

SAND CREEK
DRAINAGE BASIN PLANNING STUDY
HYDROLOGY REPORT
TECHNICAL ADDENDUM

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DESCRIPTION OF TERMINOLOGY

SAND CREEK DRAINAGE BASIN PLANNING STUDY HYDROLOGY ADDENDUM

Throughout the Drainage Basin Planning Study (DBPS), report are terms which are used in the hydrology analysis to describe such things as sub-basins, stream elements, ponds or detention facilities and other drainage features. This summary has been provided in order to clarify the terminology and so that there is a cross-reference between the terms used in the TR20 model and the DBPS report.

Structure Number: point at which runoff from a series of sub-basins and/or stream segments are accumulated. This term is synonymous with the term design point.

Xsection number: number for a channel reach or sub-basin shown on the hydrologic basin map. This term is synonymous with channel segment number and sub-basin number.

Alternate number: This number is for the basin modeled in either the existing or future development condition. Title cards on the input and output describe the condition within each TR20 job.

Storm number: The number of the storms modeled in each job. This term is synonymous with the 100- and 10-year rainfall patterns. For this study storm number 1 is the 100-year frequency, and storm number 2 is the 10-year frequency.

RUNOFF: this is a statement in the TR20 model which causes a hydrograph to be generated for a particular sub-basin or Xsection.

RESVOR: this is a statement in the TR20 model which causes an inflow hydrograph to be routed through reservoir or detention basin, given a specific storage/discharge relationship for the reservoir.

REACH: this is a statement in the TR20 model which causes an inflow hydrograph to be routed through a stream segment or stream Xsection.

ADDHYD: this is a statement in the TR20 model which causes two hydrographs to be combined together at a specified structure number or design point.

Technical Addendum
Summary of "X" and "M" Values

KIOWA ENGINEERING CORPORATION

TR20 'X' AND 'M' VALUE CALCULATION SPREAD SHEET
REACH CARDSDATE: 07-Nov-90
TIME: 04:17 PMPROJECT: SAND CREEK DRAINAGE BASIN PLANNING STUDY
LOWER SAND CREEK BASIN

REACH ID	CONDITION	SLOPE	MANNING'S N VALUE	BOTTOM WIDTH FT	SIDE SLOPE Z	DEPTH (FT)	LENGTH (FT)	AREA FT^2	X VALUE	M VALUE
101	EXISTING	0.010	0.035	120.0	1.0	6.0	1550.0	756.0	0.2	1.65
102	EXISTING	0.010	0.035	180.0	2.0	8.0	2300.0	1568.0	0.1	1.65
103	EXISTING	0.015	0.035	120.0	2.0	10.0	1400.0	1400.0	0.2	1.64
104	EXISTING	0.012	0.035	130.0	2.0	10.0	1800.0	1500.0	0.2	1.64
105	EXISTING	0.010	0.035	20.0	3.0	3.0	3800.0	87.0	0.6	1.57
107	EXISTING	0.010	0.035	30.0	6.0	2.0	3400.0	84.0	0.4	1.58
108	EXISTING	0.010	0.035	30.0	6.0	2.0	3200.0	84.0	0.4	1.58
109	EXISTING	0.010	0.035	20.0	5.0	2.0	3800.0	60.0	0.6	1.55
112	EXISTING	0.012	0.035	150.0	2.0	10.0	3900.0	1700.0	0.2	1.64
115	EXISTING	0.012	0.035	220.0	2.0	10.0	3100.0	2400.0	0.1	1.65
116	EXISTING	0.015	0.035	10.0	6.0	3.0	2400.0	84.0	1.1	1.44
136	EXISTING	0.012	0.035	150.0	2.0	10.0	1500.0	1700.0	0.2	1.64
118	EXISTING	0.010	0.035	6.0	3.0	4.0	600.0	72.0	1.3	1.41
119	EXISTING	0.012	0.035	150.0	2.0	10.0	2000.0	1700.0	0.2	1.64
120	EXISTING	0.010	0.035	6.0	3.0	4.0	600.0	72.0	1.3	1.41
121	EXISTING	0.012	0.035	100.0	2.0	10.0	2500.0	1200.0	0.2	1.63
122	EXISTING	0.012	0.035	80.0	2.0	10.0	3200.0	1000.0	0.3	1.62
123	EXISTING	0.010	0.035	20.0	6.0	3.0	3500.0	114.0	0.6	1.52
125	EXISTING	0.006	0.035	150.0	2.0	10.0	5000.0	1700.0	0.1	1.64
126	EXISTING	0.018	0.015	30.0	6.0	3.0	3400.0	144.0	1.4	1.56
127	EXISTING	0.013	0.035	150.0	2.0	10.0	3100.0	1700.0	0.2	1.64
128	EXISTING	0.029	0.035	120.0	2.0	10.0	1700.0	1400.0	0.3	1.64
130	EXISTING	0.017	0.035	100.0	2.0	10.0	2400.0	1200.0	0.3	1.63

KIOWA ENGINEERING CORPORATION

TR20 'X' AND 'M' VALUE CALCULATION SPREAD SHEET

REACH CARDS

DATE: 07-Nov-90

TIME: 04:17 PM

PROJECT: SAND CREEK DRAINAGE BASIN PLANNING STUDY
LOWER SAND CREEK BASIN

REACH ID	CONDITION	SLOPE	MANNING'S N VALUE	BOTTOM WIDTH FT	SIDE SLOPE Z	DEPTH (FT)	LENGTH (FT)	AREA FT^2	X VALUE	M VALUE
132	EXISTING	0.030	0.045	130.0	2.0	10.0	2300.0	1500.0	0.2	1.64
133	EXISTING	0.004	0.035	30.0	6.0	3.0	2800.0	144.0	0.3	1.56
134	EXISTING	0.047	0.035	10.0	6.0	3.0	1700.0	84.0	2.0	1.44
135	EXISTING	0.010	0.035	200.0	2.0	10.0	4800.0	2200.0	0.1	1.65
141	EXISTING	0.023	0.035	25.0	2.0	6.0	3400	222.0	0.8	1.58
	FUTURE	0.008	0.035	35.0	2.5	4.0	3400	180.0	0.4	1.61
142	EXISTING	0.016	0.035	30.0	2.0	4.0	3100	152.0	0.6	1.60
	FUTURE	0.005	0.035	35.0	2.5	4.0	3100	180.0	0.3	1.61
143	EXISTING	0.012	0.035	30.0	2.0	4.0	2500	152.0	0.5	1.60
	FUTURE	0.008	0.035	25.0	2.5	4.0	2500	140.0	0.4	1.58
144	EXISTING	0.015	0.025	10.0	1.0	6.0	2600	96.0	1.6	1.52
145	EXISTING	0.014	0.025	6.0	1.0	6.0	700	72.0	2.1	1.46
146	EXISTING	0.011	0.025	6.0	1.0	6.0	1000	72.0	1.9	1.46

