000   10000   20000   30000   40000   50000   70000   80000
477          SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
478          SE  1583.9  1584.2  1585.6  1586.9  1588.8  1590.3  1591.7  1593.0  1595.3  1596.3
479          SS  1583.3       0       0       0
480          ST  1594.1   13358     2.2     1.5
481          ZZ
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   22        15
              V
              V
   38       R15
              .
              .
   41         .          14
              .           .
              .           .
   54         .           .          16
              .           .           .
              .           .           .
   67       114.......................
              V
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            V
70        R114
            .
            .
73          .          13
            .           .
            .           .
86        113............
            V
            V
89        R113
            .
            .
92          .          12
            .           .
            .           .
105       112............
            V
            V
108       R112
            .
            .
111         .          11
            .           .
            .           .
124         .           .          17
            .           .           .
            .           .           .
137         .           .           .          10
            .           .           .           .
            .           .           .           .
150       111.................................
            V
            V
153       RD111
            .
            .
156         .          2A
            .           .
            .           .
169       CP2A............
            .
            .
173         .-------> DIVERT
172       FLOW
            V
            V
176       RR2A
            .
            .
179         .          2BE
            .           .
            .           .
192       102B............
            V
```

```
            V
195      DET2BE
            .
            .
209         .-------->   SPILL
207       FRWAY
            V
            V
212        CHAN
            V
            V
215        WASH
            .
            .
220         .          .<-------   SPILL
218         .      RSPILL
            .          V
            .          V
221         .       IDAHO
            .          .
            .          .
224        WW............
            V
            V
227       RWW
            .
            .
230         .        2BWW
            .          .
            .          .
243         .          .        2BWE
            .          .          V
            .          .          V
256         .          .        16BW
            .          .          .
            .          .          .
263         .        COO4............
            .          .
            .          .
268         .          .-------->    EXIT
266         .        NDIV
            .          V
            .          V
271         .      NDROUT
            .          V
            .          V
278         .        R2BW
            .          .
            .          .
281         .          .         2BS
            .          .          .
            .          .          .
294        102.......................
            .
            .
```

```
297          .          5
             .          V
             .          V
310          .         R5
             .          .
             .          .
313          .          .          4
             .          .          .
             .          .          .
326          .        104............
             .          V
             .          V
329          .       R104
             .          .
             .          .
332          .          .          7
             .          .          .
             .          .          .
345          .          .          .          6
             .          .          .          .
             .          .          .          .
358          .        106........................
             .          V
             .          V
361          .       R106
             .          .
364          .          .         3N
             .          .          V
             .          .          V
377          .          .       CULV
             .          .          V
             .          .          V
384          .          .      RCULV
             .          .          .
387          .          .          .         3S
             .          .          .          .
             .          .          .          .
400          .          .        103............
             .          .          .
             .          .          .
402          .          .          .         3A
             .          .          .          .
             .          .          .          .
415          .          .      CP103............
             .          .          .
             .          .          .
418          .       W103............
             .          V
             .          V
421          .      RW103
             .          .
             .          .
424        PLD............
             V
             V
428        RES
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED  6 FEB 87           *
*                                      *
* RUN DATE  05/12/1989  TIME  10:09:10 *
*                                      *
****************************************
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*  (916) 440-3285 OR (FTS) 448-3285    *
*                                      *
****************************************
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                    WEEKES WASH - POWERLINE F.R.S  ANALYSIS
                    CONVERSION OF MODEL FROM TR-20
                                1/2 PMF, & FULL PMF 6 HR. STORM ; SCS UNIT HYDROGRAPH
                                DEVELOPMENT, MUSKINGUM ROUTING
                       CONDITIONS:   A: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                                        POINT OF WEEKES WASH AT JUNCTION ROAD.
                                     B: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                                        AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                                        LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                                     C: SUPERSTITION FREEWAY IN PLACE.
                                     D: ADJUSTED WATERSHED AREAS.
                                     E: BREAKOUT CURVE FOR NORTH DIVERSION DAM.

                        PLANS:       1: ORIGINAL POWERLINE ANALYSIS.
                                     2: ALTERNATIVE B - RAISE STRUCTURE.
                                     3: ADJUSTED CURVE NUMBERS.
                                     4: ALT. B WITH ADJUSTED CURVE NUMBERS.

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

    IT          HYDROGRAPH TIME DATA
                       NMIN          3  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1   0  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      1   0  ENDING DATE
                     NDTIME       1457  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .05 HOURS
                      TOTAL TIME BASE   14.95 HOURS
```

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

JP        MULTI-PLAN OPTION
               NPLAN          4  NUMBER OF PLANS

JR        MULTI-RATIO OPTION
              RATIOS OF RUNOFF
              .50      1.00

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

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

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

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

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

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

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

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

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

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

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

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

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

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

427 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

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

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     14.95-HR
+  (CFS)       (HR)
                          (CFS)
+  40901.      4.75                20994.       8686.       8686.        8686.
                        (INCHES)    4.147       4.275       4.275        4.275
                         (AC-FT)   10410.      10732.      10732.       10732.

                        CUMULATIVE AREA =   47.07 SQ MI


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

                        HYDROGRAPH AT STATION      PLD
                         FOR PLAN 1, RATIO = 1.00

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     14.95-HR
+  (CFS)       (HR)
                          (CFS)
+  80829.      4.60                40587.      16769.      16769.       16769.
                        (INCHES)    8.017       8.253       8.253        8.253
                         (AC-FT)   20126.      20718.      20718.       20718.

                        CUMULATIVE AREA =   47.07 SQ MI
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*** *** *** *** ***

HYDROGRAPH AT STATION PLD
FOR PLAN 2, RATIO = .50

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	14.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 40901.	4.75		20994.	8686.	8686.	8686.
		(INCHES)	4.147	4.275	4.275	4.275
		(AC-FT)	10410.	10732.	10732.	10732.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
FOR PLAN 2, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	14.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 80829.	4.60		40587.	16769.	16769.	16769.
		(INCHES)	8.017	8.253	8.253	8.253
		(AC-FT)	20126.	20718.	20718.	20718.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
FOR PLAN 3, RATIO = .50

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	14.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 42728.	4.70		21828.	9040.	9040.	9040.
		(INCHES)	4.312	4.449	4.449	4.449
		(AC-FT)	10824.	11169.	11169.	11169.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
FOR PLAN 3, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	14.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 84175.	4.55		42224.	17460.	17460.	17460.
		(INCHES)	8.340	8.593	8.593	8.593
		(AC-FT)	20937.	21572.	21572.	21572.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
FOR PLAN 4, RATIO = .50

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	14.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 42728.	4.70		21828.	9040.	9040.	9040.
		(INCHES)	4.312	4.449	4.449	4.449
		(AC-FT)	10824.	11169.	11169.	11169.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
FOR PLAN 4, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	14.95-HR
+ (CFS)	(HR)					
		(CFS)				
+ 84175.	4.55		42224.	17460.	17460.	17460.
		(INCHES)	8.340	8.593	8.593	8.593
		(AC-FT)	20937.	21572.	21572.	21572.

CUMULATIVE AREA = 47.07 SQ MI

1

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

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO FLOWS RATIO 1 .50	RATIO 2 1.00
HYDROGRAPH AT						
+	15	1.76	1	FLOW	3620.	7239.
				TIME	3.00	3.00
			2	FLOW	3620.	7239.
				TIME	3.00	3.00
			3	FLOW	3716.	7432.
				TIME	3.00	3.00
			4	FLOW	3716.	7432.
				TIME	3.00	3.00
ROUTED TO						
+	R15	1.76	1	FLOW	3592.	7183.
				TIME	3.10	3.10
			2	FLOW	3592.	7183.
				TIME	3.10	3.10
			3	FLOW	3689.	7379.
				TIME	3.10	3.10
			4	FLOW	3689.	7379.
				TIME	3.10	3.10
HYDROGRAPH AT						
+	14	1.11	1	FLOW	2281.	4561.
				TIME	3.00	3.00
			2	FLOW	2281.	4561.
				TIME	3.00	3.00
			3	FLOW	2340.	4680.
				TIME	3.00	3.00
			4	FLOW	2340.	4680.
				TIME	3.00	3.00
HYDROGRAPH AT						
+	16	2.16	1	FLOW	4218.	8436.
				TIME	3.10	3.10
			2	FLOW	4218.	8436.
				TIME	3.10	3.10
			3	FLOW	4350.	8700.
				TIME	3.10	3.10
			4	FLOW	4350.	8700.
				TIME	3.10	3.10

3 COMBINED AT						
+	114	5.03	1	FLOW	10007.	20015.
				TIME	3.05	3.05
			2	FLOW	10007.	20015.
				TIME	3.05	3.05
			3	FLOW	10310.	20620.
				TIME	3.05	3.05
			4	FLOW	10310.	20620.
				TIME	3.05	3.05
ROUTED TO						
+	R114	5.03	1	FLOW	9886.	19773.
				TIME	3.20	3.20
			2	FLOW	9886.	19773.
				TIME	3.20	3.20
			3	FLOW	10198.	20397.
				TIME	3.20	3.20
			4	FLOW	10198.	20397.
				TIME	3.20	3.20
HYDROGRAPH AT						
+	13	1.29	1	FLOW	2752.	5504.
				TIME	3.00	3.00
			2	FLOW	2752.	5504.
				TIME	3.00	3.00
			3	FLOW	2805.	5611.
				TIME	3.00	3.00
			4	FLOW	2805.	5611.
				TIME	3.00	3.00
2 COMBINED AT						
+	113	6.32	1	FLOW	12133.	24266.
				TIME	3.05	3.05
			2	FLOW	12133.	24266.
				TIME	3.05	3.05
			3	FLOW	12571.	25142.
				TIME	3.05	3.05
			4	FLOW	12571.	25142.
				TIME	3.05	3.05
ROUTED TO						
+	R113	6.32	1	FLOW	11893.	23787.
				TIME	3.25	3.25
			2	FLOW	11893.	23787.
				TIME	3.25	3.25
			3	FLOW	12358.	24716.
				TIME	3.20	3.20
			4	FLOW	12358.	24716.
				TIME	3.20	3.20

HYDROGRAPH AT						
+	12	1.32	1	FLOW	2777.	5554.
				TIME	3.05	3.05
			2	FLOW	2777.	5554.
				TIME	3.05	3.05
			3	FLOW	2840.	5680.
				TIME	3.00	3.00
			4	FLOW	2840.	5680.
				TIME	3.00	3.00
2 COMBINED AT						
+	112	7.64	1	FLOW	14313.	28625.
				TIME	3.15	3.15
			2	FLOW	14313.	28625.
				TIME	3.15	3.15
			3	FLOW	14861.	29722.
				TIME	3.15	3.15
			4	FLOW	14861.	29722.
				TIME	3.15	3.15
ROUTED TO						
+	R112	7.64	1	FLOW	14249.	28499.
				TIME	3.25	3.25
			2	FLOW	14249.	28499.
				TIME	3.25	3.25
			3	FLOW	14773.	29546.
				TIME	3.25	3.25
			4	FLOW	14773.	29546.
				TIME	3.25	3.25
HYDROGRAPH AT						
+	11	.70	1	FLOW	1537.	3075.
				TIME	3.00	3.00
			2	FLOW	1537.	3075.
				TIME	3.00	3.00
			3	FLOW	1559.	3119.
				TIME	3.00	3.00
			4	FLOW	1559.	3119.
				TIME	3.00	3.00
HYDROGRAPH AT						
+	17	.37	1	FLOW	763.	1525.
				TIME	3.00	3.00
			2	FLOW	763.	1525.
				TIME	3.00	3.00
			3	FLOW	782.	1564.
				TIME	3.00	3.00
			4	FLOW	782.	1564.
				TIME	3.00	3.00

HYDROGRAPH AT

+	10	.54	1	FLOW	1112.	2225.
				TIME	3.00	3.00
			2	FLOW	1112.	2225.
				TIME	3.00	3.00
			3	FLOW	1141.	2281.
				TIME	3.00	3.00
			4	FLOW	1141.	2281.
				TIME	3.00	3.00

4 COMBINED AT

+	111	9.25	1	FLOW	16595.	33190.
				TIME	3.10	3.10
			2	FLOW	16595.	33190.
				TIME	3.10	3.10
			3	FLOW	17290.	34580.
				TIME	3.10	3.10
			4	FLOW	17290.	34580.
				TIME	3.10	3.10

ROUTED TO

+	RD111	9.25	1	FLOW	15758.	31515.
				TIME	3.75	3.75
			2	FLOW	15758.	31515.
				TIME	3.75	3.75
			3	FLOW	16424.	32848.
				TIME	3.75	3.75
			4	FLOW	16424.	32848.
				TIME	3.75	3.75

HYDROGRAPH AT

+	2A	1.09	1	FLOW	2254.	4507.
				TIME	3.00	3.00
			2	FLOW	2254.	4507.
				TIME	3.00	3.00
			3	FLOW	2313.	4627.
				TIME	3.00	3.00
			4	FLOW	2313.	4627.
				TIME	3.00	3.00

2 COMBINED AT

+	CP2A	10.34	1	FLOW	16339.	32679.
				TIME	3.75	3.75
			2	FLOW	16339.	32679.
				TIME	3.75	3.75
			3	FLOW	17014.	34028.
				TIME	3.75	3.75
			4	FLOW	17014.	34028.
				TIME	3.75	3.75

DIVERSION TO						
+	DIVERT	10.34	1	FLOW	5329.	14217.
				TIME	3.75	3.75
			2	FLOW	5329.	14217.
				TIME	3.75	3.75
			3	FLOW	5696.	14951.
				TIME	3.75	3.75
			4	FLOW	5696.	14951.
				TIME	3.75	3.75
HYDROGRAPH AT						
+	FLOW	10.34	1	FLOW	11011.	18462.
				TIME	3.75	3.75
			2	FLOW	11011.	18462.
				TIME	3.75	3.75
			3	FLOW	11318.	19077.
				TIME	3.75	3.75
			4	FLOW	11318.	19077.
				TIME	3.75	3.75
ROUTED TO						
+	RR2A	10.34	1	FLOW	10858.	18156.
				TIME	4.20	4.20
			2	FLOW	10858.	18156.
				TIME	4.20	4.20
			3	FLOW	11151.	18742.
				TIME	4.20	4.20
			4	FLOW	11151.	18742.
				TIME	4.20	4.20
HYDROGRAPH AT						
+	2BE	1.22	1	FLOW	2203.	4406.
				TIME	3.20	3.20
			2	FLOW	2203.	4406.
				TIME	3.20	3.20
			3	FLOW	2282.	4563.
				TIME	3.20	3.20
			4	FLOW	2282.	4563.
				TIME	3.20	3.20
2 COMBINED AT						
+	102B	11.56	1	FLOW	11586.	19611.
				TIME	4.15	4.15
			2	FLOW	11586.	19611.
				TIME	4.15	4.15
			3	FLOW	11908.	20257.
				TIME	4.15	4.15
			4	FLOW	11908.	20257.
				TIME	4.15	4.15

ROUTED TO

+	DET2BE	11.56	1	FLOW	11459.	19446.
				TIME	4.25	4.25
			2	FLOW	11459.	19446.
				TIME	4.25	4.25
			3	FLOW	11780.	20081.
				TIME	4.25	4.25
			4	FLOW	11780.	20081.
				TIME	4.25	4.25

** PEAK STAGES IN FEET **

1	STAGE	1654.50	1657.35
	TIME	4.25	4.25
2	STAGE	1654.50	1657.35
	TIME	4.25	4.25
3	STAGE	1654.63	1657.55
	TIME	4.25	4.25
4	STAGE	1654.63	1657.55
	TIME	4.25	4.25

DIVERSION TO

+	SPILL	11.56	1	FLOW	7794.	15781.
				TIME	4.25	4.25
			2	FLOW	7794.	15781.
				TIME	4.25	4.25
			3	FLOW	8115.	16416.
				TIME	4.25	4.25
			4	FLOW	8115.	16416.
				TIME	4.25	4.25

HYDROGRAPH AT

+	FRWAY	11.56	1	FLOW	3665.	3665.
				TIME	3.30	2.95
			2	FLOW	3665.	3665.
				TIME	3.30	2.95
			3	FLOW	3665.	3665.
				TIME	3.25	2.90
			4	FLOW	3665.	3665.
				TIME	3.25	2.90

ROUTED TO

+	CHAN	11.56	1	FLOW	3665.	3665.
				TIME	3.75	3.45
			2	FLOW	3665.	3665.
				TIME	3.75	3.45
			3	FLOW	3665.	3665.
				TIME	3.70	3.40
			4	FLOW	3665.	3665.
				TIME	3.70	3.40

ROUTED TO

+	WASH	11.56	1	FLOW	3665.	3665.
				TIME	5.35	4.45
			2	FLOW	3665.	3665.
				TIME	5.35	4.45
			3	FLOW	3665.	3665.
				TIME	4.70	4.40
			4	FLOW	3665.	3665.
				TIME	4.70	4.40

HYDROGRAPH AT

+	RSPILL	.00	1	FLOW	7794.	15781.
				TIME	4.25	4.25
			2	FLOW	7794.	15781.
				TIME	4.25	4.25
			3	FLOW	8115.	16416.
				TIME	4.25	4.25
			4	FLOW	8115.	16416.
				TIME	4.25	4.25

ROUTED TO

+	IDAHO	.00	1	FLOW	7772.	15735.
				TIME	4.35	4.35
			2	FLOW	7772.	15735.
				TIME	4.35	4.35
			3	FLOW	8093.	16369.
				TIME	4.35	4.35
			4	FLOW	8093.	16369.
				TIME	4.35	4.35

2 COMBINED AT

+	WW	11.56	1	FLOW	11436.	19400.
				TIME	4.35	4.35
			2	FLOW	11436.	19400.
				TIME	4.35	4.35
			3	FLOW	11757.	20034.
				TIME	4.35	4.35
			4	FLOW	11757.	20034.
				TIME	4.35	4.35

ROUTED TO

+	RWW	11.56	1	FLOW	11125.	18759.
				TIME	5.35	5.30
			2	FLOW	11125.	18759.
				TIME	5.35	5.30
			3	FLOW	11433.	19392.
				TIME	5.35	5.30
			4	FLOW	11433.	19392.
				TIME	5.35	5.30

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HYDROGRAPH AT
+                    2BWW        .45     1   FLOW        853.    1707.
                                             TIME        3.10     3.10
                                         2   FLOW        853.    1707.
                                             TIME        3.10     3.10
                                         3   FLOW        883.    1766.
                                             TIME        3.10     3.10
                                         4   FLOW        883.    1766.
                                             TIME        3.10     3.10

HYDROGRAPH AT
+                    2BWE        .70     1   FLOW       1403.    2805.
                                             TIME        3.05     3.05
                                         2   FLOW       1403.    2805.
                                             TIME        3.05     3.05
                                         3   FLOW       1445.    2889.
                                             TIME        3.05     3.05
                                         4   FLOW       1445.    2889.
                                             TIME        3.05     3.05

ROUTED TO
+                    16BW        .70     1   FLOW       1344.    2746.
                                             TIME        3.15     3.15
                                         2   FLOW       1344.    2746.
                                             TIME        3.15     3.15
                                         3   FLOW       1393.    2838.
                                             TIME        3.15     3.10
                                         4   FLOW       1393.    2838.
                                             TIME        3.15     3.10

                                         ** PEAK STAGES IN FEET **
                                         1   STAGE    1632.84  1634.77
                                             TIME        3.15     3.15
                                         2   STAGE    1632.84  1634.77
                                             TIME        3.15     3.15
                                         3   STAGE    1632.92  1634.89
                                             TIME        3.15     3.10
                                         4   STAGE    1632.92  1634.89
                                             TIME        3.15     3.10

 2 COMBINED AT
+                    COO4       1.15     1   FLOW       2196.    4452.
                                             TIME        3.15     3.15
                                         2   FLOW       2196.    4452.
                                             TIME        3.15     3.15
                                         3   FLOW       2274.    4604.
                                             TIME        3.15     3.10
                                         4   FLOW       2274.    4604.
                                             TIME        3.15     3.10
```

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 DIVERSION TO
+                    EXIT       1.15     1   FLOW        978.    3234.
                                             TIME        3.15     3.15
                                         2   FLOW        978.    3234.
                                             TIME        3.15     3.15
                                         3   FLOW       1056.    3386.
                                             TIME        3.15     3.10
                                         4   FLOW       1056.    3386.
                                             TIME        3.15     3.10

 HYDROGRAPH AT
+                    NDIV       1.15     1   FLOW       1218.    1218.
                                             TIME        2.80     2.55
                                         2   FLOW       1218.    1218.
                                             TIME        2.80     2.55
                                         3   FLOW       1218.    1218.
                                             TIME        2.75     2.50
                                         4   FLOW       1218.    1218.
                                             TIME        2.75     2.50

 ROUTED TO
+                  NDROUT       1.15     1   FLOW       1076.    1218.
                                             TIME        3.60     4.00
                                         2   FLOW       1076.    1218.
                                             TIME        3.60     4.00
                                         3   FLOW       1084.    1218.
                                             TIME        3.60     4.00
                                         4   FLOW       1084.    1218.
                                             TIME        3.60     4.00

                                         ** PEAK STAGES IN FEET **
                                         1   STAGE    1629.81  1630.06
                                             TIME        3.60     4.00
                                         2   STAGE    1629.81  1630.06
                                             TIME        3.60     4.00
                                         3   STAGE    1629.86  1630.06
                                             TIME        3.60     4.00
                                         4   STAGE    1629.86  1630.06
                                             TIME        3.60     4.00

