XSECTION 102	REACH	53.69	1	2	.08	0	3.00	24.00	1.25	---	6.36	7752.94	144.4
XSECTION 2	RUNOFF	.31	1	2	.08	.0	3.00	24.00	2.24	---	5.94	677.79	2196.4
STRUCTURE 2	ADDHYD	54.00	1	2	.08	.0	3.00	24.00	1.25	---	6.36	7808.55	144.6
XSECTION 101	REACH	54.00	1	2	.08	.0	3.00	24.00	1.25	---	6.36	7808.55	144.6
XSECTION 1	RUNOFF	.19	1	2	.08	.0	3.00	24.00	2.25	---	6.13	292.87	1541.4
TRUCTURE 1	ADDHYD	54.19	1	2	.08	.0	3.00	24.00	1.25	--	6.35	8010.17	147.8

1

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS
(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

	HYDROGRAPH INFORMATION							ROUTING PARAMETERS									PEAK TRAVEL TIME	
				OUTFLOW+				VOLUME	MAIN	ITER-	Q AND A			PEAK	S/Q	ATT-	STOR-	KINE-
XSEC ID	REACH LENGTH (FT)	INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	INTERV.AREA PEAK (CFS)	INTERV.AREA TIME (HR)	BASE-FLOW (CFS)	ABOVE BASE (IN)	TIME INCR (HR)	ATION #	EQUATION COEFF (X)	EQUATION POWER (M)	LENGTH FACTOR (K*)	RATIO O/I (Q*)	ØPEAK (K) (SEC)	KIN COEFF (C)	AGE (HR)	MATIC (HR)
ALTERNATE 1 STORM 1																			
												1.90							
+138	2600	328	6.1	328	6.1	---	---	0	1.59	.08	1		1.47	.035	.998	179	.91?	.08	.05
+												.400							
+149	1	437	6.0	437	6.0	---	---	0	1.60	.08	0		1.00	.001	1.000	2	1.00?	.00	.00
+												.100							
+135	4300	2354	7.3	2327	7.5	---	---	0	1.16	.08	1		1.55	.006	.989	494	.46	.17	.14
+												.300							
+133	2800	183	6.1	155	6.2	---	---	0	1.59	.08	1		1.60	.163	.345	527	.41	.08	.15
+												.200							
+132	2300	2362	7.5	2361	7.6	---	---	0	1.17	.08	1		1.60	.002	.999	214	.92?	.08	.06
+												.300							
+130	2400	2379	7.6	2378	7.6	---	---	0	1.18	.08	1		1.60	.001	1.000	172	.94?	.08	.05
+												.300							
+128	1700	2403	7.6	2403	7.6	---	---	0	1.19	.08	0		1.60	.001	1.000	122	1.00?	.00	.00
+												1.40							
+129	500	292	6.1	292	6.1	---	---	0	2.25	.08	0		1.60	.001	1.000	30	1.00?	.00	.00
+												.200							
+127	3100	2420	7.6	2412	7.7	---	---	0	1.21	.08	1		1.60	.002	.997	285	.69?	.08	.08
+												.100							
+125	5000	4207	6.1	3901	6.2	---	---	0	1.15	.08	1		1.60	.012	.927	577	.41	.17	.16
+																			

+						---	---												
+146	1900	388	6.1	388	6.1			0	1.36	.08	0	1.90	1.50	.012	1.000	113	1.00?	.00	.00
+						---	---												
145	700	503	6.1	503	6.1			0	1.37	.08	0	2.10	1.50	.002	1.000	36	1.00?	.00	.00
						---	---												
+144	2600	675	6.1	675	6.1			0	1.33	.08	0	1.60	1.50	.014	1.000	144	1.00?	.00	.00
+						---	---												
+143	2500	841	6.1	821	6.2			0	1.31	.08	1	.400	1.60	.021	.977	222	.81?	.08	.06
+						---	---												
+142	3100	844	6.2	798	6.4			0	1.27	.08	1	.800	1.60	.031	.945	329	.63	.17	.09
+						---	---												
+141	3400	967	6.3	946	6.5			0	1.29	.08	1	.400	1.60	.023	.978	286	.69?	.17	.08
+						---	---												
+122	3200	2255	7.1	2254	7.1			0	1.25*	.08	1	800	1.60	.001	.999	235	.78?	.08	.07
+						---	---												
+119	3000	5843	6.6	5843	6.6			0	1.21	.08	0	200	1.60	.001	1.000	132	1.00?	.00	.00
+						---	---												
+120	600	184	6.1	184	6.1			0	1.59	.08	0	1.30	1.40	.012	1.000	80	1.00?	.00	.00
+						---	---												
23	3500	335	6.1	299	6.2			0	2.16	.08	1	.600	1.50	.115	.892	472	.48	.17	.13
						---	---												
+118	600	599	6.2	599	6.2			0	1.86	.08	0	1.30	1.40	.005	1.000	57	1.00?	.00	.00
+						---	---												
+136	1500	6096	6.6	6096	6.6			0	1.22	.08	0	.200	1.60	.000	1.000	98	1.00?	.00	.00
+						---	---												
+115	3100	6113	6.6	6109	6.6			0	1.22	.08	1	.100	1.70	.001	.999	195	.87?	.08	.05
+						---	---												
+116	2400	219	6.2	208	6.3			0	1.74	.08	1	1.10	1.40	.054	.951	343	61	.08	.10
+						---	---												
+112	3900	6914	6.3	6832	6.4			0	1.23	.08	1	.200	1.60	.002	.988	242	.76?	.08	.07
+						---	---												
+108	3200	230	6.1	208	6.3			0	1.52	.08	1	.400	1.60	.072	.905	462	49	.17	.13
+						---	---												
+107	3400	320	6.1	278	6.1			0	1.59	.08	1	.400	1.60	.117	.870	433	51	.08	.12
+						---	---												
09	3800	119	6.1	100	6.2			0	1.45	.08	1	.600	1.60	.131	.843	544	.43	.17	.16
						---	---												
+104	1800	7513	6.4	7513	6.4			0	1.24	.08	0	.200	1.60	.000	1.000	108	1.00?	.00	.00
+						---	---												
+103	1400	7552	6.4	7552	6.4			0	1.24	.08	0	.200	1.60	.000	1.000	84	1.00?	.00	.00

+105	3800	441	6.0	419	6.1			0	1.97	.08	1		1.60	.091	.951	333	.62	.06	.39
+						---	---												
1																			

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS
(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

		HYDROGRAPH INFORMATION							ROUTING PARAMETERS										PEAK
						OUTFLOW+			VOLUME	MAIN	ITER-	Q AND A			PEAK	S/Q	ATT-	TRAVEL TIME	
XSEC	REACH	INFLOW		OUTFLOW		INTERV.AREA		BASE-	ABOVE	TIME	ATION	EQUATION		LENGTH	RATIO	@PEAK	KIN	STOR-	KINE-
ID	LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	FLOW (CFS)	BASE (IN)	INCR (HR)	#	COEFF (X)	POWER (M)	FACTOR (K*)	Q/I (Q*)	(K) (SEC)	COEFF (C)	AGE (HR)	MATIC (HR)
ALTERNATE 1 STORM 1																			
+102	2300	7741	6.4	7741	6.4			0	1.25	.08	0	.100	1.70	.000	1.000	131	1.00?	.00	.00
+						---	---												
101	1550	7797	6.4	7797	6.4			0	1.25	.08	0	.200	1.70	.000	1.000	59	1.00?	.00	.00
						---	---												
1																			

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
0 STRUCTURE 49	16.37	
+ ALTERNATE 1		2356.14
0 STRUCTURE 47	.39	
+ ALTERNATE 1		389.02
0 STRUCTURE 46	.55	
+ ALTERNATE 1		509.23
STRUCTURE 45	.82	
+ ALTERNATE 1		681.57
0 STRUCTURE 44	1.11	
+ ALTERNATE 1		840.86
0 STRUCTURE 43	1.31	

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
0 STRUCTURE 49	16.37	
+ ALTERNATE 1		2356.14
0 STRUCTURE 47	.39	
+ ALTERNATE 1		389.02
0 STRUCTURE 46	.55	
+ ALTERNATE 1		509.23
0 STRUCTURE 45	.82	
+ ALTERNATE 1		681.57
0 STRUCTURE 44	1.11	
+ ALTERNATE 1		840.86
0 STRUCTURE 43	1.31	
+ ALTERNATE 1		845.41
0 STRUCTURE 42	1.56	
+ ALTERNATE 1		974.40
0 STRUCTURE 41	26.12	
+ ALTERNATE 1		2254.90
0 STRUCTURE 38	.32	
+ ALTERNATE 1		421.21
0 STRUCTURE 36	50.85	
+ ALTERNATE 1		6113.04
0 STRUCTURE 35	16.86	
+ ALTERNATE 1		2363.71
0 STRUCTURE 32	17.14	
+ ALTERNATE 1		2378.99
0 STRUCTURE 30	17.54	
+ ALTERNATE 1		2402.73
0 STRUCTURE 28	17.78	

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
0 STRUCTURE 27	23.03	
+ ALTERNATE 1		4228.09
0 STRUCTURE 25	23.49	
+ ALTERNATE 1		4315.67
0 STRUCTURE 21	49.76	
+ ALTERNATE 1		5817.27
0 STRUCTURE 19	50.75	
+ ALTERNATE 1		6095.82
0 STRUCTURE 18	.50	
+ ALTERNATE 1		603.01
0 STRUCTURE 15	51.91	
+ ALTERNATE 1		6915.52
0 STRUCTURE 12	53.16	
+ ALTERNATE 1		7512.70
0 STRUCTURE 4	53.30	
+ ALTERNATE 1		7552.35
0 STRUCTURE 3	53.69	
+ ALTERNATE 1		7752.94
0 STRUCTURE 2	54.00	
+ ALTERNATE 1		7808.55
0 STRUCTURE 1	54.19	
+ ALTERNATE 1		8010.17
0 XSECTION 1	.19	

+_____
ALTERNATE 1 292.87
0 XSECTION 2 .31
+_____
ALTERNATE 1 677.79
0 XSECTION 3 .16
+_____
ALTERNATE 1 248.53
1

TR20 XEQ 5/ 5/93 10:26 LOWER SAND CREEK - FUT COND, DET ALT.B-(PREDESIGN) JOB
1 SUMMARY
REV PC/09/83 24 HR TYPE IIA STORM (10-YR AMC=2) FILE NAME DSEL10.DAT
PAGE 28

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ DRAINAGE
STRUCTURE AREA STORM NUMBERS.....
ID (SQ MI) 1

0 XSECTION 4 .14
+_____
ALTERNATE 1 268.10
0 XSECTION 5 .23
+_____
ALTERNATE 1 458.54
0 XSECTION 6 .23
+_____
ALTERNATE 1 322.46
0 XSECTION 7 .13
+_____
ALTERNATE 1 133.45
0 XSECTION 8 .11
+_____
ALTERNATE 1 74.16
0 XSECTION 9 .13
+_____
ALTERNATE 1 190.73
0 XSECTION 10 .11
+_____
ALTERNATE 1 120.58
0 XSECTION 11 .25
+_____
ALTERNATE 1 233.83
0 XSECTION 12 .29
+_____
ALTERNATE 1 520.14
0 XSECTION 13 .37

+_____
ALTERNATE 1 365.82
0 XSECTION 14 .23
+_____
ALTERNATE 1 302.65
0 XSECTION 15 .10
+_____
ALTERNATE 1 199.37
0 XSECTION 16 .15
+_____
ALTERNATE 1 162.51
0 XSECTION 17 .21
+_____
ALTERNATE 1 220.41
1

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ DRAINAGE
STRUCTURE AREA STORM NUMBERS.....
ID (SQ MI) 1

0 XSECTION 18 .30
+_____
ALTERNATE 1 304.99
0 XSECTION 19 .13
+_____
ALTERNATE 1 193.34
0 XSECTION 20 .13
+_____
ALTERNATE 1 190.03
0 XSECTION 21 49.99
+_____
ALTERNATE 1 5845.59
0 XSECTION 22 .23
+_____
ALTERNATE 1 368.47
0 XSECTION 23 .20
+_____
ALTERNATE 1 335.65
0 XSECTION 24 .10
+_____
ALTERNATE 1 167.67
0 XSECTION 25 .36

```
+_____________________________
  ALTERNATE  1          352.98
0 XSECTION  26     .11
+_____________________________
  ALTERNATE  1           92.46
0 XSECTION  27     .10
+_____________________________
  ALTERNATE  1          210.98
0 XSECTION  28     .08
+_____________________________
  ALTERNATE  1          177.50
0 XSECTION  29     .16
+_____________________________
  ALTERNATE  1          293.90
0 XSECTION  30     .15
+_____________________________
  ALTERNATE  1          252.95
0 XSECTION  31     .25
+_____________________________
  ALTERNATE  1          307.27
1
```


SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

```
XSECTION/       DRAINAGE
STRUCTURE         AREA     STORM NUMBERS.....
  ID            (SQ MI)        1

0 XSECTION  32     .28
+_____________________________
  ALTERNATE  1          309.46
0 XSECTION  33     .12
+_____________________________
  ALTERNATE  1           67.02
0 XSECTION  34     .13
+_____________________________
  ALTERNATE  1          187.63
0 XSECTION  35     .24
+_____________________________
  ALTERNATE  1          337.69
0 XSECTION  36     .10
+_____________________________
  ALTERNATE  1          183.44
0 XSECTION  37     .23
```

+_____
ALTERNATE 1 344.64
0 XSECTION 38 .09
+_____
ALTERNATE 1 161.42
0 XSECTION 41 .24
+_____
ALTERNATE 1 313.93
0 XSECTION 42 .25
+_____
ALTERNATE 1 179.58
0 XSECTION 43 .20
+_____
ALTERNATE 1 253.68
0 XSECTION 44 .29
+_____
ALTERNATE 1 187.11
0 XSECTION 45 .27
+_____
ALTERNATE 1 193.72
0 XSECTION 46 .16
+_____
ALTERNATE 1 134.93
0 XSECTION 47 .26
+_____
ALTERNATE 1 356.62
1

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ DRAINAGE
STRUCTURE AREA STORM NUMBERS.....
ID (SQ MI) 1

0 XSECTION 48 .13
+_____
ALTERNATE 1 49.46
0 XSECTION 49 .01
+_____
ALTERNATE 1 16.66
0 XSECTION 101 54.00
+_____
ALTERNATE 1 7808.55
0 XSECTION 102 53.69

```
+_____________________________
  ALTERNATE  1            7752.94
0 XSECTION  103      53.30
+_____________________________
  ALTERNATE  1,           7552.35
0 XSECTION  104      53.16
+_____________________________
  ALTERNATE  1            7512.70
0 XSECTION  105       .23
+_____________________________
  ALTERNATE  1             424.59
0 XSECTION  107       .23
+_____________________________
  ALTERNATE  1             279.51
0 XSECTION  108       .25
+_____________________________
  ALTERNATE  1             209.33
0 XSECTION  109       .11
+_____________________________
  ALTERNATE  1             100.78
0 XSECTION  112      51.91
+_____________________________
  ALTERNATE  1            6860.63
0 XSECTION  115      50.85
+_____________________________
  ALTERNATE  1            6109.15
0 XSECTION  116       .21
+_____________________________
  ALTERNATE  1             208.68
0 XSECTION  118       .50
+_____________________________
  ALTERNATE  1             603.01
1
```


SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
0 XSECTION 119	49.99	
ALTERNATE 1		5845.59
0 XSECTION 120	.13	

```
+_____
  ALTERNATE  1          190.03
0 XSECTION 121    23.49
+_____
  ALTERNATE  1          4296.26
0 XSECTION 122    26.12
+_____
  ALTERNATE  1          2253.67
0 XSECTION 123     .20
+_____
  ALTERNATE  1          300.05
0 XSECTION 125    23.03
+_____
  ALTERNATE  1          3907.18
0 XSECTION 127    17.78
+_____
  ALTERNATE  1          2414.01
0 XSECTION 128    17.54
+_____
  ALTERNATE  1          2402.73
0 XSECTION 129     .16
+_____
  ALTERNATE  1          293.90
0 XSECTION 130    17.14
+_____
  ALTERNATE  1          2378.22
0 XSECTION 132    16.86
+_____
  ALTERNATE  1          2361.14
0 XSECTION 133     .13
+_____
  ALTERNATE  1          155.04
0 XSECTION 135    16.37
+_____
  ALTERNATE  1          2327.92
0 XSECTION 136    50.75
+_____
  ALTERNATE  1          6095.82
1
```


SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE	DRAINAGE AREA	STORM NUMBERS.....

```
 ID          (SQ MI)        1

0 XSECTION  138       .23
+_____________________________
   ALTERNATE   1              340.73
0 XSECTION  141       1.56
+_____________________________
   ALTERNATE   1              946.87
0 XSECTION  142       1.31
+_____________________________
   ALTERNATE   1              803.48
0 XSECTION  143       1.11
+_____________________________
   ALTERNATE   1              822.65
0 XSECTION  144       .82
+_____________________________
   ALTERNATE   1              681.57
0 XSECTION  145       .55
+_____________________________
   ALTERNATE   1              509.23
0 XSECTION  146       .39
+_____________________________
   ALTERNATE   1              389.02
0 XSECTION  149       .33
+_____________________________
   ALTERNATE   1              437.42
1END OF  1 JOBS IN THIS RUN
```

SAND CREEK
DRAINAGE BASIN PLANNING STUDY
Preliminary Design Report Hydrology
Technical Addendum

Upper Sand Creek
Future Basin Condition, 100- and 10-year
Detention Alternative B

±
1

SELECTED PLAN
HYDROLOGY

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

```
JOB TR-20
TITLE 001 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-6 PONDS (DELETE POND   SUMMARY   NOPLOTS
TITLE     24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FILE NAME: FUALTC.DAT
 5 RAINFL 1                    .50
 8                  0.000       .0025       0.005       .0075       0.010
 8                  0.015       0.020       0.025       0.030       0.050
 8                  0.060       0.100       0.700       0.750       0.780
 8                  0.798       0.820       0.830       0.840       0.850
 8                  0.860       0.865       0.870       0.885       0.890
 8                  0.900       0.905       0.910       0.915       0.921
 8                  0.927       0.933       0.940       0.945       0.950
 8                  0.955       0.960       0.965       0.970       0.975
 8                  0.980       0.983       0.985       0.988       0.990
 8                  0.993       0.995       0.998       1.000       1.000
 9 ENDTBL
 3 STRUCT       92
 8                              0.          0.          0.
 8                              4.         40.         40.
 8                              5.         60.         60.
 8                              6.         82.         90.
 8                              8.         90.        110.
 8                              9.         91.        120.
 8                             10.         95.        130.
 9 ENDTBL
 3 STRUCT       93
 8                              0.          0.          0.
 8                              4.         20.         10.
 8                              6.        100.         20.
 8                              8.        290.         30.
 9 ENDTBL
 3 STRUCT       94
 8                              0.          0.          0.
 8                              4.         80.         30.
 8                              5.         90.         40.
 8                              7.        300.         60.
 8                              8.        800.         80.
 8                              9.       1750.        120.
 8                             10.       2000.        130.
 9 ENDTBL
 3 STRUCT       95
 8                              0.          0.          0.
 8                              4.         10.         20.
 8                              7.         20.         34.
 8                              8.         30.         39.
 8                              9.         40.         42.
 8                             10.         43.         50.
1
```

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

```
 9 ENDTBL
```

```
    3 STRUCT       98
    8
    8                                    0.                0.          0.
    8                                    4.              2000.         80.
    8                                   10.              3500.        160.
    9 ENDTBL
    3 STRUCT       97
    8
    8                                    0.                0.          0.
    8                                    4.               400.        75.0
    8                                    5.               800.        100.
    8                                    6.              2000.        137.5
    8                                    7.              2700.        162.5
    8                                    8.              2900.        187.5
    8                                    9.              3000.        237.5
    8                                   10.              3150.        250.
    8                                   13.              3200.        375.
    9 ENDTBL
    6 RUNOFF 1  82          1          0.19              67.0         0.19
    6 REACH  3 174    1     2        2300.0               0.9         1.53
    6 RUNOFF 1  74          1          0.18              67.0         0.48
    6 ADDHYD 4     74 1 2 3
    6 REACH  3 173    3     1        2800.0               0.7         1.53
    6 RUNOFF 1  75          2          0.12              67.0          .70
    6 ADDHYD 4     75 1 2 3
    6 RUNOFF 1  73          1          0.12              67.0          .53
    6 ADDHYD 4     75 1 3 2
    6 RUNOFF 1  81          1          0.39              67.0         0.51
    6 REACH  3 175    1     3        3850.0               0.6         1.56
    6 ADDHYD 4     75 2 3 1
    6 RUNOFF 1  80          2          0.22              67.0         0.40
    6 REACH  3 176    2     3        4100.0               0.6         1.56
    6 ADDHYD 4     75 3 1 2
    6 RUNOFF 1  76          1          0.17              67.0         0.68
    6 ADDHYD 4     75 1 2 3
    6 REACH  3 172    3     2        1700.0               0.8         1.53
    6 RUNOFF 1  88          1          0.10              67.0          .34
    6 ADDHYD 4     77 1 2 3
    6 RUNOFF 1  77          2          0.25              67.0          .56
    6 ADDHYD 4     77 3 2 1
    6 RUNOFF 1  79          2          0.29              67.0         0.29
    6 REACH  3 178    2     3        3000.0               0.6         1.56
    6 RUNOFF 1  78          2          0.88              67.0         0.44
    6 ADDHYD 4     78 2 3 4
    6 REACH  3 177    4     2        3350.0               0.6         1.56
    6 ADDHYD 4     77 2 1 3
    6 REACH  3 171    3     2        3850.0               0.2         1.63
1
```

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

```
    6 RUNOFF 1  71          1          0.36              75.0          .30
    6 ADDHYD 4     71 1 2 3
    6 REACH  3 170    3     2        2500.0               0.3         1.63
    6 RUNOFF 1  70          1          0.31              75.0         0.35
    6 ADDHYD 4     70 1 2 3
    6 REACH  3 187    3     2        1200.0               0.2         1.64
    6 RUNOFF 1  87          3          0.04              71.0         0.14
    6 ADDHYD 4     87 3 2 4
    6 RUNOFF 1  72          2          0.25              70.0         0.23
```

```
 6 REACH   3 169    2    3        3000.0          .8          1.55
 6 RUNOFF  1  69         1          0.25         75.0          0.80
 6 ADDHYD  4     69 3 1 2
 6 REACH   3 186    2    1        1400.0          0.7         1.51
 6 RUNOFF  1  86         2          0.05         75.0          0.37
 6 ADDHYD  4     87 1 2 3
 6 ADDHYD  4     87 4 3 1
 6 REACH   3 163    1    2        4400.0          0.2         1.64
 6 RUNOFF  1  63         3          0.16         73.0          0.43
 6 ADDHYD  4     63 2 3 4
 6 REACH   3 160    4    1        4400.0          0.2         1.65
 6 RUNOFF  1  60         3          0.15         72.0          0.41
 6 ADDHYD  4     60 1 3 4
 6 RUNOFF  1  59         3          0.16         86.0           .33
 6 ADDHYD  4     60 4 3 5
 6 RUNOFF  1  68         1          0.22         75.0           .65
 6 REACH   3 167    1    3        3300.0          0.7         1.51
 6 RUNOFF  1  67         1          0.27         85.0           .54
 6 ADDHYD  4     67 3 1 2
 6 REACH   3 164    2    3        2500.0          0.8         1.51
 6 RUNOFF  1  64         2          0.25         85.0           .30
 6 ADDHYD  4     64 3 2 1
 6 REACH   3 159    1    3        3300.0          0.5         1.62
 6 ADDHYD  4     60 5 3 2
 6 REACH   3 151    2    1        4000.0          0.1         1.65
 6 RESVOR  2     94 1    4 — SC #3
 6 RUNOFF  1  51         5          0.15         75.0           .39
 6 ADDHYD  4     51 4 5 2
 6 RUNOFF  1  49         1          0.10         78.0          0.34
 6 ADDHYD  4     51 1 2 5
 6 RUNOFF  1  52         1          0.19         85.0          0.61
 6 ADDHYD  4     51 1 5 3
 6 RUNOFF  1  65         1          0.10         85.0          0.26
 6 REACH   3 158    1    2        3600.0           .4        1.63
 6 RUNOFF  1  58         1          0.17         93.0          0.26
 6 ADDHYD  4     58 1 2 5
 6 REACH   3 152    5    1        3500.0          0.3         1.63
1
```

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

 6 RESVOR  2     93 1    2 SC#5
 6 ADDHYD  4     51 3 2 4
 6 RUNOFF  1  62         3          0.25         86.0           .70
 6 REACH   3 161    3    2        3400.0           .7        1.51
 6 RUNOFF  1  61         1          0.13         73.0          0.62
 6 ADDHYD  4     61 1 2 3
 6 REACH   3 150    3    2        2950.0          0.6         1.53
 6 RUNOFF  1  50         3          0.13         85.0          0.64
 6 ADDHYD  4     50 2 3 1
 6 RESVOR  2     95 1    5 SC #4
 6 REACH   3 149    5    2        2400.0          0.3         1.63
 6 ADDHYD  4     51 4 2 3
 6 REACH   3 148    3    1        3300.0          0.3         1.62
 6 RUNOFF  1  48         2          0.15         73.0          0.23
 6 ADDHYD  4     48 1 2 3
 6 REACH   3 141    3    1        3100.0          0.3         1.62
 6 RUNOFF  1  40         2          0.30         79.0           .62
```