KIOWA ENGINEERING CORPORATION

TR20 'X' AND 'M' VALUE CALCULATION SPREADSHEET

REACH CARDS

DATE: 07-Nov-90

TIME: 04:46 PM

PROJECT: SAND CREEK DRAINAGE BASIN PLANNING STUDY
UPPER SAND CREEK BASIN

REACH ID	CONDITION	SLOPE	MANNING'S N VALUE	BOTTOM WIDTH FT	SIDE SLOPE Z	DEPTH (FT)	LENGTH (FT)	AREA FT^2	X VALUE	M VALUE
104	EXISTING	0.013	0.040	110.0	1.0	8.0	1950.0	944.0	0.2	1.65
106	EXISTING	0.016	0.040	80.0	1.0	8.0	3100.0	704.0	0.3	1.64
107	EXISTING	0.015	0.040	10.0	5.0	3.0	2650.0	75.0	1.0	1.45
108	EXISTING	0.012	0.040	10.0	5.0	2.0	2500.0	40.0	0.9	1.47
109	EXISTING	0.025	0.040	6.0	3.0	4.0	2350.0	72.0	1.8	1.41
113	EXISTING	0.006	0.040	110.0	1.0	8.0	7200.0	944.0	0.1	1.65
114	EXISTING	0.026	0.040	25.0	5.0	3.0	1750.0	120.0	0.7	1.56
115	EXISTING	0.025	0.040	20.0	5.0	2.0	1800.0	60.0	0.8	1.55
120	EXISTING	0.022	0.040	60.0	3.0	6.0	2700.0	468.0	0.4	1.61
125	EXISTING	0.033	0.040	80.0	3.0	6.0	1200.0	588.0	0.4	1.63
127	EXISTING	0.015	0.040	10.0	4.0	3.0	2300.0	66.0	1.0	1.47
128	EXISTING	0.021	0.040	10.0	4.0	3.0	1700.0	66.0	1.2	1.47
129	EXISTING	0.016	0.040	220.0	3.0	6.0	3800.0	1428.0	0.1	1.65
130	EXISTING	0.030	0.040	20.0	5.0	4.0	3700.0	160.0	0.9	1.52
131	EXISTING	0.020	0.040	20.0	5.0	4.0	4400.0	160.0	0.7	1.52
135	EXISTING	0.032	0.040	20.0	5.0	4.0	3100.0	160.0	0.9	1.52
136	EXISTING	0.024	0.040	20.0	4.0	3.0	2050.0	96.0	0.8	1.55
137	EXISTING	0.033	0.040	220.0	3.0	6.0	3900.0	1428.0	0.2	1.65
141	EXISTING	0.013	0.040	60.0	2.5	6.0	3100.0	450.0	0.3	1.62
142	EXISTING	0.011	0.040	40.0	3.0	4.0	5400.0	208.0	0.3	1.61
143	EXISTING	0.018	0.040	20.0	4.0	3.0	2750.0	96.0	0.7	1.55
147	EXISTING	0.017	0.040	50.0	3.0	4.0	2300.0	248.0	0.4	1.62
148	EXISTING	0.018	0.040	60.0	2.5	6.0	3300.0	450.0	0.3	1.62

KIOWA ENGINEERING CORPORATION

TR20 'X' AND 'M' VALUE CALCULATION SPREADSHEET
REACH CARDS

DATE: 07-Nov-90
TIME: 04:46 PM

PROJECT: SAND CREEK DRAINAGE BASIN PLANNING STUDY
UPPER SAND CREEK BASIN

REACH ID	CONDITION	SLOPE	MANNING'S N VALUE	BOTTOM WIDTH FT	SIDE SLOPE Z	DEPTH (FT)	LENGTH (FT)	AREA FT ²	X VALUE	M VALUE
150	EXISTING	0.012	0.040	20.0	5.0	3.0	2950.0	105.0	0.6	1.53
149	EXISTING	0.015	0.040	60.0	2.0	6.0	2400.0	432.0	0.3	1.63
151	EXISTING	0.015	0.040	200.0	3.0	6.0	4000.0	1308.0	0.1	1.65
152	EXISTING	0.018	0.040	60.0	4.0	2.0	3500.0	136.0	0.3	1.63
153	EXISTING	0.022	0.040	40.0	3.0	4.0	2050	208.0	0.5	1.61
154	EXISTING	0.023	0.040	40.0	3.0	4.0	3500	208.0	0.5	1.61
155	EXISTING	0.016	0.040	20.0	5.0	3.0	3450	105.0	0.6	1.53
157	EXISTING	0.028	0.040	20.0	5.0	3.0	2300	105.0	0.8	1.53
158	EXISTING	0.031	0.040	60.0	4.0	2.0	3600	136.0	0.4	1.63
159	EXISTING	0.027	0.040	50.0	3.0	4.0	3300	248.0	0.5	1.62
160	EXISTING	0.020	0.040	200.0	3.0	6.0	4400	1308.0	0.2	1.65
161	EXISTING	0.019	0.040	20.0	6.0	4.0	3400	176.0	0.7	1.51
163	EXISTING	0.025	0.040	120.0	3.0	6.0	4400	828.0	0.2	1.64
164	EXISTING	0.024	0.040	20.0	6.0	4.0	2500	176.0	0.8	1.51
167	EXISTING	0.021	0.040	20.0	6.0	4.0	3300	176.0	0.7	1.51
169	EXISTING	0.028	0.040	20.0	4.0	3.0	3000	96.0	0.8	1.55
170	EXISTING	0.026	0.040	100.0	3.0	6.0	2500	708.0	0.3	1.63
171	EXISTING	0.021	0.040	100.0	3.0	6.0	3850	708.0	0.2	1.63
172	EXISTING	0.023	0.040	20.0	5.0	3.0	1700	105.0	0.8	1.53
173	EXISTING	0.018	0.040	20.0	5.0	3.0	2800	105.0	0.7	1.53
174	EXISTING	0.030	0.040	20.0	5.0	3.0	2300	105.0	0.9	1.53
175	EXISTING	0.026	0.040	30.0	6.0	3.0	3850	144.0	0.6	1.56
176	EXISTING	0.027	0.040	30.0	6.0	3.0	4100	144.0	0.6	1.56

KIOWA ENGINEERING CORPORATION

TR20 'X' AND 'M' VALUE CALCULATION SPREADSHEET
REACH CARDS

DATE: 07-Nov-90
TIME: 04:46 PM

PROJECT: SAND CREEK DRAINAGE BASIN PLANNING STUDY
UPPER SAND CREEK BASIN

REACH ID	CONDITION	SLOPE	MANNING'S N VALUE	BOTTOM WIDTH FT	SIDE SLOPE Z	DEPTH (FT)	LENGTH (FT)	AREA FT ²	X VALUE	M VALUE
177	EXISTING	0.027	0.040	30.0	6.0	3.0	3350	144.0	0.6	1.56
178	EXISTING	0.027	0.040	30.0	6.0	3.0	3000	144.0	0.6	1.56
183	EXISTING	0.029	0.040	10.0	4.0	5.0	2700	150.0	1.4	1.45
184	EXISTING	0.030	0.040	220.0	3.0	6.0	1350	1428.0	0.2	1.65
185	EXISTING	0.018	0.040	60.0	2.5	6.0	1100	450.0	0.3	1.62
186	EXISTING	0.025	0.040	20.0	5.0	3.0	1400	105.0	0.8	1.53
187	EXISTING	0.017	0.040	120.0	3.0	6.0	1200	828.0	0.2	1.64

KIOWA ENGINEERING CORPORATION

TR20 'X' AND 'M' VALUE CALCULATION SPREADSHEET

REACH CARDS

DATE: 15-Oct-90

TIME: 04:45 PM

PROJECT: SAND CREEK DRAINAGE BASIN PLANNING S
WEST FORK SAND CREEK

REACH ID	CONDITION	SLOPE	MANNING'S N VALUE	BOTTOM WIDTH FT	SIDE SLOPE Z	DEPTH (FT)	LENGTH (FT)	AREA FT^2	X VALUE	M VALUE
151	EXISTING	0.006	0.035	30.0	1.0	12.0	4400.0	504.0	0.3	1.59
152	EXISTING	0.004	0.035	25.0	1.0	10.0	2950.0	350.0	0.3	1.58
154	EXISTING	0.012	0.030	20.0	1.0	5.0	4540.0	125.0	0.7	1.59
155	EXISTING FUTURE	0.006	0.035	30.0	1.0	10.0	2300.0	400.0	0.3	1.59
156	EXISTING FUTURE	0.014	0.035	30.0	1.0	10.0	1800.0	400.0	0.5	1.59
157	EXISTING FUTURE	0.020	0.035	28.0	2.0	8.0	3200.0	352.0	0.7	1.57
158	EXISTING FUTURE	0.016	0.035	28.0	2.0	8.0	2200.0	352.0	0.6	1.57
159	EXISTING FUTURE	0.009	0.030	38.0	1.0	6.0	2700.0	264.0	0.4	1.62
161	EXISTING FUTURE	0.016	0.040	10.0	2.0	10.0	2000.0	300.0	1.0	1.47
163	EXISTING FUTURE	0.036	0.030	22.0	1.0	7.0	1100.0	203.0	1.2	1.59
164	EXISTING FUTURE	0.003	0.030	19.0	2.0	4.0	3200.0	108.0	0.3	1.57
167	EXISTING FUTURE	0.032	0.030	27.0	1.0	3.0	3400.0	90.0	1.0	1.63
169	EXISTING FUTURE	0.032	0.030	30.0	1.0	3.0	1250.0	99.0	0.9	1.63
170	EXISTING FUTURE	0.020	0.030	11.0	1.0	8.0	2950.0	152.0	1.4	1.52