 ROUTED TO
+                     R2BW       1.15     1   FLOW       1063.    1216.
                                             TIME        4.00     4.40
                                         2   FLOW       1063.    1216.
                                             TIME        4.00     4.40
                                         3   FLOW       1072.    1217.
                                             TIME        4.00     4.45
                                         4   FLOW       1072.    1217.
                                             TIME        4.00     4.45
```

HYDROGRAPH AT						
+	2BS	1.91	1	FLOW	3700.	7400.
				TIME	3.05	3.05
			2	FLOW	3700.	7400.
				TIME	3.05	3.05
			3	FLOW	3828.	7657.
				TIME	3.05	3.05
			4	FLOW	3828.	7657.
				TIME	3.05	3.05
3 COMBINED AT						
+	102	14.62	1	FLOW	11850.	20452.
				TIME	5.30	5.30
			2	FLOW	11850.	20452.
				TIME	5.30	5.30
			3	FLOW	12190.	21127.
				TIME	5.25	5.25
			4	FLOW	12190.	21127.
				TIME	5.25	5.25
HYDROGRAPH AT						
+	5	5.65	1	FLOW	9102.	18204.
				TIME	3.35	3.35
			2	FLOW	9102.	18204.
				TIME	3.35	3.35
			3	FLOW	9446.	18892.
				TIME	3.35	3.35
			4	FLOW	9446.	18892.
				TIME	3.35	3.35
ROUTED TO						
+	R5	5.65	1	FLOW	9074.	18148.
				TIME	3.45	3.45
			2	FLOW	9074.	18148.
				TIME	3.45	3.45
			3	FLOW	9406.	18813.
				TIME	3.45	3.45
			4	FLOW	9406.	18813.
				TIME	3.45	3.45
HYDROGRAPH AT						
+	4	11.85	1	FLOW	13706.	27412.
				TIME	4.00	4.00
			2	FLOW	13706.	27412.
				TIME	4.00	4.00
			3	FLOW	14250.	28499.
				TIME	4.00	4.00
			4	FLOW	14250.	28499.
				TIME	4.00	4.00

2 COMBINED AT

+	104	17.50	1	FLOW	20937.	41874.
				TIME	3.70	3.70
			2	FLOW	20937.	41874.
				TIME	3.70	3.70
			3	FLOW	21792.	43584.
				TIME	3.70	3.70
			4	FLOW	21792.	43584.
				TIME	3.70	3.70

ROUTED TO

+	R104	17.50	1	FLOW	20682.	41364.
				TIME	4.20	4.20
			2	FLOW	20682.	41364.
				TIME	4.20	4.20
			3	FLOW	21533.	43066.
				TIME	4.20	4.20
			4	FLOW	21533.	43066.
				TIME	4.20	4.20

HYDROGRAPH AT

+	7	.61	1	FLOW	1270.	2540.
				TIME	3.05	3.05
			2	FLOW	1270.	2540.
				TIME	3.05	3.05
			3	FLOW	1300.	2600.
				TIME	3.05	3.05
			4	FLOW	1300.	2600.
				TIME	3.05	3.05

HYDROGRAPH AT

+	6	7.86	1	FLOW	9797.	19594.
				TIME	3.75	3.75
			2	FLOW	9797.	19594.
				TIME	3.75	3.75
			3	FLOW	10226.	20451.
				TIME	3.75	3.75
			4	FLOW	10226.	20451.
				TIME	3.75	3.75

3 COMBINED AT

+	106	25.97	1	FLOW	29660.	59319.
				TIME	4.10	4.10
			2	FLOW	29660.	59319.
				TIME	4.10	4.10
			3	FLOW	30869.	61739.
				TIME	4.10	4.10
			4	FLOW	30869.	61739.
				TIME	4.10	4.10

ROUTED TO

+	R106	25.97	1	FLOW	29483.	58965.
				TIME	4.35	4.35
			2	FLOW	29483.	58965.
				TIME	4.35	4.35
			3	FLOW	30705.	61410.
				TIME	4.35	4.35
			4	FLOW	30705.	61410.
				TIME	4.35	4.35

HYDROGRAPH AT

+	3N	2.89	1	FLOW	5636.	11273.
				TIME	3.10	3.10
			2	FLOW	5636.	11273.
				TIME	3.10	3.10
			3	FLOW	5809.	11618.
				TIME	3.10	3.10
			4	FLOW	5809.	11618.
				TIME	3.10	3.10

ROUTED TO

+	CULV	2.89	1	FLOW	5633.	11272.
				TIME	3.15	3.15
			2	FLOW	5633.	11272.
				TIME	3.15	3.15
			3	FLOW	5800.	11601.
				TIME	3.15	3.10
			4	FLOW	5800.	11601.
				TIME	3.15	3.10

** PEAK STAGES IN FEET **

1	STAGE	1669.79	1670.19
	TIME	3.15	3.15
2	STAGE	1669.79	1670.19
	TIME	3.15	3.15
3	STAGE	1669.81	1670.21
	TIME	3.15	3.10
4	STAGE	1669.81	1670.21
	TIME	3.15	3.10

ROUTED TO

+	RCULV	2.89	1	FLOW	5452.	10934.
				TIME	3.60	3.60
			2	FLOW	5452.	10934.
				TIME	3.60	3.60
			3	FLOW	5635.	11287.
				TIME	3.60	3.60
			4	FLOW	5635.	11287.
				TIME	3.60	3.60

HYDROGRAPH AT

+	3S	2.39	1	FLOW	4595.	9190.
				TIME	3.15	3.15
			2	FLOW	4595.	9190.
				TIME	3.15	3.15
			3	FLOW	4733.	9466.
				TIME	3.15	3.15
			4	FLOW	4733.	9466.
				TIME	3.15	3.15

2 COMBINED AT

+	103	5.28	1	FLOW	8659.	17671.
				TIME	3.35	3.35
			2	FLOW	8659.	17671.
				TIME	3.35	3.35
			3	FLOW	9046.	18396.
				TIME	3.35	3.30
			4	FLOW	9046.	18396.
				TIME	3.35	3.30

HYDROGRAPH AT

+	3A	1.20	1	FLOW	2380.	4759.
				TIME	3.10	3.10
			2	FLOW	2380.	4759.
				TIME	3.10	3.10
			3	FLOW	2447.	4893.
				TIME	3.10	3.10
			4	FLOW	2447.	4893.
				TIME	3.10	3.10

2 COMBINED AT

+	CP103	6.48	1	FLOW	10688.	21968.
				TIME	3.30	3.25
			2	FLOW	10688.	21968.
				TIME	3.30	3.25
			3	FLOW	11160.	22839.
				TIME	3.30	3.25
			4	FLOW	11160.	22839.
				TIME	3.30	3.25

2 COMBINED AT

+	W103	32.45	1	FLOW	33970.	67142.
				TIME	4.25	4.25
			2	FLOW	33970.	67142.
				TIME	4.25	4.25
			3	FLOW	35321.	69852.
				TIME	4.25	4.25
			4	FLOW	35321.	69852.
				TIME	4.25	4.25

ROUTED TO

+	RW103	32.45	1	FLOW	33840.	66924.
				TIME	4.40	4.40
			2	FLOW	33840.	66924.
				TIME	4.40	4.40
			3	FLOW	35196.	69645.
				TIME	4.40	4.40
			4	FLOW	35196.	69645.
				TIME	4.40	4.40

2 COMBINED AT

+	PLD	47.07	1	FLOW	40901.	80829.
				TIME	4.75	4.60
			2	FLOW	40901.	80829.
				TIME	4.75	4.60
			3	FLOW	42728.	84175.
				TIME	4.70	4.55
			4	FLOW	42728.	84175.
				TIME	4.70	4.55

ROUTED TO

+	RES	47.07	1	FLOW	19671.	76334.
				TIME	6.25	5.00
			2	FLOW	19674.	56267.
				TIME	6.25	5.65
			3	FLOW	21292.	80161.
				TIME	6.15	4.90
			4	FLOW	21307.	59415.
				TIME	6.15	5.60

** PEAK STAGES IN FEET **

1	STAGE	1588.74	1590.44
	TIME	6.25	5.00
2	STAGE	1588.74	1593.72
	TIME	6.25	5.65
3	STAGE	1588.99	1590.50
	TIME	6.15	4.90
4	STAGE	1589.00	1594.08
	TIME	6.15	5.60

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DET2BE

PLAN 1 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1654.50	4.50	228.	11459.	2.75	4.25	.00
1.00	1657.35	7.35	291.	19446.	3.90	4.25	.00

PLAN 2 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1654.50	4.50	228.	11459.	2.75	4.25	.00
1.00	1657.35	7.35	291.	19446.	3.90	4.25	.00

PLAN 3 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1654.63	4.63	231.	11780.	2.80	4.25	.00
1.00	1657.55	7.55	295.	20081.	3.95	4.25	.00

PLAN 4 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1654.63	4.63	231.	11780.	2.80	4.25	.00
1.00	1657.55	7.55	295.	20081.	3.95	4.25	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 16BW

PLAN 1 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1632.84	2.84	41.	1344.	2.90	3.15	.00
1.00	1634.77	4.77	53.	2746.	3.85	3.15	.00

PLAN 2 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1632.84	2.84	41.	1344.	2.90	3.15	.00
1.00	1634.77	4.77	53.	2746.	3.85	3.15	.00

PLAN 3 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1632.92	2.92	42.	1393.	2.95	3.15	.00
1.00	1634.89	4.89	54.	2838.	3.85	3.10	.00

PLAN 4 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1632.92	2.92	42.	1393.	2.95	3.15	.00
1.00	1634.89	4.89	54.	2838.	3.85	3.10	.00

1

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1629.81	.00	23.	1076.	.00	3.60	.00
1.00	1630.06	.06	26.	1218.	.80	4.00	.00

PLAN 2 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1629.81	.00	23.	1076.	.00	3.60	.00
1.00	1630.06	.06	26.	1218.	.80	4.00	.00

PLAN 3 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1629.86	.00	24.	1084.	.00	3.60	.00
1.00	1630.06	.06	26.	1218.	.85	4.00	.00

PLAN 4 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1629.86	.00	24.	1084.	.00	3.60	.00
1.00	1630.06	.06	26.	1218.	.85	4.00	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION CULV

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1665.00	1669.50	1669.50
STORAGE	0.	26.	26.
OUTFLOW	0.	3375.	3375.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1669.79	.29	30.	5633.	.85	3.15	.00
1.00	1670.19	.69	36.	11272.	1.70	3.15	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1665.00	1669.50	1669.50
STORAGE	0.	26.	26.
OUTFLOW	0.	3375.	3375.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1669.79	.29	30.	5633.	.85	3.15	.00
1.00	1670.19	.69	36.	11272.	1.70	3.15	.00

PLAN 3 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1665.00	1669.50	1669.50
STORAGE	0.	26.	26.
OUTFLOW	0.	3375.	3375.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1669.81	.31	31.	5800.	.90	3.15	.00
1.00	1670.21	.71	36.	11601.	1.70	3.10	.00

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1665.00	1669.50	1669.50
STORAGE	0.	26.	26.
OUTFLOW	0.	3375.	3375.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1669.81	.31	31.	5800.	.90	3.15	.00
1.00	1670.21	.71	36.	11601.	1.70	3.10	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	22000.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1588.74	.00	7108.	19671.	.00	6.25	.00
1.00	1590.44	1.34	8139.	76334.	2.80	5.00	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1594.10
STORAGE	175.	4200.	10360.
OUTFLOW	75.	165.	59565.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1588.74	.00	7108.	19674.	.00	6.25	.00
1.00	1593.72	.00	10132.	56267.	.00	5.65	.00

PLAN 3 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	22000.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1588.99	.00	7261.	21292.	.00	6.15	.00
1.00	1590.50	1.40	8181.	80161.	2.90	4.90	.00

PLAN 4 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1594.10
STORAGE	175.	4200.	10360.
OUTFLOW	75.	165.	59565.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1589.00	.00	7263.	21307.	.00	6.15	.00
1.00	1594.08	.00	10350.	59415.	.00	5.60	.00

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

V. Powerline F.R.S. Analysis
Probable Maximum Flood, 72 Hour Duration
HEC-1 Compter Output

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*           REVISED  6 FEB 87          *
*                                      *
*  RUN DATE  05/15/1989  TIME  12:52:43 *
*                                      *
****************************************
```

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

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

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

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. 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

1 HEC-1 INPUT PAGE 1

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

  1           ID     WEEKES WASH - POWERLINE F.R.S  ANALYSIS
  2           ID     CONVERSION OF MODEL FROM TR-20
  3           ID                 1/2 PMF, & FULL PMF 72 HR DUR. ; SCS EXCESS & HYDROGRAPH
  4           ID        CONDITIONS:   A: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
  5           ID                         POINT OF WEEKES WASH AT JUNCTION ROAD.
  6           ID                      B: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
  7           ID                         AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
  8           ID                         LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
  9           ID                      C: SUPERSTITION FREEWAY IN PLACE.
 10           ID                      D: ADJUSTED WATERSHED AREAS.
 11           ID                      E: BREAKOUT CURVE FOR NORTH DIVERSION DAM.
 12           ID
 13           ID        PLANS:        1: ORIGINAL POWERLINE ANALYSIS.
 14           ID                      2: ALTERNATIVE B - RAISE STRUCTURE.
              *DIAGRAM
 15           IT      20       0       0     300
 16           IO       5
 17           JP       2
 18           JR    FLOW      .5     1.0
```

```
19          KK      15  WATERSHED 15
20          KM      HYDROGRAPH FOR WATERSHED 15
21          PB   17.96
22          IN     360
23          PI   1.045   2.157    6.51   1.220    .609    .609    .609    .609    .282    .282
24          PI    .282    .282
25          BA    1.76
26          LS       0      80
27          UD     .18

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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



```
1

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


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

 87          KK   RD111 ROUTE CP 111 TO PT AT WHICH BREAKOUT WOULD OCCUR.
 88          KM     ROUTE HYDROGRAPH CP111 TO THE POINT AT WHICH THE BREAKOUT OCCURS.
 89          RM       2     .64      .3

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

 95          KK    CP2A  CONCENTRATION POINT 2A
 96          KM    COMBINE ROUTED HYDROGRAPH FROM CP 111 AND WATERSHED 2A.
 97          HC       2
```

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

103          KK    RR2A ROUTE REMAINING HYDROGRAPH TO SUPERSTITION FREWAY
104          KM     ROUTE THE REMAINING HYDROGRAPH TO DETENTION NORTH OF SUPERSTITION FREEWAY
105          RM       1     .42      .3

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

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

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



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

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

131          KK    CHAN  ROUTE FLOWS THROUGH THE CHANNEL
132          KM     ROUTE FLOW THROUGH THE IMPROVED CHANNEL
133          RM       1      .1      .3

134          KK    WASH   ROUTE FLOWS THROUGH THE WASH
135          KM      ROUTE FLOWS THROUGH THE NATURAL WASH SYSTEM
136          RM       1     .50      .3

137          KK  RSPILL
138          KM    RETRIEVE FLOW DIVERTED FROM THE EMERGENCY SPILLWAY
139          DR   SPILL
```

```
140        KK   IDAHO
141        KM    ROUTE THE RETRIEVED FLOW DOWN IDAHO RD.
142        RM      1      .1      .3

143        KK     WW
144        KM    COMBINE ALL FLOWS FROM FREEWAY
145        HC      2

146        KK    RWW
147        KM    ROUTE FLOWS TO POWERLINE F.R.S.
148        RM      2     .98      .3

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

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

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



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

166        KK   COO4  COMBINE FLOWS JUST NORTH OF FREEWAY
167        KM   COMBINE THE FLOWS JUST NORTH OF THE FREEWAY
168        HC      2

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

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

```
181        KK    R2BW  ROUTE TO CP102
182        KM     ROUTE THE FLOWS FROM DETENTION POND TO CP102 (POWERLINE F.R.S.)
183        RM       1     .40      .3

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

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

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

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

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

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

1 HEC-1 INPUT PAGE 6

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

208        KK    R104
209        KM    ROUTE CP 104 TO 106
210        RM       1     .50      .3

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

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

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

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

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

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

238          KK   RCULV  ROUTE FLOWS TO W103
239          KM     ROUTE THE FLOWS TO CONCENTRATION POINT W103
240          RM       1      .5      .3

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

246          KK     103
247          HC       2
```



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


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

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

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

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

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

KK     RES RESERVOIR ROUTING THROUGH THE STRUCTURE
KM     RESERVOIR RATING CURVE
KM     EXISTING DAM - FUTURE LAND USE CONDITIONS UPSTREAM
RS       1    ELEV  1568.2
SV       0     175     380     700    1100    1600    2175    2875    3675    4200
SV    4600    5525    6725    7925    8500    9100    9700   10300
SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
SE  1584.1  1586.1  1588.1  1590.1  1591.0  1592.0  1593.0  1594.0
SQ       0      75      92     106     119     130     141     150     159     165
SQ     500    1000    5000   10000   20000   30000   40000   50000   70000   80000
SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
SE  1583.9  1584.2  1585.6  1586.9  1588.8  1590.3  1591.7  1593.0  1595.3  1596.3
SS  1583.3       0       0       0
ST  1589.1   13358     2.2     1.5
KP       2
KM     DAM RAISE BY 3.8 FEET
RS       1    ELEV  1568.2
SV       0     175     380     700    1100    1600    2175    2875    3675    4200
SV    4600    5525    6725    7925    8500    9100    9700   10300
SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
SE  1584.1  1586.1  1588.1  1590.1  1591.0  1592.0  1593.0  1594.0
SQ       0      75      92     106     119     130     141     150     159     165
SQ     500    1000    5000   10000   20000   30000   40000   50000   70000   80000
SE  1568.1  1568.2  1570.0  1572.1  1574.1  1576.1  1578.1  1580.1  1582.1  1583.3
SE  1583.9  1584.2  1585.6  1586.9  1588.8  1590.3  1591.7  1593.0  1595.3  1596.3
SS  1583.3       0       0       0
ST  1592.9   13358     2.2     1.5
ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   19        15
              V
              V
   28       R15
              .
              .
   31         .          14
              .           .
              .           .
   36         .           .          16
              .           .           .
              .           .           .
   41       114.......................
              V
              V
   44      R114
              .
              .
   47         .          13
              .           .
              .           .
   52       113............
              V
              V
   55      R113
              .
              .
   58         .          12
              .           .
              .           .
   63       112............
              V
              V
   66      R112
              .
              .
   69         .          11
              .           .
              .           .
   74         .           .          17
              .           .           .
              .           .           .
   79         .           .           .          10
              .           .           .           .
              .           .           .           .
   84       111.................................
              V
```

```
            V
87       RD111
            .
            .
90          .          2A
            .           .
            .           .
95        CP2A............
            .
            .
100         .-------> DIVERT
98        FLOW
            V
            V
103       RR2A
            .
            .
106         .         2BE
            .           .
            .           .
111       102B............
            V
            V
114      DET2BE
            .
            .
128         .------->  SPILL
126       FRWAY
            V
            V
131       CHAN
            V
            V
134       WASH
            .
            .
139         .           .<-------   SPILL
137         .      RSPILL
            .           V
            .           V
140         .       IDAHO
            .           .
            .           .
143        WW............
            V
            V
146       RWW
            .
            .
```

```
149          .        2BWW
             .          .
             .          .
154          .          .        2BWE
             .          .          V
             .          .          V
159          .          .        16BW
             .          .          .
             .          .          .
166          .        COO4............
             .          .
             .          .
171          .          .------->    EXIT
169          .        NDIV
             .          V
             .          V
174          .      NDROUT
             .          V
             .          V
181          .        R2BW
             .          .
             .          .
184          .          .         2BS
             .          .          .
             .          .          .
189        102........................
             .
             .
192          .          5
             .          V
             .          V
197          .         R5
             .          .
             .          .
200          .          .          4
             .          .          .
             .          .          .
205          .        104............
             .          V
             .          V
208          .        R104
             .          .
             .          .
211          .          .          7
             .          .          .
             .          .          .
216          .          .          .          6
             .          .          .          .
             .          .          .          .
221          .        106........................
             .          V
             .          V
224          .        R106
             .          .
             .          .
```

```
227          .          .          3N
             .          .           V
             .          .           V
232          .          .        CULV
             .          .           V
             .          .           V
238          .          .       RCULV
             .          .           .
             .          .           .
241          .          .           .          3S
             .          .           .           .
             .          .           .           .
246          .          .         103............
             .          .           .
             .          .           .
248          .          .           .          3A
             .          .           .           .
             .          .           .           .
253          .          .      CP103............
             .          .           .
             .          .           .
256          .       W103............
             .          V
             .          V
259          .      RW103
             .          .
             .          .
262        PLD............
             V
             V
266        RES
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            FEBRUARY 1981             *
*          REVISED  6 FEB 87           *
*                                      *
* RUN DATE  05/15/1989  TIME  12:52:43 *
*                                      *
****************************************
```

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

```
WEEKES WASH - POWERLINE F.R.S  ANALYSIS
CONVERSION OF MODEL FROM TR-20
            1/2 PMF, & FULL PMF 72 HR DUR. ; SCS EXCESS & HYDROGRAPH
   CONDITIONS:   A: 100-YR, 24-HR STORM IS CONTAINED WITHIN THE BREAKOUT
                    POINT OF WEEKES WASH AT JUNCTION ROAD.
                 B: FUTURE CONDITIONS. ALL CURRENT OPEN SPACE AND
                    AGRICULTURAL LANDS ARE DEVELOPED TO 1/4 - 1/2 ACRE
                    LOTS, WITH NO DETENTION REQUIREMENTS.  WORST CASE SCENA
                 C: SUPERSTITION FREEWAY IN PLACE.
                 D: ADJUSTED WATERSHED AREAS.
                 E: BREAKOUT CURVE FOR NORTH DIVERSION DAM.

   PLANS:        1: ORIGINAL POWERLINE ANALYSIS.
                 2: ALTERNATIVE B - RAISE STRUCTURE.