```
 6 ADDHYD 4     41 1 2 3
 6 RUNOFF 1  41         1        0.08          67.0          0.31
 6 ADDHYD 4     41 1 3 4
 6 REACH  3 185    4    1      1100.0           0.3          1.62
 6 RUNOFF 1  85         2        0.05          73.0          0.22
 6 ADDHYD 4     85 1 2 3
 6 RUNOFF 1  39         2        0.15          84.0           .30
 6 ADDHYD 4     85 2 3 1
 6 REACH  3 137    1    2      3900.0           0.2          1.65
 6 RUNOFF 1  36         7        0.17          82.0          0.62
 6 ADDHYD 4     37 2 7 1
 6 RUNOFF 1  37         2        0.12          73.0          0.21
 6 ADDHYD 4     37 2 1 4
 6 RUNOFF 1  66         3        0.31          87.0           .43
 6 REACH  3 157    3    2      2300.0           0.8          1.53
 6 RUNOFF 1  57         3        0.16          93.0          0.34
 6 ADDHYD 4     57 2 3 1
 6 REACH  3 154    1    2      3500.0           0.5          1.61
 6 RUNOFF 1  55         3        0.25          86.0           .46
 6 ADDHYD 4     54 2 3 1
 6 RUNOFF 1  56         3        0.15          83.0          0.23
 6 REACH  3 155    3    2      3450.0           0.6          1.53
 6 ADDHYD 4     54 2 1 5
 6 RUNOFF 1  54         7        0.25          93.0          0.33
 6 ADDHYD 4     54 7 5 2
 6 RESVOR 2     92 2    3 sc #6
 6 REACH  3 153    3    6      2050.0           0.5          1.61
 6 RUNOFF 1  53         5        0.17          74.0          0.41
 6 ADDHYD 4     53 6 5 1
```

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

```
 6 REACH  3 147    1    3      2300.0           0.4          1.62
 6 RUNOFF 1  47         2        0.26          74.0          0.45
 6 ADDHYD 4     47 3 2 1
 6 REACH  3 142    1    2      5400.0           0.3          1.61
 6 RUNOFF 1  42         3        0.20          81.0          0.33
 6 ADDHYD 4     43 3 2 1
 6 RUNOFF 1  43         2        0.14          85.0          0.25
 6 ADDHYD 4     43 1 2 5
 6 RUNOFF 1  45         1        0.24          86.0           .32
 6 RUNOFF 1  46         2        0.23          75.0          0.44
 6 ADDHYD 4     45 1 2 3
 6 REACH  3 143    3    2      2750.0           0.7          1.55
 6 ADDHYD 4     43 2 5 1
 6 REACH  3 136    1    2      2050.0           0.8          1.55
 6 ADDHYD 4     37 2 4 1
 6 REACH  3 129    1    2      3800.0           0.1          1.65
 6 RUNOFF 1  27         3        0.16          85.0          0.23
 6 ADDHYD 4     29 2 3 1
 6 RUNOFF 1  38         3        0.32          76.0          0.58
 6 REACH  3 128    3    2      1700.0           1.2          1.47
 6 RUNOFF 1  28         4        0.17          86.0          0.18
 6 ADDHYD 4     28 2 4 5
 6 REACH  3 127    5    3      2300.0           1.0          1.47
 6 ADDHYD 4     29 1 3 5
 6 RUNOFF 1  29         1         .23          80.0           .24
```

```
  6 ADDHYD 4   29    1 5 4
  6 REACH  3 184    4   2        1350.0          .2          1.63
  6 RUNOFF 1  84         3          0.04         86.0           .08
  6 ADDHYD 4     30 2 3 1
  6 RUNOFF 1  30         3          0.10         82.0          0.57
  6 ADDHYD 4     30 3 1 2
  6 RUNOFF 1  31         3          0.21         92.0           .70
  6 ADDHYD 4     30 2 3 1
  6 RUNOFF 1  44         3          0.17         81.0           .46
  6 REACH  3 135    3   2        3100.0          0.9          1.52
  6 RUNOFF 1  35         3          0.12         84.0          0.34
  6 ADDHYD 4     35 3 2 5
  6 RUNOFF 1  34         4          0.29         84.0           .54
  6 ADDHYD 4     35 5 4 3
  6 REACH  3 130    3   2        3700.0          0.9          1.52
  6 ADDHYD 4     30 1 2 3
  6 RUNOFF 1  32         1          0.11         95.0          0.56
  6 RUNOFF 1  33         2          0.29         92.0          0.25
  6 ADDHYD 4     33 2 1 4
  6 REACH  3 131    4   2        4400.0          0.7          1.52
  6 ADDHYD 4     30 3 2 1
1
```

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

```
  6 REACH  3 125    1   3        1200.0          0.4          1.63
  6 RUNOFF 1  26         2          0.19         85.0           .22
  6 ADDHYD 4     25 3 2 1
  6 RUNOFF 1  25         2          0.04         82.0           .07
  6 ADDHYD 4     25 1 2 3
  6 RUNOFF 1  24         1          0.19         93.0          0.23
  6 ADDHYD 4     25 1 3 2
  6 REACH  3 120    2   4        2700.0          0.4          1.61
  6 RUNOFF 1  22         2          0.13         90.0          0.13
  6 ADDHYD 4     20 4 2 3
  6 RUNOFF 1  20         2          0.09         79.0           .19
  6 ADDHYD 4     20 3 2 1
  6 RUNOFF 1  21         2          0.12         86.0          0.14
  6 ADDHYD 4     20 2 1 3
  6 RUNOFF 1  19         2          0.17         85.0          0.28
  6 ADDHYD 4     20 3 2 1
  6 RUNOFF 1  83         2          0.11         91.0          0.23
  6 ADDHYD 4     20 1 2 3
  6 RUNOFF 1  23         2          0.28         93.0           .34
  6 REACH  3 183    2   1        2700.0          1.4          1.45
  6 ADDHYD 4     20 1 3 2
  6 RESVOR 2     98 2   5 SC#2
  6 REACH  3 113    5   1        4200.0          0.1          1.65
  6 RUNOFF 1  13         3          0.24         82.0          0.30
  6 ADDHYD 4     13 1 3 2
  6 RUNOFF 1  14         3          0.07         86.0          0.23
  6 ADDHYD 4     13 2 3 1
  6 RUNOFF 1  15         2          0.17         84.0          0.31
  6 ADDHYD 4     13 1 2 3
  6 RUNOFF 1  16         2          0.21         83.0          0.34
  6 REACH  3 115    2   1        1800.0          0.8          1.55
  6 ADDHYD 4     13 1 3 2
  6 RUNOFF 1  18         1          0.13         87.0          0.23
```

```
   6 RUNOFF 1   17          3          0.17          85.0          0.30
   6 ADDHYD 4      18 1 3 6
   6 REACH  3 114    6     3        1750.0           0.7          1.56
   6 ADDHYD 4     13 3 2 1
   6 REACH  3 106    1     2        3100.0           0.3          1.64
   6 RUNOFF 1    6           1          0.13          81.0          0.37
   6 ADDHYD 4      6 1 2 3
   6 RUNOFF 1    5           2          0.15          84.0          0.26
   6 ADDHYD 4      6 3 2 1
   6 RUNOFF 1    7           3          0.19          93.0          0.54
   6 ADDHYD 4      6 3 1 2
   6 RUNOFF 1   11           1          0.16          91.0           .35
   6 RUNOFF 1   12           3          0.13          93.0           .30
1


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

   6 ADDHYD 4     11 3 1 5
   6 REACH  3 107    5     1        2650.0           1.0          1.45
   6 ADDHYD 4      6 1 2 3
   6 RESVOR 2     97 3     4 #1
   6 REACH  3 104    4     1        1950.0           0.2          1.65
   6 RUNOFF 1    4           2          0.19          86.0          0.24
   6 ADDHYD 4      4 1 2 3
   6 RUNOFF 1    8           2          0.20          91.0           .39
   6 ADDHYD 4      8 3 2 1
   6 RUNOFF 1   10           2          0.14          85.0          0.17
   6 REACH  3 109    2     3        2350.0           1.8          1.41
   6 RUNOFF 1    9           2          0.25          87.0          0.15
   6 ADDHYD 4      9 3 2 4
   6 REACH  3 108    4     2        2500.0           0.9          1.47
   6 ADDHYD 4     99 1 2 4                                          1 1    1    1 TO D/S
     ENDATA
   7 LIST
   7 INCREM 6                  .083
   7 COMPUT 7   82        99          0.0          4.4           1.01 2   01   01 100-YR
     ENDCMP 1
   7 COMPUT 7   82        99          0.0          3.0           1.01 2   01   02 10-YR
     ENDCMP 1
     ENDJOB 2
0**********END OF 80-80 LIST**********
1


 TR20 XEQ 10/ 4/95    10:30       UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
      REV PC/09/83                24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL


 FILE NO.  1
0                                   COMPUTER PROGRAM FOR PROJECT FORMULATION -

               THE USERS MANUAL FOR THIS PROGRAM IS THE MAY 1982 DRAFT OF TR-20.

               REACH ROUTING - THE MODIFIED ATT-KIN ROUTING PROCEDURE REPLACES T
                  PREVIOUS PROGRAM VERSIONS USING CONVEX ROUTING COEFFICIENTS WI

                  THE PREFERRED TYPE OF DATA ENTRY IS CROSS SECTION DATA REPRESE
```

THE OPTIONAL CROSS SECTION DISCHARGE-AREA PLOTS BE OBTAINED W
THE PLOTS SHOULD BE CHECKED FOR REASONABLENESS AND ADEQUACY O
VALUES USED IN THE ROUTING PROCEDURE.

GUIDELINES FOR DETERMINING OR ANALYZING REACH LENGTHS AND COE
MANUAL. SUMMARY TABLE 2 DISPLAYS REACH ROUTING RESULTS AND R

HYDROGRAPH GENERATION - THE PROCEDURE TO CALCULATE THE INTERNAL
HYDROGRAPH HAVE BEEN IMPROVED. PEAK DISCHARGES AND TIMES MAY
HYDROGRAPHS ARE STILL INTERPOLATED, PRINTED, AND ROUTED AT TH

INTERMEDIATE PEAKS - METHOD ADDED TO PROVIDE DISCHARGES AT INTER

OTHER - THIS VERSION CONTAINS SOME ADDITIONS TO THE INPUT AND NU
OPTIONS HAVE BEEN MODIFIED AND AUGMENTED ON THE JOB RECORD, R
EXPANDED, AND THE SUMMARY TABLES COMPLETELY REVISED. THE HOL

PROGRAM QUESTIONS OR PROBLEMS SHOULD BE DIRECTED TO HYDRAULIC EN

CHESTER, PA (NORTHEAST) -- 215-499-3933, FORT WORTH,
LINCOLN, NB (MIDWEST) -- 541-5318 (FTS), PORTLAND, O
OR HYDROLOGY UNIT, ENGINEERING DIVISION, LANHAM, MD -- 436-

PROGRAM CHANGES SINCE MAY 1982:

12/17/82 - CORRECT PEAK RATE FACTOR FOR USER ENTERED DIMHYD
CORRECT REACH ROUTING PEAK TRAVEL TIME PRINTED WITH
5/02/83 - CORRECT COMPUTATIONS FOR ---
1. DIVISION OF BASEFLOW IN DIVERT OPERATION
2. HYDROGRAPH VOLUME SPLIT BETWEEN BASEFLOW A
3. CROSS SECTION DATA PLOTTING POSITION
4. INTERMEDIATE PEAK WHEN "FROM" AREA IS LARG
5. STORAGE ROUTED REACH TRAVEL TIME FOR MULTI
6. ORDERING "FLOW-FREQ" FILE FROM SUMMARY TAB
7. BASEFLOW ENTERED WITH READHYD
8. LOW FLOW SPLIT DURING DIVERT PROCEDURE #2
ENHANCEMENTS ---
1. REPLACE USER MANUAL ERROR CODES (PAGE 4-9
2. LABEL OUTPUT HYDROGRAPH FILES WITH CROSS S
09/01/83 - CORRECT INPUT AND OUTPUT ERRORS FOR INTERMEDIATE PEAK
CORRECT COMBINATION OF RATING TABLES FOR DIVERT
CHECK REACH ROUTING PARAMETERS FOR ACCEPTABLE LIMITS
ELIMINATE MINIMUM REACH TRAVEL TIME WHEN ATT-KIN COEF

EXECUTIVE CONTROL OPERATION LIST

LISTING OF CURRENT DATA

```
                STRUCT NO.      ELEVATION    DISCHARGE      STORAGE
  3 STRUCT         92

  8                                 .00          .00          .00
  8                                4.00        40.00        40.00
  8                                5.00        60.00        60.00
  8                                6.00        82.00        90.00
  8                                8.00        90.00       110.00
  8                                9.00        91.00       120.00
  8                               10.00        95.00       130.00
  9 ENDTBL

                STRUCT NO.      ELEVATION    DISCHARGE      STORAGE
  3 STRUCT         93

  8                                 .00          .00          .00
  8                                4.00        20.00        10.00
  8                                6.00       100.00        20.00
  8                                8.00       290.00        30.00
  9 ENDTBL

                STRUCT NO.      ELEVATION    DISCHARGE      STORAGE
  3 STRUCT         94

  8                                 .00          .00          .00
  8                                4.00        80.00        30.00
  8                                5.00        90.00        40.00
  8                                7.00       300.00        60.00
  9                                8.00       800.00        80.00
                                   9.00      1750.00       120.00
  8                               10.00      2000.00       130.00
  9 ENDTBL

                STRUCT NO.      ELEVATION    DISCHARGE      STORAGE
  3 STRUCT         95

  8                                 .00          .00          .00
  8                                4.00        10.00        20.00
  8                                7.00        20.00        34.00
  8                                8.00        30.00        39.00
1


 TR20 XEQ 10/ 4/95    10:30       UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
      REV PC/09/83                24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL


  8                                9.00        40.00        42.00
  8                               10.00        43.00        50.00
  9 ENDTBL

                STRUCT NO.      ELEVATION    DISCHARGE      STORAGE
  3 STRUCT         97

                                    .00          .00          .00
  8                                4.00       400.00        75.00
  8                                5.00       800.00       100.00
  8                                6.00      2000.00       137.50
```

```
 8                                7.00       2700.00        162.50
 8                                8.00       2900.00        187.50
 8                                9.00       3000.00        237.50
 8                               10.00       3150.00        250.00
 8                               13.00       3200.00        375.00
 9 ENDTBL

            STRUCT NO.       ELEVATION    DISCHARGE      STORAGE
 3 STRUCT       98

 8                                .00          .00            .00
 8                               4.00       2000.00          80.00
 8                              10.00       3500.00         160.00
 9 ENDTBL

                        TIME INCREMENT
 4 DIMHYD                        .0200

 8                    .0000        .0300        .1000        .1900        .3100
 8                    .4700        .6600        .8200        .9300        .9900
 8                   1.0000        .9900        .9300        .8600        .7800
 8                    .6800        .5600        .4600        .3900        .3300
 8                    .2800        .2410        .2070        .1740        .1470
 8                    .1260        .1070        .0910        .0770        .0660
 8                    .0550        .0470        .0400        .0340        .0290
 8                    .0250        .0210        .0180        .0150        .0130
 8                    .0110        .0090        .0080        .0070        .0060
 8                    .0050        .0040        .0030        .0020        .0010
 8                    .0000        .0000        .0000        .0000        .0000
 9 ENDTBL

   COMPUTED PEAK RATE FACTOR =  484.00

1


 TR20 XEQ 10/ 4/95   10:30       UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
      REV PC/09/83               24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FII


      TABLE NO.          TIME INCREMENT
 5 RAINFL 1                      .5000

 8                    .0000        .0025        .0050        .0075        .0100
 8                    .0150        .0200        .0250        .0300        .0500
 8                    .0600        .1000        .7000        .7500        .7800
 8                    .7980        .8200        .8300        .8400        .8500
 8                    .8600        .8650        .8700        .8850        .8900
 8                    .9000        .9050        .9100        .9150        .9210
 8                    .9270        .9330        .9400        .9450        .9500
 8                    .9550        .9600        .9650        .9700        .9750
 8                    .9800        .9830        .9850        .9880        .9900
 8                    .9930        .9950        .9980       1.0000       1.0000
 9 ENDTBL

      TABLE NO.          TIME INCREMENT
 5 RAINFL 2                      .2500
```

```
 8                .0000        .0020        .0050        .0080        .0110
 8                .0140        .0170        .0200        .0230        .0260
 8                .0290        .0320        .0350        .0380        .0410
 8                .0440        .0480        .0520        .0560        .0600
 8                .0640        .0680        .0720        .0760        .0800
 8                .0850        .0900        .0950        .1000        .1050
 8                .1100        .1150        .1200        .1260        .1330
 8                .1400        .1470        .1550        .1630        .1720
 8                .1810        .1910        .2030        .2180        .2360
 8                .2570        .2830        .3870        .6630        .7070
 8                .7350        .7580        .7760        .7910        .8040
 8                .8150        .8250        .8340        .8420        .8490
 8                .8560        .8630        .8690        .8750        .8810
 8                .8870        .8930        .8980        .9030        .9080
 8                .9130        .9180        .9220        .9260        .9300
 8                .9340        .9380        .9420        .9460        .9500
 8                .9530        .9560        .9590        .9620        .9650
 8                .9680        .9710        .9740        .9770        .9800
 8                .9830        .9860        .9890        .9920        .9950
 8                .9980       1.0000       1.0000       1.0000       1.0000
 9 ENDTBL

     TABLE NO.        TIME INCREMENT
 5 RAINFL 3                    .5000

 8                .0000        .0100        .0220        .0360        .0510
 8                .0670        .0830        .0990        .1160        .1350
1

 R20 XEQ 10/ 4/95   10:30      UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES
     REV PC/09/83              24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FI

 8                .1560        .1790        .2040        .2330        .2680
 8                .3100        .4250        .4800        .5200        .5500
 8                .5770        .6010        .6230        .6440        .6640
 8                .6830        .7010        .7190        .7360        .7530
 8                .7690        .7850        .8000        .8150        .8300
 8                .8440        .8580        .8710        .8840        .8960
 8                .9080        .9200        .9320        .9440        .9560
 8                .9670        .9780        .9890       1.0000       1.0000
 9 ENDTBL

     TABLE NO.        TIME INCREMENT
 5 RAINFL 4                    .5000

 8                .0000        .0040        .0080        .0120        .0160
 8                .0200        .0250        .0300        .0350        .0400
 8                .0450        .0500        .0550        .0600        .0650
 8                .0700        .0750        .0810        .0870        .0930
 8                .0990        .1050        .1110        .1180        .1250
 8                .1320        .1400        .1480        .1560        .1650
 8                .1740        .1840        .1950        .2070        .2200
 8                .2360        .2550        .2770        .3030        .4090
                  .5150        .5490        .5830        .6050        .6240
 8                .6400        .6550        .6690        .6820        .6940
 8                .7050        .7160        .7270        .7380        .7480
 8                .7580        .7670        .7760        .7840        .7920
```

```
8                .8000       .8080       .8160       .8230       .8300
8                .8370       .8440       .8510       .8580       .8640
8                .8700       .8760       .8820       .8880       .8940
8                .9000       .9060       .9110       .9160       .9210
                 .9260       .9310       .9360       .9410       .9460
8                .9510       .9560       .9610       .9660       .9710
8                .9760       .9800       .9840       .9880       .9920
8                .9960      1.0000      1.0000      1.0000      1.0000
9 ENDTBL

     TABLE NO.        TIME INCREMENT
5 RAINFL 5                    .5000

8                .0000       .0020       .0050       .0080       .0110
8                .0140       .0170       .0200       .0230       .0260
8                .0290       .0320       .0350       .0380       .0410
8                .0440       .0470       .0510       .0550       .0590
8                .0630       .0670       .0710       .0750       .0790
8                .0840       .0890       .0940       .0990       .1040
8                .1090       .1140       .1200       .1260       .1330
8                .1400       .1470       .1540       .1620       .1710
8                .1810       .1920       .2040       .2170       .2330
1


TR20 XEQ 10/ 4/95   10:30       UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
     REV PC/09/83               24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FII

                 .2520       .2770       .3180       .6380       .6980
8                .7290       .7520       .7700       .7850       .7980
8                .8090       .8190       .8290       .8380       .8460
8                .8540       .8610       .8680       .8740       .8800
8                .8860       .8920       .8970       .9020       .9070
8                .9120       .9170       .9210       .9250       .9290
8                .9330       .9370       .9410       .9450       .9490
8                .9530       .9570       .9600       .9630       .9660
8                .9690       .9720       .9750       .9780       .9810
8                .9840       .9870       .9900       .9930       .9960
8                .9980      1.0000      1.0000      1.0000      1.0000
9 ENDTBL

     TABLE NO.        TIME INCREMENT
5 RAINFL 6                    .0200

8                .0000       .0080       .0162       .0246       .0333
8                .0425       .0524       .0630       .0743       .0863
8                .0990       .1124       .1265       .1420       .1595
8                .1800       .2050       .2550       .3450       .4370
8                .5300       .6030       .6330       .6600       .6840
8                .7050       .7240       .7420       .7590       .7750
8                .7900       .8043       .8180       .8312       .8439
8                .8561       .8678       .8790       .8898       .9002
8                .9103       .9201       .9297       .9391       .9483
8                .9573       .9661       .9747       .9832       .9916
                1.0000      1.0000      1.0000      1.0000      1.0000
9 ENDTBL
1
```

0 STANDARD CONTROL INSTRUCTIONS

```
6 RUNOFF 1  82        1      .1900     67.0000    .19000 0 0 0 0 1
6 REACH  3 174   1    2   2300.0000       .9000  1.53000 0 0 0 0 1
6 RUNOFF 1  74        1      .1800     67.0000    .48000 0 0 0 0 1
6 ADDHYD 4    74 1 2 3                                0 0 0 0 0 1
6 REACH  3 173   3    1   2800.0000       .7000  1.53000 0 0 0 0 1
6 RUNOFF 1  75        2      .1200     67.0000    .70000 0 0 0 0 1
6 ADDHYD 4    75 1 2 3                                0 0 0 0 0 1
6 RUNOFF 1  73        1      .1200     67.0000    .53000 0 0 0 0 1
6 ADDHYD 4    75 1 3 2                                0 0 0 0 0 1
6 RUNOFF 1  81        1      .3900     67.0000    .51000 0 0 0 0 1
6 REACH  3 175   1    3   3850.0000       .6000  1.56000 0 0 0 0 1
6 ADDHYD 4    75 2 3 1                                0 0 0 0 0 1
6 RUNOFF 1  80        2      .2200     67.0000    .40000 0 0 0 0 1
6 REACH  3 176   2    3   4100.0000       .6000  1.56000 0 0 0 0 1
6 ADDHYD 4    75 3 1 2                                0 0 0 0 0 1
6 RUNOFF 1  76        1      .1700     67.0000    .68000 0 0 0 0 1
6 ADDHYD 4    75 1 2 3                                0 0 0 0 0 1
6 REACH  3 172   3    2   1700.0000       .8000  1.53000 0 0 0 0 1
6 RUNOFF 1  88        1      .1000     67.0000    .34000 0 0 0 0 1
6 ADDHYD 4    77 1 2 3                                0 0 0 0 0 1
  RUNOFF 1  77        2      .2500     67.0000    .56000 0 0 0 0 1
6 ADDHYD 4    77 3 2 1                                0 0 0 0 0 1
6 RUNOFF 1  79        2      .2900     67.0000    .29000 0 0 0 0 1
6 REACH  3 178   2    3   3000.0000       .6000  1.56000 0 0 0 0 1
6 RUNOFF 1  78        2      .8800     67.0000    .44000 0 0 0 0 1
6 ADDHYD 4    78 2 3 4                                0 0 0 0 0 1
6 REACH  3 177   4    2   3350.0000       .6000  1.56000 0 0 0 0 1
6 ADDHYD 4    77 2 1 3                                0 0 0 0 0 1
6 REACH  3 171   3    2   3850.0000       .2000  1.63000 0 0 0 0 1
6 RUNOFF 1  71        1      .3600     75.0000    .30000 0 0 0 0 1
6 ADDHYD 4    71 1 2 3                                0 0 0 0 0 1
6 REACH  3 170   3    2   2500.0000       .3000  1.63000 0 0 0 0 1
6 RUNOFF 1  70        1      .3100     75.0000    .35000 0 0 0 0 1
6 ADDHYD 4    70 1 2 3                                0 0 0 0 0 1
6 REACH  3 187   3    2   1200.0000       .2000  1.64000 0 0 0 0 1
6 RUNOFF 1  87        3      .0400     71.0000    .14000 0 0 0 0 1
6 ADDHYD 4    87 3 2 4                                0 0 0 0 0 1
6 RUNOFF 1  72        2      .2500     70.0000    .23000 0 0 0 0 1
6 REACH  3 169   2    3   3000.0000       .8000  1.55000 0 0 0 0 1
6 RUNOFF 1  69        1      .2500     75.0000    .80000 0 0 0 0 1
6 ADDHYD 4    69 3 1 2                                0 0 0 0 0 1
6 REACH  3 186   2    1   1400.0000       .7000  1.51000 0 0 0 0 1
6 RUNOFF 1  86        2      .0500     75.0000    .37000 0 0 0 0 1
6 ADDHYD 4    87 1 2 3                                0 0 0 0 0 1
6 ADDHYD 4    87 4 3 1                                0 0 0 0 0 1
```

