```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *               JUN   1998             *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   16JUL14  TIME  09:23:11  *
 *                                      *
 ****************************************
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```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

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

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

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


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

 *** FREE ***
             1          ID      MILLTOWN DAM  D15-146       July 16, 2014
             2          ID      FILE D15-146A:  ADD PENNDOT BRIDGE TO MODEL
             3          ID
             4          ID
             5          ID    PLAN 1:  500-YEAR FLOOD NO BREACH
             6          ID    PLAN 2:  500-YEAR FLOOD WITH MILLTOWN DAM FAILURE
             7          ID
             8          ID
             9          IT       5       0       0     300
            10          IO       5
            11          JP       2
```

```
            12          KK   AREA1
            13          KM    TOP OF DAM ELEVATION REVISED TO 420.3 BASED ON 1995 POST CONSTRUCTION PLANS
            14          BA    2.67
            15          PH     500       0   0.741    1.48    3.37    4.36    4.80    6.33    8.43    9.92
            16          LS       0      74
            17          UD    0.77

            18          KK   TLDAM
            19          KM    TOP OF DAM ELEVATION REVISED TO 420.3 BASED ON 1995 POST CONSTRUCTION PLANS
            20          RS       1    ELEV     414
            21          SV       0      12      61     174     361     597    1150    2000
            22          SE     390     395     400     405     410     414     420     425
            23          SS     414      50     3.8     1.5
            24          ST   420.3     480     2.8     1.5

            25          KK   AREA2
            26          KM   ADDITIONAL DRAINAGE AREA TO MILLTOWN DAM
            27          BA    3.67
            28          LS       0      80
            29          UD    1.62

            30          KK    COMB
            31          HC       2

            32          KK   MTDAM
            33          RS       1    ELEV     344
            34          SA       0    12.3    19.7    31.1    43.1    52.5    60.3    68.0
            35          SE     332     344     346     348     350     352     354     356
            36          SS     344      69     3.8     1.5
            37          ST   349.1     225     2.7     1.5
            38          KP       2
            39          SB     332      54       1     0.5   350.3

            40          KK  BRIDGE
            41          KO       1
            42          RS       1    ELEV     320
            43          SA   0.015   0.216   0.633    1.75    4.30    5.66    6.92    9.17    10.2    11.2
            44          SA    12.7
            45          SE     320     322     324     326     328     330     332     334     336     338
            46          SE     340
            47          SQ       0     736    1610    2530    3680    4600    5520    6210    7222
            48          SE     320     323     325     327     329     331     333     335     338
1                                                HEC-1 INPUT                                          PAGE  2

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

            49          ST   333.5     400     2.6     1.5
            50          ZZ
1*****************************************                                  ***************************************
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*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*               JUN   1998              *
*             VERSION 4.1               *
*                                       *
*  RUN DATE   16JUL14  TIME  09:23:11   *
*                                       *
*****************************************
```


```
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*           609 SECOND STREET           *
*        DAVIS, CALIFORNIA 95616        *
*            (916) 756-1104             *
*                                       *
*****************************************
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MILLTOWN DAM D15-146 July 16, 2014
FILE D15-146A: ADD PENNDOT BRIDGE TO MODEL
100-YEAR FLOOD

PLAN 1: 500-YEAR FLOOD NO BREACH
PLAN 2: 500-YEAR FLOOD WITH MILLTOWN DAM FAILURE

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

     IT          HYDROGRAPH TIME DATA
                        NMIN           5  MINUTES IN COMPUTATION INTERVAL
                       IDATE      1    0  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE      2    0  ENDING DATE
                      NDTIME        0055  ENDING TIME
                      ICENT           19  CENTURY MARK

                   COMPUTATION INTERVAL     .08 HOURS
                        TOTAL TIME BASE   24.92 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
                   1.00


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


           **************
           *            *
 40 KK     *    BRIDGE  *
           *            *
           **************

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

              HYDROGRAPH ROUTING DATA

 42 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        ELEV  TYPE OF INITIAL CONDITION
                     RSVRIC      320.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 43 SA               AREA          .0        .2        .6       1.8       4.3       5.7       6.9       9.2      10.2      11.2
                                  12.7

 45 SE          ELEVATION      320.00    322.00    324.00    326.00    328.00    330.00    332.00    334.00    336.00    338.00
                               340.00

 47 SQ          DISCHARGE          0.      736.     1610.     2530.     3680.     4600.     5520.     6210.     7222.

 48 SE          ELEVATION      320.00    323.00    325.00    327.00    329.00    331.00    333.00    335.00    338.00

 49 ST          TOP OF DAM
                      TOPEL      333.50  ELEVATION AT TOP OF DAM
                     DAMWID      400.00  DAM WIDTH
                       COQD        2.60  WEIR COEFFICIENT
                       EXPD        1.50  EXPONENT OF HEAD

                                                    ***

                                          COMPUTED STORAGE-ELEVATION DATA

           STORAGE        .00       .19      1.00      3.29      9.16     19.09     31.64     47.68     67.04     88.44
```