KIDONA ENGINEERING CORPORATION

TR20 "X" AND "N" VALUE CALCULATION SPREADSHEET
"REACH CARDS"DATE: 12-Jan-09
TIME: 07:38 AM

PROJECT: EAST FORK SAND CREEK TRIBUTARY

REACH ID	CONDITION	SLOPE	MANHOLE'S N VALUE	BOTTOM WIDTH FT	SIDE SLOPE Z	DEPTH (FT)	LENGTH (FT)	AREA FT ²	X VALUE	N VALUE
1	EXISTING	0.020	0.030	100.0	0.5	6.0	7234.0	618.0	0.3	1.65
	FUTURE	0.003	0.030	150.0	4.0	6.0	7234.0	1044.0	0.1	1.64
2	EXISTING	0.012	0.030	150.0	1.0	10.0	3432.0	1600.0	0.2	1.65
	FUTURE	0.003	0.030	150.0	4.0	6.0	3432.0	1044.0	0.1	1.64
3	EXISTING	0.010	0.030	200.0	1.0	10.0	2402.0	2100.0	0.1	1.66
	FUTURE	0.003	0.030	150.0	4.0	6.0	2402.0	1044.0	0.1	1.64
4	EXISTING	0.015	0.040	100.0	10.0	4.0	2851.0	500.0	0.2	1.60
	FUTURE	0.003	0.030	150.0	4.0	6.0	2851.0	1044.0	0.1	1.64
5	EXISTING	0.012	0.040	100.0	10.0	5.0	4910.0	750.0	0.2	1.50
	FUTURE	0.003	0.030	150.0	4.0	6.0	4910.0	1044.0	0.1	1.64
6	EXISTING	0.013	0.040	20.0	0.5	7.0	8976.0	164.5	0.6	1.59
	FUTURE	0.003	0.035	40.0	4.0	7.0	8976.0	476.0	0.2	1.57
8	EXISTING	0.016	0.015	3.0	1.0	2.0	3907.0	10.0	6.0	1.36
	FUTURE	0.016	0.015	3.0	1.0	2.0	3907.0	10.0	6.0	1.36
12	EXISTING	0.020	0.040	8.0	1.0	4.0	3221.0	48.0	1.3	1.51
	FUTURE	0.003	0.035	30.0	4.0	4.0	3221.0	184.0	0.2	1.57
14	EXISTING	0.010	0.035	150.0	5.0	3.0	3448.0	495.0	0.2	1.65
	FUTURE	0.003	0.030	150.0	4.0	6.0	3448.0	1044.0	0.1	1.64
15	EXISTING	0.012	0.035	75.0	5.0	4.0	2571.0	380.0	0.3	1.62
	FUTURE	0.003	0.030	75.0	4.0	5.0	2571.0	475.0	0.2	1.62
17	EXISTING	0.016	0.045	5.0	10.0	2.0	3274.0	50.0	1.4	1.29
	FUTURE	0.003	0.035	8.0	4.0	5.0	3274.0	140.0	0.6	1.42
18	EXISTING	0.012	0.035	100.0	0.5	5.0	3696.0	512.5	0.2	1.66
	FUTURE	0.003	0.030	100.0	4.0	5.0	3696.0	600.0	0.1	1.63
19	EXISTING	0.019	0.040	300.0	1.0	3.0	3802.0	909.0	0.1	1.66
	FUTURE	0.003	0.030	75.0	4.0	5.0	3802.0	475.0	0.2	1.62
20	EXISTING	0.008	0.045	20.0	10.0	3.0	3960.0	150.0	0.4	1.48
	FUTURE	0.003	0.035	20.0	4.0	5.0	3960.0	200.0	0.3	1.53
22	EXISTING	0.010	0.030	25.0	1.0	5.0	3062.0	150.0	0.6	1.61
	FUTURE	0.003	0.030	75.0	4.0	5.0	3062.0	475.0	0.2	1.62
24	EXISTING	0.014	0.035	100.0	0.5	5.0	2571.0	512.5	0.2	1.66
	FUTURE	0.003	0.030	75.0	4.0	5.0	2571.0	475.0	0.2	1.62
25	EXISTING	0.012	0.035	100.0	0.5	5.0	2323.0	512.5	0.2	1.66
	FUTURE	0.003	0.030	75.0	4.0	5.0	2323.0	475.0	0.2	1.62
26	EXISTING	0.012	0.035	100.0	0.5	5.0	3221.0	512.5	0.2	1.66
	FUTURE	0.003	0.030	75.0	4.0	5.0	3221.0	475.0	0.2	1.62
28	EXISTING	0.005	0.035	100.0	0.5	5.0	3168.0	512.5	0.1	1.66
	FUTURE	0.003	0.030	75.0	4.0	5.0	3168.0	475.0	0.2	1.62
30	EXISTING	0.023	0.035	2.0	0.5	2.0	2323.0	18.0	1.6	1.56
	FUTURE	0.003	0.035	20.0	4.0	5.0	2323.0	200.0	0.3	1.53
31	EXISTING	0.010	0.035	8.0	5.0	1.0	3358.0	13.0	1.1	1.45
	FUTURE	0.003	0.035	10.0	4.0	5.0	3358.0	150.0	0.5	1.45
33	EXISTING	0.012	0.045	150.0	0.5	3.0	7445.0	454.5	0.1	1.66
	FUTURE	0.003	0.030	75.0	4.0	5.0	7445.0	475.0	0.2	1.62
34	EXISTING	0.015	0.045	8.0	5.0	2.0	1816.0	36.0	1.0	1.43
	FUTURE	0.003	0.035	15.0	4.0	5.0	1816.0	175.0	0.4	1.50