```
6 REACH   3 163    1    2     4400.0000        .2000      1.64000 0 0 0 0 1
6 RUNOFF  1  63         3        .1600       73.0000       .43000 0 0 0 0 1
6 ADDHYD  4     63 2 3 4                                          0 0 0 0 0 1
6 REACH   3 160    4    1     4400.0000        .2000      1.65000 0 0 0 0 1
6 RUNOFF  1  60         3        .1500       72.0000       .41000 0 0 0 0 1
6 ADDHYD  4     60 1 3 4                                          0 0 0 0 0 1
6 RUNOFF  1  59         3        .1600       86.0000       .33000 0 0 0 0 1
6 ADDHYD  4     60 4 3 5                                          0 0 0 0 0 1
6 RUNOFF  1  68         1        .2200       75.0000       .65000 0 0 0 0 1
6 REACH   3 167    1    3     3300.0000        .7000      1.51000 0 0 0 0 1
6 RUNOFF  1  67         1        .2700       85.0000       .54000 0 0 0 0 1
6 ADDHYD  4     67 3 1 2                                          0 0 0 0 0 1
6 REACH   3 164    2    3     2500.0000        .8000      1.51000 0 0 0 0 1
6 RUNOFF  1  64         2        .2500       85.0000       .30000 0 0 0 0 1
6 ADDHYD  4     64 3 2 1                                          0 0 0 0 0 1
6 REACH   3 159    1    3     3300.0000        .5000      1.62000 0 0 0 0 1
6 ADDHYD  4     60 5 3 2                                          0 0 0 0 0 1
6 REACH   3 151    2    1     4000.0000        .1000      1.65000 0 0 0 0 1
6 RESVOR  2     94 1    4        .0000                           0 0 0 0 0 1
6 RUNOFF  1  51         5        .1500       75.0000       .39000 0 0 0 0 1
6 ADDHYD  4     51 4 5 2                                          0 0 0 0 0 1
6 RUNOFF  1  49         1        .1000       78.0000       .34000 0 0 0 0 1
6 ADDHYD  4     51 1 2 5                                          0 0 0 0 0 1
6 RUNOFF  1  52         1        .1900       85.0000       .61000 0 0 0 0 1
6 ADDHYD  4     51 1 5 3                                          0 0 0 0 0 1
6 RUNOFF  1  65         1        .1000       85.0000       .26000 0 0 0 0 1
6 REACH   3 158    1    2     3600.0000        .4000      1.63000 0 0 0 0 1
6 RUNOFF  1  58         1        .1700       93.0000       .26000 0 0 0 0 1
6 ADDHYD  4     58 1 2 5                                          0 0 0 0 0 1
6 REACH   3 152    5    1     3500.0000        .3000      1.63000 0 0 0 0 1
6 RESVOR  2     93 1    2        .0000                           0 0 0 0 0 1
6 ADDHYD  4     51 3 2 4                                          0 0 0 0 0 1
6 RUNOFF  1  62         3        .2500       86.0000       .70000 0 0 0 0 1
6 REACH   3 161    3    2     3400.0000        .7000      1.51000 0 0 0 0 1
6 RUNOFF  1  61         1        .1300       73.0000       .62000 0 0 0 0 1
6 ADDHYD  4     61 1 2 3                                          0 0 0 0 0 1
6 REACH   3 150    3    2     2950.0000        .6000      1.53000 0 0 0 0 1
6 RUNOFF  1  50         3        .1300       85.0000       .64000 0 0 0 0 1
6 ADDHYD  4     50 2 3 1                                          0 0 0 0 0 1
6 RESVOR  2     95 1    5        .0000                           0 0 0 0 0 1
6 REACH   3 149    5    2     2400.0000        .3000      1.63000 0 0 0 0 1
6 ADDHYD  4     51 4 2 3                                          0 0 0 0 0 1
6 REACH   3 148    3    1     3300.0000        .3000      1.62000 0 0 0 0 1
6 RUNOFF  1  48         2        .1500       73.0000       .23000 0 0 0 0 1
6 ADDHYD  4     48 1 2 3                                          0 0 0 0 0 1
6 REACH   3 141    3    1     3100.0000        .3000      1.62000 0 0 0 0 1
6 RUNOFF  1  40         2        .3000       79.0000       .62000 0 0 0 0 1
6 ADDHYD  4     41 1 2 3                                          0 0 0 0 0 1
6 RUNOFF  1  41         1        .0800       67.0000       .31000 0 0 0 0 1
1
```

```
6 ADDHYD 4     41 1 3 4                                          0 0 0 0 0 1
6 REACH  3 185    4    1    1100.0000      .3000      1.62000 0 0 0 0 1
6 RUNOFF 1  85         2        .0500     73.0000       .22000 0 0 0 0 1
6 ADDHYD 4     85 1 2 3                                          0 0 0 0 0 1
6 RUNOFF 1  39         2        .1500     84.0000       .30000 0 0 0 0 1
6 ADDHYD 4     85 2 3 1                                          0 0 0 0 0 1
6 REACH  3 137    1    2    3900.0000      .2000      1.65000 0 0 0 0 1
6 RUNOFF 1  36         7        .1700     82.0000       .62000 0 0 0 0 1
6 ADDHYD 4     37 2 7 1                                          0 0 0 0 0 1
6 RUNOFF 1  37         2        .1200     73.0000       .21000 0 0 0 0 1
6 ADDHYD 4     37 2 1 4                                          0 0 0 0 0 1
6 RUNOFF 1  66         3        .3100     87.0000       .43000 0 0 0 0 1
6 REACH  3 157    3    2    2300.0000      .8000      1.53000 0 0 0 0 1
6 RUNOFF 1  57         3        .1600     93.0000       .34000 0 0 0 0 1
6 ADDHYD 4     57 2 3 1                                          0 0 0 0 0 1
6 REACH  3 154    1    2    3500.0000      .5000      1.61000 0 0 0 0 1
6 RUNOFF 1  55         3        .2500     86.0000       .46000 0 0 0 0 1
6 ADDHYD 4     54 2 3 1                                          0 0 0 0 0 1
6 RUNOFF 1  56         3        .1500     83.0000       .23000 0 0 0 0 1
6 REACH  3 155    3    2    3450.0000      .6000      1.53000 0 0 0 0 1
6 ADDHYD 4     54 2 1 5                                          0 0 0 0 0 1
6 RUNOFF 1  54         7        .2500     93.0000       .33000 0 0 0 0 1
6 ADDHYD 4     54 7 5 2                                          0 0 0 0 0 1
6 RESVOR 2     92 2    3        .0000                           0 0 0 0 0 1
6 REACH  3 153    3    6    2050.0000      .5000      1.61000 0 0 0 0 1
6 RUNOFF 1  53         5        .1700     74.0000       .41000 0 0 0 0 1
6 ADDHYD 4     53 6 5 1                                          0 0 0 0 0 1
6 REACH  3 147    1    3    2300.0000      .4000      1.62000 0 0 0 0 1
6 RUNOFF 1  47         2        .2600     74.0000       .45000 0 0 0 0 1
6 ADDHYD 4     47 3 2 1                                          0 0 0 0 0 1
6 REACH  3 142    1    2    5400.0000      .3000      1.61000 0 0 0 0 1
6 RUNOFF 1  42         3        .2000     81.0000       .33000 0 0 0 0 1
6 ADDHYD 4     43 3 2 1                                          0 0 0 0 0 1
6 RUNOFF 1  43         2        .1400     85.0000       .25000 0 0 0 0 1
6 ADDHYD 4     43 1 2 5                                          0 0 0 0 0 1
6 RUNOFF 1  45         1        .2400     86.0000       .32000 0 0 0 0 1
6 RUNOFF 1  46         2        .2300     75.0000       .44000 0 0 0 0 1
6 ADDHYD 4     45 1 2 3                                          0 0 0 0 0 1
6 REACH  3 143    3    2    2750.0000      .7000      1.55000 0 0 0 0 1
6 ADDHYD 4     43 2 5 1                                          0 0 0 0 0 1
6 REACH  3 136    1    2    2050.0000      .8000      1.55000 0 0 0 0 1
6 ADDHYD 4     37 2 4 1                                          0 0 0 0 0 1
6 REACH  3 129    1    2    3800.0000      .1000      1.65000 0 0 0 0 1
6 RUNOFF 1  27         3        .1600     85.0000       .23000 0 0 0 0 1
6 ADDHYD 4     29 2 3 1                                          0 0 0 0 0 1
6 RUNOFF 1  38         3        .3200     76.0000       .58000 0 0 0 0 1
6 REACH  3 128    3    2    1700.0000     1.2000      1.47000 0 0 0 0 1
6 RUNOFF 1  28         4        .1700     86.0000       .18000 0 0 0 0 1
6 ADDHYD 4     28 2 4 5                                          0 0 0 0 0 1
1
```



```
6 REACH  3 127    5    3    2300.0000      1.0000      1.47000 0 0 0 0 1
6 ADDHYD 4     29 1 3 5                                          0 0 0 0 0 1
6 RUNOFF 1  29         1        .2300     80.0000       .24000 0 0 0 0 1
```

```
6 ADDHYD 4   29    1 5 4
6 REACH  3 184    4   2     1350.0000          .2000      0 0 0 0 0 1
6 RUNOFF 1  84              3      .0400       86.0000   1.63000 0 0 0 0 1
6 ADDHYD 4     30 2 3 1                                    .08000 0 0 0 0 1
6 RUNOFF 1  30              3      .1000       82.0000      0 0 0 0 0 1
6 ADDHYD 4     30 3 1 2                                    .57000 0 0 0 0 1
6 RUNOFF 1  31              3      .2100       92.0000      0 0 0 0 0 1
6 ADDHYD 4     30 2 3 1                                    .70000 0 0 0 0 1
6 RUNOFF 1  44              3      .1700       81.0000      0 0 0 0 0 1
6 REACH  3 135    3   2     3100.0000          .9000      .46000 0 0 0 0 1
6 RUNOFF 1  35              3      .1200       84.0000   1.52000 0 0 0 0 1
6 ADDHYD 4     35 3 2 5                                    .34000 0 0 0 0 1
6 RUNOFF 1  34              4      .2900       84.0000      0 0 0 0 0 1
6 ADDHYD 4     35 5 4 3                                    .54000 0 0 0 0 1
6 REACH  3 130    3   2     3700.0000          .9000      0 0 0 0 0 1
6 ADDHYD 4     30 1 2 3                                   1.52000 0 0 0 0 1
6 RUNOFF 1  32              1      .1100       95.0000      0 0 0 0 0 1
6 RUNOFF 1  33              2      .2900       92.0000      .56000 0 0 0 0 1
6 ADDHYD 4     33 2 1 4                                    .25000 0 0 0 0 1
6 REACH  3 131    4   2     4400.0000          .7000      0 0 0 0 0 1
6 ADDHYD 4     30 3 2 1                                   1.52000 0 0 0 0 1
6 REACH  3 125    1   3     1200.0000          .4000      0 0 0 0 0 1
6 RUNOFF 1  26              2      .1900       85.0000   1.63000 0 0 0 0 1
6 ADDHYD 4     25 3 2 1                                    .22000 0 0 0 0 1
6 RUNOFF 1  25              2      .0400       82.0000      0 0 0 0 0 1
6 ADDHYD 4     25 1 2 3                                    .07000 0 0 0 0 1
6 RUNOFF 1  24              1      .1900       93.0000      0 0 0 0 0 1
6 ADDHYD 4     25 1 3 2                                    .23000 0 0 0 0 1
6 REACH  3 120    2   4     2700.0000          .4000      0 0 0 0 0 1
6 RUNOFF 1  22              2      .1300       90.0000   1.61000 0 0 0 0 1
6 ADDHYD 4     20 4 2 3                                    .13000 0 0 0 0 1
6 RUNOFF 1  20              2      .0900       79.0000      0 0 0 0 0 1
6 ADDHYD 4     20 3 2 1                                    .19000 0 0 0 0 1
6 RUNOFF 1  21              2      .1200       86.0000      0 0 0 0 0 1
6 ADDHYD 4     20 2 1 3                                    .14000 0 0 0 0 1
6 RUNOFF 1  19              2      .1700       85.0000      0 0 0 0 0 1
6 ADDHYD 4     20 3 2 1                                    .28000 0 0 0 0 1
6 RUNOFF 1  83              2      .1100       91.0000      0 0 0 0 0 1
6 ADDHYD 4     20 1 2 3                                    .23000 0 0 0 0 1
6 RUNOFF 1  23              2      .2800       93.0000      0 0 0 0 0 1
6 REACH  3 183    2   1     2700.0000          1.4000     .34000 0 0 0 0 1
6 ADDHYD 4     20 1 3 2                                   1.45000 0 0 0 0 1
6 RESVOR 2     98 2   5        .0000                        0 0 0 0 0 1
6 REACH  3 113    5   1     4200.0000                       0 0 0 0 0 1
6 RUNOFF 1  13              3      .2400       82.0000      .1000 0 0 0 0 1
6 ADDHYD 4     13 1 3 2                                   1.65000 0 0 0 0 1
1                                                          .30000 0 0 0 0 1
                                                             0 0 0 0 0 1
```



```
6 RUNOFF 1  14              3      .0700       86.0000   .23000 0 0 0 0 1
6 ADDHYD 4     13 2 3 1                                    0 0 0 0 0 1
6 RUNOFF 1  15              2      .1700       84.0000   .31000 0 0 0 0 1
6 ADDHYD 4     13 1 2 3                                    0 0 0 0 0 1
6 RUNOFF 1  16              2      .2100       83.0000   .34000 0 0 0 0 1
6 REACH  3 115    2   1     1800.0000          .8000     1.55000 0 0 0 0 1
```

```
 6 ADDHYD 4     13 1 3 2                                          0 0 0 0 0 1
 6 RUNOFF 1  18         1          .1300      87.0000       .23000 0 0 0 0 1
 6 RUNOFF 1  17         3          .1700      85.0000       .30000 0 0 0 0 1
 6 ADDHYD 4     18 1 3 6                                          0 0 0 0 0 1
 6 REACH  3 114    6    3     1750.0000        .7000      1.56000 0 0 0 0 1
 6 ADDHYD 4     13 3 2 1                                          0 0 0 0 0 1
 6 REACH  3 106    1    2     3100.0000        .3000      1.64000 0 0 0 0 1
 6 RUNOFF 1   6         1          .1300      81.0000       .37000 0 0 0 0 1
 6 ADDHYD 4      6 1 2 3                                          0 0 0 0 0 1
 6 RUNOFF 1   5         2          .1500      84.0000       .26000 0 0 0 0 1
 6 ADDHYD 4      6 3 2 1                                          0 0 0 0 0 1
 6 RUNOFF 1   7         3          .1900      93.0000       .54000 0 0 0 0 1
 6 ADDHYD 4      6 3 1 2                                          0 0 0 0 0 1
 6 RUNOFF 1  11         1          .1600      91.0000       .35000 0 0 0 0 1
 6 RUNOFF 1  12         3          .1300      93.0000       .30000 0 0 0 0 1
 6 ADDHYD 4     11 3 1 5                                          0 0 0 0 0 1
 6 REACH  3 107    5    1     2650.0000       1.0000      1.45000 0 0 0 0 1
 6 ADDHYD 4      6 1 2 3                                          0 0 0 0 0 1
 6 RESVOR 2     97 3    4          .0000                         0 0 0 0 0 1
 6 REACH  3 104    4    1     1950.0000        .2000      1.65000 0 0 0 0 1
 6 RUNOFF 1   4         2          .1900      86.0000       .24000 0 0 0 0 1
 6 ADDHYD 4      4 1 2 3                                          0 0 0 0 0 1
 6 RUNOFF 1   8         2          .2000      91.0000       .39000 0 0 0 0 1
 6 ADDHYD 4      8 3 2 1                                          0 0 0 0 0 1
 6 RUNOFF 1  10         2          .1400      85.0000       .17000 0 0 0 0 1
 6 REACH  3 109    2    3     2350.0000       1.8000      1.41000 0 0 0 0 1
 6 RUNOFF 1   9         2          .2500      87.0000       .15000 0 0 0 0 1
 6 ADDHYD 4      9 3 2 4                                          0 0 0 0 0 1
 6 REACH  3 108    4    2     2500.0000        .9000      1.47000 0 0 0 0 1
 6 ADDHYD 4     99 1 2 4                                          1 1 0 1 0 1
   ENDATA


 END OF LISTING
1



 TR20 XEQ 10/ 4/95    10:30       UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
      REV PC/09/83                24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL



 EXECUTIVE CONTROL OPERATION INCREM
+                                          MAIN TIME INCREMENT =    .08 HOURS


 EXECUTIVE CONTROL OPERATION COMPUT
+                                          FROM XSECTION  82
+                                                      TO STRUCTURE 99
         STARTING TIME =    .00     RAIN DEPTH =  4.40     RAIN DURATION=  1.00
         ALTERNATE NO.= 1           STORM NO.= 1     MAIN TIME INCREMENT =    .08 HO

      ***  WARNING  REACH 174 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RED

      ***  WARNING  REACH 173 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RED

      ***  WARNING  REACH 172 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RED
```

```
      ***  WARNING  REACH 177 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 170 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 187 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 169 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 186 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 164 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 159 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
0     *** WARNING - REACH 149 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW
      ***  WARNING  REACH 148 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 141 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 185 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 137 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 157 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 154 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
0     *** WARNING - REACH 153 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW
0     *** WARNING - REACH 147 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW
0     *** WARNING - REACH 142 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW
1
```