ELEVATION	320.00	322.00	324.00	326.00	328.00	330.00	332.00	334.00	336.00	338.00

STORAGE	112.32
ELEVATION	340.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

(INCLUDING FLOW OVER DAM)

STORAGE	.00	.19	.49	1.00	1.87	3.29	5.59	9.16	13.78	19.09
OUTFLOW	.00	490.67	736.00	1173.00	1610.00	2070.00	2530.00	3105.00	3680.00	4140.00
ELEVATION	320.00	322.00	323.00	324.00	325.00	326.00	327.00	328.00	329.00	330.00

STORAGE	25.05	31.64	39.10	47.68	57.10	67.04	88.44	112.32
OUTFLOW	4600.00	5060.00	5520.00	6232.70	8120.60	10658.29	17149.78	25131.35
ELEVATION	331.00	332.00	333.00	334.00	335.00	336.00	338.00	340.00

HYDROGRAPH AT STATION BRIDGE
PLAN 1, RATIO = 1.00

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	320.0	1		0820	101	103.	.0	320.4	1		1640	201	2604.	6.0	327.1
1		0005	2	0.	.0	320.0	1		0825	102	112.	.0	320.5	1		1645	202	2550.	5.7	327.0
1		0010	3	0.	.0	320.0	1		0830	103	122.	.0	320.5	1		1650	203	2503.	5.4	326.9
1		0015	4	0.	.0	320.0	1		0835	104	132.	.0	320.5	1		1655	204	2457.	5.1	326.8
1		0020	5	0.	.0	320.0	1		0840	105	143.	.0	320.6	1		1700	205	2407.	4.9	326.7
1		0025	6	0.	.0	320.0	1		0845	106	154.	.0	320.6	1		1705	206	2357.	4.6	326.6
1		0030	7	0.	.0	320.0	1		0850	107	166.	.0	320.7	1		1710	207	2308.	4.3	326.5
1		0035	8	0.	.0	320.0	1		0855	108	177.	.0	320.7	1		1715	208	2260.	4.1	326.4
1		0040	9	0.	.0	320.0	1		0900	109	189.	.0	320.8	1		1720	209	2215.	3.9	326.3
1		0045	10	0.	.0	320.0	1		0905	110	201.	.0	320.8	1		1725	210	2171.	3.7	326.2
1		0050	11	0.	.0	320.0	1		0910	111	214.	.0	320.9	1		1730	211	2130.	3.5	326.1
1		0055	12	0.	.0	320.0	1		0915	112	226.	.0	320.9	1		1735	212	2090.	3.4	326.0
1		0100	13	0.	.0	320.0	1		0920	113	239.	.0	321.0	1		1740	213	2052.	3.2	326.0
1		0105	14	0.	.0	320.0	1		0925	114	253.	.0	321.0	1		1745	214	2015.	3.1	325.9
1		0110	15	0.	.0	320.0	1		0930	115	266.	.1	321.1	1		1750	215	1980.	3.0	325.8
1		0115	16	0.	.0	320.0	1		0935	116	280.	.1	321.1	1		1755	216	1945.	2.8	325.7
1		0120	17	0.	.0	320.0	1		0940	117	294.	.1	321.2	1		1800	217	1913.	2.7	325.7
1		0125	18	0.	.0	320.0	1		0945	118	309.	.1	321.3	1		1805	218	1881.	2.6	325.6
1		0130	19	0.	.0	320.0	1		0950	119	324.	.1	321.3	1		1810	219	1850.	2.5	325.5
1		0135	20	0.	.0	320.0	1		0955	120	339.	.1	321.4	1		1815	220	1821.	2.4	325.5
1		0140	21	0.	.0	320.0	1		1000	121	354.	.1	321.4	1		1820	221	1792.	2.4	325.4
1		0145	22	0.	.0	320.0	1		1005	122	370.	.1	321.5	1		1825	222	1764.	2.3	325.3
1		0150	23	0.	.0	320.0	1		1010	123	386.	.1	321.6	1		1830	223	1737.	2.2	325.3
1		0155	24	0.	.0	320.0	1		1015	124	402.	.1	321.6	1		1835	224	1711.	2.1	325.2