35	EXISTING	0.017	0.045	4.0	10.0	1.0	3252.0	14.0	1.7	1.21
	FUTURE	0.003	0.035	8.0	4.0	4.0	3252.0	96.0	0.6	1.43
39	EXISTING	0.016	0.040	50.0	0.5	3.0	4963.0	154.5	0.3	1.65
	FUTURE	0.003	0.035	60.0	4.0	5.0	4963.0	400.0	0.2	1.61
40	EXISTING	0.020	0.045	8.0	10.0	3.0	2218.0	114.0	1.2	1.36
	FUTURE	0.003	0.035	20.0	4.0	5.0	2218.0	200.0	0.3	1.53
42	EXISTING	0.020	0.045	8.0	10.0	3.0	2746.0	114.0	1.2	1.36
	FUTURE	0.003	0.035	20.0	4.0	5.0	2746.0	200.0	0.3	1.53
44	EXISTING	0.013	0.035	35.0	0.5	5.0	5016.0	187.5	0.5	1.63
	FUTURE	0.003	0.030	50.0	4.0	5.0	5016.0	350.0	0.2	1.60
45	EXISTING	0.015	0.045	150.0	1.0	3.0	2893.0	450.0	0.1	1.66
	FUTURE	0.003	0.030	50.0	4.0	5.0	2893.0	350.0	0.2	1.60
46	EXISTING	0.016	0.045	50.0	5.0	2.0	3770.0	120.0	0.3	1.62
	FUTURE	0.003	0.035	30.0	4.0	5.0	3770.0	250.0	0.2	1.56
47	EXISTING	0.015	0.045	100.0	1.0	3.0	4678.0	309.0	0.2	1.66
	FUTURE	0.003	0.035	30.0	4.0	5.0	4678.0	250.0	0.2	1.56
50	EXISTING	0.017	0.045	8.0	10.0	1.0	3000.0	114.0	1.1	1.36
	FUTURE	0.003	0.035	25.0	4.0	5.0	3000.0	225.0	0.3	1.55
51	EXISTING	0.014	0.045	8.0	10.0	3.0	1531.0	114.0	1.0	1.36
	FUTURE	0.003	0.035	15.0	4.0	5.0	1531.0	175.0	0.4	1.59
52	EXISTING	0.012	0.035	50.0	5.0	2.0	1584.0	120.0	0.3	1.62
	FUTURE	0.003	0.035	30.0	4.0	5.0	1584.0	250.0	0.2	1.56
53	EXISTING	0.019	0.045	8.0	10.0	2.0	3453.0	96.0	1.1	1.37
	FUTURE	0.003	0.035	20.0	4.0	5.0	3453.0	200.0	0.3	1.53
54	EXISTING	0.014	0.035	30.0	0.5	5.0	4974.0	162.5	0.5	1.63
	FUTURE	0.003	0.035	45.0	4.0	5.0	4974.0	325.0	0.2	1.59
55	EXISTING	0.021	0.030	4.0	1.0	3.0	3000.0	21.0	2.9	1.42
	FUTURE	0.003	0.035	15.0	4.0	5.0	3000.0	175.0	0.4	1.58
57	EXISTING	0.007	0.045	8.0	10.0	2.0	4102.0	56.0	0.7	1.37
	FUTURE	0.003	0.035	8.0	4.0	4.0	4102.0	96.0	0.6	1.43
58	EXISTING	0.015	0.045	4.0	10.0	2.0	5016.0	48.0	1.6	1.25
	FUTURE	0.003	0.035	15.0	4.0	5.0	5016.0	175.0	0.4	1.59
59	EXISTING	0.012	0.035	20.0	1.0	5.0	5158.0	125.0	0.6	1.59
	FUTURE	0.012	0.035	20.0	1.0	5.0	5158.0	125.0	0.6	1.59
60	EXISTING	0.018	0.035	20.0	3.0	5.0	1373.0	175.0	0.8	1.54
	FUTURE	0.018	0.035	20.0	3.0	5.0	1373.0	175.0	0.8	1.54
61	EXISTING	0.016	0.045	4.0	10.0	2.0	3152.0	48.0	1.7	1.25
	FUTURE	0.016	0.045	4.0	10.0	2.0	3152.0	48.0	1.7	1.25
62	EXISTING	0.013	0.045	4.0	10.0	2.0	3432.0	48.0	1.5	1.25
	FUTURE	0.013	0.045	4.0	10.0	2.0	3432.0	48.0	1.5	1.25
66	EXISTING	0.020	0.035	10.0	3.0	3.0	2511.0	57.0	1.3	1.49
	FUTURE	0.003	0.035	30.0	4.0	5.0	2571.0	250.0	0.2	1.56
68	EXISTING	0.017	0.045	4.0	10.0	2.0	3643.0	48.0	1.7	1.25
	FUTURE	0.003	0.035	20.0	4.0	5.0	3643.0	200.0	0.3	1.53
70	EXISTING	0.009	0.045	4.0	10.0	2.0	5613.0	48.0	1.2	1.25
	FUTURE	0.003	0.035	8.0	4.0	4.0	5613.0	140.0	0.6	1.42
72	EXISTING	0.016	0.045	4.0	10.0	2.0	5058.0	48.0	1.7	1.25
	FUTURE	0.003	0.035	25.0	4.0	5.0	5058.0	225.0	0.3	1.55
73	EXISTING	0.017	0.035	20.0	3.0	5.0	1610.0	175.0	0.8	1.54
	FUTURE	0.003	0.035	40.0	4.0	5.0	1610.0	300.0	0.2	1.58
74	EXISTING	0.022	0.045	4.0	10.0	2.0	4066.0	48.0	1.9	1.25
	FUTURE	0.003	0.035	35.0	4.0	5.0	4066.0	275.0	0.2	1.57
75	EXISTING	0.022	0.045	4.0	10.0	2.0	4013.0	48.0	1.9	1.25
	FUTURE	0.003	0.035	35.0	4.0	5.0	4013.0	275.0	0.2	1.57
76	EXISTING	0.020	0.045	4.0	10.0	2.0	5702.0	48.0	1.9	1.25
	FUTURE	0.003	0.035	15.0	4.0	5.0	5702.0	175.0	0.4	1.50

79	EXISTING	0.016	0.045	4.0	10.0	2.0	5597.0	48.0	1.7	1.25
	FUTURE	0.003	0.035	10.0	4.0	5.0	5597.0	150.0	0.5	1.45
81	EXISTING	0.012	0.045	4.0	10.0	2.0	6389.0	48.0	1.4	1.25
	FUTURE	0.003	0.035	15.0	4.0	5.0	6389.0	175.0	0.4	1.50
82	EXISTING	0.012	0.045	4.0	10.0	2.0	5808.0	48.0	1.4	1.25
	FUTURE	0.003	0.035	8.0	4.0	5.0	5808.0	140.0	0.6	1.42
83	EXISTING	0.020	0.045	4.0	10.0	2.0	6124.0	48.0	1.9	1.25
	FUTURE	0.003	0.035	30.0	4.0	5.0	6124.0	250.0	0.2	1.56
84	EXISTING	0.023	0.045	4.0	10.0	2.0	5491.0	48.0	2.0	1.25
	FUTURE	0.003	0.035	25.0	4.0	5.0	5491.0	225.0	0.3	1.55
85	EXISTING	0.011	0.045	4.0	10.0	2.0	6178.0	48.0	1.4	1.25
	FUTURE	0.003	0.035	20.0	4.0	5.0	6178.0	200.0	0.3	1.53
88	EXISTING	0.021	0.045	4.0	10.0	2.0	5527.0	48.0	1.9	1.25
	FUTURE	0.003	0.035	8.0	4.0	5.0	5527.0	140.0	0.6	1.42
92	EXISTING	0.025	0.045	4.0	10.0	2.0	5650.0	48.0	2.1	1.25
	FUTURE	0.003	0.035	20.0	4.0	5.0	5650.0	200.0	0.3	1.53
94	EXISTING	0.017	0.045	4.0	10.0	2.0	5914.0	48.0	1.7	1.25
	FUTURE	0.003	0.035	8.0	4.0	5.0	5914.0	140.0	0.6	1.42
104	EXISTING	0.006	0.030	10.0	1.0	5.0	4066.0	75.0	0.8	1.53
	FUTURE	0.006	0.030	10.0	1.0	5.0	4066.0	75.0	0.8	1.53
112	EXISTING	0.014	0.030	20.0	1.0	5.0	2250.0	125.0	0.8	1.59
	FUTURE	0.003	0.035	20.0	4.0	5.0	2250.0	200.0	0.3	1.53
115	EXISTING	0.016	0.040	8.0	10.0	4.0	2820.0	192.0	1.2	1.36
	FUTURE	0.003	0.040	20.0	4.0	5.0	2820.0	200.0	0.3	1.53
116	EXISTING	0.014	0.035	150.0	5.0	4.0	2260.0	680.0	0.2	1.64
	FUTURE	0.003	0.030	100.0	4.0	5.0	2260.0	600.0	0.1	1.63
122	EXISTING	0.008	0.040	5.0	3.0	2.0	2503.0	22.0	1.1	1.39
	FUTURE	0.003	0.035	8.0	4.0	4.0	2503.0	96.0	0.6	1.43
124	EXISTING	0.022	0.035	30.0	0.5	4.0	4594.0	128.0	0.7	1.63
	FUTURE	0.003	0.035	30.0	4.0	5.0	4594.0	250.0	0.2	1.56
128	EXISTING	0.009	0.040	20.0	5.0	3.0	3131.0	105.0	0.5	1.53
	FUTURE	0.003	0.035	8.0	4.0	5.0	3131.0	140.0	0.6	1.42
139	EXISTING	0.018	0.045	8.0	10.0	2.0	4488.0	56.0	1.1	1.37
	FUTURE	0.003	0.035	20.0	4.0	5.0	4488.0	200.0	0.3	1.53
144	EXISTING	0.011	0.045	8.0	1.0	2.0	4419.0	20.0	0.9	1.55
	FUTURE	0.003	0.035	8.0	4.0	4.0	4419.0	96.0	0.6	1.43
145	EXISTING	0.016	0.045	100.0	1.0	3.0	3802.0	309.0	0.2	1.66
	FUTURE	0.003	0.030	50.0	4.0	5.0	3802.0	350.0	0.2	1.50
146	EXISTING	0.020	0.045	4.0	10.0	3.0	507.0	102.0	1.9	1.27
	FUTURE	0.003	0.035	8.0	4.0	5.0	507.0	140.0	0.6	1.42
147	EXISTING	0.018	0.045	8.0	10.0	3.0	6040.0	114.0	1.1	1.36
	FUTURE	0.003	0.035	8.0	4.0	5.0	6040.0	140.0	0.6	1.42
150	EXISTING	0.018	0.045	8.0	10.0	3.0	6574.0	114.0	1.1	1.36
	FUTURE	0.003	0.035	25.0	4.0	5.0	6574.0	225.0	0.3	1.55
152	EXISTING	0.016	0.045	8.0	10.0	2.0	2682.0	56.0	1.0	1.37
	FUTURE	0.003	0.035	25.0	4.0	5.0	2682.0	225.0	0.3	1.55
153	EXISTING	0.007	0.045	8.0	10.0	2.0	3379.0	56.0	0.7	1.37
	FUTURE	0.003	0.035	15.0	4.0	5.0	3379.0	175.0	0.4	1.50
162	EXISTING	0.020	0.045	4.0	10.0	1.0	2445.0	14.0	1.9	1.21
	FUTURE	0.020	0.045	4.0	10.0	1.0	2445.0	14.0	1.9	1.21
173	EXISTING	0.023	0.045	4.0	10.0	2.0	1864.0	48.0	2.0	1.25
	FUTURE	0.003	0.035	35.0	4.0	5.0	1864.0	275.0	0.2	1.57
194	EXISTING	0.019	0.045	4.0	10.0	2.0	5917.0	48.0	1.8	1.25
	FUTURE	0.003	0.035	8.0	4.0	5.0	5917.0	140.0	0.6	1.42
195	EXISTING	0.022	0.040	8.0	1.0	4.0	2788.0	48.0	1.4	1.51
	FUTURE	0.003	0.035	30.0	4.0	4.0	2788.0	184.0	0.2	1.57