```
      ***  WARNING  REACH 143 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 136 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 128 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 127 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 184 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 130 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 125 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 120 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 183 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 115 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
      ***  WARNING  REACH 114 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REI
```

*** WARNING REACH 106 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 107 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 104 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 109 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 108 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

OPERATION ADDHYD STRUCTURE 99

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEV
6.24	3665.45	(NUL
6.73	3331.66	(NUL
8.02	3281.49	(NUL

TIME(HRS)		FIRST HYDROGRAPH POINT = .00 HOURS				TIME INCREMENT =	
4.15	DISCHG	.00	.00	.01	.02	.08	.2
4.98	DISCHG	1.91	2.50	3.61	5.69	9.27	14.6
5.81	DISCHG	1158.31	1676.29	2127.25	2664.46	3434.39	3661.8
6.64	DISCHG	3301.87	3331.51	3309.78	3299.36	3296.04	3295.3
7.47	DISCHG	3260.76	3261.10	3263.94	3269.82	3274.99	3278.4
8.30	DISCHG	3248.93	3241.27	3237.23	3234.76	3232.80	3230.9
9.13	DISCHG	3218.25	3214.88	3211.22	3207.29	3203.11	3198.7

1

R20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FII

9.96	DISCHG	2989.48	2965.07	2938.41	2836.36	2736.24	2453.36
10.79	DISCHG	1432.25	1309.89	1206.92	1120.41	1051.71	1004.80
11.62	DISCHG	882.40	858.10	834.42	820.42	810.03	801.27
12.45	DISCHG	784.88	779.85	772.85	761.36	749.27	738.79
13.28	DISCHG	698.49	690.72	682.86	674.94	667.00	659.09
14.11	DISCHG	621.89	616.29	611.18	606.10	601.03	596.10
14.94	DISCHG	575.17	571.68	568.38	565.24	562.25	559.39
15.77	DISCHG	549.97	549.16	548.23	547.30	545.94	542.87
16.60	DISCHG	529.51	527.36	525.12	522.77	520.32	517.79
17.43	DISCHG	504.90	502.44	500.05	497.75	495.52	493.37
18.26	DISCHG	483.61	481.82	480.07	478.37	476.71	475.08
19.09	DISCHG	467.48	466.07	464.69	463.34	462.03	460.76
19.92	DISCHG	454.89	453.81	452.36	449.26	445.06	441.20
20.75	DISCHG	421.99	416.96	412.03	407.98	406.32	405.28
21.58	DISCHG	398.04	395.11	391.66	388.48	385.64	383.02
22.41	DISCHG	374.46	372.41	370.15	367.20	363.74	360.59
23.24	DISCHG	351.00	349.95	348.56	346.96	345.18	342.76
24.07	DISCHG	330.81	327.48	322.95	318.87	315.50	312.56

RUNOFF VOLUME ABOVE BASEFLOW = 2.21 WATERSHED INCHES, 22835.72 CFS-HRS, 18

ECUTIVE CONTROL OPERATION ENDCMP

+

COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL OPERATION COMPUT
+
FROM XSECTION 82

STARTING TIME = .00 RAIN DEPTH = 3.00 TO STRUCTURE 99
ALTERNATE NO.= 1 STORM NO.= 2 RAIN DURATION= 1.00
MAIN TIME INCREMENT = .08 H

*** WARNING REACH 172 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 170 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 187 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING-MAIN TIME INCREMENT MAY BE TOO LARGE.
COMPUTED PEAK(29.70) AT EXCEEDS MAX. ADJACENT HYDRO
+
XSECTION 87

FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT =

TIME(HRS)							
4.98	DISCHG	.00	.00	.00	.00	.00	.0
5.81	DISCHG	9.31	18.83	27.43	27.70	10.91	5.1
6.64	DISCHG	2.45	2.20	2.15	2.15	2.16	2.0
7.47	DISCHG	1.33	1.38	1.55	1.62	1.64	1.6
8.30	DISCHG	.78	.77	.77	.77	.77	.7
9.13	DISCHG	.78	.78	.78	.78	.78	.7
9.96	DISCHG	.79	.76	.53	.43	.40	.4
10.79	DISCHG	.40	.40	.40	.46	.92	1.1

1

1R20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FII

11.62	DISCHG	.70	.47	.42	.41	.41	.4
12.45	DISCHG	.82	.80	.57	.45	.42	.4
13.28	DISCHG	.41	.41	.41	.41	.41	.4
14.11	DISCHG	.46	.49	.50	.50	.50	.5
14.94	DISCHG	.50	.50	.51	.51	.51	.5
15.77	DISCHG	.59	.59	.59	.59	.51	.4
16.60	DISCHG	.43	.43	.43	.43	.43	.4
17.43	DISCHG	.43	.43	.43	.43	.43	.4
18.26	DISCHG	.43	.43	.43	.43	.43	.4
19.09	DISCHG	.44	.44	.44	.44	.44	.4
19.92	DISCHG	.44	.44	.37	.29	.27	.2
20.75	DISCHG	.18	.18	.18	.18	.21	.2
21.58	DISCHG	.23	.19	.18	.18	.18	.1
22.41	DISCHG	.27	.27	.24	.19	.18	.1
23.24	DISCHG	.26	.27	.27	.27	.24	.1
24.07	DISCHG	.13	.04	.01	.00		

*** WARNING REACH 186 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RED

*** WARNING REACH 164 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RED

*** WARNING REACH 159 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RED
0 *** WARNING - REACH 149 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW

*** WARNING REACH 185 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RED

*** WARNING REACH 157 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 154 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE
*** WARNING - REACH 153 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW
*** WARNING - REACH 147 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW
*** WARNING - REACH 142 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW

*** WARNING REACH 143 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 136 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 128 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 127 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 184 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 125 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FI

*** WARNING REACH 120 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 183 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 115 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 114 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 106 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 107 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 104 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 109 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

*** WARNING REACH 108 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER RE

OPERATION ADDHYD STRUCTURE 99

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEV
6.11	1334.80	(NULI
7.14	2488.03	(NULI

TIME(HRS)		FIRST HYDROGRAPH POINT = .00 HOURS				TIME INCREMENT =	
4.15	DISCHG	.00	.00	.00	.00	.00	.0
4.98	DISCHG	.02	.03	.07	.24	.65	1.3
5.81	DISCHG	508.39	799.83	1072.62	1286.76	1317.99	1105.9
6.64	DISCHG	1967.94	2143.94	2267.79	2364.06	2432.83	2474.5
7.47	DISCHG	2319.41	2239.77	2152.92	2063.31	1962.27	1863.2
8.30	DISCHG	1464.84	1408.42	1361.03	1321.25	1287.67	1258.9

9.13	DISCHG	1146.83	1125.29	1103.11	1080.19	1056.52	1032.
9.96	DISCHG	907.15	882.89	858.10	831.52	810.94	796.
10.79	DISCHG	720.48	704.82	689.10	673.66	660.63	652.
11.62	DISCHG	611.56	597.19	583.01	570.91	560.66	551.
12.45	DISCHG	527.41	522.28	516.03	507.30	498.25	489.
13.28	DISCHG	455.23	448.68	442.18	435.73	429.36	423.
14.11	DISCHG	406.05	404.49	402.97	401.24	399.31	397.
14.94	DISCHG	387.22	385.33	383.48	381.69	379.96	378.
15.77	DISCHG	372.22	371.41	370.46	369.44	368.10	365.
16.60	DISCHG	356.97	355.75	354.54	353.32	352.08	350.
17.43	DISCHG	344.16	342.78	341.40	340.02	338.64	337.
18.26	DISCHG	330.66	329.39	328.15	326.93	325.73	324.
19.09	DISCHG	319.02	317.99	316.97	315.97	314.99	314.
19.92	DISCHG	309.53	308.68	307.61	305.66	303.24	301.
20.75	DISCHG	292.57	290.54	288.65	286.84	285.12	283.
21.58	DISCHG	276.10	273.69	271.00	268.46	266.14	263.

1

22.41	DISCHG	256.38	254.73	252.95	250.77	248.29	245.9
23.24	DISCHG	238.17	237.14	235.93	234.59	233.12	231.2
24.07	DISCHG	221.94	219.53	216.44	213.61	211.18	209.02

RUNOFF VOLUME ABOVE BASEFLOW = 1.18 WATERSHED INCHES, 12231.17 CFS-HRS, 10

EXECUTIVE CONTROL OPERATION ENDCMP
+

COMPUTATIONS COMPLETED FOR PASS 2

EXECUTIVE CONTROL OPERATION ENDJOB
1

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIO
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUE
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)
ALTERNATE 1 STORM 1								
XSECTION 82	RUNOFF	.19	1	2	.08	.0	4.40	24.00

XSECTION 174	REACH	.19	1	2	.08	.0	4.40	24.00
XSECTION 74	RUNOFF	.18	1	2	.08	.0	4.40	24.00
STRUCTURE 74	ADDHYD	.37	1	2	.08	.0	4.40	24.00
XSECTION 173	REACH	.37	1	2	.08	.0	4.40	24.00
XSECTION 75	RUNOFF	.12	1	2	.08	.0	4.40	24.00
STRUCTURE 75	ADDHYD	.49	1	2	.08	.0	4.40	24.00
XSECTION 73	RUNOFF	.12	1	2	.08	.0	4.40	24.00
STRUCTURE 75	ADDHYD	.61	1	2	.08	.0	4.40	24.00
XSECTION 81	RUNOFF	.39	1	2	.08	.0	4.40	24.00
XSECTION 175	REACH	.39	1	2	.08	.0	4.40	24.00
STRUCTURE 75	ADDHYD	1.00	1	2	.08	.0	4.40	24.00
XSECTION 80	RUNOFF	.22	1	2	.08	.0	4.40	24.00
XSECTION 176	REACH	.22	1	2	.08	.0	4.40	24.00
STRUCTURE 75	ADDHYD	1.22	1	2	.08	.0	4.40	24.00
XSECTION 76	RUNOFF	.17	1	2	.08	.0	4.40	24.00
STRUCTURE 75	ADDHYD	1.39	1	2	.08	.0	4.40	24.00
XSECTION 172	REACH	1.39	1	2	.08	.0	4.40	24.00
XSECTION 88	RUNOFF	.10	1	2	.08	.0	4.40	24.00
STRUCTURE 77	ADDHYD	1.49	1	2	.08	.0	4.40	24.00
XSECTION 77	RUNOFF	.25	1	2	.08	.0	4.40	24.00
STRUCTURE 77	ADDHYD	1.74	1	2	.08	.0	4.40	24.00
XSECTION 79	RUNOFF	.29	1	2	.08	.0	4.40	24.00
XSECTION 178	REACH	.29	1	2	.08	.0	4.40	24.00
XSECTION 78	RUNOFF	.88	1	2	.08	.0	4.40	24.00
STRUCTURE 78	ADDHYD	1.17	1	2	.08	.0	4.40	24.00
SECTION 177	REACH	1.17	1	2	.08	.0	4.40	24.00
STRUCTURE 77	ADDHYD	2.91	1	2	.08	.0	4.40	24.00
XSECTION 171	REACH	2.91	1	2	.08	.0	4.40	24.00
XSECTION 71	RUNOFF	.36	1	2	.08	.0	4.40	24.00
STRUCTURE 71	ADDHYD	3.27	1	2	.08	.0	4.40	24.00
XSECTION 170	REACH	3.27	1	2	.08	.0	4.40	24.00

1

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIO
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUE
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)
ALTERNATE 1 STORM 1								
XSECTION 70	RUNOFF	.31	1	2	.08	.0	4.40	24.00
STRUCTURE 70	ADDHYD	3.58	1	2	.08	.0	4.40	24.00

XSECTION 187	REACH	3.58	1	2	.08	.0	4.40	24.00
XSECTION 87	RUNOFF	.04	1	2	.08	.0	4.40	24.00
STRUCTURE 87	ADDHYD	3.62	1	2	.08	.0	4.40	24.00
SECTION 72	RUNOFF	.25	1	2	.08	.0	4.40	24.00
XSECTION 169	REACH	.25	1	2	.08	.0	4.40	24.00
XSECTION 69	RUNOFF	.25	1	2	.08	.0	4.40	24.00
STRUCTURE 69	ADDHYD	.50	1	2	.08	.0	4.40	24.00
XSECTION 186	REACH	.50	1	2	.08	.0	4.40	24.00
XSECTION 86	RUNOFF	.05	1	2	.08	.0	4.40	24.00
STRUCTURE 87	ADDHYD	.55	1	2	.08	.0	4.40	24.00
STRUCTURE 87	ADDHYD	4.17	1	2	.08	.0	4.40	24.00
XSECTION 163	REACH	4.17	1	2	.08	.0	4.40	24.00
XSECTION 63	RUNOFF	.16	1	2	.08	.0	4.40	24.00
STRUCTURE 63	ADDHYD	4.33	1	2	.08	.0	4.40	24.00
XSECTION 160	REACH	4.33	1	2	.08	.0	4.40	24.00
XSECTION 60	RUNOFF	.15	1	2	.08	.0	4.40	24.00
STRUCTURE 60	ADDHYD	4.48	1	2	.08	.0	4.40	24.00
XSECTION 59	RUNOFF	.16	1	2	.08	.0	4.40	24.00
STRUCTURE 60	ADDHYD	4.64	1	2	.08	.0	4.40	24.00
XSECTION 68	RUNOFF	.22	1	2	.08	.0	4.40	24.00
XSECTION 167	REACH	.22	1	2	.08	.0	4.40	24.00
XSECTION 67	RUNOFF	.27	1	2	.08	.0	4.40	24.00
STRUCTURE 67	ADDHYD	.49	1	2	.08	.0	4.40	24.00
XSECTION 164	REACH	.49	1	2	.08	.0	4.40	24.00
XSECTION 64	RUNOFF	.25	1	2	.08	.0	4.40	24.00
TRUCTURE 64	ADDHYD	.74	1	2	.08	.0	4.40	24.00
SECTION 159	REACH	.74	1	2	.08	.0	4.40	24.00
STRUCTURE 60	ADDHYD	5.38	1	2	.08	.0	4.40	24.00
XSECTION 151	REACH	5.38	1	2	.08	.0	4.40	24.00
STRUCTURE 94	RESVOR	5.38	1	2	.08	.0	4.40	24.00
XSECTION 51	RUNOFF	.15	1	2	.08	.0	4.40	24.00
STRUCTURE 51	ADDHYD	5.53	1	2	.08	.0	4.40	24.00
XSECTION 49	RUNOFF	.10	1	2	.08	.0	4.40	24.00
STRUCTURE 51	ADDHYD	5.63	1	2	.08	.0	4.40	24.00

1

TR20 XEQ 10/ 4/95 10:30
REV PC/09/83

UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIO
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUE
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ RUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)

+ ALTERNATE 1 STORM 1

XSECTION 52	RUNOFF	.19	1	2	.08	.0	4.40	24.00
STRUCTURE 51	ADDHYD	5.82	1	2	.08	.0	4.40	24.00
XSECTION 65	RUNOFF	.10	1	2	.08	.0	4.40	24.00
XSECTION 158	REACH	.10	1	2	.08	.0	4.40	24.00
XSECTION 58	RUNOFF	.17	1	2	.08	.0	4.40	24.00
STRUCTURE 58	ADDHYD	.27	1	2	.08	.0	4.40	24.00
XSECTION 152	REACH	.27	1	2	.08	.0	4.40	24.00
STRUCTURE 93	RESVOR	.27	1	2	.08	.0	4.40	24.00
STRUCTURE 51	ADDHYD	6.09	1	2	.08	.0	4.40	24.00
XSECTION 62	RUNOFF	.25	1	2	.08	.0	4.40	24.00
XSECTION 161	REACH	.25	1	2	.08	.0	4.40	24.00
XSECTION 61	RUNOFF	.13	1	2	.08	.0	4.40	24.00
STRUCTURE 61	ADDHYD	.38	1	2	.08	.0	4.40	24.00
XSECTION 150	REACH	.38	1	2	.08	.0	4.40	24.00
XSECTION 50	RUNOFF	.13	1	2	.08	.0	4.40	24.00
STRUCTURE 50	ADDHYD	.51	1	2	.08	.0	4.40	24.00
STRUCTURE 95	RESVOR	.51	1	2	.08	.0	4.40	24.00
XSECTION 149	REACH	.51	1	2	.08	.0	4.40	24.00
STRUCTURE 51	ADDHYD	6.60	1	2	.08	.0	4.40	24.00
XSECTION 148	REACH	6.60	1	2	.08	.0	4.40	24.00
XSECTION 48	RUNOFF	.15	1	2	.08	.0	4.40	24.00
STRUCTURE 48	ADDHYD	6.75	1	2	.08	.0	4.40	24.00
XSECTION 141	REACH	6.75	1	2	.08	.0	4.40	24.00
XSECTION 40	RUNOFF	.30	1	2	.08	.0	4.40	24.00
TRUCTURE 41	ADDHYD	7.05	1	2	.08	.0	4.40	24.00
XSECTION 41	RUNOFF	.08	1	2	.08	.0	4.40	24.00
STRUCTURE 41	ADDHYD	7.13	1	2	.08	.0	4.40	24.00
XSECTION 185	REACH	7.13	1	2	.08	.0	4.40	24.00
XSECTION 85	RUNOFF	.05	1	2	.08	.0	4.40	24.00
STRUCTURE 85	ADDHYD	7.18	1	2	.08	.0	4.40	24.00
XSECTION 39	RUNOFF	.15	1	2	.08	.0	4.40	24.00
STRUCTURE 85	ADDHYD	7.33	1	2	.08	.0	4.40	24.00
XSECTION 137	REACH	7.33	1	2	.08	.0	4.40	24.00
XSECTION 36	RUNOFF	.17	1	2	.08	.0	4.40	24.00
STRUCTURE 37	ADDHYD	7.50	1	2	.08	.0	4.40	24.00
XSECTION 37	RUNOFF	.12	1	2	.08	.0	4.40	24.00

1

TR20 XEQ 10/ 4/95 10:30
REV PC/09/83

UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIO
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUE
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

ECTION/ TRUCTURE	STANDARD CONTROL	DRAINAGE	RAIN TABLE	ANTEC MOIST	MAIN TIME	PRECIPITATION

ID	OPERATION	AREA (SQ MI)	#	COND	INCREM (HR)	BEGIN (HR)	AMOUNT (IN)	DURATION (HR)
ALTERNATE 1 STORM 1								
STRUCTURE 37	ADDHYD	7.62	1	2	.08	.0	4.40	24.00
XSECTION 66	RUNOFF	.31	1	2	.08	.0	4.40	24.00
XSECTION 157	REACH	.31	1	2	.08	.0	4.40	24.00
XSECTION 57	RUNOFF	.16	1	2	.08	.0	4.40	24.00
STRUCTURE 57	ADDHYD	.47	1	2	.08	.0	4.40	24.00
XSECTION 154	REACH	.47	1	2	.08	.0	4.40	24.00
XSECTION 55	RUNOFF	.25	1	2	.08	.0	4.40	24.00
STRUCTURE 54	ADDHYD	.72	1	2	.08	.0	4.40	24.00
XSECTION 56	RUNOFF	.15	1	2	.08	.0	4.40	24.00
XSECTION 155	REACH	.15	1	2	.08	.0	4.40	24.00
STRUCTURE 54	ADDHYD	.87	1	2	.08	.0	4.40	24.00
XSECTION 54	RUNOFF	.25	1	2	.08	.0	4.40	24.00
STRUCTURE 54	ADDHYD	1.12	1	2	.08	.0	4.40	24.00
STRUCTURE 92	RESVOR	1.12	1	2	.08	.0	4.40	24.00
XSECTION 153	REACH	1.12	1	2	.08	.0	4.40	24.00
XSECTION 53	RUNOFF	.17	1	2	.08	.0	4.40	24.00
STRUCTURE 53	ADDHYD	1.29	1	2	.08	.0	4.40	24.00
XSECTION 147	REACH	1.29	1	2	.08	.0	4.40	24.00
XSECTION 47	RUNOFF	.26	1	2	.08	.0	4.40	24.00
STRUCTURE 47	ADDHYD	1.55	1	2	.08	.0	4.40	24.00
SECTION 142	REACH	1.55	1	2	.08	.0	4.40	24.00
XSECTION 42	RUNOFF	.20	1	2	.08	.0	4.40	24.00
STRUCTURE 43	ADDHYD	1.75	1	2	.08	.0	4.40	24.00
XSECTION 43	RUNOFF	.14	1	2	.08	.0	4.40	24.00
STRUCTURE 43	ADDHYD	1.89	1	2	.08	.0	4.40	24.00
XSECTION 45	RUNOFF	.24	1	2	.08	.0	4.40	24.00
XSECTION 46	RUNOFF	.23	1	2	.08	.0	4.40	24.00
STRUCTURE 45	ADDHYD	.47	1	2	.08	.0	4.40	24.00
XSECTION 143	REACH	.47	1	2	.08	.0	4.40	24.00
STRUCTURE 43	ADDHYD	2.36	1	2	.08	.0	4.40	24.00
XSECTION 136	REACH	2.36	1	2	.08	.0	4.40	24.00
STRUCTURE 37	ADDHYD	9.98	1	2	.08	.0	4.40	24.00
XSECTION 129	REACH	9.98	1	2	.08	.0	4.40	24.00
XSECTION 27	RUNOFF	.16	1	2	.08	.0	4.40	24.00
STRUCTURE 29	ADDHYD	10.14	1	2	.08	.0	4.40	24.00
XSECTION 38	RUNOFF	.32	1	2	.08	.0	4.40	24.00

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIO
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUE

A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATIC (HR)
ALTERNATE 1 STORM 1								
XSECTION 128	REACH	.32	1	2	.08	.0	4.40	24.00
XSECTION 28	RUNOFF	.17	1	2	.08	.0	4.40	24.00
STRUCTURE 28	ADDHYD	.49	1	2	.08	.0	4.40	24.00
XSECTION 127	REACH	.49	1	2	.08	.0	4.40	24.00
STRUCTURE 29	ADDHYD	10.63	1	2	.08	.0	4.40	24.00
XSECTION 29	RUNOFF	.23	1	2	.08	.0	4.40	24.00
XSECTION 29	ADDHYD	10.86	1	2	.08	.0	4.40	24.00
XSECTION 184	REACH	10.86	1	2	.08	.0	4.40	24.00
XSECTION 84	RUNOFF	.04	1	2	.08	.0	4.40	24.00
STRUCTURE 30	ADDHYD	10.90	1	2	.08	.0	4.40	24.00
XSECTION 30	RUNOFF	.10	1	2	.08	.0	4.40	24.00
STRUCTURE 30	ADDHYD	11.00	1	2	.08	.0	4.40	24.00
XSECTION 31	RUNOFF	.21	1	2	.08	.0	4.40	24.00
STRUCTURE 30	ADDHYD	11.21	1	2	.08	.0	4.40	24.00
XSECTION 44	RUNOFF	.17	1	2	.08	.0	4.40	24.00
XSECTION 135	REACH	.17	1	2	.08	.0	4.40	24.00
XSECTION 35	RUNOFF	.12	1	2	.08	.0	4.40	24.00
TRUCTURE 35	ADDHYD	.29	1	2	.08	.0	4.40	24.00
XSECTION 34	RUNOFF	.29	1	2	.08	.0	4.40	24.00
STRUCTURE 35	ADDHYD	.58	1	2	.08	.0	4.40	24.00
XSECTION 130	REACH	.58	1	2	.08	.0	4.40	24.00
STRUCTURE 30	ADDHYD	11.79	1	2	.08	.0	4.40	24.00
XSECTION 32	RUNOFF	.11	1	2	.08	.0	4.40	24.00
XSECTION 33	RUNOFF	.29	1	2	.08	.0	4.40	24.00
STRUCTURE 33	ADDHYD	.40	1	2	.08	.0	4.40	24.00
XSECTION 131	REACH	.40	1	2	.08	.0	4.40	24.00
STRUCTURE 30	ADDHYD	12.19	1	2	.08	.0	4.40	24.00
XSECTION 125	REACH	12.19	1	2	.08	.0	4.40	24.00
XSECTION 26	RUNOFF	.19	1	2	.08	.0	4.40	24.00
STRUCTURE 25	ADDHYD	12.38	1	2	.08	.0	4.40	24.00
XSECTION 25	RUNOFF	.04	1	2	.08	.0	4.40	24.00
STRUCTURE 25	ADDHYD	12.42	1	2	.08	.0	4.40	24.00
XSECTION 24	RUNOFF	.19	1	2	.08	.0	4.40	24.00
STRUCTURE 25	ADDHYD	12.61	1	2	.08	.0	4.40	24.00
XSECTION 120	REACH	12.61	1	2	.08	.0	4.40	24.00
XSECTION 22	RUNOFF	.13	1	2	.08	.0	4.40	24.00

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIO
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALU
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)
ALTERNATE 1 STORM 1								
STRUCTURE 20	ADDHYD	12.74	1	2	.08	.0	4.40	24.00
XSECTION 20	RUNOFF	.09	1	2	.08	.0	4.40	24.00
STRUCTURE 20	ADDHYD	12.83	1	2	.08	.0	4.40	24.00
XSECTION 21	RUNOFF	.12	1	2	.08	.0	4.40	24.00
STRUCTURE 20	ADDHYD	12.95	1	2	.08	.0	4.40	24.00
XSECTION 19	RUNOFF	.17	1	2	.08	.0	4.40	24.00
STRUCTURE 20	ADDHYD	13.12	1	2	.08	.0	4.40	24.00
XSECTION 83	RUNOFF	.11	1	2	.08	.0	4.40	24.00
STRUCTURE 20	ADDHYD	13.23	1	2	.08	.0	4.40	24.00
XSECTION 23	RUNOFF	.28	1	2	.08	.0	4.40	24.00
XSECTION 183	REACH	.28	1	2	.08	.0	4.40	24.00
STRUCTURE 20	ADDHYD	13.51	1	2	.08	.0	4.40	24.00
STRUCTURE 98	RESVOR	13.51	1	2	.08	.0	4.40	24.00
XSECTION 113	REACH	13.51	1	2	.08	.0	4.40	24.00
SECTION 13	RUNOFF	.24	1	2	.08	.0	4.40	24.00
STRUCTURE 13	ADDHYD	13.75	1	2	.08	.0	4.40	24.00
XSECTION 14	RUNOFF	.07	1	2	.08	.0	4.40	24.00
STRUCTURE 13	ADDHYD	13.82	1	2	.08	.0	4.40	24.00
XSECTION 15	RUNOFF	.17	1	2	.08	.0	4.40	24.00
STRUCTURE 13	ADDHYD	13.99	1	2	.08	.0	4.40	24.00
XSECTION 16	RUNOFF	.21	1	2	.08	.0	4.40	24.00
XSECTION 115	REACH	.21	1	2	.08	.0	4.40	24.00
STRUCTURE 13	ADDHYD	14.20	1	2	.08	.0	4.40	24.00
XSECTION 18	RUNOFF	.13	1	2	.08	.0	4.40	24.00
XSECTION 17	RUNOFF	.17	1	2	.08	.0	4.40	24.00
STRUCTURE 18	ADDHYD	.30	1	2	.08	.0	4.40	24.00
XSECTION 114	REACH	.30	1	2	.08	.0	4.40	24.00
STRUCTURE 13	ADDHYD	14.50	1	2	.08	.0	4.40	24.00
XSECTION 106	REACH	14.50	1	2	.08	.0	4.40	24.00
XSECTION 6	RUNOFF	.13	1	2	.08	.0	4.40	24.00
STRUCTURE 6	ADDHYD	14.63	1	2	.08	.0	4.40	24.00
XSECTION 5	RUNOFF	.15	1	2	.08	.0	4.40	24.00
STRUCTURE 6	ADDHYD	14.78	1	2	.08	.0	4.40	24.00
XSECTION 7	RUNOFF	.19	1	2	.08	.0	4.40	24.00
STRUCTURE 6	ADDHYD	14.97	1	2	.08	.0	4.40	24.00
ECTION 11	RUNOFF	.16	1	2	.08	.0	4.40	24.00

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FI

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIO
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALU
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATIO (HR)
ALTERNATE 1 STORM 1								
XSECTION 12	RUNOFF	.13	1	2	.08	.0	4.40	24.00
STRUCTURE 11	ADDHYD	.29	1	2	.08	.0	4.40	24.00
XSECTION 107	REACH	.29	1	2	.08	.0	4.40	24.00
STRUCTURE 6	ADDHYD	15.26	1	2	.08	.0	4.40	24.00
STRUCTURE 97	RESVOR	15.26	1	2	.08	.0	4.40	24.00
XSECTION 104	REACH	15.26	1	2	.08	.0	4.40	24.00
XSECTION 4	RUNOFF	.19	1	2	.08	.0	4.40	24.00
STRUCTURE 4	ADDHYD	15.45	1	2	.08	.0	4.40	24.00
XSECTION 8	RUNOFF	.20	1	2	.08	.0	4.40	24.00
STRUCTURE 8	ADDHYD	15.65	1	2	.08	.0	4.40	24.00
SECTION 10	RUNOFF	.14	1	2	.08	.0	4.40	24.00
XSECTION 109	REACH	.14	1	2	.08	.0	4.40	24.00
XSECTION 9	RUNOFF	.25	1	2	.08	.0	4.40	24.00
STRUCTURE 9	ADDHYD	.39	1	2	.08	.0	4.40	24.00
XSECTION 108	REACH	.39	1	2	.08	.0	4.40	24.00
STRUCTURE 99	ADDHYD	16.04	1	2	.08	.0	4.40	24.00
ALTERNATE 1 STORM 2								
XSECTION 82	RUNOFF	.19	1	2	.08	.0	3.00	24.00
XSECTION 174	REACH	.19	1	2	.08	.0	3.00	24.00
XSECTION 74	RUNOFF	.18	1	2	.08	.0	3.00	24.00
STRUCTURE 74	ADDHYD	.37	1	2	.08	.0	3.00	24.00
XSECTION 173	REACH	.37	1	2	.08	.0	3.00	24.00
XSECTION 75	RUNOFF	.12	1	2	.08	.0	3.00	24.00
STRUCTURE 75	ADDHYD	.49	1	2	.08	.0	3.00	24.00
XSECTION 73	RUNOFF	.12	1	2	.08	.0	3.00	24.00
STRUCTURE 75	ADDHYD	.61	1	2	.08	.0	3.00	24.00
XSECTION 81	RUNOFF	.39	1	2	.08	.0	3.00	24.00
XSECTION 175	REACH	.39	1	2	.08	.0	3.00	24.00
STRUCTURE 75	ADDHYD	1.00	1	2	.08	.0	3.00	24.00
XSECTION 80	RUNOFF	.22	1	2	.08	.0	3.00	24.00
SECTION 176	REACH	.22	1	2	.08	.0	3.00	24.00
RUCTURE 75	ADDHYD	1.22	1	2	.08	.0	3.00	24.00
XSECTION 76	RUNOFF	.17	1	2	.08	.0	3.00	24.00
STRUCTURE 75	ADDHYD	1.39	1	2	.08	.0	3.00	24.00

XSECTION 172	REACH	1.39	1	2	.08	.0	3.00	24.00
XSECTION 88	RUNOFF	.10	1	2	.08	.0	3.00	24.00

1

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIC
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUI
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)
ALTERNATE 1 STORM 2								
+								
STRUCTURE 77	ADDHYD	1.49	1	2	.08	.0	3.00	24.00
XSECTION 77	RUNOFF	.25	1	2	.08	.0	3.00	24.00
STRUCTURE 77	ADDHYD	1.74	1	2	.08	.0	3.00	24.00
XSECTION 79	RUNOFF	.29	1	2	.08	.0	3.00	24.00
XSECTION 178	REACH	.29	1	2	.08	.0	3.00	24.00
XSECTION 78	RUNOFF	.88	1	2	.08	.0	3.00	24.00
TRUCTURE 78	ADDHYD	1.17	1	2	.08	.0	3.00	24.00
SECTION 177	REACH	1.17	1	2	.08	.0	3.00	24.00
STRUCTURE 77	ADDHYD	2.91	1	2	.08	.0	3.00	24.00
XSECTION 171	REACH	2.91	1	2	.08	.0	3.00	24.00
XSECTION 71	RUNOFF	.36	1	2	.08	.0	3.00	24.00
STRUCTURE 71	ADDHYD	3.27	1	2	.08	.0	3.00	24.00
XSECTION 170	REACH	3.27	1	2	.08	.0	3.00	24.00
XSECTION 70	RUNOFF	.31	1	2	.08	.0	3.00	24.00
STRUCTURE 70	ADDHYD	3.58	1	2	.08	.0	3.00	24.00
XSECTION 187	REACH	3.58	1	2	.08	.0	3.00	24.00
XSECTION 87	RUNOFF	.04	1	2	.08	.0	3.00	24.00
STRUCTURE 87	ADDHYD	3.62	1	2	.08	.0	3.00	24.00
XSECTION 72	RUNOFF	.25	1	2	.08	.0	3.00	24.00
XSECTION 169	REACH	.25	1	2	.08	.0	3.00	24.00
XSECTION 69	RUNOFF	.25	1	2	.08	.0	3.00	24.00
STRUCTURE 69	ADDHYD	.50	1	2	.08	.0	3.00	24.00
XSECTION 186	REACH	.50	1	2	.08	.0	3.00	24.00
XSECTION 86	RUNOFF	.05	1	2	.08	.0	3.00	24.00
STRUCTURE 87	ADDHYD	.55	1	2	.08	.0	3.00	24.00
STRUCTURE 87	ADDHYD	4.17	1	2	.08	.0	3.00	24.00
XSECTION 163	REACH	4.17	1	2	.08	.0	3.00	24.00
SECTION 63	RUNOFF	.16	1	2	.08	.0	3.00	24.00
RUCTURE 63	ADDHYD	4.33	1	2	.08	.0	3.00	24.00
SECTION 160	REACH	4.33	1	2	.08	.0	3.00	24.00
XSECTION 60	RUNOFF	.15	1	2	.08	.0	3.00	24.00

STRUCTURE 60	ADDHYD	4.48	1	2	.08	.0	3.00	24.00
XSECTION 59	RUNOFF	.16	1	2	.08	.0	3.00	24.00
STRUCTURE 60	ADDHYD	4.64	1	2	.08	.0	3.00	24.00
'SECTION 68	RUNOFF	.22	1	2	.08	.0	3.00	24.00
.SECTION 167	REACH	.22	1	2	.08	.0	3.00	24.00

1

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIO
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUE
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)
+ ALTERNATE 1 STORM 2								
XSECTION 67	RUNOFF	.27	1	2	.08	.0	3.00	24.00
STRUCTURE 67	ADDHYD	.49	1	2	.08	.0	3.00	24.00
SECTION 164	REACH	.49	1	2	.08	.0	3.00	24.00
SECTION 64	RUNOFF	.25	1	2	.08	.0	3.00	24.00
-TRUCTURE 64	ADDHYD	.74	1	2	.08	.0	3.00	24.00
XSECTION 159	REACH	.74	1	2	.08	.0	3.00	24.00
STRUCTURE 60	ADDHYD	5.38	1	2	.08	.0	3.00	24.00
XSECTION 151	REACH	5.38	1	2	.08	.0	3.00	24.00
STRUCTURE 94	RESVOR	5.38	1	2	.08	.0	3.00	24.00
XSECTION 51	RUNOFF	.15	1	2	.08	.0	3.00	24.00
STRUCTURE 51	ADDHYD	5.53	1	2	.08	.0	3.00	24.00
XSECTION 49	RUNOFF	.10	1	2	.08	.0	3.00	24.00
STRUCTURE 51	ADDHYD	5.63	1	2	.08	.0	3.00	24.00
XSECTION 52	RUNOFF	.19	1	2	.08	.0	3.00	24.00
STRUCTURE 51	ADDHYD	5.82	1	2	.08	.0	3.00	24.00
XSECTION 65	RUNOFF	.10	1	2	.08	.0	3.00	24.00
XSECTION 158	REACH	.10	1	2	.08	.0	3.00	24.00
XSECTION 58	RUNOFF	.17	1	2	.08	.0	3.00	24.00
STRUCTURE 58	ADDHYD	.27	1	2	.08	.0	3.00	24.00
XSECTION 152	REACH	.27	1	2	.08	.0	3.00	24.00
STRUCTURE 93	RESVOR	.27	1	2	.08	.0	3.00	24.00
STRUCTURE 51	ADDHYD	6.09	1	2	.08	.0	3.00	24.00
XSECTION 62	RUNOFF	.25	1	2	.08	.0	3.00	24.00
'SECTION 161	REACH	.25	1	2	.08	.0	3.00	24.00
SECTION 61	RUNOFF	.13	1	2	.08	.0	3.00	24.00
STRUCTURE 61	ADDHYD	.38	1	2	.08	.0	3.00	24.00
XSECTION 150	REACH	.38	1	2	.08	.0	3.00	24.00
XSECTION 50	RUNOFF	.13	1	2	.08	.0	3.00	24.00

STRUCTURE 50	ADDHYD	.51	1	2	.08	.0	3.00	24.00
STRUCTURE 95	RESVOR	.51	1	2	.08	.0	3.00	24.00
XSECTION 149	REACH	.51	1	2	.08	.0	3.00	24.00
STRUCTURE 51	ADDHYD	6.60	1	2	.08	.0	3.00	24.00
XSECTION 148	REACH	6.60	1	2	.08	.0	3.00	24.00
XSECTION 48	RUNOFF	.15	1	2	.08	.0	3.00	24.00
STRUCTURE 48	ADDHYD	6.75	1	2	.08	.0	3.00	24.00
XSECTION 141	REACH	6.75	1	2	.08	.0	3.00	24.00

1

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FI

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTI
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALU
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATIO (HR)
ALTERNATE 1 STORM 2								
XSECTION 40	RUNOFF	.30	1	2	.08	.0	3.00	24.00
STRUCTURE 41	ADDHYD	7.05	1	2	.08	.0	3.00	24.00
XSECTION 41	RUNOFF	.08	1	2	.08	.0	3.00	24.00
STRUCTURE 41	ADDHYD	7.13	1	2	.08	.0	3.00	24.00
XSECTION 185	REACH	7.13	1	2	.08	.0	3.00	24.00
XSECTION 85	RUNOFF	.05	1	2	.08	.0	3.00	24.00
STRUCTURE 85	ADDHYD	7.18	1	2	.08	.0	3.00	24.00
XSECTION 39	RUNOFF	.15	1	2	.08	.0	3.00	24.00
STRUCTURE 85	ADDHYD	7.33	1	2	.08	.0	3.00	24.00
XSECTION 137	REACH	7.33	1	2	.08	.0	3.00	24.00
XSECTION 36	RUNOFF	.17	1	2	.08	.0	3.00	24.00
STRUCTURE 37	ADDHYD	7.50	1	2	.08	.0	3.00	24.00
XSECTION 37	RUNOFF	.12	1	2	.08	.0	3.00	24.00
STRUCTURE 37	ADDHYD	7.62	1	2	.08	.0	3.00	24.00
XSECTION 66	RUNOFF	.31	1	2	.08	.0	3.00	24.00
XSECTION 157	REACH	.31	1	2	.08	.0	3.00	24.00
XSECTION 57	RUNOFF	.16	1	2	.08	.0	3.00	24.00
STRUCTURE 57	ADDHYD	.47	1	2	.08	.0	3.00	24.00
XSECTION 154	REACH	.47	1	2	.08	.0	3.00	24.00
XSECTION 55	RUNOFF	.25	1	2	.08	.0	3.00	24.00
STRUCTURE 54	ADDHYD	.72	1	2	.08	.0	3.00	24.00
SECTION 56	RUNOFF	.15	1	2	.08	.0	3.00	24.00
XSECTION 155	REACH	.15	1	2	.08	.0	3.00	24.00
STRUCTURE 54	ADDHYD	.87	1	2	.08	.0	3.00	24.00
XSECTION 54	RUNOFF	.25	1	2	.08	.0	3.00	24.00

STRUCTURE 54	ADDHYD	1.12	1	2	.08	.0	3.00	24.00
STRUCTURE 92	RESVOR	1.12	1	2	.08	.0	3.00	24.00
XSECTION 153	REACH	1.12	1	2	.08	.0	3.00	24.00
(SECTION 53	RUNOFF	.17	1	2	.08	.0	3.00	24.00
STRUCTURE 53	ADDHYD	1.29	1	2	.08	.0	3.00	24.00
XSECTION 147	REACH	1.29	1	2	.08	.0	3.00	24.00
XSECTION 47	RUNOFF	.26	1	2	.08	.0	3.00	24.00
STRUCTURE 47	ADDHYD	1.55	1	2	.08	.0	3.00	24.00
XSECTION 142	REACH	1.55	1	2	.08	.0	3.00	24.00
XSECTION 42	RUNOFF	.20	1	2	.08	.0	3.00	24.00
STRUCTURE 43	ADDHYD	1.75	1	2	.08	.0	3.00	24.00

1

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIO
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUE
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)
ALTERNATE 1 STORM 2								
XSECTION 43	RUNOFF	.14	1	2	.08	.0	3.00	24.00
STRUCTURE 43	ADDHYD	1.89	1	2	.08	.0	3.00	24.00
XSECTION 45	RUNOFF	.24	1	2	.08	.0	3.00	24.00
XSECTION 46	RUNOFF	.23	1	2	.08	.0	3.00	24.00
STRUCTURE 45	ADDHYD	.47	1	2	.08	.0	3.00	24.00
XSECTION 143	REACH	.47	1	2	.08	.0	3.00	24.00
STRUCTURE 43	ADDHYD	2.36	1	2	.08	.0	3.00	24.00
XSECTION 136	REACH	2.36	1	2	.08	.0	3.00	24.00
STRUCTURE 37	ADDHYD	9.98	1	2	.08	.0	3.00	24.00
XSECTION 129	REACH	9.98	1	2	.08	.0	3.00	24.00
XSECTION 27	RUNOFF	.16	1	2	.08	.0	3.00	24.00
STRUCTURE 29	ADDHYD	10.14	1	2	.08	.0	3.00	24.00
XSECTION 38	RUNOFF	.32	1	2	.08	.0	3.00	24.00
XSECTION 128	REACH	.32	1	2	.08	.0	3.00	24.00
XSECTION 28	RUNOFF	.17	1	2	.08	.0	3.00	24.00
STRUCTURE 28	ADDHYD	.49	1	2	.08	.0	3.00	24.00
XSECTION 127	REACH	.49	1	2	.08	.0	3.00	24.00
RUCTURE 29	ADDHYD	10.63	1	2	.08	.0	3.00	24.00
ECTION 29	RUNOFF	.23	1	2	.08	.0	3.00	24.00
SECTION 29	ADDHYD	10.86	1	2	.08	.0	3.00	24.00
XSECTION 184	REACH	10.86	1	2	.08	.0	3.00	24.00

XSECTION 84	RUNOFF	.04	1	2	.08	.0	3.00	24.00
STRUCTURE 30	ADDHYD	10.90	1	2	.08	.0	3.00	24.00
XSECTION 30	RUNOFF	.10	1	2	.08	.0	3.00	24.00
STRUCTURE 30	ADDHYD	11.00	1	2	.08	.0	3.00	24.00
XSECTION 31	RUNOFF	.21	1	2	.08	.0	3.00	24.00
STRUCTURE 30	ADDHYD	11.21	1	2	.08	.0	3.00	24.00
XSECTION 44	RUNOFF	.17	1	2	.08	.0	3.00	24.00
XSECTION 135	REACH	.17	1	2	.08	.0	3.00	24.00
XSECTION 35	RUNOFF	.12	1	2	.08	.0	3.00	24.00
STRUCTURE 35	ADDHYD	.29	1	2	.08	.0	3.00	24.00
XSECTION 34	RUNOFF	.29	1	2	.08	.0	3.00	24.00
STRUCTURE 35	ADDHYD	.58	1	2	.08	.0	3.00	24.00
XSECTION 130	REACH	.58	1	2	.08	.0	3.00	24.00
STRUCTURE 30	ADDHYD	11.79	1	2	.08	.0	3.00	24.00
XSECTION 32	RUNOFF	.11	1	2	.08	.0	3.00	24.00

1

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FII

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIC
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUE
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

ECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)
ALTERNATE 1 STORM 2								
XSECTION 33	RUNOFF	.29	1	2	.08	.0	3.00	24.00
STRUCTURE 33	ADDHYD	.40	1	2	.08	.0	3.00	24.00
XSECTION 131	REACH	.40	1	2	.08	.0	3.00	24.00
STRUCTURE 30	ADDHYD	12.19	1	2	.08	.0	3.00	24.00
XSECTION 125	REACH	12.19	1	2	.08	.0	3.00	24.00
XSECTION 26	RUNOFF	.19	1	2	.08	.0	3.00	24.00
STRUCTURE 25	ADDHYD	12.38	1	2	.08	.0	3.00	24.00
XSECTION 25	RUNOFF	.04	1	2	.08	.0	3.00	24.00
STRUCTURE 25	ADDHYD	12.42	1	2	.08	.0	3.00	24.00
XSECTION 24	RUNOFF	.19	1	2	.08	.0	3.00	24.00
STRUCTURE 25	ADDHYD	12.61	1	2	.08	.0	3.00	24.00
XSECTION 120	REACH	12.61	1	2	.08	.0	3.00	24.00
XSECTION 22	RUNOFF	.13	1	2	.08	.0	3.00	24.00
STRUCTURE 20	ADDHYD	12.74	1	2	.08	.0	3.00	24.00
SECTION 20	RUNOFF	.09	1	2	.08	.0	3.00	24.00
STRUCTURE 20	ADDHYD	12.83	1	2	.08	.0	3.00	24.00
XSECTION 21	RUNOFF	.12	1	2	.08	.0	3.00	24.00
STRUCTURE 20	ADDHYD	12.95	1	2	.08	.0	3.00	24.00

XSECTION 19	RUNOFF	.17	1	2	.08	.0	3.00	24.00
STRUCTURE 20	ADDHYD	13.12	1	2	.08	.0	3.00	24.00
XSECTION 83	RUNOFF	.11	1	2	.08	.0	3.00	24.00
STRUCTURE 20	ADDHYD	13.23	1	2	.08	.0	3.00	24.00
XSECTION 23	RUNOFF	.28	1	2	.08	.0	3.00	24.00
XSECTION 183	REACH	.28	1	2	.08	.0	3.00	24.00
STRUCTURE 20	ADDHYD	13.51	1	2	.08	.0	3.00	24.00
STRUCTURE 98	RESVOR	13.51	1	2	.08	.0	3.00	24.00
XSECTION 113	REACH	13.51	1	2	.08	.0	3.00	24.00
XSECTION 13	RUNOFF	.24	1	2	.08	.0	3.00	24.00
STRUCTURE 13	ADDHYD	13.75	1	2	.08	.0	3.00	24.00
XSECTION 14	RUNOFF	.07	1	2	.08	.0	3.00	24.00
STRUCTURE 13	ADDHYD	13.82	1	2	.08	.0	3.00	24.00
XSECTION 15	RUNOFF	.17	1	2	.08	.0	3.00	24.00
STRUCTURE 13	ADDHYD	13.99	1	2	.08	.0	3.00	24.00
XSECTION 16	RUNOFF	.21	1	2	.08	.0	3.00	24.00
XSECTION 115	REACH	.21	1	2	.08	.0	3.00	24.00
STRUCTURE 13	ADDHYD	14.20	1	2	.08	.0	3.00	24.00

1

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIC
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUE
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION BEGIN (HR)	PRECIPITATION AMOUNT (IN)	PRECIPITATION DURATION (HR)
ALTERNATE 1 STORM 2								
XSECTION 18	RUNOFF	.13	1	2	.08	.0	3.00	24.00
XSECTION 17	RUNOFF	.17	1	2	.08	.0	3.00	24.00
STRUCTURE 18	ADDHYD	.30	1	2	.08	.0	3.00	24.00
XSECTION 114	REACH	.30	1	2	.08	.0	3.00	24.00
STRUCTURE 13	ADDHYD	14.50	1	2	.08	.0	3.00	24.00
XSECTION 106	REACH	14.50	1	2	.08	.0	3.00	24.00
XSECTION 6	RUNOFF	.13	1	2	.08	.0	3.00	24.00
STRUCTURE 6	ADDHYD	14.63	1	2	.08	.0	3.00	24.00
XSECTION 5	RUNOFF	.15	1	2	.08	.0	3.00	24.00
STRUCTURE 6	ADDHYD	14.78	1	2	.08	.0	3.00	24.00
XSECTION 7	RUNOFF	.19	1	2	.08	.0	3.00	24.00
TRUCTURE 6	ADDHYD	14.97	1	2	.08	.0	3.00	24.00
XSECTION 11	RUNOFF	.16	1	2	.08	.0	3.00	24.00
XSECTION 12	RUNOFF	.13	1	2	.08	.0	3.00	24.00
STRUCTURE 11	ADDHYD	.29	1	2	.08	.0	3.00	24.00

XSECTION 107	REACH	.29	1	2	.08	.0	3.00	24.00
STRUCTURE 6	ADDHYD	15.26	1	2	.08	.0	3.00	24.00
STRUCTURE 97	RESVOR	15.26	1	2	.08	.0	3.00	24.00
XSECTION 104	REACH	15.26	1	2	.08	.0	3.00	24.00
XSECTION 4	RUNOFF	.19	1	2	.08	.0	3.00	24.00
STRUCTURE 4	ADDHYD	15.45	1	2	.08	.0	3.00	24.00
XSECTION 8	RUNOFF	.20	1	2	.08	.0	3.00	24.00
STRUCTURE 8	ADDHYD	15.65	1	2	.08	.0	3.00	24.00
XSECTION 10	RUNOFF	.14	1	2	.08	.0	3.00	24.00
XSECTION 109	REACH	.14	1	2	.08	.0	3.00	24.00
XSECTION 9	RUNOFF	.25	1	2	.08	.0	3.00	24.00
STRUCTURE 9	ADDHYD	.39	1	2	.08	.0	3.00	24.00
XSECTION 108	REACH	.39	1	2	.08	.0	3.00	24.00
STRUCTURE 99	ADDHYD	16.04	1	2	.08	.0	3.00	24.00

1

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FI

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARI
(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPI
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTS

+		HYDROGRAPH INFORMATION									
+	XSEC ID	REACH LENGTH (FT)	INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	OUTFLOW+ INTERV.AREA PEAK (CFS)	OUTFLOW+ INTERV.AREA TIME (HR)	BASE-FLOW (CFS)	VOLUME ABOVE BASE (IN)	MAIN TIME INCR (HR)	ITEI ATIC #
+	ALTERNATE	1	STORM	1								
+174	2300	244	6.1	234	6.1	---	---	0	1.40	.08	]
+173	2800	379	6.1	343	6.2	---	---	0	1.40	.08	]
+175	3850	303	6.2	269	6.4	---	---	0	1.40	.08	]
+176	4100	203	6.1	166	6.3	---	---	0	1.40	.08	]
172	1700	1021	6.3	1021	6.3	---	---	0	1.40	.08	(
+178	3000	316	6.1	281	6.2			0	1.40	.08	]

+							---	---			
+177 +	3350	1026	6.1	990	6.3		---	---	0	1.40	.08
171 +	3850	2235	6.3	2128	6.4		---	---	0	1.40	.08
+170 +	2500	2270	6.4	2265	6.5		---	---	0	1.46	.08
+187 +	1200	2378	6.5	2378	6.5		---	---	0	1.50	.08
+169 +	3000	353	6.1	327	6.1		---	---	0	1.60	.08
+186 +	1400	486	6.1	486	6.1		---	---	0	1.79	.08
+163 +	4400	2685	6.5	2633	6.6		---	---	0	1.54	.08
+160 +	4400	2688	6.6	2625	6.6		---	---	0	1.55	.08
+167 +	3300	222	6.2	205	6.4		---	---	0	1.97	.08
164 +	2500	621	6.2	611	6.3		---	---	0	2.44	.08
+159 +	3300	970	6.1	953	6.2		---	---	0	2.56	.08
+151 +	4000	3280	6.6	3231	6.7		---	---	0	1.74	.08
+158 +	3600	242	6.1	213	6.2		---	---	0	2.82	.08
+152 +	3500	647	6.1	597	6.1		---	---	0	3.32	.08
+161 +	3400	391	6.2	373	6.4		---	---	0	2.91	.08
+150 +	2950	480	6.4	465	6.5		---	---	0	2.54	.08
+149 +	2400	41	8.5	41	8.8		---	---	0	1.54*	.08
8 +	3300	2470	7.1	2456	7.2		---	---	0	1.73	.08
+141	3100	2471	7.1	2467	7.3				0	1.73	.08

+						---	---				
185	1100	2518	7.3	2518	7.3	---	---	0	1.75	.08	
+137 +	3900	2538	7.2	2525	7.4	---	---	0	1.77	.08	
+157 +	2300	661	6.1	658	6.2	---	---	0	3.00	.08	
+154 +	3500	1040	6.1	1017	6.2	---	---	0	3.21	.08	
+155 +	3450	345	6.1	315	6.1	---	---	0	2.63	.08	1
+153 +	2050	94	8.4	94	8.5	---	---	0	2.14*	.08	1
+147 + 1	2300	256	6.1	240	6.3	---	---	0	2.10*	.08	1

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD
(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTS

+		HYDROGRAPH INFORMATION									
+						OUTFLOW+			VOLUME	MAIN	ITER
XSEC ID +	REACH LENGTH (FT)	INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	INTERV.AREA PEAK (CFS)	INTERV.AREA TIME (HR)	BASE-FLOW (CFS)	ABOVE BASE (IN)	TIME INCR (HR)	ATIO #
+	ALTERNATE 1 STORM 1										
+142 +	5400	537	6.2	446	6.4	---	---	0	2.06*	.08	1
+143	2750	841	6.1	818	6.1	---	---	0	2.45	.08	1
5 +	2050	1697	6.1	1697	6.1	---	---	0	2.21	.08	0
+129	3800	3254	6.2	3054	6.3			0	1.88	.08	1

+						---	---			
+128 +	1700	369	6.2	368	6.3	---	---	0	2.04	.08
+127 +	2300	626	6.1	614	6.1	---	---	0	2.35	.08
+184 +	1350	3707	6.3	3707	6.3	---	---	0	1.92	.08
+135 +	3100	285	6.1	265	6.2	---	---	0	2.46	.08
+130 +	3700	959	6.1	922	6.3	---	---	0	2.65	.08
+131 +	4400	1094	6.1	1044	6.1	---	---	0	3.59	.08
+125 +	1200	6105	6.2	6105	6.2	---	---	0	2.05	.08
+120 +	2700	6640	6.1	6640	6.1	---	---	0	2.09	.08
+183 +	2700	789	6.1	784	6.1	---	---	0	3.61	.08
-13 +	4200	4878	6.6	4808	6.6	---	---	0	2.15	.08
+115 +	1800	433	6.1	432	6.1	---	---	0	2.63	.08
+114 +	1750	731	6.1	731	6.1	---	---	0	2.90	.08
+106 +	3100	5070	6.6	5070	6.6	---	---	0	2.18	.08
+107 +	2650	803	6.1	788	6.1	---	---	0	3.49	.08
+104 +	1950	3195	8.2	3195	8.2	---	---	0	2.16	.08
+109 +	2350	360	6.0	354	6.1	---	---	0	2.82	.08
+108	2500	1007	6.0	987	6.1	---	---	0	2.94	.08

+174	2300	97	6.1	82	6.1			0	.59	.08	1
+						---	---				
+173	2800	131	6.1	110	6.3			0	.58	.08	1
						---	---				
+175	3850	108	6.2	87	6.4			0	.58	.08	1
+						---	---				
+176	4100	73	6.1	51	6.4			0	.58	.08	1
+						---	---				
+172	1700	332	6.3	328	6.4			0	.58	.08	1
+						---	---				
+178	3000	113	6.1	93	6.2			0	.58	.08	1
+						---	---				
+177	3350	360	6.2	323	6.3			0	.58	.08	1
+						---	---				
+171	3850	714	6.4	630	6.6			0	.58	.08	1
+						---	---				
+170	2500	676	6.6	665	6.6			0	.63	.08	1
+						---	---				
+187	1200	703	6.6	702	6.7			0	.65	.08	1
+						---	---				

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD
(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTS

HYDROGRAPH INFORMATION

+											
		INFLOW		OUTFLOW		OUTFLOW+ INTERV. AREA			VOLUME ABOVE	MAIN TIME	ITER ATIO
+											
XSEC ID	REACH LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	BASE-FLOW (CFS)	BASE (IN)	INCR (HR)	#
	ALTERNATE 1 STORM 2										
+											
+	3000	149	6.1	120	6.1			0	.71	.08	1
+						---	---				
+186	1400	199	6.2	196	6.3			0	.84	.08	1

+						---	---			
+163 +	4400	813	6.7	781	6.9	---	---	0	.68	.08	1
+150 +	4400	794	6.9	769	7.1	---	---	0	.69	.08	1
+167 +	3300	99	6.3	87	6.5	---	---	0	.96	.08	1
+164 +	2500	311	6.2	299	6.4	---	---	0	1.30	.08	1
+159 +	3300	500	6.1	477	6.2	---	---	0	1.40	.08	1
+151 +	4000	945	6.6	933	7.1	---	---	0	.82	.08	1
+158 +	3600	137	6.1	109	6.2	---	---	0	1.59	.08	1
+152 +	3500	409	6.1	362	6.2	---	---	0	2.01	.08	1
+161 +	3400	215	6.3	198	6.5	---	---	0	1.66	.08	1
+150 +	2950	244	6.4	231	6.6	---	---	0	1.39	.08	1
+149 +	2400	14	10.3	14	10.6	---	---	0	.70*	.08	1
+148 +	3300	732	7.7	726	7.8	---	---	0	.82	.08	1
+141 +	3100	733	7.8	728	8.0	---	---	0	.82	.08	1
+185 +	1100	747	8.0	747	8.0	---	---	0	.83	.08	0
+137 +	3900	759	8.0	747	8.1	---	---	0	.85	.08	1
+157 +	2300	379	6.1	372	6.2	---	---	0	1.74	.08	1
+154 +	3500	601	6.1	570	6.2	---	---	0	1.91	.08	1
+ +	3450	192	6.1	159	6.2	---	---	0	1.45	.08	1

+153 +	2050	68	8.3	68	8.4	---	---	0	1.34*	.08	1
+147	2300	115	6.1	105	6.3	---	---	0	1.28*	.08	1
+142 +	5400	231	6.2	173	6.5	---	---	0	1.21*	.08	1
+143 +	2750	437	6.1	422	6.2	---	---	0	1.32	.08	1
+136 +	2050	821	6.1	821	6.1	---	---	0	1.26	.08	0
+129 +	3800	1423	6.2	1285	6.4	---	---	0	.95	.08	1
+128 +	1700	168	6.2	165	6.3	---	---	0	1.01	.08	1
+127 +	2300	321	6.1	309	6.1	---	---	0	1.24	.08	1
+184 +	1350	1567	6.4	1567	6.4	---	---	0	.98	.08	0
+135 +	3100	145	6.1	131	6.3	---	---	0	1.31	.08	1
+130 +	3700	493	6.1	473	6.3	---	---	0	1.45	.08	1
+131 + 1	4400	691	6.1	635	6.1	---	---	0	2.24	.08	1

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD
(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTS

HYDROGRAPH INFORMATION

+ XSEC +	REACH	INFLOW		OUTFLOW		OUTFLOW+ INTERV.AREA		BASE-	VOLUME ABOVE	MAIN TIME	ITER ATIO
	LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	FLOW (CFS)	BASE (IN)	INCR (HR)	#

+	ALTERNATE 1 STORM 2										
+125	1200	2912	6.2	2912	6.2	---	---	0	1.07	.08	0
+120 +	2700	3260	6.1	3260	6.1	---	---	0	1.09	.08	0
+183 +	2700	497	6.1	488	6.1	---	---	0	2.25	.08	1
+113 +	4200	2592	6.6	2541	6.7	---	---	0	1.14	.08	1
+115 +	1800	231	6.1	225	6.1	---	---	0	1.44	.08	1
+114 +	1750	420	6.1	419	6.1	---	---	0	1.65	.08	1
+106 +	3100	2695	6.6	2692	6.7	---	---	0	1.16	.08	1
+107 +	2650	499	6.1	480	6.1	---	---	0	2.15	.08	1
+104	1950	2416	7.1	2416	7.1	---	---	0	1.15	.08	0
+109 +	2350	204	6.0	197	6.1	---	---	0	1.59	.08	1
+108 + 1	2500	571	6.0	563	6.1	---	---	0	1.69	.08	1

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 STRUCTURE 99	16.04		
+ ALTERNATE 1		3665.45	2488.03
TRUCTURE 98	13.51		
ALTERNATE 1		4883.16	2596.82
0 STRUCTURE 97	15.26		
+			

ALTERNATE 1		3194.92	2417.47
0 STRUCTURE 95	.51		
+			
ALTERNATE 1		41.35	14.09
TRUCTURE 94	5.38		
ALTERNATE 1		2237.01	646.77
0 STRUCTURE 93	.27		
+			
ALTERNATE 1		178.27	64.80
0 STRUCTURE 92	1.12		
+			
ALTERNATE 1		93.58	68.04
0 STRUCTURE 87	4.17		
+			
ALTERNATE 1		2702.46	817.30
0 STRUCTURE 85	7.33		
+			
ALTERNATE 1		2544.86	758.62
0 STRUCTURE 78	1.17		
+			
ALTERNATE 1		1041.83	361.72
0 STRUCTURE 77	2.91		
+			
ALTERNATE 1		2262.04	715.59
0 STRUCTURE 75	1.39		
+			
ALTERNATE 1		1026.56	335.94
0 STRUCTURE 74	.37		
+			
ALTERNATE 1		379.44	133.56
0 STRUCTURE 71	3.27		
+			
ALTERNATE 1		2270.28	677.48
1			

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 STRUCTURE 70	3.58		
+			
ALTERNATE 1		2380.85	702.63
0 STRUCTURE 69	.50		
+			
ALTERNATE 1		495.97	199.28
(RUCTURE 67	.49		
+			
ALTERNATE 1		620.87	311.16
0 STRUCTURE 64	.74		
+			

ALTERNATE 1			
0 STRUCTURE 63	4.33	971.26	500.77
+			
ALTERNATE 1			
TRUCTURE 61	.38	2689.28	795.11
+			
ALTERNATE 1			
0 STRUCTURE 60	5.38	481.68	244.23
+			
ALTERNATE 1			
0 STRUCTURE 58	.27	3295.53	945.72
+			
ALTERNATE 1			
0 STRUCTURE 57	.47	647.91	410.18
+			
ALTERNATE 1			
0 STRUCTURE 54	1.12	1041.60	600.63
+			
ALTERNATE 1			
0 STRUCTURE 53	1.29	2385.37	1322.20
+			
ALTERNATE 1			
0 STRUCTURE 51	6.60	256.09	116.36
+			
ALTERNATE 1			
0 STRUCTURE 50	.51	2472.38	732.55
+			
ALTERNATE 1			
0 STRUCTURE 48	6.75	616.00	304.02
+			
ALTERNATE 1			
1		2477.43	733.19

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 STRUCTURE 47	1.55		
+			
ALTERNATE 1			
0 STRUCTURE 45	.47	539.94	231.42
+			
ALTERNATE 1			
0 STRUCTURE 43	2.36	846.69	443.57
+			
ALTERNATE 1			
TRUCTURE 41	7.13	1696.84	821.12
-			
ALTERNATE 1			
0 STRUCTURE 37	9.98	2523.89	746.69
-			

ALTERNATE 1 0 STRUCTURE 35	.58	3267.60	1423.93
ALTERNATE 1 (TRUCTURE 33	.40	961.71	498.33
ALTERNATE 1 0 STRUCTURE 30	12.19	1108.60	697.31
ALTERNATE 1 0 STRUCTURE 29	10.63	6105.10	2912.02
ALTERNATE 1 0 STRUCTURE 28	.49	3598.44	1524.87
ALTERNATE 1 0 STRUCTURE 25	12.61	627.69	323.12
ALTERNATE 1 0 STRUCTURE 20	13.51	6654.10	3261.20
ALTERNATE 1 0 STRUCTURE 18	.30	8536.12	4448.52
ALTERNATE 1 0 STRUCTURE 13	14.50	740.96	422.71
ALTERNATE 1 1		5070.32	2695.09

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 STRUCTURE 11	.29		
ALTERNATE 1 0 STRUCTURE 9	.39	806.16	499.54
ALTERNATE 1 0 STRUCTURE 8	15.65	1011.48	581.15
ALTERNATE 1 0 STRUCTURE 6	15.26	3253.59	2452.64
ALTERNATE 1 TRUCTURE 4	15.45	6088.04	3208.17
ALTERNATE 1) XSECTION 4	.19	3214.83	2432.11

ALTERNATE 1			
0 XSECTION 5	.15	487.20	280.12
+			
ALTERNATE 1			
SECTION 6	.13	355.89	197.55
ALTERNATE 1			
0 XSECTION 7	.19	240.33	124.14
+			
ALTERNATE 1			
0 XSECTION 8	.20	442.41	274.84
+			
ALTERNATE 1			
0 XSECTION 9	.25	508.36	308.85
+			
ALTERNATE 1			
0 XSECTION 10	.14	692.07	408.21
+			
ALTERNATE 1			
0 XSECTION 11	.16	360.29	205.93
+			
ALTERNATE 1			
0 XSECTION 12	.13	425.05	259.09
+			
ALTERNATE 1			
1		382.51	241.63

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 13	.24		
+			
ALTERNATE 1			
0 XSECTION 14	.07	505.77	269.05
+			
ALTERNATE 1			
0 XSECTION 15	.17	181.29	104.49
+			
ALTERNATE 1			
0 XSECTION 16	.21	378.63	207.82
+			
ALTERNATE 1			
0 XSECTION 17	.17	434.11	233.03
+			
ALTERNATE 1			
SECTION 18	.13	397.24	222.13
ALTERNATE 1			
0 XSECTION 19	.17	346.50	202.75
+			

ALTERNATE 1			
0 XSECTION 20	.09	405.10	227.31
+			
ALTERNATE 1			
SECTION 21	.12	194.86	101.48
+			
ALTERNATE 1			
0 XSECTION 22	.13	326.33	189.87
+			
ALTERNATE 1			
0 XSECTION 23	.28	394.57	243.28
+			
ALTERNATE 1			
0 XSECTION 24	.19	791.70	497.80
+			
ALTERNATE 1			
0 XSECTION 25	.04	576.76	366.42
+			
ALTERNATE 1			
0 XSECTION 26	.19	107.02	59.63
+			
ALTERNATE 1			
1		482.00	274.23

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 27	.16		
+			
ALTERNATE 1			
0 XSECTION 28	.17	402.22	228.28
+			
ALTERNATE 1			
0 XSECTION 29	10.86	446.97	259.20
+			
ALTERNATE 1			
0 XSECTION 30	.10	3709.87	1570.68
+			
ALTERNATE 1			
) XSECTION 31	.21	153.79	79.43
+			
ALTERNATE 1			
) XSECTION 32	.11	411.97	250.37
-			
ALTERNATE 1			
SECTION 33	.29	266.06	170.51
-			
ALTERNATE 1			
XSECTION 34	.29	870.16	545.79
-			

ALTERNATE 1			
0 XSECTION 35	.12	493.81	263.30
+			
ALTERNATE 1			
SECTION 36	.17	257.11	140.36
ALTERNATE 1			
0 XSECTION 37	.12	244.74	125.75
+			
ALTERNATE 1			
0 XSECTION 38	.32	200.95	92.00
+			
ALTERNATE 1			
0 XSECTION 39	.15	368.55	168.41
+			
ALTERNATE 1			
0 XSECTION 40	.30	338.97	186.48
+			
ALTERNATE 1			
1		379.84	184.27

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

CTION/ RUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 41	.08		
+			
ALTERNATE 1			
0 XSECTION 42	.20	84.54	31.09
+			
ALTERNATE 1			
0 XSECTION 43	.14	389.10	202.06
+			
ALTERNATE 1			
) XSECTION 44	.17	347.13	196.28
+			
ALTERNATE 1			
) XSECTION 45	.24	284.57	145.51
-			
ALTERNATE 1			
XSECTION 46	.23	566.69	320.91
ALTERNATE 1			
XSECTION 47	.26	302.57	137.25
ALTERNATE 1			
SECTION 48	.15	324.24	143.30
-			
ALTERNATE 1			
XSECTION 49	.10	243.72	110.61

	ALTERNATE	1	170.40	83.50
0	XSECTION	50	.13	
+				
	ALTERNATE	1	208.78	112.99
	SECTION	51	.15	
+				
	ALTERNATE	1	211.31	96.79
0	XSECTION	52	.19	
+				
	ALTERNATE	1	311.88	169.12
0	XSECTION	53	.17	
+				
	ALTERNATE	1	222.27	98.97
0	XSECTION	54	.25	
+				
	ALTERNATE	1	714.19	449.47
1				

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 55	.25		
+			
ALTERNATE 1		505.86	282.19
0 XSECTION 56	.15		
+			
ALTERNATE 1		354.24	194.79
0 XSECTION 57	.16		
+			
ALTERNATE 1		452.40	284.46
0 XSECTION 58	.17		
+			
ALTERNATE 1		517.29	328.47
0 XSECTION 59	.16		
+			
ALTERNATE 1		371.80	210.03
0 XSECTION 60	.15		
+			
ALTERNATE 1		178.07	75.35
0 XSECTION 61	.13		
+			
ALTERNATE 1		123.70	52.23
0 XSECTION 62	.25		
+			
ALTERNATE 1		394.99	216.11
C ECTION 63	.16		
+			
ALTERNATE 1		194.93	84.35
0 XSECTION 64	.25		
+			

	ALTERNATE	1	584.18	326.66
0	XSECTION 65	.10		
+				
	ALTERNATE	1	244.95	138.16
	SECTION 66	.31		
	ALTERNATE	1	668.83	380.46
0	XSECTION 67	.27		
+				
	ALTERNATE	1	477.87	259.19
0	XSECTION 68	.22		
+				
	ALTERNATE	1	224.59	99.36
1				

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 69	.25		
+			
ALTERNATE	1	219.07	96.75
0 SECTION 70	.31		
+			
ALTERNATE	1	458.78	210.83
0 XSECTION 71	.36		
+			
ALTERNATE	1	575.74	267.37
0 XSECTION 72	.25		
+			
ALTERNATE	1	354.53	148.80
0 XSECTION 73	.12		
+			
ALTERNATE	1	92.61	32.80
0 XSECTION 74	.18		
+			
ALTERNATE	1	148.53	52.40
0 XSECTION 75	.12		
+			
ALTERNATE	1	75.13	26.14
0 XSECTION 76	.17		
+			
ALTERNATE	1	107.47	37.62
0 XSECTION 77	.25		
+			
ALTERNATE	1	182.71	64.37
0 SECTION 78	.88		
+			
ALTERNATE	1	762.75	271.55
0 XSECTION 79	.29		
+			

	ALTERNATE	1	318.12	117.87
0	XSECTION 80	.22		
+				
	ALTERNATE	1	202.83	73.32
	SECTION 81	.39		
+				
	ALTERNATE	1	304.01	107.97
0	XSECTION 82	.19		
+				
	ALTERNATE	1	249.72	97.75
1				

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0	XSECTION 83	.11		
+				
	ALTERNATE	1	318.60	201.78
0	XSECTION 84	.04		
	ALTERNATE	1	117.00	68.96
0	XSECTION 85	.05		
+				
	ALTERNATE	1	82.41	37.56
0	XSECTION 86	.05		
+				
	ALTERNATE	1	71.95	33.01
0	XSECTION 87	.04		
+				
	ALTERNATE	1	64.35	29.70
0	XSECTION 88	.10		
+				
	ALTERNATE	1	100.20	36.82
0	XSECTION 104	15.26		
+				
	ALTERNATE	1	3194.92	2417.47
0	XSECTION 106	14.50		
+				
	ALTERNATE	1	5070.32	2692.73
0	XSECTION 107	.29		
+				
	ALTERNATE	1	788.35	480.63
0	XSECTION 108	.39		
+				
	ALTERNATE	1	997.37	576.48
	ECTION 109	.14		
+				
	ALTERNATE	1	355.09	205.85
0	XSECTION 113	13.51		
+				

ALTERNATE 1		4819.32	2541.39
0 XSECTION 114	.30		
+			
ALTERNATE 1		740.96	420.73
(ECTION 115	.21		
+			
ALTERNATE 1		433.22	228.82
1			

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 120	12.61		
+			
ALTERNATE 1		6654.10	3261.20
0 XSECTION 125	12.19		
+			
ALTERNATE 1		6105.10	2912.02
0 XSECTION 127	.49		
+			
ALTERNATE 1		614.64	308.77
0 ^SECTION 128	.32		
+			
ALTERNATE 1		368.18	166.28
0 XSECTION 129	9.98		
+			
ALTERNATE 1		3081.76	1286.78
0 XSECTION 130	.58		
+			
ALTERNATE 1		933.39	473.33
0 XSECTION 131	.40		
+			
ALTERNATE 1		1044.35	636.41
0 XSECTION 135	.17		
+			
ALTERNATE 1		268.32	131.17
0 XSECTION 136	2.36		
+			
ALTERNATE 1		1696.84	821.12
0 XSECTION 137	7.33		
+			
ALTERNATE 1		2525.00	747.21
0 XSECTION 141	6.75		
+			
ALTERNATE 1		2470.00	727.98
0 ECTION 142	1.55		
+			
ALTERNATE 1		446.03	172.53
0 XSECTION 143	.47		
+			

	ALTERNATE 1		830.30	425.58
0	XSECTION 147	1.29		
+				
	ALTERNATE 1		242.09	105.12

TR20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 148	6.60		
+			
ALTERNATE 1		2463.04	726.58
0 XSECTION 149	.51		
+			
ALTERNATE 1		41.32	14.08
0 XSECTION 150	.38		
+			
ALTERNATE 1		466.70	231.48
0 XSECTION 151	5.38		
+			
ALTERNATE 1		3231.01	933.78
0 XSECTION 152	.27		
+			
ALTERNATE 1		600.45	366.77
0 XSECTION 153	1.12		
+			
ALTERNATE 1		93.56	68.02
0 XSECTION 154	.47		
+			
ALTERNATE 1		1017.74	575.37
0 XSECTION 155	.15		
+			
ALTERNATE 1		315.06	160.42
0 XSECTION 157	.31		
+			
ALTERNATE 1		663.21	372.02
0 XSECTION 158	.10		
+			
ALTERNATE 1		213.73	110.85
0 XSECTION 159	.74		
+			
ALTERNATE 1		953.85	480.27
0 XSECTION 160	4.33		
+			
ALTERNATE 1		2631.49	769.25
C ECTION 161	.25		
+			
ALTERNATE 1		373.47	198.93
0 XSECTION 163	4.17		
+			

	ALTERNATE	1	2632.57	782.62

1

...20 XEQ 10/ 4/95 10:30 UPPER SAND CREEK -- FUTURE CONDITION -- ALT DES-
REV PC/09/83 24 HR TYPE IIA STORM (100- AND 10-YR, AMC=2) FIL

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AN

XSECTION/ STRUCTURE ID			DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION	164		.49		
+					
	ALTERNATE	1		612.79	301.40
0 XSECTION	167		.22		
+					
	ALTERNATE	1		206.19	86.72
0 XSECTION	169		.25		
+					
	ALTERNATE	1		327.64	124.18
0 XSECTION	170		3.27		
+					
	ALTERNATE	1		2264.65	664.95
0 XSECTION	171		2.91		
+					
	ALTERNATE	1		2130.34	630.48
0 XSECTION	172		1.39		
+					
	ALTERNATE	1		1026.56	333.92
0 XSECTION	173		.37		
+					
	ALTERNATE	1		346.58	109.98
0 XSECTION	174		.19		
+					
	ALTERNATE	1		235.29	82.70
0 XSECTION	175		.39		
+					
	ALTERNATE	1		271.28	87.43
0 XSECTION	176		.22		
+					
	ALTERNATE	1		166.10	51.48
0 XSECTION	177		1.17		
+					
	ALTERNATE	1		998.05	327.48
0 XSECTION	178		.29		
+					
	ALTERNATE	1		284.15	93.39
0 XSECTION	183		.28		
+					
	ALTERNATE	1		784.60	488.46
0	ECTION	184	10.86		
+					
	ALTERNATE	1		3709.87	1570.68

1

SAND CREEK
DRAINAGE BASIN PLANNING STUDY
Preliminary Design Report Hydrology
Technical Addendum

East Fork Sand Creek
Future Basin Condition, 100- and 10-year
Detention Alternative 5

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

JOB TR-20                                                SUMMARY   NOPLOTS
TITLE 001 FUTURE CONDITION - E. FORK SAND CREEK TRIB. - ARIES PROPERTIES
TITLE     24 HR TYPE IIA CURVE - ALT. #5- PONDS 1,2,4,10,11,101 ADD.DET.
 5 RAINFL 1                  .50
 8                  0.000       .0025       0.005       .0075       0.010
 8                  0.015       0.020       0.025       0.030       0.050
 8                  0.060       0.100       0.700       0.750       0.780
 8                  0.798       0.820       0.830       0.840       0.850
 8                  0.860       0.865       0.870       0.885       0.890
 8                  0.900       0.905       0.910       0.915       0.921
 8                  0.927       0.933       0.940       0.945       0.950
 8                  0.955       0.960       0.965       0.970       0.975
 8                  0.980       0.983       0.985       0.988       0.990
 8                  0.993       0.995       0.998       1.000       1.000
 9 ENDTBL
 3 STRUCT      93
 8                          0.          0.          0.
 8                          2.          51.         14.
 8                          4.         144.         28.0
 8                          6.         258.         42.0
 8                          8.         360.         56.
 8                         10.         426.         70.
 9 ENDTBL
 3 STRUCT      94
 8                          0.          0.          0.
 8                          2.         255.         25.
 8                          4.         720.         50.0
 8                          6.        1290.         75.0
 8                          8.        1800.        100.
 8                         10.        2130.        125.
 8                         12.        2460.        150.
 8                         14.        2820.        175.
 8                         16.        3090.        200.
 8                         18.        3390.        225.
 8                         20.        3600.        250.
 9 ENDTBL
 3 STRUCT      89
 8                          0.          0.          0.
 8                          2.         204.        22.5
 8                          4.         576.         45.0
 8                          6.        1032.         67.5
 8                          8.        1440.         90.
 8                         10.        1704.        112.5
 8                         12.        1968.        135.
 8                         14.        2256.        157.5
 8                         16.        2472.        180.
1

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