1	0200	25	0.	.0	320.0	*	1	1020	125	419.	.1	321.7	*	1	1840	225	1685.	2.1	325.2
1	0205	26	0.	.0	320.0	*	1	1025	126	436.	.1	321.8	*	1	1845	226	1659.	2.0	325.1
1	0210	27	0.	.0	320.0	*	1	1030	127	454.	.2	321.8	*	1	1850	227	1633.	1.9	325.0
1	0215	28	0.	.0	320.0	*	1	1035	128	472.	.2	321.9	*	1	1855	228	1607.	1.9	325.0
1	0220	29	0.	.0	320.0	*	1	1040	129	491.	.2	322.0	*	1	1900	229	1582.	1.8	324.9
1	0225	30	0.	.0	320.0	*	1	1045	130	510.	.2	322.1	*	1	1905	230	1556.	1.7	324.9
1	0230	31	0.	.0	320.0	*	1	1050	131	529.	.2	322.2	*	1	1910	231	1529.	1.7	324.8
1	0235	32	0.	.0	320.0	*	1	1055	132	549.	.2	322.2	*	1	1915	232	1502.	1.6	324.8
1	0240	33	0.	.0	320.0	*	1	1100	133	570.	.3	322.3	*	1	1920	233	1474.	1.5	324.7
1	0245	34	0.	.0	320.0	*	1	1105	134	590.	.3	322.4	*	1	1925	234	1446.	1.5	324.6
1	0250	35	0.	.0	320.0	*	1	1110	135	611.	.3	322.5	*	1	1930	235	1418.	1.4	324.6
1	0255	36	0.	.0	320.0	*	1	1115	136	633.	.3	322.6	*	1	1935	236	1389.	1.4	324.5
1	0300	37	0.	.0	320.0	*	1	1120	137	652.	.4	322.7	*	1	1940	237	1361.	1.3	324.4
1	0305	38	0.	.0	320.0	*	1	1125	138	673.	.4	322.7	*	1	1945	238	1332.	1.3	324.4
1	0310	39	0.	.0	320.0	*	1	1130	139	699.	.4	322.8	*	1	1950	239	1303.	1.2	324.3
1	0315	40	0.	.0	320.0	*	1	1135	140	720.	.5	322.9	*	1	1955	240	1275.	1.2	324.2
1	0320	41	0.	.0	320.0	*	1	1140	141	749.	.5	323.0	*	1	2000	241	1247.	1.1	324.2
1	0325	42	0.	.0	320.0	*	1	1145	142	775.	.5	323.1	*	1	2005	242	1219.	1.1	324.1
1	0330	43	0.	.0	320.0	*	1	1150	143	803.	.6	323.2	*	1	2010	243	1191.	1.0	324.0
1	0335	44	0.	.0	320.0	*	1	1155	144	835.	.6	323.2	*	1	2015	244	1164.	1.0	324.0
1	0340	45	0.	.0	320.0	*	1	1200	145	872.	.6	323.3	*	1	2020	245	1138.	1.0	323.9
1	0345	46	0.	.0	320.0	*	1	1205	146	915.	.7	323.4	*	1	2025	246	1112.	.9	323.9
1	0350	47	0.	.0	320.0	*	1	1210	147	968.	.7	323.5	*	1	2030	247	1087.	.9	323.8
1	0355	48	0.	.0	320.0	*	1	1215	148	1032.	.8	323.7	*	1	2035	248	1063.	.9	323.7
1	0400	49	0.	.0	320.0	*	1	1220	149	1109.	.9	323.9	*	1	2040	249	1040.	.8	323.7
1	0405	50	0.	.0	320.0	*	1	1225	150	1202.	1.0	324.1	*	1	2045	250	1018.	.8	323.6
1	0410	51	0.	.0	320.0	*	1	1230	151	1311.	1.2	324.3	*	1	2050	251	997.	.8	323.6
1	0415	52	0.	.0	320.0	*	1	1235	152	1437.	1.5	324.6	*	1	2055	252	976.	.7	323.5
1	0420	53	0.	.0	320.0	*	1	1240	153	1579.	1.8	324.9	*	1	2100	253	957.	.7	323.5
1	0425	54	0.	.0	320.0	*	1	1245	154	1743.	2.2	325.3	*	1	2105	254	938.	.7	323.5
1	0430	55	0.	.0	320.0	*	1	1250	155	1920.	2.8	325.7	*	1	2110	255	920.	.7	323.4
1	0435	56	0.	.0	320.0	*	1	1255	156	2110.	3.5	326.1	*	1	2115	256	903.	.7	323.4
1	0440	57	0.	.0	320.0	*	1	1300	157	2306.	4.3	326.5	*	1	2120	257	886.	.6	323.3
1	0445	58	0.	.0	320.0	*	1	1305	158	2506.	5.4	326.9	*	1	2125	258	871.	.6	323.3
1	0450	59	0.	.0	320.0	*	1	1310	159	2737.	6.7	327.4	*	1	2130	259	856.	.6	323.3
1	0455	60	0.	.0	320.0	*	1	1315	160	2969.	8.2	327.8	*	1	2135	260	841.	.6	323.2
1	0500	61	0.	.0	320.0	*	1	1320	161	3229.	10.1	328.2	*	1	2140	261	827.	.6	323.2
1	0505	62	0.	.0	320.0	*	1	1325	162	3520.	12.4	328.7	*	1	2145	262	814.	.6	323.2
1	0510	63	0.	.0	320.0	*	1	1330	163	3789.	15.0	329.2	*	1	2150	263	801.	.6	323.1
1	0515	64	0.	.0	320.0	*	1	1335	164	4025.	17.7	329.8	*	1	2155	264	788.	.5	323.1
1	0520	65	0.	.0	320.0	*	1	1340	165	4247.	20.4	330.2	*	1	2200	265	776.	.5	323.1
1	0525	66	0.	.0	320.0	*	1	1345	166	4447.	23.0	330.7	*	1	2205	266	765.	.5	323.1
1	0530	67	0.	.0	320.0	*	1	1350	167	4620.	25.3	331.0	*	1	2210	267	754.	.5	323.0
1	0535	68	0.	.0	320.0	*	1	1355	168	4763.	27.3	331.4	*	1	2215	268	743.	.5	323.0
1	0540	69	0.	.0	320.0	*	1	1400	169	4875.	28.9	331.6	*	1	2220	269	734.	.5	323.0
1	0545	70	0.	.0	320.0	*	1	1405	170	4956.	30.1	331.8	*	1	2225	270	727.	.5	323.0
1	0550	71	0.	.0	320.0	*	1	1410	171	5008.	30.9	331.9	*	1	2230	271	713.	.5	322.9
1	0555	72	0.	.0	320.0	*	1	1415	172	5033.	31.2	331.9	*	1	2235	272	708.	.5	322.9
1	0600	73	1.	.0	320.0	*	1	1420	173	5032.	31.2	331.9	*	1	2240	273	700.	.4	322.9
1	0605	74	1.	.0	320.0	*	1	1425	174	5007.	30.8	331.9	*	1	2245	274	691.	.4	322.8