198	EXISTING	0.017	0.035	10.0	0.5	3.0	5227.0	34.5	1.2	1.57
	FUTURE	0.003	0.035	10.0	4.0	5.0	5227.0	150.0	0.5	1.45
199	EXISTING	0.016	0.040	50.0	0.5	5.0	216.0	262.5	0.3	1.64
	FUTURE	0.003	0.035	60.0	4.0	5.0	216.0	400.0	0.2	1.61

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Technical Addendum

TR 20 Input/Output for the Lower Sand Creek and
Center Tributary Sand Creek

Existing and Future Basin Condition 100-year

*****B0-20 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****
 2

JOB TR-20 -TOMMOR- NOPLSTE

TITLE 001 LOWER GARD CREEK EX CONDITION

TITLE 24 HR TYPE IIA STORM (100YR ANC=2) FILE NAME D24EX.DAT

5 RAINFL 1 .50

5		0.000	.0025	0.005	.0075	0.010
5		0.015	0.020	0.025	0.030	0.030
5		0.050	0.100	0.700	0.750	0.780
5		0.795	0.820	0.830	0.840	0.850
5		0.860	0.865	0.870	0.885	0.890
5		0.900	0.905	0.910	0.915	0.921
5		0.927	0.933	0.940	0.945	0.950
5		0.955	0.960	0.965	0.970	0.975
5		0.980	0.983	0.985	0.988	0.990
5		0.993	0.995	0.998	1.000	1.000

9 ENDTBL

6 RUNOFF 1 37 1 .23 77 0.15

6 REACH 3 138 1 2 2600. 1.9 1.47

6 RUNOFF 1 38 1 .09 52.0 0.20

6 ADDHYD 4 38 1 2 3

6 RUNOFF 1 45 1 .01 53.0 0.1

6 ADDHYD 4 45 1 3 2

6 REACH 3 149 2 1 1.0 1.4 1.0

6 ADDHYD 4 49 1 2 5

6 REACH 3 157 3 1 1500. 0.1 1.61 1500.

6 RUNOFF 1 35 2 0.134 90.0 0.47

6 ADDHYD 4 35 1 2 3

6 RUNOFF 1 33 2 0.12 54.0 0.60

6	RUNOFF	1	37	1	2200.0	7.1	1.6
6	REACH	3	135	2	1800.0	0.3	1.6
6	ADDHYD	4	35	1	3		
6	REACH	3	132	2	2300.0	0.2	1.6
6	RUNOFF	1	32	2	0.28	73.0	0.45
6	ADDHYD	4	32	1	2		
6	REACH	3	130	3	1400.0	0.3	1.6
6	RUNOFF	1	30	1	0.15	76.0	0.07
6	ADDHYD	4	30	1	1		
6	RUNOFF	1	31	2	0.25	66.0	0.38
6	ADDHYD	4	30	3	2		
6	REACH	3	128	1	1700.0	0.3	1.6
6	RUNOFF	1	28	1	0.08	93.0	0.07
6	ADDHYD	4	28	1	1		
6	RUNOFF	1	29	1	0.16	93.0	0.31
6	REACH	3	129	1	500.0	1.4	1.6
6	ADDHYD	4	28	2	3		
6	REACH	3	127	4	3100.0	0.2	1.6

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*****B0-B0 LIST OF INPUT DATA (CONTINUED)*****

6	ADDHYD	4	27	1	6	2		1	1	1	1
6	RUNOFF	1	27	3	0.10	70.0	0.11				
6	ADDHYD	4	27	2	3	1					
6	RUNOFF	1	26	3	0.11	73.0	1.19				
6	ADDHYD	4	27	1	3	2					
6	REACH	3	125	2	3	5000.0	0.1	1.6			
6	RUNOFF	1	25	1	0.36	57.0	0.76				
6	ADDHYD	4	25	1	3	2					
6	RUNOFF	1	24	1	0.10	65.0	0.28				
6	ADDHYD	4	25	1	2	3		1	1	1	1
6	REACH	3	121	3	1	2500.0	0.2	1.6			
6	RUNOFF	1	21	2	0.15	65.0	0.04				
6	ADDHYD	4	21	1	2	3					
6	RUNOFF	1	46	1	0.13	71.0	0.85				
6	RUNOFF	1	47	2	0.28	66.0	0.30				
6	ADDHYD	4	47	1	2	3					
6	REACH	3	146	7	1	1500.0	1.9	1.6			
6	RUNOFF	1	46	3	0.15	74.0	0.51				
6	ADDHYD	4	46	3	1	2					
6	REACH	3	145	2	1	700.0	2.1	1.6			
6	RUNOFF	1	45	3	0.27	71.0	0.34				
6	ADDHYD	4	45	3	1	2					
6	REACH	3	144	2	1	2600.0	1.5	1.6			
6	RUNOFF	1	44	3	0.25	63.0	0.64				
6	ADDHYD	4	44	3	1	2					
6	REACH	3	143	1	1	2500.0	0.5	1.6			
6	RUNOFF	1	43	2	0.20	74.0	0.16				
6	ADDHYD	4	43	1	1	3					
6	REACH	3	142	3	1	3100.0	0.6	1.6			
6	RUNOFF	1	42	2	0.25	74.0	0.66				
6	ADDHYD	4	42	1	1	3					
6	REACH	3	141	3	1	3400.0	0.8	1.6			
6	RUNOFF	1	41	1	0.24	74.0	0.75				
6	ADDHYD	4	41	1	1	3		1	1	1	1 CENTER
6	ADDHYD	4	41	3	1	1		1	1	1	1 EFBC
6	REACH	3	122	1	2	3200.0	0.3	1.6			
6	ADDHYD	4	21	2	4	3					
6	RUNOFF	1	22	1	0.23	71.0	0.17				
6	ADDHYD	4	21	1	3	4					
6	REACH	3	119	4	2	1000.0	0.2	1.6			