```
 8                      18.        2712.       202.5
 8                      20.        2880.       225.
 9 ENDTBL
 3 STRUCT       99
 8                       0.           0.         0.
 8                       2.         204.        35.
 8                       4.         576.        70.0
 8                       6.        1032.       105.0
 8                       8.        1440.       140.
 8                      10.        1704.       175.
 8                      12.        1968.       210.
 8                      14.        2256.       245.
 8                      16.        2472.       280.
 8                      18.        2712.       315.
 8                      20.        2880.       350.
 9 ENDTBL
 3 STRUCT       98
 8                       0.           0.         0.
 8                       2.         204.        53.
 8                       4.         576.       106.0
 8                       6.        1032.       159.0
 8                       8.        1440.       212.
 8                      10.        1704.       265.
 8                      12.        1968.       318.
 8                      14.        2256.       371.
 8                      16.        2472.       424.
 8                      18.        2712.       477.
 8                      20.        2880.       530.
 9 ENDTBL
 3 STRUCT       97
 8                       0.           0.         0.
 8                       2.         102.        30.
 8                       4.         288.        60.0
 8                       6.         516.        90.0
 8                       8.         720.       120.
 8                      10.         852.       150.
 8                      12.         984.       180.
 8                      14.        1128.       210.
 8                      16.        1236.       240.
 8                      18.        1356.       270.
 8                      20.        1440.       300.
 9 ENDTBL
 6 RUNOFF 1  80        1          0.07         63.0         0.18
 6 REACH  3  79   1    2        5597.0           .5         1.45
 6 RUNOFF 1  79        1          0.28         88.0         0.33
 6 ADDHYD 4    38 1 2 3
1
```

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

 6 REACH  3 150   3    1        6574.0           .3         1.6
 6 RUNOFF 1  78        2          0.37         83.0         0.65
```

```
 6 REACH   3   51    2    3        1531.0          .4          1.5
 6 RUNOFF  1   51         4          0.11         71.0         0.10
 6 ADDHYD  4     37 3 4 2
 6 REACH   3   50    2    3                                          1 1    1    1
 6 RUNOFF  1   50         2        3000.0          .3          1.6
 6 RUNOFF  1   49         4          0.36         74.0         0.38
 6 REACH   3  152    4    5          0.28         88.0         0.46
 6 ADDHYD  4     33 2 5 6        2682.0           .3          1.6
 6 ADDHYD  4     33 6 1 5
 6 ADDHYD  4     33 5 3 1
 6 REACH   3   47    1    2                                          1 1    1    1
 6 RUNOFF  1   48         1        4678.0          0.2          1.6
 6 REACH   3  147    1    3          0.27         88.0         0.71
 6 RUNOFF  1   47         1        6040.0           .6          1.4
 6 ADDHYD  4     32 1 3 4          0.62         81.0         0.55
 6 ADDHYD  4     32 4 2 1
 6 REACH   3  145    1    2                                          1 1    1    1
 6 RUNOFF  1   45         1        3802.0          0.2          1.6
 6 ADDHYD  4     29 1 2 3          0.500        84.0         0.35
 6 RUNOFF  1   81         1          0.38         63.0         0.36
 6 RUNOFF  1   96         2          0.13         88.0         0.38
 6 REACH   3   81    2    4        6389.0           .4          1.5
 6 ADDHYD  4     54 4 1 2
 6 REACH   3   76    2    1        5702.0          .4          1.5
 6 RUNOFF  1   76         2          0.24         81.0         0.32
 6 ADDHYD  4     39 1 2 4
 6 REACH   3   53    4    1        3453.0          .3          1.5
 6 RUNOFF  1   53         2          0.33         78.0         0.42
 6 RUNOFF  1   77         4          0.23         83.0         0.73
 6 REACH   3  153    4    5        3379.0           .4          1.5
 6 ADDHYD  4     36 1 2 4
 6 ADDHYD  4     36 4 5 1
 6 REACH   3   52    1    2                                          1 1    1    1
 6 RUNOFF  1   52         1        1584.0          0.2          1.6
 6 ADDHYD  4     34 2 1 4          0.19         78.0         0.34
 6 REACH   3   46    4    1        3770.0          0.2          1.6
 6 RUNOFF  1   46         2          0.26         80.0         0.61
 6 ADDHYD  4     31 1 2 4
 6 REACH   3  145    4    1                                          1 1    1    1
 6 ADDHYD  4     29 1 3 2        3802.0          0.2          1.6
 6 RUNOFF  1   93         1          0.26         88.0         0.49
 6 RUNOFF  1   94         3          0.40         88.0         0.35
 6 RUNOFF  1   98         4          0.16         63.0         0.23
 6 REACH   3  194    4    5        5914.0           .6          1.4
1
```



```
 6 RUNOFF  1   97         4          0.13         63.0         0.19
 6 REACH   3   94    4    6        5914.0           .6          1.4
 6 ADDHYD  4     55 1 3 7
 6 ADDHYD  4     55 7 5 1
```

```
 6 ADDHYD 4    55 1 6 3
 6 REACH  3  83   3   1       6124.0          .2         1.6
 6 RUNOFF 1  83       3         0.34        70.0        0.67
 6 RUNOFF 1  95       4         0.14        88.0        0.61
 6 REACH  3  82   4   5       5808.0          .6         1.4
 6 RUNOFF 1  82       4         0.25        63.0        0.34
 6 ADDHYD 4    53 1 3 6
 6 ADDHYD 4    53 6 5 1
 6 ADDHYD 4    53 1 4 3
 6 REACH  3  75   3   1       4013.0          .2         1.6
 6 RUNOFF 1  75       3         0.16        79.0        0.37
 6 ADDHYD 4    41 1 3 4
 6 REACH  3  73   4   1       1610.0          0.2        1.6
 6 RUNOFF 1  73       3         0.28        81.0        0.68
 6 ADDHYD 4    40 1 3 4
 6 RUNOFF 1  99       1         0.45        78.0        0.50
 6 REACH  3  92   1   3       5650.0          .3         1.5
 6 RUNOFF 1  92       5         0.34        88.0        0.31
 6 ADDHYD 4    56 3 5 1
 6 REACH  3  84   1   3       5491.0          .3         1.6
 6 RUNOFF 1  84       5         0.27        88.0        0.29
 6 ADDHYD 4    52 3 5 1
 6 REACH  3  74   1   3       4066.0          .2         1.6
 6 RUNOFF 1  74       1         0.19        87.0        0.21
 6 ADDHYD 4    42 1 3 5
 6 REACH  3  73   5   1       1610.0          0.2        1.6
 6 ADDHYD 4    40 1 4 3
 6 RUNOFF 1  91       1         0.42        88.0        0.50
 6 REACH  3  85   1   4       6178.0          .3         1.5
 6 RUNOFF 1  86       1         0.33        74.0        0.65
 6 RUNOFF 1  85       5         0.19        88.0        0.33
 6 ADDHYD 4    51 1 5 6
 6 ADDHYD 4    51 6 4 1
 6 REACH  3  72   1   4       5058.0          .3         1.6
 6 RUNOFF 1  72       1         0.29        85.0        0.42
 6 ADDHYD 4    43 1 4 5
 6 REACH  3 173   5   1       1864.0          .2         1.6
 6 ADDHYD 4    40 1 3 4
 6 RUNOFF 1  71       1         0.13        88.0        0.32
 6 REACH  3  57   1   3       4102.0          .6         1.4
 6 RUNOFF 1  57       1         0.18        79.0        0.32
 6 ADDHYD 4    46 1 3 5
1


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

 6 REACH  3  55   5   1       3000.0          .4         1.5
 6 RUNOFF 1  55       3         0.17        85.0        0.43
 6 RUNOFF 1  54       5         0.31        76.0        0.63
 6 REACH  3  54   4   6       4974.0          0.2        1.6
 6 ADDHYD 4    35 6 1 4
 6 ADDHYD 4    35 4 3 1
```

```
 6 ADDHYD 4     35 1 5 7
 6 RESVOR 2     94 7   3                0.                                  1 1  .1   1
 6 REACH  3  44   3   1             5016.0          0.2          1.6          1 1   1   1
 6 RUNOFF 1  56       3               0.09         85.0         0.17
 6 REACH  3 144   3   4             4419.0           .6          1.4
 6 RUNOFF 1  43       5               0.16         86.0         0.73
 6 REACH  3 146   5   3              507.0           .6          1.4
 6 RUNOFF 1  44       5               0.29         86.0         0.27
 6 ADDHYD 4     30 3 4 6
 6 ADDHYD 4     30 6 1 3
 6 ADDHYD 4     30 3 5 1
 6 RESVOR 2     89 1   7                0.                                  1 1   1   1
 6 REACH  3  45   7   3             2893.0          0.2          1.6          1 1   1   1
 6 ADDHYD 4     29 2 3 1
 6 REACH  3  28   1   2             3168.0          0.2          1.6
 6 RUNOFF 1  29       3               0.17         90.0         0.32
 6 REACH  3 128   3   1             3131.0           .6          1.4
 6 RUNOFF 1  27       3               0.14         86.0         0.31
 6 RUNOFF 1  28       4               0.33         90.0         0.34
 6 ADDHYD 4     19 2 1 5
 6 ADDHYD 4     19 5 3 1
 6 ADDHYD 4     19 1 4 2
 6 RESVOR 2     98 2   7                0.                                  1 1   1   1
 6 REACH  3  26   7   1             3221.0          0.2          1.6          1 1   1   1
 6 RUNOFF 1  26       2               0.47         81.0         0.48
 6 ADDHYD 4     18 1 2 3
 6 REACH  3  25   3   1             2323.0          0.2          1.6
 6 RUNOFF 1  25       2               0.26         81.0         0.21
 6 ADDHYD 4     17 1 2 3
 6 REACH  3  24   3   1             2524.0          0.2          1.6
 6 RUNOFF 1  24       2               0.28         90.0         0.26
 6 ADDHYD 4     12 1 2 3
 6 RUNOFF 1  41       1               0.16         80.0         0.32
 6 REACH  3  31   1   2             3358.0           .5          1.5
 6 RUNOFF 1  31       1               0.24         86.0         0.19
 6 ADDHYD 4     20 1 2 4
 6 REACH  3  30   4   1             2323.0                           1 1   1   1
 6 RUNOFF 1  30       2               0.10         83.0         1.5
 6 ADDHYD 4     16 1 2 4                                         0.13
 6 REACH  3 124   4   1
1                                     4594.0          0.2          1.6
```