1	0610	75	1.	.0	320.0	*	1	1430	175	4960.	30.2	331.8	*	1	2250	275	682.	.4	322.8
1	0615	76	1.	.0	320.0	*	1	1435	176	4894.	29.2	331.6	*	1	2255	276	674.	.4	322.7
1	0620	77	2.	.0	320.0	*	1	1440	177	4810.	28.0	331.5	*	1	2300	277	666.	.4	322.7
1	0625	78	2.	.0	320.0	*	1	1445	178	4711.	26.6	331.2	*	1	2305	278	658.	.4	322.7
1	0630	79	3.	.0	320.0	*	1	1450	179	4601.	25.1	331.0	*	1	2310	279	650.	.4	322.7
1	0635	80	4.	.0	320.0	*	1	1455	180	4483.	23.5	330.7	*	1	2315	280	643.	.4	322.6
1	0640	81	5.	.0	320.0	*	1	1500	181	4359.	21.8	330.5	*	1	2320	281	636.	.3	322.6
1	0645	82	6.	.0	320.0	*	1	1505	182	4232.	20.2	330.2	*	1	2325	282	629.	.3	322.6
1	0650	83	7.	.0	320.0	*	1	1510	183	4104.	18.6	329.9	*	1	2330	283	622.	.3	322.5
1	0655	84	9.	.0	320.0	*	1	1515	184	3979.	17.1	329.6	*	1	2335	284	615.	.3	322.5
1	0700	85	11.	.0	320.0	*	1	1520	185	3857.	15.7	329.4	*	1	2340	285	608.	.3	322.5
1	0705	86	13.	.0	320.1	*	1	1525	186	3740.	14.4	329.1	*	1	2345	286	602.	.3	322.5
1	0710	87	16.	.0	320.1	*	1	1530	187	3616.	13.2	328.9	*	1	2350	287	596.	.3	322.4
1	0715	88	19.	.0	320.1	*	1	1535	188	3493.	12.2	328.7	*	1	2355	288	590.	.3	322.4
1	0720	89	23.	.0	320.1	*	1	1540	189	3392.	11.4	328.5	*	2	0000	289	584.	.3	322.4
1	0725	90	27.	.0	320.1	*	1	1545	190	3302.	10.7	328.3	*	2	0005	290	579.	.3	322.4
1	0730	91	31.	.0	320.1	*	1	1550	191	3219.	10.0	328.2	*	2	0010	291	573.	.3	322.3
1	0735	92	36.	.0	320.1	*	1	1555	192	3142.	9.4	328.1	*	2	0015	292	568.	.3	322.3
1	0740	93	42.	.0	320.2	*	1	1600	193	3072.	8.9	327.9	*	2	0020	293	562.	.3	322.3
1	0745	94	47.	.0	320.2	*	1	1605	194	3009.	8.5	327.8	*	2	0025	294	557.	.3	322.3
1	0750	95	54.	.0	320.2	*	1	1610	195	2950.	8.1	327.7	*	2	0030	295	551.	.2	322.2
1	0755	96	61.	.0	320.2	*	1	1615	196	2891.	7.7	327.6	*	2	0035	296	545.	.2	322.2
1	0800	97	68.	.0	320.3	*	1	1620	197	2833.	7.3	327.5	*	2	0040	297	539.	.2	322.2
1	0805	98	76.	.0	320.3	*	1	1625	198	2775.	6.9	327.4	*	2	0045	298	533.	.2	322.2
1	0810	99	85.	.0	320.3	*	1	1630	199	2717.	6.6	327.3	*	2	0050	299	526.	.2	322.1
1	0815	100	93.	.0	320.4	*	1	1635	200	2660.	6.3	327.2	*	2	0055	300	519.	.2	322.1
						*							*						