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

   IT        HYDROGRAPH TIME DATA
                  NMIN         20  MINUTES IN COMPUTATION INTERVAL
                 IDATE      1    0  STARTING DATE
                 ITIME       0000  STARTING TIME
                    NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                NDDATE      5    0  ENDING DATE
                NDTIME       0340  ENDING TIME
                 ICENT         19  CENTURY MARK

             COMPUTATION INTERVAL     .33 HOURS
                  TOTAL TIME BASE   99.67 HOURS

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

   JP        MULTI-PLAN OPTION
                 NPLAN          2  NUMBER OF PLANS

   JR        MULTI-RATIO OPTION
                RATIOS OF RUNOFF
                .50      1.00
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WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

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

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

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

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

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

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

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

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


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

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

     DT         DIVERSION
                     ISTAD      DIVERT  DIVERSION HYDROGRAPH IDENTIFICATION

     DI            INFLOW         .00   6500.00   7000.00   9000.00  10000.00  15000.00

     DQ      DIVERTED FLOW        .00       .00    260.00   1300.00   1880.00   4600.00

                                                                 ***

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

                       DIVERSION HYDROGRAPH   DIVERT
                         FOR PLAN 1, RATIO =  .50

  PEAK FLOW     TIME                        MAXIMUM AVERAGE FLOW
                                     6-HR       24-HR       72-HR     99.67-HR
+   (CFS)       (HR)
                         (CFS)
+       0.       .33                  0.          0.          0.          0.
                      (INCHES)      .000        .000        .000        .000
                       (AC-FT)        0.          0.          0.          0.

                       CUMULATIVE AREA =   10.34 SQ MI
```

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

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

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 4336.	18.00		3977.	1628.	722.	522.
		(INCHES)	3.576	5.855	7.795	7.795
		(AC-FT)	1972.	3229.	4299.	4299.

CUMULATIVE AREA = 10.34 SQ MI

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

DIVERSION HYDROGRAPH DIVERT
FOR PLAN 1, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1130.	18.00		805.	201.	67.	48.
		(INCHES)	.724	.724	.724	.724
		(AC-FT)	399.	399.	399.	399.

CUMULATIVE AREA = 10.34 SQ MI

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

HYDROGRAPH AT STATION FLOW
FOR PLAN 1, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 7543.	18.00		7149.	3055.	1378.	995.
		(INCHES)	6.428	10.986	14.866	14.867
		(AC-FT)	3545.	6059.	8198.	8198.

CUMULATIVE AREA = 10.34 SQ MI

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

PLAN 2 INPUT DATA FOR STATION FLOW ARE SAME AS FOR PLAN 1

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

DIVERSION HYDROGRAPH DIVERT
FOR PLAN 2, RATIO = .50

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 0.	.33		0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 10.34 SQ MI

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

HYDROGRAPH AT STATION FLOW
FOR PLAN 2, RATIO = .50

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 4336.	18.00		3977.	1628.	722.	522.
		(INCHES)	3.576	5.855	7.795	7.795
		(AC-FT)	1972.	3229.	4299.	4299.

CUMULATIVE AREA = 10.34 SQ MI

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

DIVERSION HYDROGRAPH DIVERT
FOR PLAN 2, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 1130.	18.00		805.	201.	67.	48.
		(INCHES)	.724	.724	.724	.724
		(AC-FT)	399.	399.	399.	399.

CUMULATIVE AREA = 10.34 SQ MI

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

HYDROGRAPH AT STATION FLOW
FOR PLAN 2, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 7543.	18.00		7149.	3055.	1378.	995.
		(INCHES)	6.428	10.986	14.866	14.867
		(AC-FT)	3545.	6059.	8198.	8198.

CUMULATIVE AREA = 10.34 SQ MI

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

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


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


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

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

 265 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

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

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

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     99.67-HR
+   (CFS)       (HR)
                          (CFS)
+   19681.     18.00                17030.       7519.       3340.        2416.
                        (INCHES)    3.364       5.941       7.917        7.927
                         (AC-FT)    8445.      14914.      19874.       19899.

                        CUMULATIVE AREA =   47.07 SQ MI
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*** *** *** *** ***

HYDROGRAPH AT STATION PLD
FOR PLAN 1, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 38319.	18.00		33876.	14840.	6614.	4784.
		(INCHES)	6.691	11.725	15.677	15.695
		(AC-FT)	16798.	29434.	39356.	39402.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
FOR PLAN 2, RATIO = .50

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 19681.	18.00		17030.	7519.	3340.	2416.
		(INCHES)	3.364	5.941	7.917	7.927
		(AC-FT)	8445.	14914.	19874.	19899.

CUMULATIVE AREA = 47.07 SQ MI

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

HYDROGRAPH AT STATION PLD
FOR PLAN 2, RATIO = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.67-HR
+ (CFS)	(HR)					
		(CFS)				
+ 38319.	18.00		33876.	14840.	6614.	4784.
		(INCHES)	6.691	11.725	15.677	15.695
		(AC-FT)	16798.	29434.	39356.	39402.

CUMULATIVE AREA = 47.07 SQ MI

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

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO FLOWS RATIO 1 .50	RATIO 2 1.00
HYDROGRAPH AT						
+	15	1.76	1	FLOW	738.	1475.
				TIME	18.00	18.00
			2	FLOW	738.	1475.
				TIME	18.00	18.00
ROUTED TO						
+	R15	1.76	1	FLOW	737.	1474.
				TIME	18.00	18.00
			2	FLOW	737.	1474.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	14	1.11	1	FLOW	464.	927.
				TIME	18.00	18.00
			2	FLOW	464.	927.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	16	2.16	1	FLOW	911.	1821.
				TIME	18.00	18.00
			2	FLOW	911.	1821.
				TIME	18.00	18.00
3 COMBINED AT						
+	114	5.03	1	FLOW	2111.	4223.
				TIME	18.00	18.00
			2	FLOW	2111.	4223.
				TIME	18.00	18.00
ROUTED TO						
+	R114	5.03	1	FLOW	2109.	4218.
				TIME	18.00	18.00
			2	FLOW	2109.	4218.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	13	1.29	1	FLOW	546.	1093.
				TIME	18.00	18.00
			2	FLOW	546.	1093.
				TIME	18.00	18.00
2 COMBINED AT						
+	113	6.32	1	FLOW	2655.	5310.
				TIME	18.00	18.00
			2	FLOW	2655.	5310.
				TIME	18.00	18.00

ROUTED TO						
+	R113	6.32	1	FLOW	2652.	5303.
				TIME	18.00	18.00
			2	FLOW	2652.	5303.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	12	1.32	1	FLOW	563.	1127.
				TIME	18.00	18.00
			2	FLOW	563.	1127.
				TIME	18.00	18.00
2 COMBINED AT						
+	112	7.64	1	FLOW	3215.	6430.
				TIME	18.00	18.00
			2	FLOW	3215.	6430.
				TIME	18.00	18.00
ROUTED TO						
+	R112	7.64	1	FLOW	3213.	6427.
				TIME	18.00	18.00
			2	FLOW	3213.	6427.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	11	.70	1	FLOW	301.	601.
				TIME	18.00	18.00
			2	FLOW	301.	601.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	17	.37	1	FLOW	155.	309.
				TIME	18.00	18.00
			2	FLOW	155.	309.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	10	.54	1	FLOW	226.	451.
				TIME	18.00	18.00
			2	FLOW	226.	451.
				TIME	18.00	18.00
4 COMBINED AT						
+	111	9.25	1	FLOW	3894.	7788.
				TIME	18.00	18.00
			2	FLOW	3894.	7788.
				TIME	18.00	18.00
ROUTED TO						
+	RD111	9.25	1	FLOW	3876.	7752.
				TIME	18.00	18.00
			2	FLOW	3876.	7752.
				TIME	18.00	18.00

```
 HYDROGRAPH AT
+                    2A      1.09     1   FLOW        460.     920.
                                          TIME       18.00    18.00
                                         2   FLOW        460.     920.
                                          TIME       18.00    18.00

  2 COMBINED AT
+                  CP2A     10.34     1   FLOW       4336.    8672.
                                          TIME       18.00    18.00
                                         2   FLOW       4336.    8672.
                                          TIME       18.00    18.00

 DIVERSION TO
+                 DIVERT    10.34     1   FLOW          0.    1130.
                                          TIME        .33    18.00
                                         2   FLOW          0.    1130.
                                          TIME        .33    18.00

 HYDROGRAPH AT
+                  FLOW     10.34     1   FLOW       4336.    7543.
                                          TIME       18.00    18.00
                                         2   FLOW       4336.    7543.
                                          TIME       18.00    18.00

 ROUTED TO
+                  RR2A     10.34     1   FLOW       4321.    7528.
                                          TIME       18.00    18.00
                                         2   FLOW       4321.    7528.
                                          TIME       18.00    18.00

 HYDROGRAPH AT
+                   2BE      1.22     1   FLOW        514.    1027.
                                          TIME       18.00    18.00
                                         2   FLOW        514.    1027.
                                          TIME       18.00    18.00

  2 COMBINED AT
+                  102B     11.56     1   FLOW       4834.    8555.
                                          TIME       18.00    18.00
                                         2   FLOW       4834.    8555.
                                          TIME       18.00    18.00

 ROUTED TO
+                 DET2BE    11.56     1   FLOW       4828.    8551.
                                          TIME       18.00    18.00
                                         2   FLOW       4828.    8551.
                                          TIME       18.00    18.00

                                        ** PEAK STAGES IN FEET **
                                         1   STAGE    1651.22  1653.25
                                          TIME       18.00    18.00
                                         2   STAGE    1651.22  1653.25
                                          TIME       18.00    18.00
```

DIVERSION TO						
+	SPILL	11.56	1	FLOW	1163.	4886.
				TIME	18.00	18.00
			2	FLOW	1163.	4886.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	FRWAY	11.56	1	FLOW	3665.	3665.
				TIME	14.67	13.33
			2	FLOW	3665.	3665.
				TIME	14.67	13.33
ROUTED TO						
+	CHAN	11.56	1	FLOW	3686.	3707.
				TIME	15.00	13.67
			2	FLOW	3686.	3707.
				TIME	15.00	13.67
ROUTED TO						
+	WASH	11.56	1	FLOW	3665.	3665.
				TIME	19.33	19.33
			2	FLOW	3665.	3665.
				TIME	19.33	19.33
HYDROGRAPH AT						
+	RSPILL	.00	1	FLOW	1163.	4886.
				TIME	18.00	18.00
			2	FLOW	1163.	4886.
				TIME	18.00	18.00
ROUTED TO						
+	IDAHO	.00	1	FLOW	1159.	4881.
				TIME	18.00	18.00
			2	FLOW	1159.	4881.
				TIME	18.00	18.00
2 COMBINED AT						
+	WW	11.56	1	FLOW	4824.	8546.
				TIME	18.00	18.00
			2	FLOW	4824.	8546.
				TIME	18.00	18.00
ROUTED TO						
+	RWW	11.56	1	FLOW	4804.	8525.
				TIME	18.67	18.67
			2	FLOW	4804.	8525.
				TIME	18.67	18.67
HYDROGRAPH AT						
+	2BWW	.45	1	FLOW	190.	379.
				TIME	18.00	18.00
			2	FLOW	190.	379.
				TIME	18.00	18.00

```
 HYDROGRAPH AT
+                    2BWE       .70     1   FLOW          295.      590.
                                            TIME        18.00     18.00
                                        2   FLOW          295.      590.
                                            TIME        18.00     18.00

 ROUTED TO
+                    16BW       .70     1   FLOW          295.      590.
                                            TIME        18.00     18.00
                                        2   FLOW          295.      590.
                                            TIME        18.00     18.00

                                        ** PEAK STAGES IN FEET **
                                        1   STAGE     1630.72   1631.47
                                            TIME        18.00     18.00
                                        2   STAGE     1630.72   1631.47
                                            TIME        18.00     18.00

  2 COMBINED AT
+                    CO04      1.15     1   FLOW          484.      969.
                                            TIME        18.00     18.00
                                        2   FLOW          484.      969.
                                            TIME        18.00     18.00

 DIVERSION TO
+                    EXIT      1.15     1   FLOW            0.        0.
                                            TIME          .33       .33
                                        2   FLOW            0.        0.
                                            TIME          .33       .33

 HYDROGRAPH AT
+                    NDIV      1.15     1   FLOW          484.      969.
                                            TIME        18.00     18.00
                                        2   FLOW          484.      969.
                                            TIME        18.00     18.00

 ROUTED TO
+                  NDROUT      1.15     1   FLOW          484.      964.
                                            TIME        18.00     18.00
                                        2   FLOW          484.      964.
                                            TIME        18.00     18.00

                                        ** PEAK STAGES IN FEET **
                                        1   STAGE     1626.61   1629.21
                                            TIME        18.00     18.00
                                        2   STAGE     1626.61   1629.21
                                            TIME        18.00     18.00

 ROUTED TO
+                    R2BW      1.15     1   FLOW          483.      960.
                                            TIME        18.00     18.00
                                        2   FLOW          483.      960.
                                            TIME        18.00     18.00
```

HYDROGRAPH AT						
+	2BS	1.91	1	FLOW	800.	1599.
				TIME	18.00	18.00
			2	FLOW	800.	1599.
				TIME	18.00	18.00
3 COMBINED AT						
+	102	14.62	1	FLOW	6044.	11046.
				TIME	18.00	18.00
			2	FLOW	6044.	11046.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	5	5.65	1	FLOW	2398.	4796.
				TIME	18.00	18.00
			2	FLOW	2398.	4796.
				TIME	18.00	18.00
ROUTED TO						
+	R5	5.65	1	FLOW	2397.	4795.
				TIME	18.00	18.00
			2	FLOW	2397.	4795.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	4	11.85	1	FLOW	5013.	10027.
				TIME	18.00	18.00
			2	FLOW	5013.	10027.
				TIME	18.00	18.00
2 COMBINED AT						
+	104	17.50	1	FLOW	7411.	14822.
				TIME	18.00	18.00
			2	FLOW	7411.	14822.
				TIME	18.00	18.00
ROUTED TO						
+	R104	17.50	1	FLOW	7393.	14785.
				TIME	18.33	18.33
			2	FLOW	7393.	14785.
				TIME	18.33	18.33
HYDROGRAPH AT						
+	7	.61	1	FLOW	260.	521.
				TIME	18.00	18.00
			2	FLOW	260.	521.
				TIME	18.00	18.00
HYDROGRAPH AT						
+	6	7.86	1	FLOW	3302.	6603.
				TIME	18.00	18.00
			2	FLOW	3302.	6603.
				TIME	18.00	18.00

```
 3 COMBINED AT
+                    106      25.97     1   FLOW        10938.    21876.
                                            TIME         18.00     18.00
                                       2   FLOW        10938.    21876.
                                            TIME         18.00     18.00

 ROUTED TO
+                   R106      25.97     1   FLOW        10906.    21813.
                                            TIME         18.00     18.00
                                       2   FLOW        10906.    21813.
                                            TIME         18.00     18.00

 HYDROGRAPH AT
+                     3N       2.89     1   FLOW         1229.     2458.
                                            TIME         18.00     18.00
                                       2   FLOW         1229.     2458.
                                            TIME         18.00     18.00

 ROUTED TO
+                   CULV       2.89     1   FLOW         1229.     2457.
                                            TIME         18.00     18.00
                                       2   FLOW         1229.     2457.
                                            TIME         18.00     18.00

                                       ** PEAK STAGES IN FEET **
                                       1   STAGE      1667.21   1668.58
                                            TIME         18.00     18.00
                                       2   STAGE      1667.21   1668.58
                                            TIME         18.00     18.00

 ROUTED TO
+                  RCULV       2.89     1   FLOW         1226.     2450.
                                            TIME         18.00     18.00
                                       2   FLOW         1226.     2450.
                                            TIME         18.00     18.00

 HYDROGRAPH AT
+                     3S       2.39     1   FLOW         1016.     2033.
                                            TIME         18.00     18.00
                                       2   FLOW         1016.     2033.
                                            TIME         18.00     18.00

 2 COMBINED AT
+                    103       5.28     1   FLOW         2242.     4483.
                                            TIME         18.00     18.00
                                       2   FLOW         2242.     4483.
                                            TIME         18.00     18.00

 HYDROGRAPH AT
+                     3A       1.20     1   FLOW          512.     1023.
                                            TIME         18.00     18.00
                                       2   FLOW          512.     1023.
                                            TIME         18.00     18.00
```

```
  2 COMBINED AT
+                 CP103      6.48     1   FLOW        2754.    5506.
                                           TIME        18.00    18.00
                                       2   FLOW        2754.    5506.
                                           TIME        18.00    18.00

  2 COMBINED AT
+                  W103     32.45     1   FLOW       13660.   27319.
                                           TIME        18.00    18.00
                                       2   FLOW       13660.   27319.
                                           TIME        18.00    18.00

 ROUTED TO
+                 RW103     32.45     1   FLOW       13637.   27273.
                                           TIME        18.00    18.00
                                       2   FLOW       13637.   27273.
                                           TIME        18.00    18.00

  2 COMBINED AT
+                   PLD     47.07     1   FLOW       19681.   38319.
                                           TIME        18.00    18.00
                                       2   FLOW       19681.   38319.
                                           TIME        18.00    18.00

 ROUTED TO
+                   RES     47.07     1   FLOW       17347.   38225.
                                           TIME        19.00    18.00
                                       2   FLOW       17347.   36943.
                                           TIME        19.00    18.33

                                       ** PEAK STAGES IN FEET **
                                       1   STAGE    1588.30  1589.66
                                           TIME        19.00    18.00
                                       2   STAGE    1588.30  1591.27
                                           TIME        19.00    18.33

1                          SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION   DET2BE

     PLAN  1 ...............                 INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                ELEVATION       1636.00           1650.00          1650.00
                                STORAGE              0.               153.             153.
                                OUTFLOW              0.              3534.            3534.

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

                    .50       1651.22        1.22        172.       4828.       5.00         18.00        .00
                   1.00       1653.25        3.25        205.       8551.       7.00         18.00        .00
```

PLAN 2 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1651.22	1.22	172.	4828.	5.00	18.00	.00
1.00	1653.25	3.25	205.	8551.	7.00	18.00	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION 16BW

PLAN 1 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1630.72	.72	31.	295.	5.33	18.00	.00
1.00	1631.47	1.47	34.	590.	7.67	18.00	.00

PLAN 2 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1630.72	.72	31.	295.	5.33	18.00	.00
1.00	1631.47	1.47	34.	590.	7.67	18.00	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION NDROUT

PLAN 1 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1626.61	.00	2.	484.	.00	18.00	.00
1.00	1629.21	.00	17.	964.	.00	18.00	.00

PLAN 2 .....

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

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1626.61	.00	2.	484.	.00	18.00	.00
1.00	1629.21	.00	17.	964.	.00	18.00	.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION RES

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1589.10
STORAGE	175.	4200.	7325.
OUTFLOW	75.	165.	22000.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1588.30	.00	6843.	17347.	.00	19.00	.00
1.00	1589.66	.56	7664.	38225.	5.33	18.00	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1568.20	1583.30	1592.90
STORAGE	175.	4200.	9640.
OUTFLOW	75.	165.	49231.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.50	1588.30	.00	6843.	17347.	.00	19.00	.00
1.00	1591.27	.00	8663.	36943.	.00	18.33	.00

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

VI. Powerline F.R.S. Analysis
Emergency Spillway Rating Curve
HEC-2 Compter Input for up to 35,000 cfs

```
T1   POWERLINE F.R.S. SPILLWAY ANALYSIS
T2   BY MARICOPA COUNTY FCD  VALERIE RICE  JULY 11, 1988
T3       POWERLINE SPILLWAY
J1     0       2       0       0  .00603       0     1.5       0  1576.5
J2     1       0      -1
J3   150
J6                     -1
QT     9     500    1000    5000   10000   15000   20000   25000   30000   35000
NC     0       0       0      .1      .3
NH     3    .022     700    .025    1300    .022  1301.3
X1     1       4   698.7  1301.3
GR1579.9   698.7  1575.9     700  1575.9    1300  1579.9  1301.3
NH     3    .022     700    .025    1300    .022  1301.4
X1     2       4   698.6  1301.4     385     385     385
GR1582.5   698.6  1578.2     700  1578.2    1300  1582.5  1301.4
NH     3    .022     700    .025    1300    .022  1301.6
X1     3       4   698.4  1301.6     500     500     500
GR1585.9   698.4  1581.2     700  1581.2    1300  1585.9  1301.6
NH     3    .022     700    .025    1300    .022  1301.6
X1     4       4   698.4  1301.6     350     350     350
GR1588.2   698.4  1583.3     700  1583.3    1300  1588.2  1301.6
NH     3    .022     700    .025    1300    .022  1301.6
X1   4.5       0       0       0      50      50      50       0       0
X1   4.7       0       0       0      50      50      50       0    -1.0
NH     3    .022     700    .025    1300    .022    1302
X1     5       4     698    1302     120       1      50
GR1588.3     698  1582.2     700  1582.2    1300  1588.3    1302
NH     3    .022     700    .025    1300    .022  1302.1
X1     6       4   697.9  1302.1     430     250      80
GR1588.4   697.9  1582.2     700  1582.2    1300  1588.4  1302.1
NH     3    .025     700    .025    1300    .022  1302.1
X1     7       4   697.9  1302.1     550     310     100
GR1588.6   697.9  1582.2     700  1582.2    1300  1588.6  1302.1
EJ
T1
T2     POWERLINE SPILLWAY
T3     1000 CFS
J1     0       3       0       0  .00603       0     1.5       0  1576.5
J2     2       0      -1
T1
T2     POWERLINE SPILLWAY
T3     5000 CFS
J1     0       4       0       0  .00603       0     1.5       0  1577.5
J2     3       0      -1
T1
T2     POWERLINE SPILLWAY
T3     10000 CFS
J1     0       5       0       0  .00603       0     1.5       0  1578.0
J2     4       0      -1
T1
T2     POWERLINE SPILLWAY
T3     15,000 CFS
J1     0       6       0       0  .00603       0     1.5       0  1578.5
J2     5       0      -1
```