6 REACH	3	120	2	3	600.0	1.3	1.4
6 ADDHYD	4	15	4	3			
6 RUNOFF	1	23		1	0.20	83.0	0.36

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

6 REACH	3	123	1	3	3500.0	0.6	1.5
6 RUNOFF	1	18		1	0.30	81.0	0.54
6 ADDHYD	4	18	3	1			
6 REACH	3	118	4	3	610.0	1.3	1.4
6 ADDHYD	4	19	3	2			1 1 1 1
6 REACH	7	135	1	2	1500.0	.2	1.6
6 RUNOFF	1	36		3	0.10	74.0	0.02
6 ADDHYD	4	76	2	1			
6 REACH	3	115	1	3	3100.0	0.1	1.7
6 RUNOFF	1	16		1	0.15	74.0	0.45
6 ADDHYD	4	15	3	1			
6 RUNOFF	1	15		1	0.10	65.0	0.04
6 ADDHYD	4	15	1	2			
6 RUNOFF	1	14		2	0.23	74.0	0.54
6 ADDHYD	4	15	3	2			
6 RUNOFF	1	13		2	0.37	83.0	0.53
6 ADDHYD	4	15	1	2			
6 RUNOFF	1	17		1	0.21	78.0	0.37
6 REACH	3	116	1	2	2400.0	1.1	1.4
6 ADDHYD	4	15	2	3			1 1 1 1
6 REACH	3	112	1	2	3900.0	0.2	1.6
6 RUNOFF	1	12		1	.29	81	.06
6 ADDHYD	4	12	2	1			
6 RUNOFF	1	8		2	0.11	76.0	1.46
6 ADDHYD	4	12	2	3			
6 RUNOFF	1	9		3	0.13	82.0	0.44
6 ADDHYD	4	12	3	1			
6 RUNOFF	1	7		1	0.13	83.0	0.45
6 ADDHYD	4	12	1	2			
6 RUNOFF	1	11		2	0.25	79.0	0.53
6 REACH	3	108	2	1	3200.0	0.4	1.6
6 ADDHYD	4	12	1	3			
6 RUNOFF	1	6		1	0.23	83.0	0.25
6 REACH	3	107	1	3	3400.0	0.4	1.6
6 ADDHYD	4	12	3	2			
6 RUNOFF	1	10		2	0.11	76.0	0.35
6 REACH	3	109	2	3	3800.0	0.6	1.6
6 ADDHYD	4	12	3	1			1 1 1 1
6 REACH	3	104	2	3	1800.0	0.2	1.6
6 RUNOFF	1	4		2	0.14	89.0	0.24
6 ADDHYD	4	4	2	3			
6 REACH	3	103	1	2	1400.0	0.2	1.6
6 RUNOFF	1	3		1	0.16	93.0	0.45
6 ADDHYD	4	3	1	2			
6 RUNOFF	1	5		2	0.23	89.0	0.03
6 REACH	7	105	2	4	3800.0	.6	1.6

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

6 ADDHYD	4	3	3	4			1 1 1 1
6 REACH	3	102	2	3	3500.0	0.1	1.7

1

8	737.	1012.	1324.	1669.	2044.
8	4561.	4928.	5018.	5152.	5244.
8	5307.	5346.	5357.	5372.	5364.
8	5350.	5321.	5286.	5242.	5190.
8	5129.	5061.	4985.	4915.	4840.
8	4770.	4704.	4639.	4580.	4526.
8	4475.	4478.	4400.	4368.	4351.
8	4316.	4293.	4270.	4247.	4222.
8	4200.	4173.	4144.	4110.	4075.
8	4025.	3979.	3925.	3862.	3793.
8	3726.	3641.	3556.	3471.	3380.
8	3287.	3154.	3093.	2998.	2901.
8	3345.	3074.	3200.	3124.	3046.
8	2866.	2711.	2615.	2528.	2440.
8	2334.	2219.	2126.	2104.	2025.
8	1945.	1876.	1807.	1740.	1677.

6	267.	267.	267.	267.	267.
6	261.	265.	260.	275.	271.
6	265.	265.	262.	259.	257.
6	250.	254.	252.	250.	250.
6	246.	246.	246.	246.	245.
6	245.	245.	245.	244.	244.

9 ENDTBL

7 REACHD 8 5 EF SAND

7 REACHD 9 0.0 .00 24.32 .0000

6	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0

1

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

6	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0
6	.0	.0	.0	.0	.0
6	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.50	5.00	49.00
6	195.00	558.00	1924.00	1643.0	1883.00
6	1741.00	1823.00	2011.00	2175.0	2304.00
6	2451.00	2631.00	2903.00	3193.00	3479.00
6	3714.00	3872.00	3931.00	3894.00	3788.00
6	3634.00	3454.00	3262.00	3075.00	2883.00
6	2696.00	2523.00	2362.00	2205.00	2064.00
6	1931.00	1807.00	1694.00	1591.0	1495.00
6	1405.00	1320.00	1241.00	1167.00	1099.00
6	1039.00	985.00	936.00	893.0	843.00
6	809.00	774.00	743.00	714.0	688.00
6	663.00	641.00	623.00	607.0	605.00
6	605.00	602.00	594.00	588.0	573.00
6	554.00	542.00	536.00	531.0	533.00
6	545.00	556.00	566.00	576.0	579.00
6	575.00	570.00	563.00	552.0	541.00
6	531.00	522.00	515.00	508.0	504.00
6	493.00	483.00	473.00	462.0	451.00
6	442.00	433.00	425.00	418.0	413.00
6	408.00	404.00	401.00	399.00	398.00
6	398.00	398.00	399.00	401.00	404.00
6	405.00	412.00	415.00	418.0	419.00
6	417.00	417.00	417.00	417.0	417.00
6	416.00	416.00	416.00	415.00	414.00
6	412.00	409.00	405.00	401.0	397.00
6	393.00	389.00	385.00	382.00	380.00
6	377.00	373.00	373.00	372.0	370.00
6	364.00	360.00	355.00	356.00	357.00
6	363.00	363.00	365.00	364.0	364.00
6	363.00	362.00	363.00	363.0	359.00
6	354.00	350.00	346.00	342.0	338.00
6	329.00	323.00	317.00	310.00	304.00
6	291.00	291.00	282.00	273.0	264.00
6	254.00	245.00	237.00	229.0	224.00
6	229.00	218.00	212.00	210.00	207.00
6	203.00	199.00	196.00	194.0	192.00
6	192.00	192.00	192.00	192.00	191.00

9 ENDTBL

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

7 COMPUT 7 01 1 0. 4. 1.0 1 2 01 01 100YR
ENDCOMF 1
ENDCDB 2

*****END OF 80-80 LIST*****

TR20 XE3 5/14/93 10:35 LOWER SAND CREEK EX CONDITION
REV PC/07/83 24 HF TYPE IIA STORM (100YR AND=2) FILE NAME D24EX.DAT

JOB 1 PASS 1
PAGE 1

FILE NO. 1

6 COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

THE USERS MANUAL FOR THIS PROGRAM IS THE MAY 1982 DRAFT OF TR-20. CHANGES FROM THE 2/14/74 VERSION INCLUDE:

REACH ROUTING - THE MODIFIED ATT-KIN ROUTING PROCEDURE REPLACES THE CONVEX METHOD. INPUT DATA PREPARED FOR PREVIOUS PROGRAM VERSIONS USING CONVEX ROUTING COEFFICIENTS WILL NOT RUN ON THIS VERSION.