****

PEAK OUTFLOW IS 5033. AT TIME 14.25 HOURS

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 5033.	14.25		3150.	1126.	1084.	1084.
		(INCHES)	4.619	6.604	6.604	6.604
		(AC-FT)	1562.	2233.	2233.	2233.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
31.	14.25	12.	3.	3.	3.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
331.94	14.25	328.12	323.28	323.16	323.16

CUMULATIVE AREA = 6.34 SQ MI

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

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

****

HYDROGRAPH AT STATION BRIDGE
PLAN 2, RATIO = 1.00

****

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.0	320.0	1		0820	101	103.	.0	320.4	1		1640	201	2318.	4.4	326.5
1		0005	2	0.	.0	320.0	1		0825	102	112.	.0	320.5	1		1645	202	2268.	4.1	326.4
1		0010	3	0.	.0	320.0	1		0830	103	122.	.0	320.5	1		1650	203	2220.	3.9	326.3
1		0015	4	0.	.0	320.0	1		0835	104	132.	.0	320.5	1		1655	204	2176.	3.7	326.2
1		0020	5	0.	.0	320.0	1		0840	105	143.	.0	320.6	1		1700	205	2133.	3.5	326.1
1		0025	6	0.	.0	320.0	1		0845	106	154.	.0	320.6	1		1705	206	2093.	3.4	326.1
1		0030	7	0.	.0	320.0	1		0850	107	166.	.0	320.7	1		1710	207	2055.	3.2	326.0
1		0035	8	0.	.0	320.0	1		0855	108	177.	.0	320.7	1		1715	208	2018.	3.1	325.9
1		0040	9	0.	.0	320.0	1		0900	109	189.	.0	320.8	1		1720	209	1983.	3.0	325.8
1		0045	10	0.	.0	320.0	1		0905	110	201.	.0	320.8	1		1725	210	1949.	2.9	325.7
1		0050	11	0.	.0	320.0	1		0910	111	214.	.0	320.9	1		1730	211	1916.	2.7	325.7
1		0055	12	0.	.0	320.0	1		0915	112	226.	.0	320.9	1		1735	212	1885.	2.6	325.6
1		0100	13	0.	.0	320.0	1		0920	113	239.	.0	321.0	1		1740	213	1855.	2.6	325.5
1		0105	14	0.	.0	320.0	1		0925	114	253.	.0	321.0	1		1745	214	1826.	2.5	325.5
1		0110	15	0.	.0	320.0	1		0930	115	266.	.1	321.1	1		1750	215	1798.	2.4	325.4
1		0115	16	0.	.0	320.0	1		0935	116	280.	.1	321.1	1		1755	216	1771.	2.3	325.3
1		0120	17	0.	.0	320.0	1		0940	117	294.	.1	321.2	1		1800	217	1745.	2.2	325.3
1		0125	18	0.	.0	320.0	1		0945	118	309.	.1	321.3	1		1805	218	1719.	2.2	325.2
1		0130	19	0.	.0	320.0	1		0950	119	324.	.1	321.3	1		1810	219	1695.	2.1	325.2
1		0135	20	0.	.0	320.0	1		0955	120	339.	.1	321.4	1		1815	220	1671.	2.0	325.1
1		0140	21	0.	.0	320.0	1		1000	121	354.	.1	321.4	1		1820	221	1647.	2.0	325.1
1		0145	22	0.	.0	320.0	1		1005	122	370.	.1	321.5	1		1825	222	1623.	1.9	325.0
1		0150	23	0.	.0	320.0	1		1010	123	386.	.1	321.6	1		1830	223	1600.	1.8	325.0
1		0155	24	0.	.0	320.0	1		1015	124	402.	.1	321.6	1		1835	224	1577.	1.8	324.9
1		0200	25	0.	.0	320.0	1		1020	125	419.	.1	321.7	1		1840	225	1553.	1.7	324.9
1		0205	26	0.	.0	320.0	1		1025	126	436.	.1	321.8	1		1845	226	1529.	1.7	324.8
1		0210	27	0.	.0	320.0	1		1030	127	454.	.2	321.8	1		1850	227	1504.	1.6	324.8
1		0215	28	0.	.0	320.0	1		1035	128	472.	.2	321.9	1		1855	228	1478.	1.6	324.7
1		0220	29	0.	.0	320.0	1		1040	129	491.	.2	322.0	1		1900	229	1451.	1.5	324.6
1		0225	30	0.	.0	320.0	1		1045	130	510.	.2	322.1	1		1905	230	1423.	1.4	324.6
1		0230	31	0.	.0	320.0	1		1050	131	529.	.2	322.2	1		1910	231	1394.	1.4	324.5
1		0235	32	0.	.0	320.0	1		1055	132	549.	.2	322.2	1		1915	232	1365.	1.3	324.4
1		0240	33	0.	.0	320.0	1		1100	133	570.	.3	322.3	1		1920	233	1336.	1.3	324.4