```
T1
T2     POWERLINE SPILLWAY
T3     20000 CFS
J1     0       7       0       0  .00603       0     1.5       0  1579.0
J2     6       0      -1
T1
T2     POWERLINE SPILLWAY
T3     25,000 CFS
J1     0       8       0       0  .00603       0     1.5       0  1579.5
J2     7       0      -1
T1
T2     POWERLINE SPILLWAY
T3     30,000 CFS
J1     0       9       0       0  .00603       0     1.5       0  1580.0
J2     8       0      -1
T1
T2     POWERLINE SPILLWAY
T3     35,000 CFS
J1     0      10       0       0  .00603       0     1.5       0  1580.5
J2    15       0      -1


ER
```

VII. Powerline F.R.S. Analysis
Emergency Spillway Rating Curve
HEC-2 Compter Output for up to 35,000 cfs

```
1*****************************************************
 *  WATER SURFACE PROFILES                           *
 *  VERSION OF SEPTEMBER 1988                        *
 *                                                   *
 *                                                   *
 *  RUN DATE     4/24/89   TIME    8:10: 0           *
 *****************************************************
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616             *
*  (916) 756-1104                      *
****************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X         XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

END OF BANNER

1

4/24/89 8:10: 0 PAGE 1

THIS RUN EXECUTED 4/24/89 8:10: 0

```
*************************************************
  HEC2 RELEASE DATED SEPT 88


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


T1   POWERLINE F.R.S. SPILLWAY ANALYSIS
T2   BY MARICOPA COUNTY FCD  VALERIE RICE  JULY 11, 1988
T3       POWERLINE SPILLWAY

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         0    .00603         0       1.5         0    1576.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1         0        -1


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150

J6  IHLEQ     ICOPY     SUBDIV    STRTDS    RMILE

                        -1
```

```
QT        9       500      1000      5000     10000     15000     20000     25000     30000     35000
NC        0         0         0        .1        .3
NH        3      .022       700      .025      1300      .022    1301.3
X1        1         4     698.7    1301.3
GR   1579.9     698.7    1575.9       700    1575.9      1300    1579.9    1301.3

NH        3      .022       700      .025      1300      .022    1301.4
X1        2         4     698.6    1301.4       385       385       385
GR   1582.5     698.6    1578.2       700    1578.2      1300    1582.5    1301.4

NH        3      .022       700      .025      1300      .022    1301.6
X1        3         4     698.4    1301.6       500       500       500
GR   1585.9     698.4    1581.2       700    1581.2      1300    1585.9    1301.6

NH        3      .022       700      .025      1300      .022    1301.6
X1        4         4     698.4    1301.6       350       350       350
GR   1588.2     698.4    1583.3       700    1583.3      1300    1588.2    1301.6

NH        3      .022       700      .025      1300      .022    1301.6
X1      4.5         0         0         0        50        50        50         0         0
1
    4/24/89      8:10: 0                                                                          PAGE 2


X1      4.7         0         0         0        50        50        50         0      -1.0

NH        3      .022       700      .025      1300      .022      1302
X1        5         4       698      1302       120         1        50
GR   1588.3       698    1582.2       700    1582.2      1300    1588.3      1302

NH        3      .022       700      .025      1300      .022    1302.1
X1        6         4     697.9    1302.1       430       250        80
GR   1588.4     697.9    1582.2       700    1582.2      1300    1588.4    1302.1

NH        3      .025       700      .025      1300      .022    1302.1
X1        7         4     697.9    1302.1       550       310       100
GR   1588.6     697.9    1582.2       700    1582.2      1300    1588.6    1302.1
1
    4/24/89      8:10: 0                                                                          PAGE 3


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

*PROF 1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
     1.00      .36  1576.26      .00  1576.50  1576.34      .08      .00      .00  1579.90
     500.       0.     500.       0.       0.     216.       0.       0.       0.  1579.90
      .00      .00     2.32      .00     .000     .025     .000     .000  1575.90   699.88
  .005956       0.       0.       0.        0        0        5      .00   600.23  1300.12
```

```
0
 1490 NH CARD USED
 *SECNO 2.000
      2.00      .35  1578.55      .00      .00  1578.64      .08     2.29      .00  1582.50
      500.       0.     500.       0.       0.     216.       0.       2.       5.   1582.50
       .05      .00     2.32      .00     .000     .025     .000     .000  1578.20   699.88
   .005956     385.     385.     385.        0        0        0      .00   600.23  1300.12
0
 1490 NH CARD USED
 *SECNO 3.000
      3.00      .35  1581.55      .00      .00  1581.64      .08     3.00      .00  1585.90
      500.       0.     500.       0.       0.     215.       0.       4.      12.   1585.90
       .11      .00     2.33      .00     .000     .025     .000     .000  1581.20   699.88
   .006045     500.     500.     500.        2        0        0      .00   600.24  1300.12
0
 1490 NH CARD USED
 *SECNO 4.000
      4.00      .35  1583.65      .00      .00  1583.74      .08     2.10      .00  1588.20
      500.       0.     500.       0.       0.     216.       0.       6.      17.   1588.20
       .15      .00     2.32      .00     .000     .025     .000     .000  1583.30   699.88
   .005963     350.     350.     350.        2        0        0      .00   600.23  1300.12
0
 1490 NH CARD USED
 *SECNO 4.500

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.50      .54  1583.84      .00      .00  1583.88      .04      .14      .00  1588.20
      500.       0.     500.       0.       0.     321.       0.       6.      18.   1588.20
       .16      .00     1.56      .00     .000     .025     .000     .000  1583.30   699.83
   .001579      50.      50.      50.        2        0        0      .00   600.35  1300.17
0
1
    4/24/89        8:10: 0                                                                  PAGE 4


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *SECNO 4.700

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.70     1.59  1583.89      .00      .00  1583.89      .00      .01      .00  1587.20
      500.       0.     500.       0.       0.     948.       0.       7.      18.   1587.20
       .18      .00      .53      .00     .000     .025     .000     .000  1582.30   699.48
   .000043      50.      50.      50.        3        0        0      .00   601.03  1300.52
0
 1490 NH CARD USED
 *SECNO 5.000
      5.00     1.69  1583.89      .00      .00  1583.89      .00      .00      .00  1588.30
      500.       0.     500.       0.       0.    1014.       0.       8.      19.   1588.30
       .21      .00      .49      .00     .000     .025     .000     .000  1582.20   699.45
   .000034     120.      50.       1.        2        0        0      .00   601.11  1300.55
```

```
0
 1490 NH CARD USED
 *SECNO 6.000
      6.00     1.69  1583.89      .00      .00  1583.89      .00      .00      .00  1588.40
      500.       0.     500.       0.       0.    1014.       0.      10.      20.   1588.40
       .26      .00      .49      .00     .000     .025     .000     .000  1582.20   699.43
   .000034     430.      80.     250.        0        0        0      .00   601.14  1300.57
0
 1490 NH CARD USED
 *SECNO 7.000
      7.00     1.69  1583.89      .00      .00  1583.90      .00      .00      .00  1588.60
      500.       0.     500.       0.       0.    1015.       0.      12.      22.   1588.60
       .31      .00      .49      .00     .000     .025     .000     .000  1582.20   699.45
   .000034     550.     100.     310.        0        0        0      .00   601.11  1300.55
0
1
    4/24/89        8:10: 0                                                                    PAGE 5


 T1
 T2     POWERLINE SPILLWAY
 T3     1000 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0        3         0         0    .00603         0       1.5         0    1576.5

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       2        0        -1

1
    4/24/89        8:10: 0                                                                    PAGE 6


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 2

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.000
      1.00      .55  1576.45      .00  1576.50  1576.59      .15      .00      .00  1579.90
     1000.       0.    1000.       0.       0.     327.       0.       0.       0.   1579.90
       .00      .00     3.06      .00     .000     .025     .000     .000  1575.90   699.82
   .005943       0.       0.       0.        0        0        4      .00   600.35  1300.18
0
 1490 NH CARD USED
 *SECNO 2.000
      2.00      .54  1578.74      .00      .00  1578.89      .15     2.30      .00  1582.50
     1000.       0.    1000.       0.       0.     326.       0.       3.       5.   1582.50
       .03      .00     3.07      .00     .000     .025     .000     .000  1578.20   699.82
   .005997     385.     385.     385.        2        0        0      .00   600.35  1300.18
```

```
0
 1490 NH CARD USED
 *SECNO 3.000
      3.00      .55  1581.75      .00      .00  1581.89      .15     3.00      .00  1585.90
     1000.       0.    1000.       0.       0.     326.       0.       7.      12.   1585.90
       .08      .00     3.07      .00     .000     .025     .000     .000  1581.20   699.82
   .006015     500.     500.     500.        0        0        0      .00   600.37  1300.18
0
 1490 NH CARD USED
 *SECNO 4.000
      4.00      .54  1583.84      .00      .00  1583.99      .15     2.10      .00  1588.20
     1000.       0.    1000.       0.       0.     327.       0.       9.      17.   1588.20
       .11      .00     3.06      .00     .000     .025     .000     .000  1583.30   699.82
   .005970     350.     350.     350.        2        0        0      .00   600.36  1300.18
0
 1490 NH CARD USED
 *SECNO 4.500

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.50      .78  1584.08      .00      .00  1584.15      .07      .15      .01  1588.20
     1000.       0.    1000.       0.       0.     464.       0.      10.      18.   1588.20
       .12      .00     2.16      .00     .000     .025     .000     .000  1583.30   699.75
   .001859      50.      50.      50.        2        0        0      .00   600.50  1300.25
0
1
    4/24/89        8:10: 0                                                                  PAGE 7


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


 *SECNO 4.700

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.70     1.86  1584.16      .00      .00  1584.17      .01      .01      .01  1587.20
     1000.       0.    1000.       0.       0.    1115.       0.      11.      18.   1587.20
       .13      .00      .90      .00     .000     .025     .000     .000  1582.30   699.39
   .000100      50.      50.      50.        3        0        0      .00   601.21  1300.61
0
 1490 NH CARD USED
 *SECNO 5.000
      5.00     1.96  1584.16      .00      .00  1584.17      .01      .00      .00  1588.30
     1000.       0.    1000.       0.       0.    1179.       0.      12.      19.   1588.30
       .15      .00      .85      .00     .000     .025     .000     .000  1582.20   699.36
   .000083     120.      50.       1.        2        0        0      .00   601.29  1300.64
0
 1490 NH CARD USED
 *SECNO 6.000
      6.00     1.97  1584.17      .00      .00  1584.18      .01      .01      .00  1588.40
     1000.       0.    1000.       0.       0.    1179.       0.      14.      20.   1588.40
       .18      .00      .85      .00     .000     .025     .000     .000  1582.20   699.34
   .000083     430.      80.     250.        0        0        0      .00   601.33  1300.66
```

```
0
 1490 NH CARD USED
 *SECNO 7.000
      7.00     1.98  1584.18      .00      .00  1584.19      .01      .01      .00  1588.60
     1000.       0.    1000.       0.       0.    1183.       0.      17.      22.   1588.60
       .21      .00      .85      .00     .000     .025     .000     .000  1582.20   699.35
   .000082     550.     100.     310.        0        0        0      .00   601.29  1300.65
0
1
    4/24/89        8:10: 0                                                                          PAGE 8


 T1
 T2     POWERLINE SPILLWAY
 T3     5000 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         4         0         0     .00603        0       1.5        0      1577.5

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       3         0        -1

1
    4/24/89        8:10: 0                                                                          PAGE 9


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 3

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.000
      1.00     1.43  1577.33      .00  1577.50  1577.86      .53      .00      .00  1579.90
     5000.       0.    5000.       0.       0.     857.       0.       0.       0.   1579.90
       .00      .00     5.83      .00     .000     .025     .000     .000  1575.90   699.54
   .006000       0.       0.       0.        0        0        4      .00   600.93  1300.46
0
 1490 NH CARD USED
 *SECNO 2.000
      2.00     1.43  1579.63      .00      .00  1580.15      .52     2.30      .00  1582.50
     5000.       0.    5000.       0.       0.     860.       0.       8.       5.   1582.50
       .02      .00     5.81      .00     .000     .025     .000     .000  1578.20   699.53
   .005930     385.     385.     385.        1        0        0      .00   600.93  1300.47
0
 1490 NH CARD USED
 *SECNO 3.000
      3.00     1.42  1582.62      .00      .00  1583.15      .53     3.00      .00  1585.90
     5000.       0.    5000.       0.       0.     854.       0.      17.      12.   1585.90
       .04      .00     5.85      .00     .000     .025     .000     .000  1581.20   699.52
   .006070     500.     500.     500.        2        0        0      .00   600.97  1300.48
```

```
0
 1490 NH CARD USED
 *SECNO 4.000
      4.00     1.43  1584.73      .00      .00  1585.25      .52     2.09      .00  1588.20
     5000.       0.    5000.       0.       0.     861.       0.      24.      17.   1588.20
       .06      .00     5.80      .00     .000     .025     .000     .000  1583.30   699.53
   .005900     350.     350.     350.        1        0        0      .00   600.94  1300.47
0
 1490 NH CARD USED
 *SECNO 4.500

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.50     1.84  1585.14      .00      .00  1585.46      .32      .19      .02  1588.20
     5000.       0.    5000.       0.       0.    1102.       0.      25.      18.   1588.20
       .06      .00     4.54      .00     .000     .025     .000     .000  1583.30   699.40
   .002599      50.      50.      50.        3        0        0      .00   601.20  1300.60
0
1
     4/24/89        8:10: 0                                                                  PAGE 10


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *SECNO 4.700

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.70     3.11  1585.41      .00      .00  1585.52      .11      .04      .02  1587.20
     5000.       0.    5000.       0.       0.    1869.       0.      27.      18.   1587.20
       .07      .00     2.67      .00     .000     .025     .000     .000  1582.30   698.98
   .000447      50.      50.      50.        3        0        0      .00   602.03  1301.02
0
 1490 NH CARD USED
 *SECNO 5.000
      5.00     3.24  1585.44      .00      .00  1585.55      .10      .02      .00  1588.30
     5000.       0.    5000.       0.       0.    1950.       0.      29.      19.   1588.30
       .07      .00     2.56      .00     .000     .025     .000     .000  1582.20   698.94
   .000389     120.      50.       1.        2        0        0      .00   602.13  1301.06
0
 1490 NH CARD USED
 *SECNO 6.000
      6.00     3.28  1585.48      .00      .00  1585.58      .10      .03      .00  1588.40
     5000.       0.    5000.       0.       0.    1969.       0.      33.      20.   1588.40
       .08      .00     2.54      .00     .000     .025     .000     .000  1582.20   698.89
   .000376     430.      80.     250.        2        0        0      .00   602.22  1301.11
0
 1490 NH CARD USED
 *SECNO 7.000
      7.00     3.32  1585.52      .00      .00  1585.61      .10      .04      .00  1588.60
     5000.       0.    5000.       0.       0.    1993.       0.      37.      22.   1588.60
       .09      .00     2.51      .00     .000     .025     .000     .000  1582.20   698.91
   .000361     550.     100.     310.        2        0        0      .00   602.18  1301.09
```

0
1
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T1
T2 POWERLINE SPILLWAY
T3 10000 CFS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	5	0	0	.00603	0	1.5	0	1578.0	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	4	0	-1							

1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 4

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 1.000

1.00	2.16	1578.06	.00	1578.00	1578.98	.92	.00	.00	1579.90
10000.	0.	10000.	0.	0.	1296.	0.	0.	0.	1579.90
.00	.00	7.72	.00	.000	.025	.000	.000	1575.90	699.30
.006056	0.	0.	0.	0	0	4	.00	601.40	1300.70

0
1490 NH CARD USED
*SECNO 2.000

2.00	2.18	1580.38	.00	.00	1581.29	.91	2.30	.00	1582.50
10000.	0.	10000.	0.	0.	1305.	0.	11.	5.	1582.50
.01	.00	7.66	.00	.000	.025	.000	.000	1578.20	699.29
.005910	385.	385.	385.	1	0	0	.00	601.42	1300.71

0
1490 NH CARD USED
*SECNO 3.000

3.00	2.16	1583.36	.00	.00	1584.28	.92	2.99	.00	1585.90
10000.	0.	10000.	0.	0.	1296.	0.	26.	12.	1585.90
.03	.00	7.72	.00	.000	.025	.000	.000	1581.20	699.27
.006056	500.	500.	500.	2	0	0	.00	601.47	1300.73

0
1490 NH CARD USED
*SECNO 4.000

4.00	2.17	1585.47	.00	.00	1586.39	.92	2.10	.00	1588.20
10000.	0.	10000.	0.	0.	1302.	0.	37.	17.	1588.20
.04	.00	7.68	.00	.000	.025	.000	.000	1583.30	699.29
.005967	350.	350.	350.	1	0	0	.00	601.42	1300.71

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0
 1490 NH CARD USED
 *SECNO 4.500

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.50     2.74  1586.04      .00      .00  1586.61      .57      .19      .03  1588.20
    10000.       0.   10000.       0.       0.    1647.       0.      39.      18.  1588.20
       .05      .00     6.07      .00     .000     .025     .000     .000  1583.30   699.10
   .002724      50.      50.      50.        4        0        0      .00   601.79  1300.90
0
1
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    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


 *SECNO 4.700

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.70     4.16  1586.46      .00      .00  1586.71      .25      .06      .03  1587.20
    10000.       0.   10000.       0.       0.    2497.       0.      41.      18.  1587.20
       .05      .00     4.01      .00     .000     .025     .000     .000  1582.30   698.64
   .000683      50.      50.      50.        3        0        0      .00   602.71  1301.36
0
 1490 NH CARD USED
 *SECNO 5.000
      5.00     4.31  1586.51      .00      .00  1586.74      .23      .03      .00  1588.30
    10000.       0.   10000.       0.       0.    2593.       0.      44.      19.  1588.30
       .05      .00     3.86      .00     .000     .025     .000     .000  1582.20   698.59
   .000602     120.      50.       1.        2        0        0      .00   602.83  1301.41
0
 1490 NH CARD USED
 *SECNO 6.000
      6.00     4.36  1586.56      .00      .00  1586.79      .23      .05      .00  1588.40
    10000.       0.   10000.       0.       0.    2625.       0.      49.      20.  1588.40
       .06      .00     3.81      .00     .000     .025     .000     .000  1582.20   698.52
   .000578     430.      80.     250.        2        0        0      .00   602.96  1301.48
0
 1490 NH CARD USED
 *SECNO 7.000
      7.00     4.43  1586.63      .00      .00  1586.85      .22      .06      .00  1588.60
    10000.       0.   10000.       0.       0.    2663.       0.      55.      22.  1588.60
       .07      .00     3.76      .00     .000     .025     .000     .000  1582.20   698.55
   .000551     550.     100.     310.        2        0        0      .00   602.91  1301.45
0
1
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```
T1
T2     POWERLINE SPILLWAY
T3     15,000 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         6         0         0    .00603         0       1.5         0    1578.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      5         0        -1

1
    4/24/89       8:10: 0                                                                          PAGE 15

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 5

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.000
      1.00      2.75  1578.65       .00  1578.50  1579.93      1.28       .00       .00  1579.90
    15000.        0.   15000.        0.       0.    1652.       0.        0.        0.   1579.90
       .00       .00      9.08      .00      .000     .025     .000      .000  1575.90   699.11
   .006065        0.        0.        0.        0        0        4       .00    601.79  1300.89
0
 1490 NH CARD USED
 *SECNO 2.000
      2.00      2.78  1580.98       .00       .00  1582.23      1.26      2.30       .00  1582.50
    15000.        0.   15000.        0.       0.    1668.       0.       15.        5.   1582.50
       .01       .00      8.99      .00      .000     .025     .000      .000  1578.20   699.10
   .005883      385.      385.      385.        2        0        0       .00    601.81  1300.90
0
 1490 NH CARD USED
 *SECNO 3.000
      3.00      2.75  1583.95       .00       .00  1585.23      1.28      2.99       .01  1585.90
    15000.        0.   15000.        0.       0.    1650.       0.       34.       12.   1585.90
       .03       .00      9.09      .00      .000     .025     .000      .000  1581.20   699.07
   .006094      500.      500.      500.        1        0        0       .00    601.87  1300.93
0
 1490 NH CARD USED
 *SECNO 4.000
      4.00      2.77  1586.07       .00       .00  1587.33      1.26      2.10       .00  1588.20
    15000.        0.   15000.        0.       0.    1668.       0.       47.       17.   1588.20
       .04       .00      9.00      .00      .000     .025     .000      .000  1583.30   699.09
   .005884      350.      350.      350.        2        0        0       .00    601.81  1300.91
0
 1490 NH CARD USED
 *SECNO 4.500
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

4.50	3.46	1586.76	.00	.00	1587.57	.81	.20	.04	1588.20
15000.	0.	15000.	0.	0.	2079.	0.	49.	18.	1588.20
.04	.00	7.22	.00	.000	.025	.000	.000	1583.30	698.87
.002826	50.	50.	50.	4	0	0	.00	602.26	1301.13

0

1

4/24/89 8:10: 0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 4.700

3280 CROSS SECTION 4.70 EXTENDED .10 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

4.70	5.00	1587.30	.00	.00	1587.69	.39	.07	.04	1587.20
15000.	0.	15000.	0.	0.	3007.	0.	52.	18.	1587.20
.04	.00	4.99	.00	.000	.025	.000	.000	1582.30	698.40
.000827	50.	50.	50.	4	0	0	.00	603.20	1301.60