THE PREFERRED TYPE OF DATA ENTRY IS CROSS SECTION DATA REPRESENTATIVE OF A REACH. IT IS RECOMMENDED THAT THE OPTIONAL CROSS SECTION DISCHARGE-AREA PLOTS BE OBTAINED WHENEVER NEW CROSS SECTION DATA IS ENTERED. THE PLOTS SHOULD BE CHECKED FOR REASONABLENESS AND ADEQUACY OF INPUT DATA FOR THE COMPUTATION OF "M" VALUES USED IN THE ROUTING PROCEDURE.

GUIDELINES FOR DETERMINING OR ANALYZING REACH LENGTHS AND COEFFICIENTS (X,M) ARE AVAILABLE IN THE USERS MANUAL. SUMMARY TABLE 2 DISPLAYS REACH ROUTING RESULTS AND ROUTING PARAMETERS FOR COMPARISON AND CHECKING.

HYDROGRAPH GENERATION - THE PROCEDURE TO CALCULATE THE INTERNAL TIME INCREMENT AND PEAK TIME OF THE UNIT HYDROGRAPH HAVE BEEN IMPROVED. PEAK DISCHARGES AND TIMES MAY DIFFER FROM THE PREVIOUS VERSION. OUTPUT HYDROGRAPHS ARE STILL INTERPOLATED, PRINTED, AND ROUTED AT THE USER SELECTED MAIN TIME INCREMENT.

INTERMEDIATE PEAKS - METHOD ADDED TO PROVIDE DISCHARGES AT INTERMEDIATE POINTS WITHIN REACHES WITHOUT ROUTING.

OTHER - THIS VERSION CONTAINS SOME ADDITIONS TO THE INPUT AND NUMEROUS MODIFICATIONS TO THE OUTPUT. USER OPTIONS HAVE BEEN MODIFIED AND AUGMENTED ON THE JOB RECORD, RAINTABLES ADDED, ERROR AND WARNING MESSAGES EXPANDED, AND THE SUMMARY TABLES COMPLETELY REVISED. THE HOLDOUT OPTION IS NOT OPERATIONAL AT THIS TIME.

PROGRAM QUESTIONS OR PROBLEMS SHOULD BE DIRECTED TO HYDRAULIC ENGINEERS AT THE SDS NATIONAL TECHNICAL CENTERS:

CHESTER, PA (NORTHEAST) -- 215-499-3933, FORT WORTH, TX (SOUTH) -- 334-5242 (FTS)
LINDEN, NB (MIDWEST) -- 541-5318 (FTS), PORTLAND, OR (WEST) -- 423-4099 (FTS)
OF HYDROLOGY UNIT, ENGINEERING DIVISION, LANHAM, MD -- 436-7383 (FTS).

PROGRAM CHANGES SINCE MAR 1982:

12/17/80 - CORRECT PEAK RATE FACTOR FOR USER ENTERED DIMHYD
CORRECT REACH ROUTING PEAK TRAVEL TIME PRINTED WITH FULLPRINT OPTION
5/12/81 - CORRECT COMPUTATIONS FOR ---

1. DIVISION OF BASEFLOW IN DIVERT OPERATION
2. HYDROGRAPH VOLUME SPLIT BETWEEN BASEFLOW AND ABOVE BASEFLOW
3. CROSS SECTION DATA PLOTTING POSITION
4. INTERMEDIATE PEAK WHEN "FROM" AREA IS LARGER THAN "THRU" AREA
5. STORAGE ROUTED REACH TRAVEL TIME FOR MULTIFREAK HYDROGRAPH
6. ORDERING "FLOW-FREQ" FILE FROM SUMMARY TABLE #3 DATA
7. BASEFLOW ENTERED WITH REACHYD
8. LOW FLOW SPLIT DURING DIVERT PROCEDURE #2 WHEN SECTION RATINGS START AT BASEFLOW

17.41	D180H2	566.80	562.81	561.40	560.74	560.01	559.27	558.54	557.81	557.08	556.35
18.26	D180H2	577.98	575.32	572.33	569.03	567.83	567.56	567.32	567.19	567.04	566.87
19.09	D180H2	587.88	583.25	579.79	581.78	582.77	584.88	584.93	585.50	585.42	585.87
19.92	D180H2	593.87	588.12	586.11	591.67	593.66	595.96	596.85	597.49	597.81	598.79
20.75	D180H2	601.78	596.41	593.22	600.41	602.84	606.26	607.81	608.85	609.94	609.69
21.58	D180H2	604.85	598.67	595.27	603.49	605.80	608.61	609.61	609.13	609.04	609.05
22.41	D180H3	611.87	607.96	603.92	615.78	615.87	616.71	605.84	601.18	598.31	595.77
23.24	D180H3	620.83	622.00	621.98	622.82	621.69	620.83	620.29	620.49	620.30	620.54
24.07	D180H3	622.80	601.60	67.07	66.83	47.82	37.47	31.44	24.13	17.97	13.14

RUNOFF VOLUME ABOVE BASEFLOW = 1.22 WATERSHED INCHES, 42626.45 CFS-HRS, 3122.68 ACRE-FEET, BASEFLOW = 1.00 CFS

EXECUTIVE CONTROL OPERATION END/2

RECORD ID

COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL OPERATION END/000

RECORD ID

7/20/80 8/14/83 16:36 LOWER SAND CREEK EX CONDITION JOB 1 SUMMARY
REV 02/05/83 24 HR TYPE III STORM (100YR) AMO=2. FILE NAME D24EX.DAT PAGE 30

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE				
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CBM)	
ALTERNATE 1 STORM 1														
+														
XSECTION 37	RUNOFF	.23	1	2	.08	.0	4.40	24.00	2.14	---	6.02	484.01	1017.4	
XSECTION 108	REACH	.23	1	2	.08	.0	4.40	24.00	2.12	---	6.11	481.45	2003.3	
XSECTION 38	RUNOFF	.05	1	2	.08	.0	4.40	24.00	.83	---	6.07	37.06	411.7	
STRUCTURE 38	ADDHYD	.32	1	2	.08	.0	4.40	24.00	1.68	---	6.10	493.06	1040.8	
XSECTION 49	RUNOFF	.01	1	2	.08	.0	4.40	24.00	.60	---	6.01	6.32	532.3	
STRUCTURE 45	ADDHYD	.33	1	2	.08	.0	4.40	24.00	1.65	---	6.10	493.83	1001.9	
XSECTION 149	REACH	.33	1	2	.08	.0	4.40	24.00	1.63	---	6.10	493.83	1001.9	
STRUCTURE 49	ADDHYD	16.37	1	2	.08	.0	4.40	24.00	1.00	---	6.02	5519.95	340.3	
XSECTION 138	REACH	16.37	1	2	.08	.0	4.40	24.00	.99	---	6.07	5518.56	338.9	
XSECTION 35	RUNOFF	.04	1	2	.08	.0	4.40	24.00	3.30	---	6.13	541.57	2276.5	
STRUCTURE 35	ADDHYD	16.61	1	2	.08	.0	4.40	24.00	1.03	---	6.10	6044.20	367.5	
XSECTION 33	RUNOFF	.12	1	2	.08	.0	4.40	24.00	.65	---	6.31	28.64	238.7	
STRUCTURE 35	ADDHYD	16.77	1	2	.08	.0	4.40	24.00	1.02	---	6.10	6038.98	362.1	
XSECTION 34	RUNOFF	.13	1	2	.08	.0	4.40	24.00	2.29	---	6.45	170.97	2084.0	
XSECTION 137	REACH	.13	1	2	.08	.0	4.40	24.00	2.25	---	6.23	231.85	1757.5	
STRUCTURE 33	ADDHYD	16.86	1	2	.08	.0	4.40	24.00	1.03	---	6.12	6030.90	370.5	
XSECTION 132	REACH	16.86	1	2	.08	.0	4.40	24.00	1.03	---	6.12	6030.98	370.3	
XSECTION 32	RUNOFF	.19	1	2	.08	.0	4.40	24.00	1.82	---	6.17	320.73	1148.6	
STRUCTURE 32	ADDHYD	17.14	1	2	.08	.0	4.40	24.00	1.05	---	6.13	5585.62	310.1	
XSECTION 130	REACH	17.14	1	2	.08	.0	4.40	24.00	1.05	---	6.13	5585.62	303.1	