1	0245	34	0.	.0	320.0	*	1	1105	134	590.	.3	322.4	*	1	1925	234	1306.	1.2	324.3
1	0250	35	0.	.0	320.0	*	1	1110	135	611.	.3	322.5	*	1	1930	235	1277.	1.2	324.2
1	0255	36	0.	.0	320.0	*	1	1115	136	633.	.3	322.6	*	1	1935	236	1247.	1.1	324.2
1	0300	37	0.	.0	320.0	*	1	1120	137	652.	.4	322.7	*	1	1940	237	1218.	1.1	324.1
1	0305	38	0.	.0	320.0	*	1	1125	138	673.	.4	322.7	*	1	1945	238	1189.	1.0	324.0
1	0310	39	0.	.0	320.0	*	1	1130	139	699.	.4	322.8	*	1	1950	239	1161.	1.0	324.0
1	0315	40	0.	.0	320.0	*	1	1135	140	720.	.5	322.9	*	1	1955	240	1134.	.9	323.9
1	0320	41	0.	.0	320.0	*	1	1140	141	749.	.5	323.0	*	1	2000	241	1107.	.9	323.8
1	0325	42	0.	.0	320.0	*	1	1145	142	775.	.5	323.1	*	1	2005	242	1081.	.9	323.8
1	0330	43	0.	.0	320.0	*	1	1150	143	803.	.6	323.2	*	1	2010	243	1056.	.8	323.7
1	0335	44	0.	.0	320.0	*	1	1155	144	835.	.6	323.2	*	1	2015	244	1032.	.8	323.7
1	0340	45	0.	.0	320.0	*	1	1200	145	872.	.6	323.3	*	1	2020	245	1009.	.8	323.6
1	0345	46	0.	.0	320.0	*	1	1205	146	915.	.7	323.4	*	1	2025	246	987.	.8	323.6
1	0350	47	0.	.0	320.0	*	1	1210	147	968.	.7	323.5	*	1	2030	247	966.	.7	323.5
1	0355	48	0.	.0	320.0	*	1	1215	148	1032.	.8	323.7	*	1	2035	248	946.	.7	323.5
1	0400	49	0.	.0	320.0	*	1	1220	149	1109.	.9	323.9	*	1	2040	249	928.	.7	323.4
1	0405	50	0.	.0	320.0	*	1	1225	150	1202.	1.0	324.1	*	1	2045	250	910.	.7	323.4
1	0410	51	0.	.0	320.0	*	1	1230	151	1311.	1.2	324.3	*	1	2050	251	893.	.7	323.4
1	0415	52	0.	.0	320.0	*	1	1235	152	1437.	1.5	324.6	*	1	2055	252	877.	.6	323.3
1	0420	53	0.	.0	320.0	*	1	1240	153	1579.	1.8	324.9	*	1	2100	253	862.	.6	323.3
1	0425	54	0.	.0	320.0	*	1	1245	154	1743.	2.2	325.3	*	1	2105	254	847.	.6	323.3
1	0430	55	0.	.0	320.0	*	1	1250	155	1920.	2.8	325.7	*	1	2110	255	833.	.6	323.2
1	0435	56	0.	.0	320.0	*	1	1255	156	2110.	3.5	326.1	*	1	2115	256	820.	.6	323.2
1	0440	57	0.	.0	320.0	*	1	1300	157	2306.	4.3	326.5	*	1	2120	257	807.	.6	323.2
1	0445	58	0.	.0	320.0	*	1	1305	158	2506.	5.4	326.9	*	1	2125	258	794.	.5	323.1
1	0450	59	0.	.0	320.0	*	1	1310	159	2737.	6.7	327.4	*	1	2130	259	782.	.5	323.1
1	0455	60	0.	.0	320.0	*	1	1315	160	2969.	8.2	327.8	*	1	2135	260	771.	.5	323.1
1	0500	61	0.	.0	320.0	*	1	1320	161	3229.	10.1	328.2	*	1	2140	261	759.	.5	323.1
1	0505	62	0.	.0	320.0	*	1	1325	162	3520.	12.4	328.7	*	1	2145	262	749.	.5	323.0
1	0510	63	0.	.0	320.0	*	1	1330	163	3789.	15.0	329.2	*	1	2150	263	738.	.5	323.0
1	0515	64	0.	.0	320.0	*	1	1335	164	4025.	17.7	329.8	*	1	2155	264	732.	.5	323.0
1	0520	65	0.	.0	320.0	*	1	1340	165	4247.	20.4	330.2	*	1	2200	265	723.	.5	322.9
1	0525	66	0.	.0	320.0	*	1	1345	166	4447.	23.0	330.7	*	1	2205	266	708.	.5	322.9
1	0530	67	0.	.0	320.0	*	1	1350	167	4620.	25.3	331.0	*	1	2210	267	703.	.4	322.9
1	0535	68	0.	.0	320.0	*	1	1355	168	4763.	27.3	331.4	*	1	2215	268	694.	.4	322.8
1	0540	69	0.	.0	320.0	*	1	1400	169	4920.	29.6	331.7	*	1	2220	269	686.	.4	322.8
1	0545	70	0.	.0	320.0	*	1	1405	170	5215.	34.0	332.3	*	1	2225	270	677.	.4	322.8
1	0550	71	0.	.0	320.0	*	1	1410	171	5691.	43.2	333.5	*	1	2230	271	669.	.4	322.7
1	0555	72	0.	.0	320.0	*	1	1415	172	7510.	54.4	334.7	*	1	2235	272	660.	.4	322.7
1	0600	73	1.	.0	320.0	*	1	1420	173	9895.	64.2	335.7	*	1	2240	273	653.	.4	322.7
1	0605	74	1.	.0	320.0	*	1	1425	174	11875.	71.4	336.4	*	1	2245	274	645.	.4	322.6
1	0610	75	1.	.0	320.0	*	1	1430	175	10780.	67.5	336.0	*	1	2250	275	638.	.4	322.6
1	0615	76	1.	.0	320.0	*	1	1435	176	7926.	56.3	334.9	*	1	2255	276	630.	.3	322.6
1	0620	77	2.	.0	320.0	*	1	1440	177	6341.	48.4	334.1	*	1	2300	277	623.	.3	322.5
1	0625	78	2.	.0	320.0	*	1	1445	178	5612.	41.3	333.3	*	1	2305	278	617.	.3	322.5
1	0630	79	3.	.0	320.0	*	1	1450	179	5226.	34.2	332.4	*	1	2310	279	610.	.3	322.5
1	0635	80	4.	.0	320.0	*	1	1455	180	4798.	27.8	331.4	*	1	2315	280	604.	.3	322.5
1	0640	81	5.	.0	320.0	*	1	1500	181	4432.	22.8	330.6	*	1	2320	281	598.	.3	322.4
1	0645	82	6.	.0	320.0	*	1	1505	182	4136.	19.0	330.0	*	1	2325	282	592.	.3	322.4
1	0650	83	7.	.0	320.0	*	1	1510	183	3900.	16.2	329.5	*	1	2330	283	586.	.3	322.4