0

1490 NH CARD USED

*SECNO 5.000

5.00	5.17	1587.37	.00	.00	1587.73	.36	.04	.00	1588.30
15000.	0.	15000.	0.	0.	3108.	0.	56.	19.	1588.30
.05	.00	4.83	.00	.000	.025	.000	.000	1582.20	698.31
.000741	120.	50.	1.	2	0	0	.00	603.39	1301.69

0

1490 NH CARD USED

*SECNO 6.000

6.00	5.23	1587.43	.00	.00	1587.79	.35	.06	.00	1588.40
15000.	0.	15000.	0.	0.	3149.	0.	61.	20.	1588.40
.05	.00	4.76	.00	.000	.025	.000	.000	1582.20	698.23
.000709	430.	80.	250.	2	0	0	.00	603.55	1301.77

0

1490 NH CARD USED

*SECNO 7.000

7.00	5.31	1587.51	.00	.00	1587.86	.34	.07	.00	1588.60
15000.	0.	15000.	0.	0.	3198.	0.	69.	22.	1588.60
.06	.00	4.69	.00	.000	.025	.000	.000	1582.20	698.26
.000674	550.	100.	310.	2	0	0	.00	603.49	1301.74

0

1

4/24/89 8:10: 0

```
T1
T2     POWERLINE SPILLWAY
T3     20000 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        7         0         0    .00603         0       1.5         0    1579.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       6        0        -1

1
    4/24/89       8:10: 0                                                                          PAGE 18

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 6

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.000
      1.00      3.27  1579.17  1579.14  1579.00  1580.78      1.61       .00       .00  1579.90
    20000.        0.   20000.        0.       0.    1965.       0.        0.        0.   1579.90
       .00       .00     10.18       .00     .000     .025     .000      .000  1575.90   698.94
   .006054        0.        0.        0        0        8        0       .00    602.13  1301.06
0
 1490 NH CARD USED
 *SECNO 2.000
      2.00      3.30  1581.50  1581.44       .00  1583.08      1.58      2.30       .00  1582.50
    20000.        0.   20000.        0.       0.    1982.       0.       17.        5.   1582.50
       .01       .00     10.09       .00     .000     .025     .000      .000  1578.20   698.93
   .005884      385.      385.      385.        4        5        0       .00    602.15  1301.07
0
 1490 NH CARD USED
 *SECNO 3.000
      3.00      3.26  1584.46  1584.43       .00  1586.07      1.61      2.99       .01  1585.90
    20000.        0.   20000.        0.       0.    1965.       0.       40.       12.   1585.90
       .02       .00     10.18       .00     .000     .025     .000      .000  1581.20   698.89
   .006060      500.      500.      500.        2        5        0       .00    602.23  1301.11
0
 1490 NH CARD USED
 *SECNO 4.000
      4.00      3.28  1586.58  1586.54       .00  1588.19      1.60      2.11       .00  1588.20
    20000.        0.   20000.        0.       0.    1968.       0.       56.       17.   1588.20
       .03       .00     10.16       .00     .000     .025     .000      .000  1583.30   698.93
   .006022      350.      350.      350.        2        5        0       .00    602.14  1301.07
0
 1490 NH CARD USED
 *SECNO 4.500

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE
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     4.50      4.14  1587.44       .00       .00  1588.44      1.00       .20       .06  1588.20
    20000.       0.   20000.        0.        0.    2493.        0.       58.       18.   1588.20
      .04       .00     8.02       .00      .000     .025      .000      .000  1583.30   698.65
   .002744      50.      50.       50.         5        0         0       .00   602.71  1301.35
0
1
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *SECNO 4.700
 3280 CROSS SECTION      4.70 EXTENDED       .85 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

     4.70      5.75  1588.05       .00       .00  1588.57       .52       .07       .05  1587.20
    20000.       0.   20000.        0.        0.    3458.        0.       62.       18.   1587.20
      .04       .00     5.78       .00      .000     .025      .000      .000  1582.30   698.40
   .000925      50.      50.       50.         4        0         0       .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 5.000
     5.00      5.92  1588.12       .00       .00  1588.61       .49       .04       .00  1588.30
    20000.       0.   20000.        0.        0.    3566.        0.       66.       19.   1588.30
      .04       .00     5.61       .00      .000     .025      .000      .000  1582.20   698.06
   .000834     120.      50.        1.         2        0         0       .00   603.88  1301.94
0
 1490 NH CARD USED
 *SECNO 6.000
     6.00      6.00  1588.20       .00       .00  1588.68       .48       .07       .00  1588.40
    20000.       0.   20000.        0.        0.    3614.        0.       72.       20.   1588.40
      .04       .00     5.53       .00      .000     .025      .000      .000  1582.20   697.97
   .000798     430.      80.      250.         2        0         0       .00   604.07  1302.03
0
 1490 NH CARD USED
 *SECNO 7.000
     7.00      6.10  1588.30       .00       .00  1588.76       .46       .08       .00  1588.60
    20000.       0.   20000.        0.        0.    3670.        0.       81.       22.   1588.60
      .05       .00     5.45       .00      .000     .025      .000      .000  1582.20   698.00
   .000758     550.     100.      310.         2        0         0       .00   604.00  1302.00
0
1
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T1
T2     POWERLINE SPILLWAY
T3     25,000 CFS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         8         0         0    .00603         0       1.5         0    1579.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      7         0        -1
1
    4/24/89       8:10: 0                                                                                PAGE 21


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

*PROF 7

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.00     3.76  1579.66  1579.66  1579.50  1581.56     1.90      .00      .00  1579.90
   25000.       0.   25000.       0.       0.    2262.       0.       0.       0.   1579.90
      .00      .00    11.05      .00     .000     .025     .000     .000  1575.90   698.78
  .005925       0.       0.       0.        0        8        0      .00   602.45  1301.22
0
1490 NH CARD USED
*SECNO 2.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.00     3.76  1581.96  1581.96      .00  1583.86     1.89     2.28      .00  1582.50
   25000.       0.   25000.       0.       0.    2263.       0.      20.       5.   1582.50
      .01      .00    11.05      .00     .000     .025     .000     .000  1578.20   698.77
  .005914     385.     385.     385.        1        5        0      .00   602.45  1301.23
0
1490 NH CARD USED
*SECNO 3.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.00     3.76  1584.96  1584.96      .00  1586.86     1.89     2.96      .00  1585.90
   25000.       0.   25000.       0.       0.    2264.       0.      46.      12.   1585.90
      .02      .00    11.04      .00     .000     .025     .000     .000  1581.20   698.72
  .005911     500.     500.     500.        1        5        0      .00   602.56  1301.28
0
1490 NH CARD USED
*SECNO 4.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     4.00     3.77  1587.07  1587.07      .00  1588.96     1.89     2.07      .00  1588.20
   25000.       0.   25000.       0.       0.    2264.       0.      64.      17.   1588.20
      .03      .00    11.04      .00     .000     .025     .000     .000  1583.30   698.77
  .005909     350.     350.     350.        2        5        0      .00   602.46  1301.23
```

0

1

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED

*SECNO 4.500

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

4.50	4.72	1588.02	.00	.00	1589.22	1.20	.20	.07	1588.20
25000.	0.	25000.	0.	0.	2843.	0.	67.	18.	1588.20
.03	.00	8.79	.00	.000	.025	.000	.000	1583.30	698.46
.002768	50.	50.	50.	5	0	0	.00	603.09	1301.54

0

*SECNO 4.700

3280 CROSS SECTION 4.70 EXTENDED 1.50 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

4.70	6.40	1588.70	.00	.00	1589.36	.65	.08	.05	1587.20
25000.	0.	25000.	0.	0.	3854.	0.	71.	18.	1587.20
.03	.00	6.49	.00	.000	.025	.000	.000	1582.30	698.40
.001007	50.	50.	50.	4	0	0	.00	603.20	1301.60

0

1490 NH CARD USED

*SECNO 5.000

3280 CROSS SECTION 5.00 EXTENDED .49 FEET

5.00	6.59	1588.79	.00	.00	1589.41	.62	.05	.00	1588.30
25000.	0.	25000.	0.	0.	3970.	0.	75.	19.	1588.30
.04	.00	6.30	.00	.000	.025	.000	.000	1582.20	698.00
.000913	120.	50.	1.	2	0	0	.00	604.00	1302.00

0

1490 NH CARD USED

*SECNO 6.000

3280 CROSS SECTION 6.00 EXTENDED .48 FEET

6.00	6.68	1588.88	.00	.00	1589.48	.60	.07	.00	1588.40
25000.	0.	25000.	0.	0.	4024.	0.	83.	20.	1588.40
.04	.00	6.21	.00	.000	.025	.000	.000	1582.20	697.90
.000873	430.	80.	250.	2	0	0	.00	604.20	1302.10

0

1

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
 1490 NH CARD USED
 *SECNO 7.000
 3280 CROSS SECTION      7.00 EXTENDED       .39 FEET

      7.00     6.79  1588.99      .00      .00  1589.57      .58      .09      .00  1588.60
    25000.       0.   25000.       0.       0.    4088.       0.      92.      22.   1588.60
       .05      .00     6.12      .00     .000     .025     .000     .000  1582.20   697.90
   .000829     550.     100.     310.        2        0        0      .00   604.20  1302.10
0
1
     4/24/89       8:10: 0                                                                    PAGE 24


 T1
 T2     POWERLINE SPILLWAY
 T3     30,000 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0        9         0         0    .00603         0       1.5         0    1580.0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       8        0        -1

1
     4/24/89       8:10: 0                                                                    PAGE 25


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


 *PROF 8

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED       .25 FEET

 3720 CRITICAL DEPTH ASSUMED
      1.00     4.25  1580.15  1580.15  1580.00  1582.29     2.14      .00      .00  1579.90
    30000.       0.   30000.       0.       0.    2553.       0.       0.       0.   1579.90
       .00      .00    11.75      .00     .000     .025     .000     .000  1575.90   698.70
   .005702       0.       0.       0.        0        8        0      .00   602.60  1301.30
0
 1490 NH CARD USED
 *SECNO 2.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.00     4.25  1582.45  1582.45      .00  1584.59     2.14     2.19      .00  1582.50
    30000.       0.   30000.       0.       0.    2558.       0.      23.       5.   1582.50
       .01      .00    11.73      .00     .000     .025     .000     .000  1578.20   698.62
   .005669     385.     385.     385.        2        5        0      .00   602.77  1301.38
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0
 1490 NH CARD USED
 *SECNO 3.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      3.00     4.25  1585.45  1585.45      .00  1587.59     2.14     2.84      .00  1585.90
    30000.       0.   30000.       0.       0.    2555.       0.      52.      12.   1585.90
       .02      .00    11.74      .00     .000     .025     .000     .000  1581.20   698.55
   .005686     500.     500.     500.        2        5        0      .00   602.89  1301.45
0
 1490 NH CARD USED
 *SECNO 4.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      4.00     4.25  1587.55  1587.55      .00  1589.69     2.14     1.99      .00  1588.20
    30000.       0.   30000.       0.       0.    2556.       0.      72.      17.   1588.20
       .03      .00    11.74      .00     .000     .025     .000     .000  1583.30   698.61
   .005680     350.     350.     350.        2        5        0      .00   602.78  1301.39
0
1
     4/24/89        8:10: 0                                                                  PAGE 26


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 1490 NH CARD USED
 *SECNO 4.500
 3280 CROSS SECTION       4.50 EXTENDED        .37 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.50     5.27  1588.57       .00       .00  1589.96     1.39      .19      .08  1588.20
    30000.       0.   30000.       0.       0.    3174.       0.      76.      18.   1588.20
       .03      .00     9.45      .00     .000     .025     .000     .000  1583.30   698.40
   .002767      50.      50.      50.        5        0        0      .00   603.20  1301.60
0
 *SECNO 4.700
 3280 CROSS SECTION       4.70 EXTENDED       2.11 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.70     7.01  1589.31       .00       .00  1590.10      .78      .08      .06  1587.20
    30000.       0.   30000.       0.       0.    4223.       0.      80.      18.   1587.20
       .03      .00     7.10      .00     .000     .025     .000     .000  1582.30   698.40
   .001070      50.      50.      50.        4        0        0      .00   603.20  1301.60
```

```
0
 1490 NH CARD USED
 *SECNO 5.000
 3280 CROSS SECTION      5.00 EXTENDED      1.11 FEET

      5.00     7.21  1589.41      .00      .00  1590.15      .74      .05      .00  1588.30
    30000.       0.   30000.       0.       0.    4345.       0.      85.      19.   1588.30
       .03      .00     6.90      .00     .000     .025     .000     .000  1582.20   698.00
   .000974     120.      50.       1.        2        0        0      .00   604.00  1302.00
0
 1490 NH CARD USED
 *SECNO 6.000
 3280 CROSS SECTION      6.00 EXTENDED      1.11 FEET

      6.00     7.31  1589.51      .00      .00  1590.23      .72      .08      .00  1588.40
    30000.       0.   30000.       0.       0.    4405.       0.      93.      20.   1588.40
       .04      .00     6.81      .00     .000     .025     .000     .000  1582.20   697.90
   .000931     430.      80.     250.        2        0        0      .00   604.20  1302.10
0
1
     4/24/89       8:10: 0                                                                    PAGE 27


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


 1490 NH CARD USED
 *SECNO 7.000
 3280 CROSS SECTION      7.00 EXTENDED      1.03 FEET

      7.00     7.43  1589.63      .00      .00  1590.32      .70      .09      .00  1588.60
    30000.       0.   30000.       0.       0.    4474.       0.     103.      22.   1588.60
       .04      .00     6.71      .00     .000     .025     .000     .000  1582.20   697.90
   .000884     550.     100.     310.        2        0        0      .00   604.20  1302.10
0
1
     4/24/89       8:10: 0                                                                    PAGE 28


 T1
 T2     POWERLINE SPILLWAY
 T3     35,000 CFS

 J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

        0       10        0        0   .00603        0      1.5        0    1580.5

 J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      15        0       -1
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 9

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED       .71 FEET

 3720 CRITICAL DEPTH ASSUMED
      1.00      4.71  1580.61  1580.61  1580.50  1582.98      2.37       .00       .00  1579.90
    35000.        0.   35000.       0.       0.    2832.        0.        0.        0.  1579.90
       .00       .00     12.36     .00     .000     .025      .000      .000  1575.90   698.70
   .005503        0.        0.       0.        0        7         0       .00    602.60  1301.30
0
 1490 NH CARD USED
 *SECNO 2.000
 3280 CROSS SECTION      2.00 EXTENDED       .41 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.00      4.71  1582.91  1582.91      .00  1585.28      2.37      2.12       .00  1582.50
    35000.        0.   35000.       0.       0.    2833.        0.       25.        5.  1582.50
       .01       .00     12.35     .00     .000     .025      .000      .000  1578.20   698.60
   .005493      385.      385.     385.        2        5         0       .00    602.80  1301.40
0
 1490 NH CARD USED
 *SECNO 3.000
 3280 CROSS SECTION      3.00 EXTENDED       .01 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      3.00      4.71  1585.91  1585.91      .00  1588.28      2.37      2.75       .00  1585.90
    35000.        0.   35000.       0.       0.    2833.        0.       58.       12.  1585.90
       .02       .00     12.35     .00     .000     .025      .000      .000  1581.20   698.40
   .005490      500.      500.     500.        2        5         0       .00    603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 4.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      4.00      4.71  1588.01  1588.01      .00  1590.38      2.37      1.92       .00  1588.20
    35000.        0.   35000.       0.       0.    2833.        0.       80.       17.  1588.20
       .03       .00     12.35     .00     .000     .025      .000      .000  1583.30   698.46
   .005488      350.      350.     350.        2        5         0       .00    603.08  1301.54
0
1
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


1490 NH CARD USED
*SECNO 4.500
3280 CROSS SECTION      4.50 EXTENDED       .89 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

     4.50      5.78  1589.08       .00       .00  1590.65      1.57       .19       .08  1588.20
   35000.        0.   35000.        0.        0.    3486.        0.       84.       18.  1588.20
      .03       .00     10.04       .00      .000      .025      .000      .000  1583.30   698.40
  .002756       50.       50.       50.         5         0         0       .00   603.20  1301.60
0
*SECNO 4.700
3280 CROSS SECTION      4.70 EXTENDED      2.69 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

     4.70      7.59  1589.89       .00       .00  1590.80       .91       .08       .07  1587.20
   35000.        0.   35000.        0.        0.    4568.        0.       89.       18.  1587.20
      .03       .00      7.66       .00      .000      .025      .000      .000  1582.30   698.40
  .001122       50.       50.       50.         4         0         0       .00   603.20  1301.60
0
1490 NH CARD USED
*SECNO 5.000
3280 CROSS SECTION      5.00 EXTENDED      1.70 FEET

     5.00      7.79  1589.99       .00       .00  1590.86       .86       .05       .00  1588.30
   35000.        0.   35000.        0.        0.    4696.        0.       94.       19.  1588.30
      .03       .00      7.45       .00      .000      .025      .000      .000  1582.20   698.00
  .001024      120.       50.        1.         2         0         0       .00   604.00  1302.00
0
1490 NH CARD USED
*SECNO 6.000
3280 CROSS SECTION      6.00 EXTENDED      1.70 FEET

     6.00      7.90  1590.10       .00       .00  1590.94       .84       .08       .00  1588.40
   35000.        0.   35000.        0.        0.    4760.        0.      103.       20.  1588.40
      .04       .00      7.35       .00      .000      .025      .000      .000  1582.20   697.90
  .000979      430.       80.      250.         2         0         0       .00   604.20  1302.10
0
1
    4/24/89       8:10: 0                                                                    PAGE 31


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
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1490 NH CARD USED
*SECNO 7.000
3280 CROSS SECTION 7.00 EXTENDED 1.62 FEET

7.00	8.02	1590.22	.00	.00	1591.04	.81	.10	.00	1588.60
35000.	0.	35000.	0.	0.	4834.	0.	114.	22.	1588.60
.04	.00	7.24	.00	.000	.025	.000	.000	1582.20	697.90
.000930	550.	100.	310.	2	0	0	.00	604.20	1302.10

0
1

THIS RUN EXECUTED 4/24/89 8:10:27

****
HEC2 RELEASE DATED SEPT 88

****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

POWERLINE SPILLWAY

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01
	1.000	.00	.00	.00	1575.90	500.00	1576.26	.00	1576.34	59.56	2.32	215.67	64.
	1.000	.00	.00	.00	1575.90	1000.00	1576.45	.00	1576.59	59.43	3.06	327.12	129.
	1.000	.00	.00	.00	1575.90	5000.00	1577.33	.00	1577.86	60.00	5.83	857.08	645.
	1.000	.00	.00	.00	1575.90	10000.00	1578.06	.00	1578.98	60.56	7.72	1295.85	1284.
	1.000	.00	.00	.00	1575.90	15000.00	1578.65	.00	1579.93	60.65	9.08	1652.46	1926.
	1.000	.00	.00	.00	1575.90	20000.00	1579.17	1579.14	1580.78	60.54	10.18	1965.27	2570.
*	1.000	.00	.00	.00	1575.90	25000.00	1579.66	1579.66	1581.56	59.25	11.05	2261.92	3247.
*	1.000	.00	.00	.00	1575.90	30000.00	1580.15	1580.15	1582.29	57.02	11.75	2553.13	3973.
*	1.000	.00	.00	.00	1575.90	35000.00	1580.61	1580.61	1582.98	55.03	12.36	2831.70	4718.
	2.000	385.00	.00	.00	1578.20	500.00	1578.55	.00	1578.64	59.56	2.32	215.67	64.
	2.000	385.00	.00	.00	1578.20	1000.00	1578.74	.00	1578.89	59.97	3.07	326.24	129.
	2.000	385.00	.00	.00	1578.20	5000.00	1579.63	.00	1580.15	59.30	5.81	860.09	649.
	2.000	385.00	.00	.00	1578.20	10000.00	1580.38	.00	1581.29	59.10	7.66	1305.40	1300.
	2.000	385.00	.00	.00	1578.20	15000.00	1580.98	.00	1582.23	58.83	8.99	1667.67	1955.
	2.000	385.00	.00	.00	1578.20	20000.00	1581.50	1581.44	1583.08	58.84	10.09	1982.18	2607.
*	2.000	385.00	.00	.00	1578.20	25000.00	1581.96	1581.96	1583.86	59.14	11.05	2263.11	3250.
*	2.000	385.00	.00	.00	1578.20	30000.00	1582.45	1582.45	1584.59	56.69	11.73	2557.57	
3984.48													
*	2.000	385.00	.00	.00	1578.20	35000.00	1582.91	1582.91	1585.28	54.93	12.35	2833.29	4722.

	3.000	500.00	.00	.00	1581.20	500.00	1581.55	.00	1581.64	60.45	2.33	214.72	64.
	3.000	500.00	.00	.00	1581.20	1000.00	1581.75	.00	1581.89	60.15	3.07	325.95	128.
	3.000	500.00	.00	.00	1581.20	5000.00	1582.62	.00	1583.15	60.70	5.85	854.11	641.
	3.000	500.00	.00	.00	1581.20	10000.00	1583.36	.00	1584.28	60.56	7.72	1295.92	1285.
	3.000	500.00	.00	.00	1581.20	15000.00	1583.95	.00	1585.23	60.94	9.09	1650.15	1921.
	3.000	500.00	.00	.00	1581.20	20000.00	1584.46	1584.43	1586.07	60.60	10.18	1964.84	2569.
*	3.000	500.00	.00	.00	1581.20	25000.00	1584.96	1584.96	1586.86	59.11	11.04	2263.61	3251.
*	3.000	500.00	.00	.00	1581.20	30000.00	1585.45	1585.45	1587.59	56.86	11.74	2555.49	3978.
*	3.000	500.00	.00	.00	1581.20	35000.00	1585.91	1585.91	1588.28	54.90	12.35	2833.38	4723.