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

```
 6 RUNOFF 1  32       2               0.15         82.0         0.39
 6 REACH  3 198   2   4             5227.0           .5          1.5
 6 ADDHYD 4     12 1 4 2
 6 ADDHYD 4     12 2 3 1
 6 REACH  3  18   1   2             3696.0          0.1          1.6
 6 RUNOFF 1  18       7               0.40         90.0         0.45
 6 RUNOFF 1  16       1               0.38         84.0         0.36
 6 REACH  3  17   1   3             3274.0           .6          1.4
```

```
 6 RUNOFF 1  17        4          0.13        87.0        0.19
 6 ADDHYD 4    10 3 4 5                                      1 1   1   1
 6 ADDHYD 4    57 5 7 3
 6 ADDHYD 4    57 3 2 7                                      1 1   1   1
 6 RESVOR 2    99 7   2           0.                        1 1   1   1
 6 REACH  3 116   2   1        2260.0         0.1         1.6
 6 RUNOFF 1  87        2          0.15        63.0        0.55
 6 REACH  3  70   2   3        5613.0          .6         1.4
 6 RUNOFF 1  70        2          0.26        86.0        0.46
 6 ADDHYD 4    47 2 3 4
 6 REACH  3  58   4   2        5016.0          .4         1.5
 6 RUNOFF 1  58        3          0.28        79.0        0.38
 6 ADDHYD 4    28 2 3 4
 6 REACH  3  42   4   2        2746.0          .3         1.5
 6 RUNOFF 1  42        3          0.20        84.0        0.26
 6 ADDHYD 4    27 2 3 4
 6 REACH  3  40   4   2        2218.0          .3         1.5
 6 RUNOFF 1  40        3          0.14        72.0        0.57
 6 ADDHYD 4    26 2 3 4
 6 REACH  3 199   4   2         216.0          .2         1.6
 6 RUNOFF 1  90        3          0.06        88.0        0.28
 6 REACH  3  88   3   4        5597.0          .6         1.4
 6 RUNOFF 1  88        3          0.26        63.0        0.33
 6 ADDHYD 4    50 3 4 5
 6 REACH  3  68   5   3        3643.0          .3         1.5
 6 RUNOFF 1  89        4          0.10        65.0        0.20
 6 REACH  3  68   4   5        3643.0          .3         1.5
 6 RUNOFF 1  67        6          0.19        79.0        0.39
 6 RUNOFF 1  68        4          0.10        82.0        0.20
 6 ADDHYD 4    49 3 5 7
 6 ADDHYD 4    49 7 6 3
 6 ADDHYD 4    49 3 4 5
 6 REACH  3  66   5   3        2531.0          0.2        1.6
 6 RUNOFF 1  66        4          0.11        74.0        0.19
 6 RUNOFF 1  69        5          0.23        78.0        0.62
 6 ADDHYD 4    48 3 4 6
 6 ADDHYD 4    48 6 5 7                                      1 1   1   1
 6 RESVOR 2    93 7   3           0.                        1 1   1   1
1
```