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   1     0655  84       9.       .0   320.0 *  1     1515 184    3710.     14.1   329.1 *  1     2335 284     580.       .3   322.4
   1     0700  85      11.       .0   320.0 *  1     1520 185    3530.     12.5   328.7 *  1     2340 285     574.       .3   322.3
   1     0705  86      13.       .0   320.1 *  1     1525 186    3390.     11.4   328.5 *  1     2345 286     569.       .3   322.3
   1     0710  87      16.       .0   320.1 *  1     1530 187    3279.     10.5   328.3 *  1     2350 287     564.       .3   322.3
   1     0715  88      19.       .0   320.1 *  1     1535 188    3180.      9.7   328.1 *  1     2355 288     559.       .3   322.3
   1     0720  89      23.       .0   320.1 *  1     1540 189    3090.      9.0   328.0 *  2     0000 289     553.       .3   322.3
   1     0725  90      27.       .0   320.1 *  1     1545 190    3006.      8.4   327.8 *  2     0005 290     548.       .2   322.2
   1     0730  91      31.       .0   320.1 *  1     1550 191    2926.      7.9   327.7 *  2     0010 291     543.       .2   322.2
   1     0735  92      36.       .0   320.1 *  1     1555 192    2850.      7.4   327.6 *  2     0015 292     538.       .2   322.2
   1     0740  93      42.       .0   320.2 *  1     1600 193    2778.      7.0   327.4 *  2     0020 293     533.       .2   322.2
   1     0745  94      47.       .0   320.2 *  1     1605 194    2708.      6.5   327.3 *  2     0025 294     527.       .2   322.1
   1     0750  95      54.       .0   320.2 *  1     1610 195    2643.      6.2   327.2 *  2     0030 295     520.       .2   322.1
   1     0755  96      61.       .0   320.2 *  1     1615 196    2580.      5.8   327.1 *  2     0035 296     514.       .2   322.1
   1     0800  97      68.       .0   320.3 *  1     1620 197    2522.      5.5   327.0 *  2     0040 297     506.       .2   322.1
   1     0805  98      76.       .0   320.3 *  1     1625 198    2475.      5.3   326.9 *  2     0045 298     498.       .2   322.0
   1     0810  99      85.       .0   320.3 *  1     1630 199    2423.      5.0   326.8 *  2     0050 299     489.       .2   322.0
   1     0815 100      93.       .0   320.4 *  1     1635 200    2370.      4.7   326.7 *  2     0055 300     479.       .2   322.0
                                          *                                                  *
 ********************************************************************************************************************************************