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01
	4.000	350.00	.00	.00	1583.30	500.00	1583.65	.00	1583.74	59.63	2.32	215.59	64.
	4.000	350.00	.00	.00	1583.30	1000.00	1583.84	.00	1583.99	59.70	3.06	326.68	129.
	4.000	350.00	.00	.00	1583.30	5000.00	1584.73	.00	1585.25	59.00	5.80	861.41	650.
	4.000	350.00	.00	.00	1583.30	10000.00	1585.47	.00	1586.39	59.67	7.68	1301.66	1294.
	4.000	350.00	.00	.00	1583.30	15000.00	1586.07	.00	1587.33	58.84	9.00	1667.53	1955.
	4.000	350.00	.00	.00	1583.30	20000.00	1586.58	1586.54	1588.19	60.22	10.16	1968.44	2577.
*	4.000	350.00	.00	.00	1583.30	25000.00	1587.07	1587.07	1588.96	59.09	11.04	2263.71	3252.
*	4.000	350.00	.00	.00	1583.30	30000.00	1587.55	1587.55	1589.69	56.80	11.74	2556.12	3980.
*	4.000	350.00	.00	.00	1583.30	35000.00	1588.01	1588.01	1590.38	54.88	12.35	2833.37	4724.
*	4.500	50.00	.00	.00	1583.30	500.00	1583.84	.00	1583.88	15.79	1.56	321.19	125.
*	4.500	50.00	.00	.00	1583.30	1000.00	1584.08	.00	1584.15	18.59	2.16	463.67	231.
*	4.500	50.00	.00	.00	1583.30	5000.00	1585.14	.00	1585.46	25.99	4.54	1101.78	980.
*	4.500	50.00	.00	.00	1583.30	10000.00	1586.04	.00	1586.61	27.24	6.07	1647.25	1915.
*	4.500	50.00	.00	.00	1583.30	15000.00	1586.76	.00	1587.57	28.26	7.22	2078.64	2821.
*	4.500	50.00	.00	.00	1583.30	20000.00	1587.44	.00	1588.44	27.44	8.02	2492.70	3817.
*	4.500	50.00	.00	.00	1583.30	25000.00	1588.02	.00	1589.22	27.68	8.79	2843.23	4751.
*	4.500	50.00	.00	.00	1583.30	30000.00	1588.57	.00	1589.96	27.67	9.45	3173.91	5703.
*	4.500	50.00	.00	.00	1583.30	35000.00	1589.08	.00	1590.65	27.56	10.04	3486.26	6666.
*	4.700	50.00	.00	.00	1582.30	500.00	1583.89	.00	1583.89	.43	.53	947.61	763.
*	4.700	50.00	.00	.00	1582.30	1000.00	1584.16	.00	1584.17	1.00	.90	1114.63	999.
*	4.700	50.00	.00	.00	1582.30	5000.00	1585.41	.00	1585.52	4.47	2.67	1869.44	2365.
*	4.700	50.00	.00	.00	1582.30	10000.00	1586.46	.00	1586.71	6.83	4.01	2496.52	3827.
*	4.700	50.00	.00	.00	1582.30	15000.00	1587.30	.00	1587.69	8.27	4.99	3007.42	5216.
*	4.700	50.00	.00	.00	1582.30	20000.00	1588.05	.00	1588.57	9.25	5.78	3457.76	6576.
*	4.700	50.00	.00	.00	1582.30	25000.00	1588.70	.00	1589.36	10.07	6.49	3854.42	
7878.65													
*	4.700	50.00	.00	.00	1582.30	30000.00	1589.31	.00	1590.10	10.70	7.10	4222.95	9171.
*	4.700	50.00	.00	.00	1582.30	35000.00	1589.89	.00	1590.80	11.22	7.66	4567.70	10450.
	5.000	50.00	.00	.00	1582.20	500.00	1583.89	.00	1583.89	.34	.49	1013.58	853.
	5.000	50.00	.00	.00	1582.20	1000.00	1584.16	.00	1584.17	.83	.85	1178.85	1097.
	5.000	50.00	.00	.00	1582.20	5000.00	1585.44	.00	1585.55	3.89	2.56	1949.64	2536.
	5.000	50.00	.00	.00	1582.20	10000.00	1586.51	.00	1586.74	6.02	3.86	2592.86	4076.
	5.000	50.00	.00	.00	1582.20	15000.00	1587.37	.00	1587.73	7.41	4.83	3108.43	5511.
	5.000	50.00	.00	.00	1582.20	20000.00	1588.12	.00	1588.61	8.34	5.61	3566.24	6925.
	5.000	50.00	.00	.00	1582.20	25000.00	1588.79	.00	1589.41	9.13	6.30	3970.42	8274.
	5.000	50.00	.00	.00	1582.20	30000.00	1589.41	.00	1590.15	9.74	6.90	4345.42	9613.

5.000	50.00	.00	.00	1582.20	35000.00	1589.99	.00	1590.86	10.24	7.45	4696.08	10937.
6.000	80.00	.00	.00	1582.20	500.00	1583.89	.00	1583.89	.34	.49	1013.54	853.
6.000	80.00	.00	.00	1582.20	1000.00	1584.17	.00	1584.18	.83	.85	1178.82	1097.
6.000	80.00	.00	.00	1582.20	5000.00	1585.48	.00	1585.58	3.76	2.54	1969.16	2578.
6.000	80.00	.00	.00	1582.20	10000.00	1586.56	.00	1586.79	5.78	3.81	2624.79	4159.
6.000	80.00	.00	.00	1582.20	15000.00	1587.43	.00	1587.79	7.09	4.76	3149.39	5632.
6.000	80.00	.00	.00	1582.20	20000.00	1588.20	.00	1588.68	7.98	5.53	3614.26	7080.
6.000	80.00	.00	.00	1582.20	25000.00	1588.88	.00	1589.48	8.73	6.21	4024.32	8460.
6.000	80.00	.00	.00	1582.20	30000.00	1589.51	.00	1590.23	9.31	6.81	4404.68	9830.
6.000	80.00	.00	.00	1582.20	35000.00	1590.10	.00	1590.94	9.79	7.35	4760.03	11183.

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01
7.000	100.00	.00	.00	1582.20	500.00	1583.89	.00	1583.90	.34	.49	1015.12	855.
7.000	100.00	.00	.00	1582.20	1000.00	1584.18	.00	1584.19	.82	.85	1182.74	1103.
7.000	100.00	.00	.00	1582.20	5000.00	1585.52	.00	1585.61	3.61	2.51	1992.86	2630.
7.000	100.00	.00	.00	1582.20	10000.00	1586.63	.00	1586.85	5.51	3.76	2662.93	4260.
7.000	100.00	.00	.00	1582.20	15000.00	1587.51	.00	1587.86	6.74	4.69	3197.94	5777.
7.000	100.00	.00	.00	1582.20	20000.00	1588.30	.00	1588.76	7.58	5.45	3670.43	7265.
7.000	100.00	.00	.00	1582.20	25000.00	1588.99	.00	1589.57	8.29	6.12	4087.55	8683.
7.000	100.00	.00	.00	1582.20	30000.00	1589.63	.00	1590.32	8.84	6.71	4473.51	10087.
7.000	100.00	.00	.00	1582.20	35000.00	1590.22	.00	1591.04	9.30	7.24	4834.03	11474.

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POWERLINE SPILLWAY

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	500.00	1576.26	.00	.00	-.24	600.23	.00
	1.000	1000.00	1576.45	.19	.00	-.05	600.35	.00
	1.000	5000.00	1577.33	.88	.00	-.17	600.93	.00
	1.000	10000.00	1578.06	.73	.00	.06	601.40	.00
	1.000	15000.00	1578.65	.59	.00	.15	601.79	.00
	1.000	20000.00	1579.17	.52	.00	.17	602.13	.00
*	1.000	25000.00	1579.66	.49	.00	.16	602.45	.00
*	1.000	30000.00	1580.15	.48	.00	.15	602.60	.00
*	1.000	35000.00	1580.61	.46	.00	.11	602.60	.00
	2.000	500.00	1578.55	.00	2.29	.00	600.23	385.00
	2.000	1000.00	1578.74	.19	2.30	.00	600.35	385.00
	2.000	5000.00	1579.63	.88	2.30	.00	600.93	385.00
	2.000	10000.00	1580.38	.75	2.32	.00	601.42	385.00
	2.000	15000.00	1580.98	.60	2.33	.00	601.81	385.00
	2.000	20000.00	1581.50	.52	2.33	.00	602.15	385.00
*	2.000	25000.00	1581.96	.47	2.30	.00	602.45	385.00

*	2.000	30000.00	1582.45	.49	2.31	.00	602.77	385.00
*	2.000	35000.00	1582.91	.46	2.30	.00	602.80	385.00
	3.000	500.00	1581.55	.00	3.00	.00	600.24	500.00
	3.000	1000.00	1581.75	.19	3.00	.00	600.37	500.00
	3.000	5000.00	1582.62	.88	2.99	.00	600.97	500.00
	3.000	10000.00	1583.36	.73	2.98	.00	601.47	500.00
	3.000	15000.00	1583.95	.59	2.97	.00	601.87	500.00
	3.000	20000.00	1584.46	.51	2.97	.00	602.23	500.00
*	3.000	25000.00	1584.96	.50	3.00	.00	602.56	500.00
*	3.000	30000.00	1585.45	.48	3.00	.00	602.89	500.00
*	3.000	35000.00	1585.91	.46	3.00	.00	603.20	500.00
	4.000	500.00	1583.65	.00	2.10	.00	600.23	350.00
	4.000	1000.00	1583.84	.19	2.10	.00	600.36	350.00
	4.000	5000.00	1584.73	.88	2.10	.00	600.94	350.00
	4.000	10000.00	1585.47	.74	2.11	.00	601.42	350.00
	4.000	15000.00	1586.07	.61	2.13	.00	601.81	350.00
	4.000	20000.00	1586.58	.51	2.12	.00	602.14	350.00
*	4.000	25000.00	1587.07	.48	2.10	.00	602.46	350.00
*	4.000	30000.00	1587.55	.49	2.10	.00	602.78	350.00
*	4.000	35000.00	1588.01	.46	2.10	.00	603.08	350.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	4.500	500.00	1583.84	.00	.19	.00	600.35	50.00
*	4.500	1000.00	1584.08	.24	.23	.00	600.50	50.00
*	4.500	5000.00	1585.14	1.06	.41	.00	601.20	50.00
*	4.500	10000.00	1586.04	.90	.57	.00	601.79	50.00
*	4.500	15000.00	1586.76	.72	.69	.00	602.26	50.00
*	4.500	20000.00	1587.44	.68	.86	.00	602.71	50.00
*	4.500	25000.00	1588.02	.58	.96	.00	603.09	50.00
*	4.500	30000.00	1588.57	.55	1.02	.00	603.20	50.00
*	4.500	35000.00	1589.08	.51	1.07	.00	603.20	50.00
*	4.700	500.00	1583.89	.00	.04	.00	601.03	50.00
*	4.700	1000.00	1584.16	.27	.08	.00	601.21	50.00
*	4.700	5000.00	1585.41	1.26	.27	.00	602.03	50.00
*	4.700	10000.00	1586.46	1.05	.42	.00	602.71	50.00
*	4.700	15000.00	1587.30	.84	.53	.00	603.20	50.00
*	4.700	20000.00	1588.05	.75	.60	.00	603.20	50.00
*	4.700	25000.00	1588.70	.66	.68	.00	603.20	50.00
*	4.700	30000.00	1589.31	.61	.75	.00	603.20	50.00
*	4.700	35000.00	1589.89	.57	.80	.00	603.20	50.00
	5.000	500.00	1583.89	.00	.00	.00	601.11	50.00
	5.000	1000.00	1584.16	.27	.01	.00	601.29	50.00
	5.000	5000.00	1585.44	1.28	.03	.00	602.13	50.00
	5.000	10000.00	1586.51	1.07	.05	.00	602.83	50.00
	5.000	15000.00	1587.37	.85	.07	.00	603.39	50.00
	5.000	20000.00	1588.12	.76	.08	.00	603.88	50.00
	5.000	25000.00	1588.79	.67	.09	.00	604.00	50.00
	5.000	30000.00	1589.41	.62	.10	.00	604.00	50.00

5.000	35000.00	1589.99	.58	.11	.00	604.00	50.00
6.000	500.00	1583.89	.00	.00	.00	601.14	80.00
6.000	1000.00	1584.17	.28	.01	.00	601.33	80.00
6.000	5000.00	1585.48	1.31	.03	.00	602.22	80.00
6.000	10000.00	1586.56	1.09	.05	.00	602.96	80.00
6.000	15000.00	1587.43	.87	.07	.00	603.55	80.00
6.000	20000.00	1588.20	.77	.08	.00	604.07	80.00
6.000	25000.00	1588.88	.68	.09	.00	604.20	80.00
6.000	30000.00	1589.51	.63	.10	.00	604.20	80.00
6.000	35000.00	1590.10	.59	.11	.00	604.20	80.00
7.000	500.00	1583.89	.00	.00	.00	601.11	100.00
7.000	1000.00	1584.18	.28	.01	.00	601.29	100.00
7.000	5000.00	1585.52	1.34	.04	.00	602.18	100.00
7.000	10000.00	1586.63	1.11	.06	.00	602.91	100.00
7.000	15000.00	1587.51	.89	.08	.00	603.49	100.00
7.000	20000.00	1588.30	.78	.09	.00	604.00	100.00
7.000	25000.00	1588.99	.69	.11	.00	604.20	100.00
7.000	30000.00	1589.63	.64	.11	.00	604.20	100.00
7.000	35000.00	1590.22	.60	.12	.00	604.20	100.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      2.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  7  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  8  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  9  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      3.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  7  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  8  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  9  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      4.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      4.000  PROFILE=  7  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      4.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      4.000  PROFILE=  8  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      4.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      4.000  PROFILE=  9  MINIMUM SPECIFIC ENERGY
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WARNING SECNO=      4.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.500  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.500  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.500  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.500  PROFILE=  6  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.500  PROFILE=  7  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.500  PROFILE=  8  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.500  PROFILE=  9  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      4.700  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  6  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  7  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  8  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  9  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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VIII. Powerline F.R.S. Analysis
Emergency Spillway Rating Curve
HEC-2 Compter Input for 35,000 cfs to 80,000 cfs

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T1   POWERLINE F.R.S. SPILLWAY ANALYSIS
T2   BY MARICOPA COUNTY FCD  VALERIE RICE  JULY 11, 1988
T3       POWERLINE SPILLWAY
J1     0       2       0       0  .00603       0     1.5       0  1576.5
J2     1       0      -1
J3   150
J6                     -1
QT     6   35000   40000   50000   60000   70000   80000
NC     0       0       0      .1      .3
NH     3    .022     700    .025    1300    .022  1301.3
X1     1       4   698.7  1301.3
GR1579.9   698.7  1575.9     700  1575.9    1300  1579.9  1301.3
NH     3    .022     700    .025    1300    .022  1301.4
X1     2       4   698.6  1301.4     385     385     385
GR1582.5   698.6  1578.2     700  1578.2    1300  1582.5  1301.4
NH     3    .022     700    .025    1300    .022  1301.6
X1     3       4   698.4  1301.6     500     500     500
GR1585.9   698.4  1581.2     700  1581.2    1300  1585.9  1301.6
NH     3    .022     700    .025    1300    .022  1301.6
X1     4       4   698.4  1301.6     350     350     350
GR1588.2   698.4  1583.3     700  1583.3    1300  1588.2  1301.6
NH     3    .022     700    .025    1300    .022  1301.6
X1   4.5       0       0       0      50      50      50       0       0
X1   4.7       0       0       0      50      50      50       0    -1.0
NH     3    .022     700    .025    1300    .022    1302
X1     5       4     698    1302     120       1      50
GR1588.3     698  1582.2     700  1582.2    1300  1588.3    1302
NH     3    .022     700    .025    1300    .022  1302.1
X1     6       4   697.9  1302.1     430     250      80
GR1588.4   697.9  1582.2     700  1582.2    1300  1588.4  1302.1
NH     3    .025     700    .025    1300    .022  1302.1
X1     7       4   697.9  1302.1     550     310     100
GR1588.6   697.9  1582.2     700  1582.2    1300  1588.6  1302.1
EJ
T1
T2     POWERLINE SPILLWAY
T3      40,000 CFS
J1     0       3       0       0  .00603       0     1.5       0  1576.5
J2     2       0      -1
T1
T2     POWERLINE SPILLWAY
T3      50,000 CFS
J1     0       4       0       0  .00603       0     1.5       0  1577.5
J2     3       0      -1
T1
T2     POWERLINE SPILLWAY
T3      60,000 CFS
J1     0       5       0       0  .00603       0     1.5       0  1578.0
J2     4       0      -1
T1
T2     POWERLINE SPILLWAY
T3      70,000 CFS
J1     0       6       0       0  .00603       0     1.5       0  1578.5
J2     5       0      -1
```

```
T1
T2     POWERLINE SPILLWAY
T3      80,000 CFS
J1     0       7       0       0  .00603       0     1.5       0  1579.0
J2    15       0      -1


ER
```

IX. Powerline F.R.S. Analysis
Emergency Spillway Rating Curve
HEC-2 Compter Output for 35,000 cfs to 80,000 cfs

```
1*****************************************************
 *  WATER SURFACE PROFILES                           *
 *  VERSION OF SEPTEMBER 1988                        *
 *                                                   *
 *                                                   *
 *  RUN DATE     4/27/89   TIME    7:29:13           *
 *****************************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616          *
*  (916) 756-1104                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX            XXXXX
X     X  X        X     X          X     X
X     X  X        X                      X
XXXXXXX  XXXX     X         XXXXX   XXXXX
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX           XXXXXXX
```

END OF BANNER

1

4/27/89 7:29:13 PAGE 1

THIS RUN EXECUTED 4/27/89 7:29:13

```
*************************************************
  HEC2 RELEASE DATED SEPT 88


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


T1   POWERLINE F.R.S. SPILLWAY ANALYSIS
T2   BY MARICOPA COUNTY FCD  VALERIE RICE  JULY 11, 1988
T3       POWERLINE SPILLWAY

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0    .00603         0       1.5         0    1576.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1         0        -1


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150

J6  IHLEQ     ICOPY     SUBDIV    STRTDS    RMILE

                        -1
```

```
QT        6     35000     40000     50000     60000     70000     80000
NC        0         0         0        .1        .3
NH        3      .022       700      .025      1300      .022    1301.3
X1        1         4     698.7    1301.3
GR   1579.9     698.7    1575.9       700    1575.9      1300    1579.9    1301.3

NH        3      .022       700      .025      1300      .022    1301.4
X1        2         4     698.6    1301.4       385       385       385
GR   1582.5     698.6    1578.2       700    1578.2      1300    1582.5    1301.4

NH        3      .022       700      .025      1300      .022    1301.6
X1        3         4     698.4    1301.6       500       500       500
GR   1585.9     698.4    1581.2       700    1581.2      1300    1585.9    1301.6

NH        3      .022       700      .025      1300      .022    1301.6
X1        4         4     698.4    1301.6       350       350       350
GR   1588.2     698.4    1583.3       700    1583.3      1300    1588.2    1301.6

NH        3      .022       700      .025      1300      .022    1301.6
X1      4.5         0         0         0        50        50        50         0         0
1
    4/27/89      7:29:13                                                                          PAGE    2

X1      4.7         0         0         0        50        50        50         0      -1.0

NH        3      .022       700      .025      1300      .022      1302
X1        5         4       698      1302       120         1        50
GR   1588.3       698    1582.2       700    1582.2      1300    1588.3      1302

NH        3      .022       700      .025      1300      .022    1302.1
X1        6         4     697.9    1302.1       430       250        80
GR   1588.4     697.9    1582.2       700    1582.2      1300    1588.4    1302.1

NH        3      .025       700      .025      1300      .022    1302.1
X1        7         4     697.9    1302.1       550       310       100
GR   1588.6     697.9    1582.2       700    1582.2      1300    1588.6    1302.1
1
    4/27/89      7:29:13                                                                          PAGE    3


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED       .71 FEET

3720 CRITICAL DEPTH ASSUMED
     1.00     4.71  1580.61  1580.61  1576.50  1582.98     2.37      .00      .00  1579.90
   35000.       0.   35000.       0.       0.    2832.       0.       0.       0.  1579.90
      .00      .00    12.36      .00     .000     .025     .000     .000  1575.90   698.70
  .005503       0.       0.       0.        0       29        0      .00   602.60  1301.30
```

```
0
 1490 NH CARD USED
 *SECNO 2.000
 3280 CROSS SECTION      2.00 EXTENDED       .41 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.00     4.71  1582.91  1582.91      .00  1585.28     2.37     2.12      .00  1582.50
    35000.       0.   35000.       0.       0.    2833.       0.      25.       5.  1582.50
       .01      .00    12.35      .00     .000     .025     .000     .000  1578.20   698.60
   .005493     385.     385.     385.        2        5        0      .00   602.80  1301.40
0
 1490 NH CARD USED
 *SECNO 3.000
 3280 CROSS SECTION      3.00 EXTENDED       .01 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      3.00     4.71  1585.91  1585.91      .00  1588.28     2.37     2.75      .00  1585.90
    35000.       0.   35000.       0.       0.    2833.       0.      58.      12.  1585.90
       .02      .00    12.35      .00     .000     .025     .000     .000  1581.20   698.40
   .005490     500.     500.     500.        2        5        0      .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 4.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      4.00     4.71  1588.01  1588.01      .00  1590.38     2.37     1.92      .00  1588.20
    35000.       0.   35000.       0.       0.    2833.       0.      80.      17.  1588.20
       .03      .00    12.35      .00     .000     .025     .000     .000  1583.30   698.46
   .005488     350.     350.     350.        2        5        0      .00   603.08  1301.54
0
1
     4/27/89        7:29:13                                                                    PAGE    4