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

```
 6 REACH  3  59   3   4        5158.0          0.6        1.6
 6 RUNOFF 1  59        3          0.32        63.0        0.44
 6 ADDHYD 4    44 3 4 5
 6 REACH  3  60   5   3        1373.0          0.8        1.5
 6 RUNOFF 1  60        4          0.08        63.0        0.19
 6 ADDHYD 4    25 3 4 5
 6 REACH  3  39   5   3        4963.0          0.2        1.6
 6 RUNOFF 1  39        4          0.48        73.0        0.34
 6 ADDHYD 4    21 3 4 5
 6 ADDHYD 4    21 5 2 3
```

```
  6 RUNOFF 1  63        2         0.06        88.0        1.06
  6 REACH  3  62   2    4       3432.0         1.5         1.3
  6 RUNOFF 1  64        2         0.20        83.0        0.28
  6 REACH  3  62   2    5       3432.0         1.5         1.3
  6 RUNOFF 1  65        2         0.07        78.0        0.22
  6 REACH  3 162   2    6       2445.0         1.9         1.2
  6 RUNOFF 1  62        2         0.25        63.0        0.19
  6 ADDHYD 4    45 4 5 7
  6 ADDHYD 4    45 7 6 4
  6 ADDHYD 4    45 4 2 5
  6 REACH  3  61   5    2       3152.0         1.7         1.3
  6 RUNOFF 1  61        4         0.35        63.0        0.44
  6 ADDHYD 4    24 2 4 5
  6 REACH  3 139   5    2       4488.0         0.3         1.5
  6 ADDHYD 4    21 2 3 4                                      1 1   1   1
  6 REACH  3  33   4    2       7445.0         0.2         1.6
  6 RUNOFF 1  33        3         0.50        82.0        0.59
  6 RUNOFF 1  34        4         0.23        82.0        0.55
  6 ADDHYD 4    15 2 3 5
  6 ADDHYD 4    15 5 4 2
  6 RUNOFF 1  37        3         0.20        88.0        0.34
  6 RUNOFF 1  38        4         0.12        68.0        0.39
  6 ADDHYD 4    23 3 4 5
  6 REACH  3  35   5    3       3252.0          .6         1.4
  6 RUNOFF 1  35        4         0.26        88.0        0.28
  6 ADDHYD 4    22 3 4 5
  6 REACH  3  34   5    3       1816.0          .4         1.5
  6 ADDHYD 4    15 2 3 4                                      1 1   1   1
  6 RESVOR 2    97 4    7          0.                         1 1   1   1
  6 REACH  3  22   7    2       3062.0          .2         1.6
  6 RUNOFF 1  21        3         0.10        88.0        0.23
  6 REACH  3 122   3    4       2503.0          .6         1.4
  6 RUNOFF 1  22        3         0.13        91.0        0.12
  6 RUNOFF 1  23        5         0.20        92.0        0.39
  6 ADDHYD 4    13 2 4 6
  6 ADDHYD 4    13 6 3 2
1
```

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

```
  6 ADDHYD 4    13 2 5 3
  6 REACH  3  19   3    2       3802.0         0.2         1.6
  6 RUNOFF 1  19        6         0.29        89.0        0.33
  6 ADDHYD 4    11 2 6 7
  6 REACH  3  15   7    2       2571.0         0.2         1.6
  6 RUNOFF 1  15        4         0.25        88.0        0.22
  6 ADDHYD 4     9 4 1 3
  6 ADDHYD 4     9 3 2 1                                      1 1   1   1
  6 REACH  3  14   1    2       3448.0         0.1         1.6
  6 RUNOFF 1  14        1         0.35        81.0        0.53
  6 ADDHYD 4     7 1 2 3
  6 REACH  3   5   3    1       4910.0         0.1         1.6
```

```
  6 RUNOFF 1   5        2        0.18        70.0        0.17
  6 RUNOFF 1  36        3        0.39        78.0        0.44
  6 REACH  3  20   3    4      3960.0          .3         1.5
  6 RUNOFF 1  20        3        0.30        85.0        0.23
  6 ADDHYD 4     14 3 4 5
  6 REACH  3  12   5    3      3221.0          .2         1.6
  6 RUNOFF 1  10        4        0.13        75.0        0.18
  6 REACH  3 112   4    5      2250.0          0.3        1.5
  6 RUNOFF 1  11        4        0.10        78.0        0.22
  6 REACH  3 195   4    6      2788.0          .2         1.6
  6 RUNOFF 1  12        4        0.22        87.0        0.21
  6 ADDHYD 4      8 5 6 7
  6 ADDHYD 4      8 7 4 5
  6 ADDHYD 4      8 5 3 4
  6 REACH  3   6   4    3      8976.0          0.2        1.6
  6 RUNOFF 1   6        4        0.29        89.0        0.37
  6 RUNOFF 1  13        5        0.13        87.0        0.24
  6 REACH  3   6   5    6      8976.0          0.2        1.6
  6 ADDHYD 4      5 1 2 5
  6 ADDHYD 4      5 5 3 1
  6 ADDHYD 4      5 1 6 2
  6 ADDHYD 4      5 2 4 1
  6 REACH  3   4   1    2      2851.0          0.1        1.6
  6 RUNOFF 1   9        1        0.14        75.0        0.17
  6 REACH  3   8   1    3      3907.0          .6         1.4
  6 RUNOFF 1   8        1        0.19        75.0        0.18
  6 RUNOFF 1   7        4        0.38        83.0        0.50
  6 ADDHYD 4      6 3 1 5
  6 ADDHYD 4      6 5 4 1
  6 REACH  3 104   1    3      4066.0          0.8        1.5
  6 RUNOFF 1   4        1        0.59        75.0        0.31
  6 ADDHYD 4      4 3 1 4
  6 ADDHYD 4      4 4 2 1
  6 REACH  3   3   1    2      2482.0          0.1        1.6
1
```

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

```
  6 RUNOFF 1   3        1        0.16        84.0        0.27
  6 ADDHYD 4      3 1 2 3
  6 REACH  3   2   3    1      3432.0          0.1        1.6
  6 RUNOFF 1   2        2        0.36        87.0        1.11
  6 ADDHYD 4      2 1 2 3
  6 REACH  3   1   3    1      7234.0          0.1        1.6
  6 RUNOFF 1   1        2        0.48        79.0        0.95
  6 ADDHYD 4      1 1 2 3                                    1 1   1   1
    ENDATA
  7 LIST
  7 INCREM 6                0.1
  7 COMPUT 7  80        1        0.0         4.5         1.01 2  01  01
    ENDCMP 1
  7 COMPUT 7  80        1        0.0         3.0         1.01 2  01  02
```

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 STRUCTURE 99	13.76		
ALTERNATE 1		2462.05	1409.76
0 STRUCTURE 98	11.19		
ALTERNATE 1		2570.29	1451.58
0 STRUCTURE 97	5.20		
ALTERNATE 1		1107.96	512.38
0 STRUCTURE 94	5.39		
ALTERNATE 1		3112.72	1635.07
0 STRUCTURE 93	1.05		
ALTERNATE 1		278.86	94.90
0 STRUCTURE 89	5.93		
ALTERNATE 1		2387.69	1311.34
0 STRUCTURE 57	13.76		
ALTERNATE 1		3733.08	1774.17
0 STRUCTURE 56	.79		
ALTERNATE 1		978.76	527.14
0 STRUCTURE 55	.95		
ALTERNATE 1		1547.34	866.10
0 STRUCTURE 54	.51		
ALTERNATE 1		430.45	136.40
0 STRUCTURE 53	1.68		
ALTERNATE 1		1800.84	854.69
0 STRUCTURE 52	1.06		
ALTERNATE 1		1206.39	728.15
0 STRUCTURE 51	.94		
ALTERNATE 1		1237.30	527.14
0 STRUCTURE 50	.32		

+_____

ALTERNATE 1 260.06 82.65

1

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 STRUCTURE 49	.71		
+_____			
ALTERNATE 1		637.77	275.99
0 STRUCTURE 48	1.05		
+_____			
ALTERNATE 1		937.26	376.69
0 STRUCTURE 47	.41		
+_____			
ALTERNATE 1		545.45	291.03
0 STRUCTURE 46	.31		
+_____			
ALTERNATE 1		499.08	240.86
0 STRUCTURE 45	.58		
+_____			
ALTERNATE 1		723.10	281.18
0 STRUCTURE 44	1.37		
+_____			
ALTERNATE 1		302.81	101.16
0 STRUCTURE 43	1.23		
+_____			
ALTERNATE 1		1510.98	646.22
0 STRUCTURE 42	1.25		
+_____			
ALTERNATE 1		1239.71	702.37
0 STRUCTURE 41	1.84		
+_____			
ALTERNATE 1		1788.61	803.58
0 STRUCTURE 40	4.60		
+_____			
ALTERNATE 1		4819.17	2154.72
0 STRUCTURE 39	.75		
+_____			
ALTERNATE 1		611.43	250.84
0 STRUCTURE 38	.35		

	ALTERNATE 1	713.68	404.89
0	STRUCTURE 37	.48	
	ALTERNATE 1	568.12	281.82
0	STRUCTURE 36	1.31	
	ALTERNATE 1	1146.23	479.50
1			

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 STRUCTURE 35	5.39		
ALTERNATE 1		5415.88	2356.50
0 STRUCTURE 34	1.50		
ALTERNATE 1		1295.29	538.33
0 STRUCTURE 33	1.47		
ALTERNATE 1		1915.38	926.80
0 STRUCTURE 32	2.36		
ALTERNATE 1		2740.43	1257.63
0 STRUCTURE 31	1.76		
ALTERNATE 1		1493.54	599.46
0 STRUCTURE 30	5.93		
ALTERNATE 1		3187.87	1650.34
0 STRUCTURE 29	10.55		
ALTERNATE 1		4893.72	2061.96
0 STRUCTURE 28	.69		
ALTERNATE 1		813.19	385.01
0 STRUCTURE 27	.89		
ALTERNATE 1		937.06	421.81
0 STRUCTURE 26	1.03		

```
+_____
    ALTERNATE     1                1023.15    440.15
0 STRUCTURE  25          1.45
+_____
    ALTERNATE     1                 311.21    103.31
0 STRUCTURE  24           .93
+_____
    ALTERNATE     1                 903.17    305.05
0 STRUCTURE  23           .32
+_____
    ALTERNATE     1                 621.76    325.49
0 STRUCTURE  22           .58
+_____
    ALTERNATE     1                 959.44    578.26
1
```


SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

```
 XSECTION/          DRAINAGE
 STRUCTURE            AREA       STORM NUMBERS.....
   ID                (SQ MI)          1         2

0 STRUCTURE  21          3.89
+_____
    ALTERNATE     1                2193.79    751.95
0 STRUCTURE  20           .40
+_____
    ALTERNATE     1                 805.02    419.66
0 STRUCTURE  19         11.19
+_____
    ALTERNATE     1                5111.65   2173.48
0 STRUCTURE  18         11.66
+_____
    ALTERNATE     1                2592.63   1463.89
0 STRUCTURE  17         11.92
+_____
    ALTERNATE     1                2604.96   1470.69
0 STRUCTURE  16           .50
+_____
    ALTERNATE     1                 860.73    421.48
0 STRUCTURE  15          5.20
+_____
    ALTERNATE     1                3470.13   1474.04
0 STRUCTURE  14           .69
```

ALTERNATE 1	984.50	486.10
0 STRUCTURE 13 5.63		
ALTERNATE 1	1151.67	655.29
0 STRUCTURE 12 12.85		
ALTERNATE 1	2654.01	1501.43
0 STRUCTURE 11 5.92		
ALTERNATE 1	1717.78	948.02
0 STRUCTURE 10 .51		
ALTERNATE 1	880.12	431.12
0 STRUCTURE 9 19.93		
ALTERNATE 1	3297.93	1782.42
0 STRUCTURE 8 1.14		
ALTERNATE 1	1581.02	641.17
1		

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 STRUCTURE 7	20.28		
ALTERNATE 1		3314.10	1789.81
0 STRUCTURE 6	.71		
ALTERNATE 1		1122.07	502.48
0 STRUCTURE 5	22.02		
ALTERNATE 1		3900.86	1831.00
0 STRUCTURE 4	23.32		
ALTERNATE 1		4471.41	1945.32
0 STRUCTURE 3	23.48		
ALTERNATE 1		4493.76	1945.03
0 STRUCTURE 2	23.84		

	ALTERNATE	1	4823.56	2064.31
0	STRUCTURE	1	24.32	
	ALTERNATE	1	4759.54	1990.93
0	XSECTION	1	.48	
	ALTERNATE	1	461.85	212.91
0	XSECTION	2	.36	
	ALTERNATE	1	428.39	229.84
0	XSECTION	3	.16	
	ALTERNATE	1	376.54	204.42
0	XSECTION	4	.59	
	ALTERNATE	1	967.13	432.02
0	XSECTION	5	.18	
	ALTERNATE	1	283.89	114.69
0	XSECTION	6	.13	
	ALTERNATE	1	186.42	75.36
0	XSECTION	7	.38	
	ALTERNATE	1	681.27	348.51
1				

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID			DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0	XSECTION	8	.19		
	ALTERNATE	1		365.33	167.14
0	XSECTION	9	.14		
	ALTERNATE	1		272.80	125.18
0	XSECTION	10	.13		
	ALTERNATE	1		249.97	114.36
0	XSECTION	11	.10		

```
+_____________________________
    ALTERNATE     1                202.35     97.66
0 XSECTION    12          .22
+_____________________________
    ALTERNATE     1                606.81    343.01
0 XSECTION    13          .13
+_____________________________
    ALTERNATE     1                346.80    195.08
0 XSECTION    14          .35
+_____________________________
    ALTERNATE     1                556.73    273.02
0 XSECTION    15          .25
+_____________________________
    ALTERNATE     1                701.08    401.94
0 XSECTION    16          .38
+_____________________________
    ALTERNATE     1                835.03    441.19
0 XSECTION    17          .13
+_____________________________
    ALTERNATE     1                367.23    208.43
0 XSECTION    18          .40
+_____________________________
    ALTERNATE     1                963.00    556.91
0 XSECTION    19          .29
+_____________________________
    ALTERNATE     1                761.64    439.01
0 XSECTION    20          .30
+_____________________________
    ALTERNATE     1                761.94    415.75
0 XSECTION    21          .10
+_____________________________
    ALTERNATE     1                277.60    158.93
1
```



```
 SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND
ALTERNATES

 XSECTION/          DRAINAGE
 STRUCTURE            AREA       STORM NUMBERS.....
   ID                (SQ MI)          1         2

0 XSECTION    22          .13
+_____________________________
    ALTERNATE     1                437.27    267.62
0 XSECTION    23          .20
```

	ALTERNATE	1	539.58	324.17
0 XSECTION	24	.28		
	ALTERNATE	1	799.73	470.89
0 XSECTION	25	.26		
	ALTERNATE	1	594.01	303.68
0 XSECTION	26	.47		
	ALTERNATE	1	789.15	388.66
0 XSECTION	27	.14		
	ALTERNATE	1	343.12	188.94
0 XSECTION	28	.33		
	ALTERNATE	1	883.13	516.63
0 XSECTION	29	.17		
	ALTERNATE	1	458.78	273.39
0 XSECTION	30	.10		
	ALTERNATE	1	272.98	147.79
0 XSECTION	31	.24		
	ALTERNATE	1	659.10	368.20
0 XSECTION	32	.15		
	ALTERNATE	1	292.08	147.89
0 XSECTION	33	.50		
	ALTERNATE	1	774.76	384.93
0 XSECTION	34	.58		
	ALTERNATE	1	945.75	559.67
0 XSECTION	35	.26		
	ALTERNATE	1	686.51	390.78

1

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE	DRAINAGE AREA	STORM NUMBERS.....

ID	(SQ MI)	1	2
0 XSECTION 36	.39		
+			
ALTERNATE 1		613.00	284.18
0 XSECTION 37	.20		
+			
ALTERNATE 1		504.70	285.83
0 XSECTION 38	.12		
+			
ALTERNATE 1		124.29	43.77
0 XSECTION 39	.48		
+			
ALTERNATE 1		689.21	290.40
0 XSECTION 40	.14		
+			
ALTERNATE 1		141.51	56.00
0 XSECTION 41	.16		
+			
ALTERNATE 1		317.12	157.05
0 XSECTION 42	.20		
+			
ALTERNATE 1		477.80	255.77
0 XSECTION 43	.16		
+			
ALTERNATE 1		249.68	132.65
0 XSECTION 44	.29		
+			
ALTERNATE 1		727.64	401.48
0 XSECTION 45	5.93		
+			
ALTERNATE 1		2385.73	1307.01
0 XSECTION 46	.26		
+			
ALTERNATE 1		362.75	172.70
0 XSECTION 47	.62		
+			
ALTERNATE 1		960.80	469.96
0 XSECTION 48	.27		
+			
ALTERNATE 1		460.97	253.74
0 XSECTION 49	.28		
+			
ALTERNATE 1		621.94	347.40

1

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS 1	2
0 XSECTION 50		.36		
ALTERNATE	1		510.34	218.24
0 XSECTION 51		.11		
ALTERNATE	1		210.80	91.36
0 XSECTION 52		.19		
ALTERNATE	1		337.62	159.70
0 XSECTION 53		.33		
ALTERNATE	1		533.39	248.26
0 XSECTION 54		4.60		
ALTERNATE	1		4698.19	2070.37
0 XSECTION 55		.17		
ALTERNATE	1		351.57	186.85
0 XSECTION 56		.09		
ALTERNATE	1		245.89	135.81
0 XSECTION 57		.18		
ALTERNATE	1		343.63	166.92
0 XSECTION 58		.28		
ALTERNATE	1		491.20	235.08
0 XSECTION 59		.32		
ALTERNATE	1		225.55	63.70
0 XSECTION 60		.08		
ALTERNATE	1		83.98	25.84
0 XSECTION 61		.35		
ALTERNATE	1		246.70	69.67
0 XSECTION 62		.25		
ALTERNATE	1		262.45	80.75
0 XSECTION 63		.06		
ALTERNATE	1		76.78	42.00

1

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 64	.20		
ALTERNATE 1		450.61	240.72
0 XSECTION 65	.07		
ALTERNATE 1		141.65	68.36
0 XSECTION 66	.11		
ALTERNATE 1		199.40	88.88
0 XSECTION 67	.19		
ALTERNATE 1		329.38	157.37
0 XSECTION 68	.10		
ALTERNATE 1		240.25	125.32
0 XSECTION 69	.23		
ALTERNATE 1		293.10	132.51
0 XSECTION 70	.26		
ALTERNATE 1		539.38	291.03
0 XSECTION 71	.13		
ALTERNATE 1		336.35	191.28
0 XSECTION 72	.29		
ALTERNATE 1		613.49	326.59
0 XSECTION 73	1.25		
ALTERNATE 1		1236.48	685.15
0 XSECTION 74	.19		
ALTERNATE 1		524.06	296.24
0 XSECTION 75	.16		
ALTERNATE 1		284.67	136.54
0 XSECTION 76	.24		
ALTERNATE 1		493.39	248.97
0 XSECTION 77	.23		

+_____

ALTERNATE	1	319.06	160.43

1

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION	78	.37		
ALTERNATE	1		556.95	279.49
0 XSECTION	79	.28		
ALTERNATE	1		713.93	404.89
0 XSECTION	80	.07		
ALTERNATE	1		75.20	22.83
0 XSECTION	81	.13		
ALTERNATE	1		213.46	107.53
0 XSECTION	82	.25		
ALTERNATE	1		208.68	59.81
0 XSECTION	83	.34		
ALTERNATE	1		272.42	100.79
0 XSECTION	84	.27		
ALTERNATE	1		707.25	408.82
0 XSECTION	85	.19		
ALTERNATE	1		484.45	274.75
0 XSECTION	86	.33		
ALTERNATE	1		332.05	138.15
0 XSECTION	87	.15		
ALTERNATE	1		91.12	25.19
0 XSECTION	88	.26		
ALTERNATE	1		221.14	63.76
0 XSECTION	89	.10		

ALTERNATE	1	116.10	39.43
0 XSECTION 90	.06		
ALTERNATE	1	158.43	90.18
0 XSECTION 91	.42		
ALTERNATE	1	898.10	502.34
1			

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 92	.34		
ALTERNATE	1	873.80	503.83
0 XSECTION 93	.26		
ALTERNATE	1	559.38	311.84
0 XSECTION 94	.13		
ALTERNATE	1	63.78	13.39
0 XSECTION 95	.14		
ALTERNATE	1	266.63	147.42
0 XSECTION 96	.13		
ALTERNATE	1	314.53	177.14
0 XSECTION 97	.13		
ALTERNATE	1	136.47	41.99
0 XSECTION 98	.16		
ALTERNATE	1	160.06	49.26
0 XSECTION 99	.45		
ALTERNATE	1	660.52	306.48
0 XSECTION 104	.71		
ALTERNATE	1	1071.38	456.05
0 XSECTION 112	.13		

+			
ALTERNATE	1	202.13	81.55
0 XSECTION 116	13.76		
+			
ALTERNATE	1	2461.49	1408.53
0 XSECTION 122	.10		
+			
ALTERNATE	1	245.01	132.44
0 XSECTION 124	.50		
+			
ALTERNATE	1	739.19	335.18
0 XSECTION 128	.17		
+			
ALTERNATE	1	403.12	223.15
1			

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
0 XSECTION 139	.93		
+			
ALTERNATE	1	724.09	239.77
0 XSECTION 144	.09		
+			
ALTERNATE	1	169.89	83.27
0 XSECTION 145	1.76		
+			
ALTERNATE	1	1420.79	547.97
0 XSECTION 146	.16		
+			
ALTERNATE	1	249.68	132.65
0 XSECTION 147	.27		
+			
ALTERNATE	1	356.67	183.77
0 XSECTION 150	.35		
+			
ALTERNATE	1	565.46	288.86
0 XSECTION 152	.28		
+			
ALTERNATE	1	595.29	321.96
0 XSECTION 153	.23		

```
+_____
    ALTERNATE     1                    284.43     135.68
0 XSECTION  162            .07
+_____
    ALTERNATE     1                    120.56      54.56
0 XSECTION  173           1.23
+_____
    ALTERNATE     1                   1505.94     630.24
0 XSECTION  194            .16
+_____
    ALTERNATE     1                     75.95      16.89
0 XSECTION  195            .10
+_____
    ALTERNATE     1                    161.03      67.05
0 XSECTION  198            .15
+_____
    ALTERNATE     1                    220.09      99.51
0 XSECTION  199           1.03
+_____
    ALTERNATE     1                   1023.15     440.15
1END OF  1 JOBS IN THIS RUN
```

SAND CREEK
DRAINAGE BASIN PLANNING STUDY
Preliminary Design Report
Technical Addendum