 PEAK OUTFLOW IS    11875. AT TIME  14.42 HOURS


  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR       24-HR       72-HR     24.92-HR
+   (CFS)       (HR)
                        (CFS)
+   11875.     14.42                3386.       1164.       1121.        1121.
                         (INCHES)    4.965       6.830       6.830        6.830
                          (AC-FT)    1679.       2309.       2309.        2309.

 PEAK STORAGE   TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR       24-HR       72-HR     24.92-HR
+  (AC-FT)      (HR)
       71.     14.42                  14.          4.          4.           4.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR       24-HR       72-HR     24.92-HR
+   (FEET)      (HR)
    336.42     14.42               328.21      323.25      323.13       323.13

                         CUMULATIVE AREA =    6.34 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 1.00
HYDROGRAPH AT					
+	AREA1	2.67	1	FLOW	3888.
				TIME	12.83
			2	FLOW	3888.
				TIME	12.83
ROUTED TO					
+	TLDAM	2.67	1	FLOW	1569.
				TIME	13.92
			2	FLOW	1569.
				TIME	13.92
			** PEAK STAGES IN FEET **		
			1	STAGE	418.09
				TIME	13.92
			2	STAGE	418.09
				TIME	13.92
HYDROGRAPH AT					
+	AREA2	3.67	1	FLOW	3753.
				TIME	13.75
			2	FLOW	3753.
				TIME	13.75
2 COMBINED AT					
+	COMB	6.34	1	FLOW	5312.
				TIME	13.75
			2	FLOW	5312.
				TIME	13.75
ROUTED TO					
+	MTDAM	6.34	1	FLOW	5101.
				TIME	14.08
			2	FLOW	12648.
				TIME	14.42
			** PEAK STAGES IN FEET **		
			1	STAGE	350.38
				TIME	14.08
			2	STAGE	350.36
				TIME	13.98
ROUTED TO					
+	BRIDGE	6.34	1	FLOW	5033.
				TIME	14.25
			2	FLOW	11875.

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                                    TIME        14.42

                                 ** PEAK STAGES IN FEET **
                                 1   STAGE      331.94
                                     TIME        14.25
                                 2   STAGE      336.42
                                     TIME        14.42
1                              SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    TLDAM
                             (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)


      PLAN  1 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION          414.00             414.00           420.30
                              STORAGE              597.               597.            1201.
                              OUTFLOW                0.                 0.            3004.


                     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

                     1.00       418.09         .00        974.      1569.       .00         13.92         .00


      PLAN  2 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION          414.00             414.00           420.30
                              STORAGE              597.               597.            1201.
                              OUTFLOW                0.                 0.            3004.


                     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

                     1.00       418.09         .00        974.      1569.       .00         13.92         .00
1                              SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION    MTDAM
                             (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)


      PLAN  1 ..............                  INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                              ELEVATION          344.00             344.00           349.10
                              STORAGE               49.                49.             169.
                              OUTFLOW                0.                 0.            3020.


                     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

                     1.00       350.38        1.28        222.      5101.      2.75         14.08         .00
```

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	344.00	344.00	349.10
STORAGE	49.	49.	169.
OUTFLOW	0.	0.	3020.

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	350.36	1.26	221.	12648.	1.11	14.42	13.92

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION BRIDGE
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	320.00	333.50	333.50
STORAGE	0.	43.	43.
OUTFLOW	0.	5693.	5693.

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	331.94	.00	31.	5033.	.00	14.25	.00

PLAN 2 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	320.00	333.50	333.50
STORAGE	0.	43.	43.
OUTFLOW	0.	5693.	5693.

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	336.42	2.92	71.	11875.	.50	14.42	.00

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