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 1490 NH CARD USED
 *SECNO 4.500
 3280 CROSS SECTION      4.50 EXTENDED       .89 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.50     5.78  1589.08      .00      .00  1590.65     1.57      .19      .08  1588.20
    35000.       0.   35000.       0.       0.    3486.       0.      84.      18.  1588.20
       .03      .00    10.04      .00     .000     .025     .000     .000  1583.30   698.40
   .002756      50.      50.      50.        5        0        0      .00   603.20  1301.60
0
 *SECNO 4.700
 3280 CROSS SECTION      4.70 EXTENDED      2.69 FEET
```

```
3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

     4.70      7.59  1589.89      .00      .00  1590.80      .91      .08      .07  1587.20
   35000.        0.   35000.       0.       0.    4568.       0.      89.      18.   1587.20
      .03       .00     7.66      .00     .000     .025     .000     .000  1582.30   698.40
  .001122       50.      50.      50.        4        0        0      .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 5.000
 3280 CROSS SECTION      5.00 EXTENDED      1.70 FEET

     5.00      7.79  1589.99      .00      .00  1590.86      .86      .05      .00  1588.30
   35000.        0.   35000.       0.       0.    4696.       0.      94.      19.   1588.30
      .03       .00     7.45      .00     .000     .025     .000     .000  1582.20   698.00
  .001024      120.      50.       1.        2        0        0      .00   604.00  1302.00
0
 1490 NH CARD USED
 *SECNO 6.000
 3280 CROSS SECTION      6.00 EXTENDED      1.70 FEET

     6.00      7.90  1590.10      .00      .00  1590.94      .84      .08      .00  1588.40
   35000.        0.   35000.       0.       0.    4760.       0.     103.      20.   1588.40
      .04       .00     7.35      .00     .000     .025     .000     .000  1582.20   697.90
  .000979      430.      80.     250.        2        0        0      .00   604.20  1302.10
0
1
    4/27/89       7:29:13                                                                    PAGE    5

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

 1490 NH CARD USED
 *SECNO 7.000
 3280 CROSS SECTION      7.00 EXTENDED      1.62 FEET

     7.00      8.02  1590.22      .00      .00  1591.04      .81      .10      .00  1588.60
   35000.        0.   35000.       0.       0.    4834.       0.     114.      22.   1588.60
      .04       .00     7.24      .00     .000     .025     .000     .000  1582.20   697.90
  .000930      550.     100.     310.        2        0        0      .00   604.20  1302.10
0
1
    4/27/89       7:29:13                                                                    PAGE    6


 T1
 T2     POWERLINE SPILLWAY
 T3      40,000 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         3         0         0    .00603         0       1.5         0    1576.5

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       2         0        -1
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
*PROF 2

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      1.14 FEET

3720 CRITICAL DEPTH ASSUMED
     1.00     5.14  1581.04  1581.04  1576.50  1583.64     2.60      .00      .00  1579.90
   40000.       0.   40000.       0.       0.    3093.       0.       0.       0.   1579.90
      .00      .00    12.93      .00     .000     .025     .000     .000  1575.90   698.70
  .005356       0.       0.       0.        0       29        0      .00   602.60  1301.30
0
1490 NH CARD USED
*SECNO 2.000
3280 CROSS SECTION      2.00 EXTENDED       .85 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.00     5.15  1583.35  1583.35      .00  1585.94     2.59     2.06      .00  1582.50
   40000.       0.   40000.       0.       0.    3098.       0.      27.       5.   1582.50
      .01      .00    12.91      .00     .000     .025     .000     .000  1578.20   698.60
  .005330     385.     385.     385.        2        5        0      .00   602.80  1301.40
0
1490 NH CARD USED
*SECNO 3.000
3280 CROSS SECTION      3.00 EXTENDED       .45 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.00     5.15  1586.35  1586.35      .00  1588.94     2.59     2.67      .00  1585.90
   40000.       0.   40000.       0.       0.    3097.       0.      63.      12.   1585.90
      .02      .00    12.92      .00     .000     .025     .000     .000  1581.20   698.40
  .005338     500.     500.     500.        2        5        0      .00   603.20  1301.60
0
1490 NH CARD USED
*SECNO 4.000
3280 CROSS SECTION      4.00 EXTENDED       .25 FEET

7185 MINIMUM SPECIFIC ENERGY
```


SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

```
 3720 CRITICAL DEPTH ASSUMED
      4.00      5.15  1588.45  1588.45      .00  1591.04      2.59      1.87      .00  1588.20
    40000.        0.   40000.       0.       0.    3097.        0.       88.      17.   1588.20
       .03       .00     12.92      .00     .000     .025      .000      .000  1583.30   698.40
   .005332      350.      350.     350.        2        5         0       .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 4.500
 3280 CROSS SECTION       4.50 EXTENDED       1.36 FEET

      4.50      6.26  1589.56      .00      .00  1591.31      1.75      .19      .08  1588.20
    40000.        0.   40000.       0.       0.    3767.        0.       92.      18.   1588.20
       .03       .00     10.62      .00     .000     .025      .000      .000  1583.30   698.40
   .002783       50.       50.      50.        6        0         0       .00   603.20  1301.60
0
 *SECNO 4.700
 3280 CROSS SECTION       4.70 EXTENDED       3.23 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.70      8.13  1590.43      .00      .00  1591.47      1.04      .09      .07  1587.20
    40000.        0.   40000.       0.       0.    4895.        0.       97.      18.   1587.20
       .03       .00      8.17      .00     .000     .025      .000      .000  1582.30   698.40
   .001163       50.       50.      50.        4        0         0       .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 5.000
 3280 CROSS SECTION       5.00 EXTENDED       2.25 FEET

      5.00      8.35  1590.55      .00      .00  1591.53       .98      .06      .01  1588.30
    40000.        0.   40000.       0.       0.    5029.        0.      102.      19.   1588.30
       .03       .00      7.95      .00     .000     .025      .000      .000  1582.20   698.00
   .001065      120.       50.       1.        2        0         0       .00   604.00  1302.00
0
 1490 NH CARD USED
 *SECNO 6.000
 3280 CROSS SECTION       6.00 EXTENDED       2.26 FEET

1
     4/27/89        7:29:13                                                                  PAGE     9


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


      6.00      8.46  1590.66      .00      .00  1591.61       .96      .08      .00  1588.40
    40000.        0.   40000.       0.       0.    5097.        0.      112.      20.   1588.40
       .03       .00      7.85      .00     .000     .025      .000      .000  1582.20   697.90
   .001019      430.       80.     250.        2        0         0       .00   604.20  1302.10
```

```
0
 1490 NH CARD USED
 *SECNO 7.000
 3280 CROSS SECTION      7.00 EXTENDED      2.19 FEET

      7.00     8.59  1590.79      .00      .00  1591.72      .93      .10      .00  1588.60
    40000.       0.   40000.       0.       0.    5176.       0.     123.      22.   1588.60
       .04      .00     7.73      .00     .000     .025     .000     .000  1582.20   697.90
   .000968     550.     100.     310.        2        0        0      .00   604.20  1302.10
0
1
    4/27/89       7:29:13                                                                    PAGE   10


 T1
 T2     POWERLINE SPILLWAY
 T3      50,000 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0        4         0         0    .00603         0       1.5         0    1577.5

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       3        0        -1

1
    4/27/89       7:29:13                                                                    PAGE   11


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 3

 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED      1.98 FEET

 3720 CRITICAL DEPTH ASSUMED
      1.00     5.98  1581.88  1581.88  1577.50  1584.88     3.00      .00      .00  1579.90
    50000.       0.   50000.       0.       0.    3599.       0.       0.       0.   1579.90
       .00      .00    13.89      .00     .000     .025     .000     .000  1575.90   698.70
   .005057       0.       0.       0.        0       20        0      .00   602.60  1301.30
0
 1490 NH CARD USED
 *SECNO 2.000
 3280 CROSS SECTION      2.00 EXTENDED      1.67 FEET
```

```
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.00      5.97  1584.17  1584.17      .00  1587.18      3.01      1.95      .00  1582.50
   50000.        0.   50000.       0.       0.    3593.        0.       32.       5.   1582.50
      .01       .00    13.92      .00     .000     .025      .000      .000  1578.20   698.60
  .005085      385.     385.     385.        3        5         0       .00   602.80  1301.40
0
1490 NH CARD USED
*SECNO 3.000
3280 CROSS SECTION      3.00 EXTENDED      1.27 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.00      5.97  1587.17  1587.17      .00  1590.18      3.00      2.54      .00  1585.90
   50000.        0.   50000.       0.       0.    3595.        0.       73.      12.   1585.90
      .02       .00    13.91      .00     .000     .025      .000      .000  1581.20   698.40
  .005080      500.     500.     500.        2        5         0       .00   603.20  1301.60
0
1490 NH CARD USED
*SECNO 4.000
3280 CROSS SECTION      4.00 EXTENDED      1.07 FEET

7185 MINIMUM SPECIFIC ENERGY
1
    4/27/89        7:29:13                                                                    PAGE   12

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3720 CRITICAL DEPTH ASSUMED
     4.00      5.97  1589.27  1589.27      .00  1592.28      3.00      1.78      .00  1588.20
   50000.        0.   50000.       0.       0.    3595.        0.      102.      17.   1588.20
      .02       .00    13.91      .00     .000     .025      .000      .000  1583.30   698.40
  .005079      350.     350.     350.        3        5         0       .00   603.20  1301.60
0
1490 NH CARD USED
*SECNO 4.500

1645 INT SEC ADDED BY RAISING SEC      4.50,    .000 FT AND MULTIPLYING BY   1.000

3280 CROSS SECTION      1.01 EXTENDED      1.90 FEET

     1.01      6.79  1590.09      .00      .00  1592.41      2.32       .07       .07  1588.20
   50000.        0.   50000.       0.       0.    4092.        0.      103.      17.   1588.20
      .03       .00    12.22      .00     .000     .025      .000      .000  1583.30   698.40
  .003301       17.      17.      17.        9        0         0       .00   603.20  1301.60
0

1645 INT SEC ADDED BY RAISING SEC      1.01,    .000 FT AND MULTIPLYING BY   1.000
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 3280 CROSS SECTION      1.02 EXTENDED      2.08 FEET

      1.02     6.98  1590.28      .00      .00  1592.48     2.20      .05      .01  1588.20
    50000.       0.   50000.       0.       0.    4202.       0.     105.      18.   1588.20
       .03      .00    11.90      .00     .000     .025     .000     .000  1583.30   698.40
   .003022      17.      17.      17.        2        0        0      .00   603.20  1301.60
0

 1645 INT SEC ADDED BY RAISING SEC      1.02,    .000 FT AND MULTIPLYING BY   1.000

 3280 CROSS SECTION      4.50 EXTENDED      2.23 FEET

      4.50     7.13  1590.43      .00      .00  1592.54     2.11      .05      .01  1588.20
    50000.       0.   50000.       0.       0.    4294.       0.     107.      18.   1588.20
       .03      .00    11.64      .00     .000     .025     .000     .000  1583.30   698.40
   .002811      17.      17.      17.        2        0        0      .00   603.20  1301.60
0
1
     4/27/89       7:29:13                                                                    PAGE   13

    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


 *SECNO 4.700
 3280 CROSS SECTION      4.70 EXTENDED      4.22 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.70     9.12  1591.42      .00      .00  1592.71     1.29      .09      .08  1587.20
    50000.       0.   50000.       0.       0.    5492.       0.     112.      18.   1587.20
       .03      .00     9.10      .00     .000     .025     .000     .000  1582.30   698.40
   .001240      50.      50.      50.        4        0        0      .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 5.000
 3280 CROSS SECTION      5.00 EXTENDED      3.25 FEET

      5.00     9.35  1591.55      .00      .00  1592.77     1.22      .06      .01  1588.30
    50000.       0.   50000.       0.       0.    5637.       0.     119.      19.   1588.30
       .03      .00     8.87      .00     .000     .025     .000     .000  1582.20   698.00
   .001139     120.      50.       1.        2        0        0      .00   604.00  1302.00
0
 1490 NH CARD USED
 *SECNO 6.000
 3280 CROSS SECTION      6.00 EXTENDED      3.28 FEET

      6.00     9.47  1591.67      .00      .00  1592.86     1.19      .09      .00  1588.40
    50000.       0.   50000.       0.       0.    5712.       0.     129.      20.   1588.40
       .03      .00     8.75      .00     .000     .025     .000     .000  1582.20   697.90
   .001090     430.      80.     250.        2        0        0      .00   604.20  1302.10
```

```
0
 1490 NH CARD USED
 *SECNO 7.000
 3280 CROSS SECTION      7.00 EXTENDED      3.22 FEET

     7.00      9.62  1591.82      .00      .00  1592.97      1.15      .11      .00  1588.60
   50000.        0.   50000.       0.       0.    5799.        0.     142.      22.   1588.60
      .03       .00     8.62      .00     .000     .025      .000     .000  1582.20   697.90
  .001036      550.     100.     310.        2        0         0      .00   604.20  1302.10
0
1
    4/27/89       7:29:13                                                                          PAGE   14


 T1
 T2     POWERLINE SPILLWAY
 T3      60,000 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0        5         0         0    .00603         0       1.5         0    1578.0
 MULTIPLE PROFILE RUN WITH INTERPOLATED CROSS SECTIONS

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       4        0        -1

1
    4/27/89       7:29:13                                                                          PAGE   15


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 4

 CCHV=      .100 CEHV=      .300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED      2.74 FEET

 3720 CRITICAL DEPTH ASSUMED
     1.00      6.74  1582.64  1582.64  1578.00  1586.04      3.40      .00       .00  1579.90
   60000.        0.   60000.       0.       0.    4054.        0.       0.        0.   1579.90
      .00       .00    14.80      .00     .000     .025      .000     .000  1575.90   698.70
  .004897        0.       0.       0.        0       20         0      .00   602.60  1301.30
0
 1490 NH CARD USED
 *SECNO 2.000
 3280 CROSS SECTION      2.00 EXTENDED      2.44 FEET
```

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 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.00      6.74  1584.94  1584.94      .00  1588.34      3.39      1.88       .00  1582.50
    60000.        0.   60000.       0.       0.    4059.        0.       36.        5.   1582.50
       .01       .00    14.78      .00     .000     .025      .000      .000   1578.20   698.60
   .004880      385.     385.     385.        3        5         0       .00    602.80  1301.40
0
 1490 NH CARD USED
 *SECNO 3.000
 3280 CROSS SECTION       3.00 EXTENDED       2.04 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      3.00      6.74  1587.94  1587.94      .00  1591.33      3.39      2.44       .00  1585.90
    60000.        0.   60000.       0.       0.    4059.        0.       82.       12.   1585.90
       .02       .00    14.78      .00     .000     .025      .000      .000   1581.20   698.40
   .004885      500.     500.     500.        3        5         0       .00    603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 4.000
 3280 CROSS SECTION       4.00 EXTENDED       1.84 FEET

 7185 MINIMUM SPECIFIC ENERGY
1
    4/27/89        7:29:13                                                                          PAGE   16


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 3720 CRITICAL DEPTH ASSUMED
      4.00      6.74  1590.04  1590.04      .00  1593.44      3.39      1.71       .00  1588.20
    60000.        0.   60000.       0.       0.    4060.        0.      115.       17.   1588.20
       .02       .00    14.78      .00     .000     .025      .000      .000   1583.30   698.40
   .004881      350.     350.     350.        3        5         0       .00    603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 4.500

 1645 INT SEC ADDED BY RAISING SEC      4.50,    .000 FT AND MULTIPLYING BY   1.000

 3280 CROSS SECTION       1.01 EXTENDED       2.69 FEET

      1.01      7.60  1590.90      .00      .00  1593.57      2.68       .07       .07  1588.20
    60000.        0.   60000.       0.       0.    4570.        0.      117.       17.   1588.20
       .02       .00    13.13      .00     .000     .025      .000      .000   1583.30   698.40
   .003290       17.      17.      17.        3        0         0       .00    603.20  1301.60
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0

 1645 INT SEC ADDED BY RAISING SEC      1.01,    .000 FT AND MULTIPLYING BY   1.000

 3280 CROSS SECTION      1.02 EXTENDED      2.95 FEET

      1.02     7.84  1591.14      .00      .00  1593.64     2.50      .05      .02  1588.20
    60000.       0.   60000.       0.       0.    4727.       0.     118.      18.   1588.20
       .02      .00    12.69      .00     .000     .025     .000     .000  1583.30   698.40
   .002941      17.      17.      17.        2        0        0      .00   603.20  1301.60
0

 1645 INT SEC ADDED BY RAISING SEC      1.02,    .000 FT AND MULTIPLYING BY   1.000

 3280 CROSS SECTION      4.50 EXTENDED      3.05 FEET

      4.50     7.96  1591.26      .00      .00  1593.70     2.44      .05      .01  1588.20
    60000.       0.   60000.       0.       0.    4786.       0.     120.      18.   1588.20
       .02      .00    12.54      .00     .000     .025     .000     .000  1583.30   698.40
   .002822      17.      17.      17.        2        0        0      .00   603.20  1301.60
0
1
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    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


 *SECNO 4.700
 3280 CROSS SECTION      4.70 EXTENDED      5.15 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.70    10.06  1592.36      .00      .00  1593.88     1.52      .09      .09  1587.20
    60000.       0.   60000.       0.       0.    6056.       0.     127.      18.   1587.20
       .03      .00     9.91      .00     .000     .025     .000     .000  1582.30   698.40
   .001289      50.      50.      50.        4        0        0      .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 5.000
 3280 CROSS SECTION      5.00 EXTENDED      4.20 FEET

      5.00    10.30  1592.50      .00      .00  1593.95     1.45      .06      .01  1588.30
    60000.       0.   60000.       0.       0.    6210.       0.     134.      19.   1588.30
       .03      .00     9.66      .00     .000     .025     .000     .000  1582.20   698.00
   .001188     120.      50.       1.        2        0        0      .00   604.00  1302.00
0
 1490 NH CARD USED
 *SECNO 6.000
 3280 CROSS SECTION      6.00 EXTENDED      4.23 FEET

      6.00    10.43  1592.63      .00      .00  1594.05     1.41      .09      .00  1588.40
    60000.       0.   60000.       0.       0.    6291.       0.     145.      20.   1588.40
       .03      .00     9.54      .00     .000     .025     .000     .000  1582.20   697.90
   .001138     430.      80.     250.        2        0        0      .00   604.20  1302.10
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```
0
 1490 NH CARD USED
 *SECNO 7.000
 3280 CROSS SECTION      7.00 EXTENDED      4.19 FEET

      7.00    10.59  1592.79      .00      .00  1594.16     1.37      .11      .00  1588.60
    60000.       0.   60000.       0.       0.    6385.       0.     160.      22.   1588.60
       .03      .00     9.40      .00     .000     .025     .000     .000  1582.20   697.90
   .001084     550.     100.     310.        2        0        0      .00   604.20  1302.10
0
1
    4/27/89       7:29:13                                                                          PAGE   18


 T1
 T2     POWERLINE SPILLWAY
 T3      70,000 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0         6         0         0    .00603         0       1.5         0    1578.5
 MULTIPLE PROFILE RUN WITH INTERPOLATED CROSS SECTIONS

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       5         0        -1

1
    4/27/89       7:29:13                                                                          PAGE   19


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


 *PROF 5

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED      3.47 FEET

 3720 CRITICAL DEPTH ASSUMED
      1.00     7.47  1583.37  1583.37  1578.50  1587.13     3.77      .00      .00  1579.90
    70000.       0.   70000.       0.       0.    4494.       0.       0.       0.   1579.90
       .00      .00    15.57      .00     .000     .025     .000     .000  1575.90   698.70
   .004729       0.       0.       0.        0       20        0      .00   602.60  1301.30
0
 1490 NH CARD USED
 *SECNO 2.000
 3280 CROSS SECTION      2.00 EXTENDED      3.17 FEET
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```
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.00     7.47  1585.67  1585.67      .00  1589.43     3.76     1.82      .00  1582.50
    70000.       0.   70000.       0.       0.    4498.       0.      40.       5.   1582.50
       .01      .00    15.56      .00     .000     .025     .000     .000  1578.20   698.60
   .004720     385.     385.     385.        3        5        0      .00   602.80  1301.40
0
 1490 NH CARD USED
 *SECNO 3.000
 3280 CROSS SECTION      3.00 EXTENDED      2.77 FEET

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      3.00     7.47  1588.67  1588.67      .00  1592.43     3.76     2.36      .00  1585.90
    70000.       0.   70000.       0.       0.    4498.       0.      91.      12.   1585.90
       .02      .00    15.56      .00     .000     .025     .000     .000  1581.20   698.40
   .004722     500.     500.     500.        3        5        0      .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 4.000
 3280 CROSS SECTION      4.00 EXTENDED      2.57 FEET

 7185 MINIMUM SPECIFIC ENERGY
1
     4/27/89        7:29:13                                                                                    PAGE   20


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 3720 CRITICAL DEPTH ASSUMED
      4.00     7.47  1590.77  1590.77      .00  1594.53     3.76     1.65      .00  1588.20
    70000.       0.   70000.       0.       0.    4498.       0.     128.      17.   1588.20
       .02      .00    15.56      .00     .000     .025     .000     .000  1583.30   698.40
   .004721     350.     350.     350.        3        5        0      .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 4.500

 1645 INT SEC ADDED BY RAISING SEC      4.50,    .000 FT AND MULTIPLYING BY   1.000

 3280 CROSS SECTION      1.01 EXTENDED      3.50 FEET

      1.01     8.40  1591.70      .00      .00  1594.67     2.98      .06      .08  1588.20
    70000.       0.   70000.       0.       0.    5057.       0.     129.      17.   1588.20
       .02      .00    13.84      .00     .000     .025     .000     .000  1583.30   698.40
   .003198      17.      17.      17.        6        0        0      .00   603.20  1301.60
0

 1645 INT SEC ADDED BY RAISING SEC      1.01,    .000 FT AND MULTIPLYING BY   1.000
```

```
 3280 CROSS SECTION      1.02 EXTENDED      3.73 FEET

      1.02     8.63  1591.93      .00      .00  1594.74     2.81      .05      .02  1588.20
    70000.       0.   70000.       0.       0.    5200.       0.     131.      18.   1588.20
       .02      .00    13.46      .00     .000     .025     .000     .000  1583.30   698.40
   .002914      17.      17.      17.        2        0        0      .00   603.20  1301.60
0

 1645 INT SEC ADDED BY RAISING SEC      1.02,    .000 FT AND MULTIPLYING BY   1.000

 3280 CROSS SECTION      4.50 EXTENDED      3.84 FEET

      4.50     8.75  1592.05      .00      .00  1594.79     2.74      .05      .01  1588.20
    70000.       0.   70000.       0.       0.    5267.       0.     133.      18.   1588.20
       .02      .00    13.29      .00     .000     .025     .000     .000  1583.30   698.40
   .002793      17.      17.      17.        2        0        0      .00   603.20  1301.60
0
1
     4/27/89       7:29:13                                                                    PAGE   21

    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


 *SECNO 4.700
 3280 CROSS SECTION      4.70 EXTENDED      6.03 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

      4.70    10.93  1593.23      .00      .00  1594.99     1.76      .09      .10  1587.20
    70000.       0.   70000.       0.       0.    6584.       0.     140.      18.   1587.20
       .02      .00    10.63      .00     .000     .025     .000     .000  1582.30   698.40
   .001328      50.      50.      50.        4        0        0      .00   603.20  1301.60
0
 1490 NH CARD USED
 *SECNO 5.000
 3280 CROSS SECTION      5.00 EXTENDED      5.09 FEET

      5.00    11.19  1593.39      .00      .00  1595.06     1.67      .06      .01  1588.30
    70000.       0.   70000.       0.       0.    6746.       0.     148.      19.   1588.30
       .03      .00    10.38      .00     .000     .025     .000     .000  1582.20   698.00
   .001228     120.      50.       1.        2        0        0      .00   604.00  1302.00
0
 1490 NH CARD USED
 *SECNO 6.000
 3280 CROSS SECTION      6.00 EXTENDED      5.13 FEET

      6.00    11.33  1593.53      .00      .00  1595.16     1.63      .10      .00  1588.40
    70000.       0.   70000.       0.       0.    6832.       0.     160.      20.   1588.40
       .03      .00    10.25      .00     .000     .025     .000     .000  1582.20   697.90
   .001177     430.      80.     250.        2        0        0      .00   604.20  1302.10
```

```
0
 1490 NH CARD USED
 *SECNO 7.000
 3280 CROSS SECTION      7.00 EXTENDED      5.10 FEET

      7.00    11.50  1593.70      .00      .00  1595.28     1.58      .11      .00  1588.60
    70000.       0.   70000.       0.       0.    6932.       0.     176.      22.  1588.60
       .03      .00    10.10      .00     .000     .025     .000     .000  1582.20   697.90
   .001122     550.     100.     310.        2        0        0      .00   604.20  1302.10
0
1                                                                                                PAGE   22
    4/27/89        7:29:13


 T1
 T2     POWERLINE SPILLWAY
 T3      80,000 CFS

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0        7         0         0    .00603         0       1.5         0    1579.0
 MULTIPLE PROFILE RUN WITH INTERPOLATED CROSS SECTIONS

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      15         0        -1



1                                                                                                PAGE   23
    4/27/89        7:29:13


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 *PROF 6

 CCHV=     .100 CEHV=     .300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED      4.18 FEET

 3720 CRITICAL DEPTH ASSUMED
      1.00      8.18  1584.08  1584.08  1579.00  1588.18     4.10      .00      .00  1579.90
    80000.       0.   80000.       0.       0.    4921.       0.       0.       0.  1579.90
       .00      .00    16.26      .00     .000     .025     .000     .000  1575.90   698.70
   .004566       0.       0.       0.        0       17        0      .00   602.60  1301.30
0
 1490 NH CARD USED
 *SECNO 2.000
 3280 CROSS SECTION      2.00 EXTENDED      3.86 FEET
```