Future Condition HEC-2 Output
Sand Creek, 100-year Discharge

```
C
C   17
C  5.1            LAS VEGAS STREET
C  7.1            A.T.&S.F.  R.R.
C  12.1           HANCOCK EXPRESSWAY
C  19.1           SOUTH ACADEMY BLVD.
C  23.1           CHELTON ROAD
C  29.1           FOUNTAIN BOULEVARD
C  41.1           AIRPORT ROAD
C  54.1           PLATTE AVE. (US.24)
C   60            GALLEY ROAD
C  70.1           PALMER PARK BRIDGE
C  74.1           POWERS BOULEVARD
C   80            CHICAGO, ROCK ISLAND & PACIFIC RR
C  82.1           CONSTITUTION AVE
C  94.1           NORTH CAREFREE AVE.
C 102.1           BARNES ROAD
C 114.1           STETSON HILLS BLVD.
C 141.1           WOODMEN ROAD
T1      SAND CREEK DRAINAGE BASIN PLANNING STUDY 09-04-09
T2      100- YEAR FLOW, MAINSTEM. FUTURE DEVELOPMENT DISCHARGES
T3      FILENAME: SCMAINST.DAT,X-SEC ORIENTED L-R LOOKING UPSTREAM
J1  -10    2    0    0    0    0    0    0  5796
J2   1    0   -1
NC  .03   .03  .025   .1   .3
QT   5  26490  11820  18470  5050  17910
X1   1   20  1038  1187
GR 5804  1000  5802  1010  5800  1022  5798  1038  5796  1041
GR 5794  1044  5792  1048  5790  1050  5788  1054  5786  1057
GR 5784  1122  5786  1174  5788  1178  5790  1182  5792  1187
GR 5794  1213  5796  1218  5798  1224  5800  1230  5802  1236
QT   5  26400  11750  18430  5040  17440
X1   2   30  1220  1404   410   480   440
GR 5810  1000  5808  1088  5806  1100  5804  1145  5808  1200
GR 5808  1226  5800  1230  5798  1236  5796  1240  5794  1245
GR 5792  1249  5790  1333  5790  1390  5792  1394  5794  1396
GR 5796  1398  5798  1402  5800  1404  5800  1410  5798  1424
GR 5796  1436  5796  1650  5798  1655  5800  1660  5802  1665
GR 5804  1670  5804  1746  5806  1764  5808  1774  5810  1784
X1   3   24  1030  1308   500   640   556
GR 5818  1000  5816  1004  5814  1009  5812  1013  5812  1030
GR 5810  1032  5808  1034  5806  1037  5804  1040  5802  1042
GR 5800  1045  5798  1048  5798  1164  5798  1283  5800  1286
GR 5802  1288  5804  1290  5806  1292  5808  1298  5810  1302
GR 5812  1308  5814  1494  5816  1499  5818  1504
X1   4   31  1016  1378   516   600   510
GR 5824  1000  5822  1006  5820  1009  5818  1012  5816  1016
GR 5814  1020  5812  1024  5810  1082  5808  1088  5806  1144
GR 5804  1151  5804  1221  5804  1286  5806  1360  5808  1374
GR 5810  1378  5810  1434  5808  1438  5808  1456  5810  1468
GR 5812  1476  5814  1522  5816  1568  5818  1580  5820  1590
GR 5820  1622  5818  1638  5820  1702  5822  1846  5822  2014
GR 5824  2126
NC  .03   .03  .025   .3   .5
```

```
X1   5    7  1275  1435   600   450   530
GR 5934   1000 5929.9  1275  5814  1275  5812  1370  5812  1435
GR5929.9  1435  5928  1455
SB 1.25   1.5   2.5    0   160    4  1560
X1  5.1    0    0    0    25    25    25
X2   0    0    1 5823.1 5829.9
BT   6  1000  5934  5934  1275 5929.9 5929.9  1275 5929.9 5923.1
BT 1435 5929.9 5923.1  1435 5929.9 5929.9  1455  5928  5928
NC  .03   .03  .025   .1   .3
X1   6   23  1014  1628   540   510   500
GR 5838   1000  5836  1004  5834  1008  5832  1012  5830  1014
GR 5828   1018  5826  1022  5824  1025  5822  1030  5820  1034
GR 5818   1178  5818  1270  5820  1288  5822  1304  5824  1310
GR 5826   1314  5826  1628  5828  1842  5830  1951  5832  2012
GR 5834   2018  5836  2024  5838  2030
NC .025  .025  .025   .3   .5
QT   5 26100 11630 17900  4930 16780
X1   7   10  1260  1745   505   435   480
GR 5850   1000 5848.4  1260  5834  1270  5830  1400  5828  1500
GR 5824   1565  5824  1650  5830  1680  5832  1730 5848.4  1745
SB  1.2   1.5   2.5    0   485    37  4930
X1 7.1    0    0    0    10    10    10
X2   0    0   10 5845.8 5848.4
BT   5  1000  5850  5850  1260 5848.4 5848.4  1260 5848.4 58445.8
BT 1745 5848.4 5845.8  1745 5848.4 5848.4
NC  .03   .03  .025   .1   .3
X1   8   18  1143  1410   415   430   430
GR 5850   1000  5848  1004  5846  1010  5844  1015  5842  1020
GR 5840   1050  5838  1058  5836  1064  5836  1146  5834  1162
GR 5832   1210  5830  1328  5830  1400  5842  1410  5844  1634
GR 5846   1772  5848  1806  5850  1828
X1   9    8  1115  1360   560   600   590
GR 5860   1000  5858  1115  5842  1155  5840  1180  5837  1200
GR 5837   1330  5852  1360  5854  1380
QT   5 26030 11610 17810  4900 16610
X1  10    9  1130  1330   590   615   550
GR 5862   1000  5860  1045  5858  1130  5854  1150  5852  1180
GR 5844   1195  5844  1280  5856  1330  5860  1410
X1  11    9  1090  1300   550   550   550
GR 5870   1000  5868  1090 5850.5  1150 5850.5  1250  5854  1260
GR 5856   1280  5862  1300  5864  1430  5866  1540
NC  .02   .02   .02   .3   .5
SB 1.05   1.5   2.5    0   160   9.2  1120
X1  12   11  1600  1760   590   590   590
X2   0    0    1  5865  5876
BT  11  1000    0    0  1170    0    0  1305    0    0
BT 1600  5876  5876  1600  5876  5865  1760  5876  5865  1760
BT 5876  5876  1830    0    0  2320    0    0  2620    0
BT   0  3030    0    0
GR 5884   1000  5880  1170  5878  1305  5876  1600  5858  1600
GR 5858   1760  5876  1760  5874  1830  5874  2320  5876  2620
GR 5882   3030
SB 1.05   1.5   2.5    0   160   9.2  1120
X1 12.1   11  1600  1760   100   100   100
```

```
BT  11  1000    0    0  1170    0    0  1305    0    0
BT 1600  5876  5876  1600  5876  5873  1760  5876  5873  1760
BT 5876  5876  1830    0    0  2320    0    0  2620    0
BT   0  3030   00    0
GR 5884  1000  5880  1170  5878  1305  5876  1600  5868  1600
GR 5868  1760  5876  1760  5874  1830  5874  2320  5876  2620
GR 5882  3030
NC .035  .035  .025   .1   .3
QT   5  24850  11300  16480  4690  14990
X1  13   10  1345  1565  500  500  500
GR 5886  1000  5884  1000  5884  1260  5882  1270  5882  1345
GR5873.5  1360 5873.5  1545  5880  1565  5880  1780  5886  1910
X1  14    8  1600  1830  500  500  500
GR 5894  1000  5890  1380  5890  1600  5880  1640  5880  1815
GR 5882  1830  5884  1945  5894  1980
X1  15    9  1260  1440  505  505  505
GR 5900  1000  5896  1140  5894  1230  5892  1260 5886.4  1270
GR5886.4  1420  5894  1440  5894  1455  5903  1480
X1  16   11  1270  1455  500  500
GR 5906  1000  5904  1055  5902  1200  5900  1260  5902  1265
GR 5902  1270 5892.5  1310 5892.5  1435  5902  1455  5902  1470
GR 5910  1500
X1  17    8  1340  1510  400  400  400
GR 5912  1000  5910  1040  5906  1230  5906  1340 5897.3  1365
GR5897.3  1480  5912  1510  5914  1540
X1  18    7  1165  1350  400  400  400
GR 5914  1000  5912  1020  5912  1165  5903  1225  5903  1320
GR 5916  1350  5917  1380
NC .035  .035  .02   .1   .3
X1  19    9  1350  1680  680  450  565
GR 5938  1000  5936  1150  5934  1275  5932  1350  5912  1450
GR 5910  1560  5910  1640  5930  1680  5926  1800
SB 1.05   1.5   2.5    0   150   10  2980   1.0
X1 19.1    0    0    0   160   160   160   .64
X2   0    0    1 5926.5  5930    0    0    0   .64
BT   8  1000    0    0  1150    0    0  1275    0    0
BT 1350  5932  5932  1350  5932 5926.5  1680  5930 5926.5  1680
BT 5930  5930  1800  5926  5926
NC .035  .035  .025   .1   .3
QT   5  23330  11860  15270  4180  13190
X1  20   11  1150  1325  340  620  480
GR 5940  1000  5938  1080  5930  1100  5928  1150  5920  1165
GR 5920  1275  5922  1290  5928  1325  5930  1340  5934  1360
GR 5936  1425
X1  21   10  1138  1310  520  530  525
GR 5944  1000  5942  1065  5940  1070  5938  1138 5926.6  1155
GR5926.6  1290  5936  1310  5939  1330  5940  1400  5942  1480
X1  22   12  1145  1310  500  500  500
GR 5954  1000  5952  1045  5950  1073  5948  1082  5946  1105
GR 5944  1145  5936  1165  5933  1180  5933  1290  5944  1310
GR 5946  1345  5954  1380
NC  .03   .03  .016   .3   .5
X1  23   10  1975  2165  445  565  510
GR 5960  1000  5958  1145  5956  1415  5956  1900 5959.7  1975
```

```
GR 5946  1975  5946  2165 5959.7  2165  5960  2375  5968  2680
SB 1.05  1.5  2.6  0  150  8.33 1025.4  0  5947  5946
X1 23.1  0  0  00  100  100  100
X2  0  0  1  5954 5959.7
BT  10  1000  0  0  1145  0  0  1415  0  0
BT 1900  0  0  1975 5959.7 5959.7  1975 5959.7  5954  2165
BT5959.7  5954  2165 5959.7 5959.7  2375  0  0  2680  0
BT  0
NC .035  .035  .025  .1  .3
X1  24  10  1352  1520  500  380  450
GR 5964  1000  5962  1270  5960  1320  5958  1352  5952  1362
GR5952.5  1505  5958  1520  5960  1530  5962  1595  5966  1608
X1  25  9  1060  1230  450  450  450
GR 5972  1000  5968  1010  5966  1028  5964  1060  5957  1070
GR 5957  1208  5966  1230  5968  1262  5976  1310
X1  26  8  1115  1290  500  500  500
GR 5976  1000  5976  1085  5974  1115  5963  1135  5963  1275
GR 5970  1290  5972  1330  5978  1375
QT  5  23300  10840  15250  4170  13160
X1  27  8  1060  1255  500  500  500
GR 5982  1000  5980  1060  5974  1080  5972  1160  5972  1232
GR 5982  1255  5982  1382  5988  1450
X1  28  9  1035  1245  495  505  500
GR 5990  1000  5988  1015  5986  1035  5978  1058  5978  1190
GR 5980  1218  5988  1245  5990  1262  5994  1298
NC .035  .035  .025  .3  .5
X1  29  7  1460  1710  420  460  445
GR 6002  1000 6003.3  1460 5986.7  1510 5986.7  1665 6003.3  1710
GR 6004  1712  6004  2015
SB 1.05  1.5  2.5  0  156  3.5  1850  2.6  5988 5986.7
X1 29.1  0  0  0  130  130  130
X2  0  0  1 5997.5 6004.4
BT  7  1000  0  0  1460 6003.3 6003.3  1460 6003.3 5997.5
BT 1710 6003.3 5997.5  1710 6003.3 6003.3  1712  0  0  2015
BT  0  0
QT  5  22450  10520  14670  3940  12690
NC .035  .035  .025  .1  .3
X1  30  10  1300  1480  500  500  500
GR 6010  1000  6008  1075  6006  1175  6004  1300 5994.3  1330
GR5994.3  1460  6002  1480  6004  1510  6408  1530  6010  1555
X1  31  11  1175  1358  500  500  500
GR 6020  1000  6018  1035  6016  1080  6012  1150  6010  1175
GR6000.2  1200 6000.2  1330  6010  1358  6012  1390  6016  1420
GR 6018  1445
X1  32  11  1220  1410  470  470  470
GR 6028  1000  6026  1180  6024  1200  6024  1220  6006  1260
GR 6006  1385  6018  1410  6020  1512  6022  1580  6024  1685
GR 6026  1730
X1  33  9  1290  1520  30  30  30
GR 6026  1000  6024  1290  6014  1360  6014  1490  6020  1520
GR 6020  1610  6022  1680  6024  1730  6026  1830
X1  34  8  1190  1445  490  530  500
GR 6030  1000  6028  1025  6025  1190  6022  1220  6022  1425
GR 6026  1445  6028  1520  6030  1595
```

```
QT   5  18770   8610  12360   3490   9230
X1   35     7   1238   1410    480    500    560
GR 6040   1000   6034   1045   6034   1190   6032   1238 6028.3   1244
GR6028.3   1360   6042   1410
X1   36    11   1230   1355    500    500    500
GR 6048   1000   6046   1030   6044   1130   6044   1205   6042   1230
GR 6036   1250   6036   1340   6042   1355   6044   1380   6046   1390
GR 6048   1440   6050   1580
X1   37    15   1690   1820    500    500
GR 6060   1000   6054   1180   6052   1360   6050   1480   6048   1510
GR 6048   1560   6050   1660   6050   1690   6041   1720   6041   1800
GR 6050   1820   6052   1850   6052   2000   6054   2130   6060   2410
X1   38    11   1660   1778    500    500    500
GR 6080   1000   6058   1165   6058   1250   6056   1440   6056   1660
GR 6050   1670   6050   1765   6056   1778   6058   1900   6062   2100
GR 6064   2220
QT   5  18460   8790  12100   3820   8650
X1   39    11   1280   1390    500    500    500
GR 6070   1000   6064   1045   6062   1135   6062   1205   6064   1280
GR 6056   1290   6056   1380   6062   1390   6064   1475   6066   1610
GR 6070   1835
X1   40    10   1380   1510    530    480    490
GR 6080   1000   6074   1085   6072   1155   6070   1380   6062   1400
GR 6062   1490   6070   1510   6072   1725   6074   1960   6078   2020
NC  .03   .03   .02    .3    .5
X1   41     7   1750   1940    550    440    520
GR 6088   1000   6080   1200   6081   1750   6067   1790   6067   1900
GR 6081   1940   6088   2770
SB 1.15   1.5   2.5     0    122     2    732     0   6068   6067
X1 41.1     0     0     0    100    100    100
X2   0     0     1   6074 6081.3
BT   7  1000     0     0   1200     0     0   1750   6081   6081
BT 1750   6081   6067   1940   6081   6067   1940   6081   6081   2770
BT   0     0
NC .035   .035   .025    .1    .3
X1   42     5   1000   1204    580    420    500
GR 6090   1000   6077   1042   6077   1177   6088   1204   6090   1220
X1   43     6   1030   1305    500    500    500
GR 6102   1000   6098   1030   6084   1080   6084   1280   6094   1305
GR 6098   1315
X1   44     9   1440   1523    500    500    500
GR 6110   1000   6108   1070   6106   1100   6106   1180   6104   1440
GR 6090   1468   6090   1558   6106   1573   6108   1582
X1   45     9   1290   1510    500    500    500
GR 6130   1000   6128   1030   6122   1250   6120   1290 6097.7   1340
GR6097.7   1417   6106   1510   6108   1555   6110   1570
X1   46    16   1145   1445    510    490    500
GR 6140   1000   6126   1095   6116   1145   6105   1148   6105   1238
GR 6106   1240   6108   1250   6108   1265   6106   1270   6106   1375
GR 6108   1380   6110   1420   6112   1430   6116   1445   6116   1670
GR 6120   1760
X1   47    13   1180   1380    500    500    500
GR 6150   1000   6126   1180   6118   1205   6116   1230 6111.4   1240
GR6111.4   1330   6116   1345   6120   1380   6116   1490   6114   1500
```

```
GR 6114  1645  6116  1660  6124  1685
X1  48   12  1265  1830   500   500   500
GR 6150  1000  6130  1265  6118  1290  6118  1400  6120  1420
GR 6122  1535  6124  1548  6126  1580  6128  1680  6130  1800
GR 6140  1830  6142  1865
QT   5 15430  7200  7330  1310  5190
X1  49   13  1290  1610   480   570   500
GR 6160  1000  6154  1075  6152  1140  6148  1210  6142  1290
GR 6129  1332  6129  1420  6132  1440  6132  1470  6134  1590
GR 6138  1610  6140  1850  6142  1915
X1  50   14  1045  1610   580   450   490
GR 6162  1000  6158  1020  6156  1045  6146  1057  6144  1110
GR 6141  1150  6142  1365  6144  1370  6146  1445  6148  1550
GR 6152  1610  6152  1710  6154  1810  6156  1850
X1  51    9  1065  1390   520   450   500
GR 6170  1000  6168  1020  6160  1065  6152  1090  6150  1160
GR 6150  1315  6152  1370  6160  1390  6162  1550
X1  52   13  1060  1370   500   500   500
GR 6176  1000  6172  1060  6166  1110  6164  1160  6164  1190
GR6160.5  1195 6160.5  1338  6162  1370  6162  1760  6164  1765
GR 6166  1800  6168  1820  6172  1860
X1  53    9  1090  1400   300   530   410
GR 6178  1000  6172  1090  6170  1110  6167  1275  6167  1390
GR 6168  1400  6168  1430  6172  1700  6174  1740
NC .035  .035  .025   .3   .5
X1  54   12  1780  2140   460   480   470
GR 6190  1000 6189.3  1780  6182  1800  6180  1820  6180  1930
GR 6178  2010  6176  2050  6176  2100  6176  2115 6189.3  2140
GR 6190  2400  6192  2530
SB 1.05   1.5   2.5    0   360    12  2140
X1 54.1    0     0    0    90    90    90
X2   0     0     1 6185.2 6189.3
BT   7  1000     0    0  1780 6189.3 6189.3  1780 6189.3 6185.2
BT 2140 6189.3 6185.2  2140 6189.3 6189.3  2400    0    0  2530
BT   0     0
NC .035  .035   .03   .1   .3
QT   5 15410  7180  7320  1310  5160
X1  55    9  1045  1283   500   500   500
GR 6200  1000  6198  1045  6185  1075  6185  1205  6188  1255
GR 6194  1283  6196  1400  6196  1645  6204  1760
X1  56   10  1018  1345   500   500   500
GR 6208  1000  6206  1018  6192  1060  6192  1162  6194  1178
GR 6196  1205  6198  1250  6200  1310  6204  1345  6206  1435
X1  57   11  1005  1128   495   510   510
GR 6220  1000  6218  1005  6199  1030  6199  1100  6208  1128
GR 6212  1165  6214  1220  6216  1280  6216  1410  6218  1480
GR 6220  1575
X1  58    9  1090  1215   635   550   600
GR 6230  1000  6230  1080  6228  1090  6207  1130  6207  1170
GR 6216  1215  6220  1320  6222  1480  6228  1625
X1  59   12  1330  1520   680   700   700
GR 6240  1000  6238  1090  6238  1320  6236  1330  6222  1355
GR 6220  1385  6218  1390  6218  1420  6220  1480  6234  1520
GR 6238  1560  6240  1700
```

```
X1  60    10  1500  1655   210   290   195
GR 6244   1000  6242  1140  6240  1190  6240  1400  6238  1500
GR6237.1  1590  6238  1655  6240  1750  6242  1830  6250  2160
X1  61     7  1060  1225   460   370   425
GR 6248   1000  6246  1015  6242  1060  6237  1070  6237  1170
GR 6246   1225  6256  1270
X1  62     8  1045  1175   180   250   200
GR 6250   1000  6246  1045  6244  1055  6240  1072  6240  1165
GR 6246   1175  6250  1200  6252  1220
X1  63     8  1050  1160   390   410   400
GR 6260   1000  6256  1050  6245  1090  6245  1140  6250  1160
GR 6252   1180  6254  1220  6256  1340
QT   5  15000  6990  6780  1288  4940
X1  64     8  1030  1140   480   480   480
GR 6270   1000  6268  1030  6251  1083  6251  1105  6260  1140
GR 6262   1190  6264  1290  6265  1340
X1  65    14  1030  1158   300   360   340
GR 6272   1000  6270  1030  6264  1045  6262  1057  6260  1070
GR 6258   1075  6258  1100  6260  1115  6262  1138  6266  1158
GR 6268   1210  6266  1220  6266  1280  6270  1320
X1  66    11  1045  1164   330   340   335
GR 6280   1000  6276  1010  6274  1045  6268  1060  6266  1074
GR 6264   1085  6264  1160  6268  1164  6270  1200  6272  1245
GR 6274   1335
X1  67    20  1008  1112
GR 6284    996  6284   996  6284   996  6284   996  6284   996
GR 6282   1000  6280  1004  6278  1008  6276  1014  6274  1022
GR 6272   1030  6272  1048  6274  1074  6274  1090  6274  1102
GR 6276   1108  6278  1112  6280  1262  6282  1268  6284  1272
X1  68    19  1008  1110   500   460   468
GR 6296    994  6296   994  6296   994  6296   994  6296   994
GR 6290   1000  6288  1002  6286  1008  6284  1010  6282  1014
GR 6280   1016  6282  1062  6284  1102  6286  1110  6286  1146
GR 6286   1180  6288  1186  6290  1192  6292  1198
X1  69    19  1010  1126   540   450   508
GR 6300    998  6300   998  6300   998  6300   998  6300   998
GR 6298   1000  6296  1008  6294  1010  6292  1052  6290  1058
GR 6288   1066  6290  1080  6292  1088  6294  1126  6296  1136
GR 6296   1144  6296  1282  6298  1302  6300  1312
X1  70     4  1000  1160   500   520   518
GR 6312   1000  6298  1040  6298  1135  6312  1160
SB 1.05   1.5   2.5     0   130   6.0  1254     1  6299  6298
X1 70.1     0     0     0    60    60    60
X2   0     0     1 6308.4 6312.2
BT   6  1000  6312  6312  1000  6312 6308.4  1040  6312 6308.4
BT 1135  6312 6308.4  1160  6312 6308.4  1160  6312  6312
NC .035  .035  .035   .1   .3
X1  71    19  1138  1272   568   360   548
GR 6318   1000  6316  1018  6314  1024  6314  1046  6314  1138
GR 6312   1142  6310  1146  6308  1152  6308  1222  6308  1248
GR 6310   1252  6312  1256  6314  1272  6316  1300  6316  1330
GR 6314   1406  6314  1458  6316  1472  6318  1480
QT   5  13680  6760  5690  1262  4600
X1  72    13  1070  1286   580   600   590
```

```
GR 6326  1000  6324  1070  6322  1076  6320  1080  6318  1082
GR 6316  1088  6316  1114  6316  1146  6318  1150  6320  1158
GR 6322  1276  6324  1286  6326  1296
X1  73   13  1008  1114   488   520   508
GR 6334  1000  6332  1008  6330  1016  6328  1026  6326  1034
GR 6324  1046  6324  1070  6324  1102  6326  1104  6328  1106
GR 6330  1110  6332  1114  6334  1116
NC .035  .035  .02   .3   .5
X1  74   6  1240  1360   480   360   548
GR 6350  1000  6346  1240 6328.9  1250 6328.9  1350  6344  1360
GR 6341  1450
SB 1.25  1.5  2.5   0   113   13  1113    0 6331.7 6328.9
X1 74.1   0   0   0   200   200   200   0  2.8
X2  0   0  1.0 6341.7 6347.9
BT  8  1000  6350  6350  1240  6346  6346  1250  6346  6346
BT 1250  6346 6338.9  1350  6346 6338.9  1350  6346  6346  1360
BT 6344  6344  1450  6341  6341
NC .035  .035  .035   .1   .3
X1  75   13  1004  1276   360   480   528
GR 6354  1000  6352  1004  6350  1024  6348  1050  6346  1080
GR 6344  1112  6344  1180  6344  1208  6346  1220  6348  1232
GR 6350  1238  6352  1276  6354  1378
X1  76   15  1015  1204   500   530   508
GR 6360  1000  6358  1004  6356  1016  6354  1022  6352  1028
GR 6352  1044  6352  1062  6350  1092  6352  1106  6352  1114
GR 6352  1170  6354  1196  6356  1204  6358  1212  6360  1222
X1  77   16  1014  1188   452   444   444
GR 6366  1000  6364  1006  6362  1014  6360  1022  6358  1034
GR 6356  1062  6358  1068  6360  1076  6358  1080  6356  1084
GR 6356  1114  6358  1170  6360  1178  6362  1188  6364  1198
GR 6366  1210
X1  78   5  1110  1480   348   448   428
GR 6380  1000  6378  1110  6370  1300  6376  1480  6378  1600
X1  79   11  1006  1220   460   376   404
GR 6384  1000  6382  1006  6380  1012  6378  1018  6376  1034
GR 6374  1108  6376  1118  6378  1214  6380  1222  6382  1228
GR 6384  1238
X1  80   6  1070  1320   448   468   436
GR 6400  1000  6400  1070  6388  1070  6388  1300  6390  1320
GR 6404  1320
QT  5 11880  6330  4990  1178  4040
X1  81   18  1218  1500   200   164   178
GR 6400  1000  6398  1010  6396  1158  6394  1218  6392  1246
GR 6390  1380  6390  1476  6392  1500  6394  1506  6396  1514
GR 6396  1554  6394  1562  6392  1570  6392  1592  6394  1608
GR 6396  1618  6398  1628  6400  1638
NC .035  .035  .02   .3   .5
X1  82   6  1165  1247   400   420   448
GR 6404  1000 6402.5  1165 6389.5  1165 6389.5  1247 6402.5  1247
GR 6404  1500
SB 1.05  1.56  2.6   0   82   5   912    0 6389.7 6389.5
X1 82.1   0   0   0   120   120   120   0  .2
X2  0   0   1 6401.5 6402.7
BT  6  1000  6404  6404  1165 6402.7 6402.7  1165 6402.7 6401.5
```