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7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.00      8.16  1586.36  1586.36      .00  1590.48      4.11      1.76       .00  1582.50
   80000.        0.   80000.       0.       0.    4915.        0.       43.        5.  1582.50
      .01       .00    16.28      .00     .000     .025      .000      .000  1578.20   698.60
  .004587      385.     385.     385.        4        5         0       .00   602.80  1301.40
0
1490 NH CARD USED
*SECNO 3.000
3280 CROSS SECTION      3.00 EXTENDED      3.47 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.00      8.17  1589.37  1589.37      .00  1593.47      4.11      2.29       .00  1585.90
   80000.        0.   80000.       0.       0.    4918.        0.      100.       12.  1585.90
      .02       .00    16.27      .00     .000     .025      .000      .000  1581.20   698.40
  .004583      500.     500.     500.        3        5         0       .00   603.20  1301.60
0
1490 NH CARD USED
*SECNO 4.000
3280 CROSS SECTION      4.00 EXTENDED      3.27 FEET

7185 MINIMUM SPECIFIC ENERGY
1
    4/27/89        7:29:13                                                                          PAGE   24

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3720 CRITICAL DEPTH ASSUMED
     4.00      8.17  1591.47  1591.47      .00  1595.58      4.11      1.60       .00  1588.20
   80000.        0.   80000.       0.       0.    4918.        0.      139.       17.  1588.20
      .02       .00    16.27      .00     .000     .025      .000      .000  1583.30   698.40
  .004584      350.     350.     350.        4        5         0       .00   603.20  1301.60
0
1490 NH CARD USED
*SECNO 4.500

1645 INT SEC ADDED BY RAISING SEC      4.50,    .000 FT AND MULTIPLYING BY   1.000

3280 CROSS SECTION      1.01 EXTENDED      4.24 FEET

     1.01      9.14  1592.44       .00       .00  1595.72      3.28       .06       .08  1588.20
   80000.        0.   80000.       0.       0.    5507.        0.      141.       17.  1588.20
      .02       .00    14.53      .00     .000     .025      .000      .000  1583.30   698.40
  .003145       17.      17.      17.        6        0         0       .00   603.20  1301.60
0

1645 INT SEC ADDED BY RAISING SEC      1.01,    .000 FT AND MULTIPLYING BY   1.000
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3280 CROSS SECTION      1.02 EXTENDED      4.48 FEET

     1.02     9.38  1592.68      .00      .00  1595.79     3.11      .05      .02  1588.20
   80000.       0.   80000.       0.       0.    5653.       0.     144.      18.   1588.20
      .02      .00    14.15      .00     .000     .025     .000     .000  1583.30   698.40
  .002883      17.      17.      17.        2        0        0      .00   603.20  1301.60
0

1645 INT SEC ADDED BY RAISING SEC      1.02,    .000 FT AND MULTIPLYING BY   1.000

3280 CROSS SECTION      4.50 EXTENDED      4.60 FEET

     4.50     9.51  1592.81      .00      .00  1595.84     3.03      .05      .01  1588.20
   80000.       0.   80000.       0.       0.    5725.       0.     146.      18.   1588.20
      .02      .00    13.97      .00     .000     .025     .000     .000  1583.30   698.40
  .002763      17.      17.      17.        2        0        0      .00   603.20  1301.60
0
1
    4/27/89       7:29:13                                                                    PAGE   25

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

*SECNO 4.700
3280 CROSS SECTION      4.70 EXTENDED      6.86 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

     4.70    11.76  1594.06      .00      .00  1596.04     1.98      .09      .11  1587.20
   80000.       0.   80000.       0.       0.    7085.       0.     153.      18.   1587.20
      .02      .00    11.29      .00     .000     .025     .000     .000  1582.30   698.40
  .001359      50.      50.      50.        4        0        0      .00   603.20  1301.60
0
1490 NH CARD USED
*SECNO 5.000
3280 CROSS SECTION      5.00 EXTENDED      5.93 FEET

     5.00    12.03  1594.23      .00      .00  1596.12     1.89      .07      .01  1588.30
   80000.       0.   80000.       0.       0.    7254.       0.     161.      19.   1588.30
      .02      .00    11.03      .00     .000     .025     .000     .000  1582.20   698.00
  .001260     120.      50.       1.        2        0        0      .00   604.00  1302.00
0
1490 NH CARD USED
*SECNO 6.000
3280 CROSS SECTION      6.00 EXTENDED      5.98 FEET

     6.00    12.18  1594.38      .00      .00  1596.22     1.84      .10      .00  1588.40
   80000.       0.   80000.       0.       0.    7345.       0.     175.      20.   1588.40
      .03      .00    10.89      .00     .000     .025     .000     .000  1582.20   697.90
  .001209     430.      80.     250.        2        0        0      .00   604.20  1302.10
```

0
1490 NH CARD USED
*SECNO 7.000
3280 CROSS SECTION 7.00 EXTENDED 5.95 FEET

7.00	12.35	1594.55	.00	.00	1596.34	1.79	.12	.01	1588.60
80000.	0.	80000.	0.	0.	7451.	0.	192.	22.	1588.60
.03	.00	10.74	.00	.000	.025	.000	.000	1582.20	697.90
.001153	550.	100.	310.	2	0	0	.00	604.20	1302.10

0
1

THIS RUN EXECUTED 4/27/89 7:29:41

****
HEC2 RELEASE DATED SEPT 88

****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

POWERLINE SPILLWAY

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	1.000	.00	.00	.00	1575.90	35000.00	1580.61	1580.61	1582.98	55.03	12.36	2831.70	4718.30
*	1.000	.00	.00	.00	1575.90	40000.00	1581.04	1581.04	1583.64	53.56	12.93	3093.35	5465.78
*	1.000	.00	.00	.00	1575.90	50000.00	1581.88	1581.88	1584.88	50.57	13.89	3598.63	7030.83
*	1.000	.00	.00	.00	1575.90	60000.00	1582.64	1582.64	1586.04	48.97	14.80	4054.33	8574.26
*	1.000	.00	.00	.00	1575.90	70000.00	1583.37	1583.37	1587.13	47.29	15.57	4494.44	10178.91
*	1.000	.00	.00	.00	1575.90	80000.00	1584.08	1584.08	1588.18	45.66	16.26	4921.45	11839.28
*	2.000	385.00	.00	.00	1578.20	35000.00	1582.91	1582.91	1585.28	54.93	12.35	2833.29	4722.43
*	2.000	385.00	.00	.00	1578.20	40000.00	1583.35	1583.35	1585.94	53.30	12.91	3097.97	5478.86
*	2.000	385.00	.00	.00	1578.20	50000.00	1584.17	1584.17	1587.18	50.85	13.92	3593.12	7011.88
*	2.000	385.00	.00	.00	1578.20	60000.00	1584.94	1584.94	1588.34	48.80	14.78	4058.98	8589.04
*	2.000	385.00	.00	.00	1578.20	70000.00	1585.67	1585.67	1589.43	47.20	15.56	4497.76	10189.26
*	2.000	385.00	.00	.00	1578.20	80000.00	1586.36	1586.36	1590.48	45.87	16.28	4915.20	11811.45
*	3.000	500.00	.00	.00	1581.20	35000.00	1585.91	1585.91	1588.28	54.90	12.35	2833.38	4723.90
*	3.000	500.00	.00	.00	1581.20	40000.00	1586.35	1586.35	1588.94	53.38	12.92	3097.06	5474.79
*	3.000	500.00	.00	.00	1581.20	50000.00	1587.17	1587.17	1590.18	50.80	13.91	3594.89	7015.20
*	3.000	500.00	.00	.00	1581.20	60000.00	1587.94	1587.94	1591.33	48.85	14.78	4058.70	8584.50
*	3.000	500.00	.00	.00	1581.20	70000.00	1588.67	1588.67	1592.43	47.22	15.56	4498.37	10186.75
*	3.000	500.00	.00	.00	1581.20	80000.00	1589.37	1589.37	1593.47	45.83	16.27	4918.15	11817.17

* 4.000	350.00	.00	.00	1583.30	35000.00	1588.01	1588.01	1590.38	54.88	12.35	2833.37	4724.44
* 4.000	350.00	.00	.00	1583.30	40000.00	1588.45	1588.45	1591.04	53.32	12.92	3097.03	5478.01
* 4.000	350.00	.00	.00	1583.30	50000.00	1589.27	1589.27	1592.28	50.79	13.91	3594.87	7015.99
* 4.000	350.00	.00	.00	1583.30	60000.00	1590.04	1590.04	1593.44	48.81	14.78	4059.56	8588.47
* 4.000	350.00	.00	.00	1583.30	70000.00	1590.77	1590.77	1594.53	47.21	15.56	4498.34	10187.68
* 4.000	350.00	.00	.00	1583.30	80000.00	1591.47	1591.47	1595.58	45.84	16.27	4917.53	11815.80
* 4.500	50.00	.00	.00	1583.30	35000.00	1589.08	.00	1590.65	27.56	10.04	3486.26	6666.97
4.500	50.00	.00	.00	1583.30	40000.00	1589.56	.00	1591.31	27.83	10.62	3766.58	7582.22
4.500	50.00	.00	.00	1583.30	50000.00	1590.43	.00	1592.54	28.11	11.64	4294.16	9429.93
4.500	50.00	.00	.00	1583.30	60000.00	1591.26	.00	1593.70	28.22	12.54	4786.02	11294.67
4.500	50.00	.00	.00	1583.30	70000.00	1592.05	.00	1594.79	27.93	13.29	5266.92	13245.58
4.500	50.00	.00	.00	1583.30	80000.00	1592.81	.00	1595.84	27.63	13.97	5725.14	15218.34

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4/27/89 7:29:13 PAGE 27

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
* 4.700	50.00	.00	.00	1582.30	35000.00	1589.89	.00	1590.80	11.22	7.66	4567.70	10450.40
* 4.700	50.00	.00	.00	1582.30	40000.00	1590.43	.00	1591.47	11.63	8.17	4895.37	11727.32
* 4.700	50.00	.00	.00	1582.30	50000.00	1591.42	.00	1592.71	12.40	9.10	5491.94	14200.68
* 4.700	50.00	.00	.00	1582.30	60000.00	1592.36	.00	1593.88	12.89	9.91	6056.19	16710.98
* 4.700	50.00	.00	.00	1582.30	70000.00	1593.23	.00	1594.99	13.28	10.63	6584.29	19206.16
* 4.700	50.00	.00	.00	1582.30	80000.00	1594.06	.00	1596.04	13.59	11.29	7084.99	21698.43
5.000	50.00	.00	.00	1582.20	35000.00	1589.99	.00	1590.86	10.24	7.45	4696.08	10937.50
5.000	50.00	.00	.00	1582.20	40000.00	1590.55	.00	1591.53	10.65	7.95	5029.27	12257.94
5.000	50.00	.00	.00	1582.20	50000.00	1591.55	.00	1592.77	11.39	8.87	5636.59	14816.89
5.000	50.00	.00	.00	1582.20	60000.00	1592.50	.00	1593.95	11.88	9.66	6209.77	17406.68
5.000	50.00	.00	.00	1582.20	70000.00	1593.39	.00	1595.06	12.28	10.38	6746.08	19978.61
5.000	50.00	.00	.00	1582.20	80000.00	1594.23	.00	1596.12	12.60	11.03	7253.65	22541.42
6.000	80.00	.00	.00	1582.20	35000.00	1590.10	.00	1590.94	9.79	7.35	4760.03	11183.75
6.000	80.00	.00	.00	1582.20	40000.00	1590.66	.00	1591.61	10.19	7.85	5096.87	12530.12
6.000	80.00	.00	.00	1582.20	50000.00	1591.67	.00	1592.86	10.90	8.75	5712.05	15144.29
6.000	80.00	.00	.00	1582.20	60000.00	1592.63	.00	1594.05	11.38	9.54	6291.11	17782.51
6.000	80.00	.00	.00	1582.20	70000.00	1593.53	.00	1595.16	11.77	10.25	6832.47	20399.87
6.000	80.00	.00	.00	1582.20	80000.00	1594.38	.00	1596.22	12.09	10.89	7344.99	23008.44
7.000	100.00	.00	.00	1582.20	35000.00	1590.22	.00	1591.04	9.30	7.24	4834.03	11474.73
7.000	100.00	.00	.00	1582.20	40000.00	1590.79	.00	1591.72	9.68	7.73	5175.66	12854.23
7.000	100.00	.00	.00	1582.20	50000.00	1591.82	.00	1592.97	10.36	8.62	5799.40	15531.63
7.000	100.00	.00	.00	1582.20	60000.00	1592.79	.00	1594.16	10.84	9.40	6385.17	18227.05
7.000	100.00	.00	.00	1582.20	70000.00	1593.70	.00	1595.28	11.22	10.10	6932.43	20898.74
7.000	100.00	.00	.00	1582.20	80000.00	1594.55	.00	1596.34	11.53	10.74	7450.56	23561.08

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4/7/89 7:29:13 PAGE 28

POWERINE SPILLWAY

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	1.000	35000.00	1580.61	.00	.00	4.11	602.60	.00
*	1.000	40000.00	1581.04	.43	.00	4.54	602.60	.00
*	1.000	50000.00	1581.88	.84	.00	4.38	602.60	.00
*	1.000	60000.00	1582.64	.76	.00	4.64	602.60	.00
*	1.000	70000.00	1583.37	.73	.00	4.87	602.60	.00
*	1.000	80000.00	1584.08	.71	.00	5.08	602.60	.00
*	2.000	35000.00	1582.91	.00	2.30	.00	602.80	385.00
*	2.000	40000.00	1583.35	.44	2.31	.00	602.80	385.00
*	2.000	50000.00	1584.17	.82	2.29	.00	602.80	385.00
*	2.000	60000.00	1584.94	.77	2.31	.00	602.80	385.00
*	2.000	70000.00	1585.67	.73	2.30	.00	602.80	385.00
*	2.000	80000.00	1586.36	.69	2.29	.00	602.80	385.00
*	3.000	35000.00	1585.91	.00	3.00	.00	603.20	500.00
*	3.000	40000.00	1586.35	.44	3.00	.00	603.20	500.00
*	3.000	50000.00	1587.17	.83	3.00	.00	603.20	500.00
*	3.000	60000.00	1587.94	.77	3.00	.00	603.20	500.00
*	3.000	70000.00	1588.67	.73	3.00	.00	603.20	500.00
*	3.000	80000.00	1589.37	.70	3.00	.00	603.20	500.00
*	4.000	35000.00	1588.01	.00	2.10	.00	603.08	350.00
*	4.000	40000.00	1588.45	.44	2.10	.00	603.20	350.00
*	4.000	50000.00	1589.27	.83	2.10	.00	603.20	350.00
*	4.000	60000.00	1590.04	.77	2.10	.00	603.20	350.00
*	4.000	70000.00	1590.77	.73	2.10	.00	603.20	350.00
*	4.000	80000.00	1591.47	.69	2.10	.00	603.20	350.00
*	4.500	35000.00	1589.08	.00	1.07	.00	603.20	50.00
	4.500	40000.00	1589.56	.47	1.11	.00	603.20	50.00
	4.500	50000.00	1590.43	.87	.15	.00	603.20	50.00
	4.500	60000.00	1591.26	.83	.12	.00	603.20	50.00
	4.500	70000.00	1592.05	.80	.13	.00	603.20	50.00
	4.500	80000.00	1592.81	.76	.13	.00	603.20	50.00
*	4.700	35000.00	1589.89	.00	.80	.00	603.20	50.00
*	4.700	40000.00	1590.43	.54	.87	.00	603.20	50.00
*	4.700	50000.00	1591.42	.99	.99	.00	603.20	50.00
*	4.700	60000.00	1592.36	.94	1.10	.00	603.20	50.00
*	4.700	70000.00	1593.23	.88	1.18	.00	603.20	50.00
*	4.700	80000.00	1594.06	.83	1.25	.00	603.20	50.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5.000	35000.00	1589.99	.00	.11	.00	604.00	50.00
5.000	40000.00	1590.55	.55	.12	.00	604.00	50.00
5.000	50000.00	1591.55	1.01	.13	.00	604.00	50.00
5.000	60000.00	1592.50	.95	.14	.00	604.00	50.00
5.000	70000.00	1593.39	.89	.16	.00	604.00	50.00
5.000	80000.00	1594.23	.84	.17	.00	604.00	50.00
6.000	35000.00	1590.10	.00	.11	.00	604.20	80.00
6.000	40000.00	1590.66	.56	.11	.00	604.20	80.00
6.000	50000.00	1591.67	1.02	.12	.00	604.20	80.00
6.000	60000.00	1592.63	.96	.13	.00	604.20	80.00
6.000	70000.00	1593.53	.90	.14	.00	604.20	80.00
6.000	80000.00	1594.38	.85	.15	.00	604.20	80.00
7.000	35000.00	1590.22	.00	.12	.00	604.20	100.00
7.000	40000.00	1590.79	.57	.13	.00	604.20	100.00
7.000	50000.00	1591.82	1.03	.15	.00	604.20	100.00
7.000	60000.00	1592.79	.97	.16	.00	604.20	100.00
7.000	70000.00	1593.70	.91	.17	.00	604.20	100.00
7.000	80000.00	1594.55	.86	.17	.00	604.20	100.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      2.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      4.000  PROFILE=  5  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      4.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
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WARNING SECNO=      4.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      4.700  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
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WARNING SECNO=      4.700  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.700  PROFILE=  6  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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