SECTION 31	RUNOFF	17.25	1	2	.08	.0	4.40	24.00	1.91	---	6.08	547.12	1188.3
STRUCTURE 30	ADDHYD	17.64	1	2	.02	.0	4.40	24.00	1.08	---	6.12	7132.55	406.6
SECTION 128	REACH	17.64	1	2	.08	.0	4.40	24.00	1.08	---	6.12	7132.55	406.6
SECTION 28	RUNOFF	.02	1	2	.03	.0	4.40	24.00	3.38	---	6.94	274.33	3429.1
STRUCTURE 28	ADDHYD	17.63	1	2	.08	.0	4.40	24.00	1.09	---	6.00	7291.63	413.8
SECTION 19	RUNOFF	.16	1	2	.05	.0	4.40	24.00	3.61	---	6.03	463.93	2512.0
SECTION 121	REACH	.16	1	2	.05	.0	4.40	24.00	3.61	---	6.03	463.93	2512.0
STRUCTURE 23	ADDHYD	17.73	1	2	.02	.0	4.40	24.00	1.11	---	6.01	7745.15	433.8
SECTION 127	REACH	17.73	1	2	.08	.0	4.40	24.00	1.11	---	6.10	7695.82	433.1
STRUCTURE 27	ADDHYD	12.12	1	2	.08	.0	4.40	24.00	1.26	---	6.57	11193.72	460.4

1

TR2: XEG 5/14/93 10:38 LOWER SAND CREEK E) CONDITION JOB 1 SUMMARY
REV 02/09/83 24 HR TYPE 10A STORM (100YS AMD=2) FILE NAME D24EX.DAT PAGE 31

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (QFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN FALL #	WAST COND	MAIN TIME INCR	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (QFS)	RATE (CBM)
ALTERNATE	1	STORM	1										
SECTION 17	RUNOFF	.10	1	2	.08	.0	4.40	24.00	1.61	---	6.98	160.95	1609.5
STRUCTURE 17	ADDHYD	22.42	1	2	.08	.0	4.40	24.00	1.26	---	6.88	11315.70	493.7
SECTION 26	RUNOFF	.11	1	2	.08	.0	4.40	24.00	1.82	---	6.66	63.70	579.1
STRUCTURE 27	ADDHYD	23.03	1	2	.08	.0	4.40	24.00	1.26	---	6.88	11320.09	491.5
SECTION 125	REACH	23.03	1	2	.08	.0	4.40	24.00	1.26	---	6.09	10579.53	476.7
SECTION 25	RUNOFF	.13	1	2	.08	.0	4.40	24.00	.80	---	6.15	174.67	485.2
STRUCTURE 23	ADDHYD	23.39	1	2	.08	.0	4.40	24.00	1.25	---	6.10	11161.49	477.2
SECTION 24	RUNOFF	.10	1	2	.08	.0	4.40	24.00	1.27	---	6.08	99.19	591.9
STRUCTURE 15	ADDHYD	23.49	1	2	.08	.0	4.40	24.00	1.25	---	6.10	11235.77	476.5
SECTION 121	REACH	23.49	1	2	.08	.0	4.40	24.00	1.25	---	6.10	11235.77	476.5
SECTION 21	RUNOFF	.13	1	2	.08	.0	4.40	24.00	1.22	---	6.95	227.33	1515.7
STRUCTURE 21	ADDHYD	23.64	1	2	.08	.0	4.40	24.00	1.23	---	6.09	11248.97	475.8
SECTION 48	RUNOFF	.13	1	2	.08	.0	4.40	24.00	1.67	---	6.42	88.71	682.4
SECTION 47	RUNOFF	.28	1	2	.08	.0	4.40	24.00	2.91	---	6.05	675.90	2413.9
STRUCTURE 47	ADDHYD	.41	1	2	.08	.0	4.40	24.00	2.32	---	6.05	712.24	1730.1
SECTION 146	REACH	.41	1	2	.08	.0	4.40	24.00	2.32	---	6.05	712.24	1730.1
SECTION 46	RUNOFF	.15	1	2	.08	.0	4.40	24.00	1.65	---	6.13	171.48	1145.2
STRUCTURE 46	ADDHYD	.56	1	2	.08	.0	4.40	24.00	2.35	---	6.07	897.71	1531.6
SECTION 145	REACH	.56	1	2	.08	.0	4.40	24.00	2.35	---	6.07	897.71	1531.6
SECTION 45	RUNOFF	.27	1	2	.08	.0	4.40	24.00	1.67	---	6.21	253.56	940.6
STRUCTURE 45	ADDHYD	.83	1	2	.08	.0	4.40	24.00	2.13	---	6.10	1070.06	1289.2
SECTION 144	REACH	.83	1	2	.08	.0	4.40	24.00	2.13	---	6.10	1070.06	1289.2
SECTION 44	RUNOFF	.19	1	2	.08	.0	4.40	24.00	1.27	---	6.29	170.05	564.4
STRUCTURE 44	ADDHYD	1.12	1	2	.08	.0	4.40	24.00	1.91	---	6.12	1191.50	1063.5
SECTION 143	REACH	1.12	1	2	.08	.0	4.40	24.00	1.91	---	6.20	1183.26	1055.3

XSECTION 42	REACH	1.25	1	2	.08	.0	4.40	24.00	1.85	---	6.26	242.81	971.1
STRUCTURE 42	ADDFYD	1.87	1	2	.08	.0	4.40	24.00	1.90	---	6.24	1531.41	976.1
XSECTION 41	REACH	1.57	1	2	.08	.0	4.40	24.00	1.90	---	6.22	1331.29	975.3
XSECTION 41	RUNOFF	.24	1	2	.08	.0	4.40	24.00	1.90	---	6.03	431.83	1789.3
STRUCTURE 41	ADDFYD	1.81	1	2	.08	.0	4.40	24.00	1.90	---	6.30	1597.18	982.4
STRUCTURE 41	ADDFYD	25.13	1	2	.08	.0	4.40	24.00	1.04	---	7.71	4989.07	136.5
XSECTION 122	REACH	26.17	1	2	.08	.0	4.40	24.00	1.05	---	7.80	4984.78	136.3
STRUCTURE 21	ADDFYD	49.77	1	2	.08	.0	4.40	24.00	1.14	---	6.28	12666.93	238.5

TR00 Y00 5/14/93 10:38 LOWER SAND CREEK EX CONDITION JOE 1 SUMMARY
REV 00/09/93 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24EX.DAT PAGE 31

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (QPS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	AMTC MOIST COND	MAIN TIME INCHES (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (QPS)	RATE (CSM)
ALTERNATE	1	STORM	1										
XSECTION 22	RUNOFF	.23	1	2	.08	.0	4.40	24.00	1.68	---	6.02	372.45	1519.3
XSECTION 21	ADDFYD	50.00	1	2	.08	.0	4.40	24.00	1.14	---	6.18	12983.95	259.7
XSECTION 119	REACH	50.00	1	2	.08	.0	4.40	24.00	1.14	---	6.18	12983.95	259.7
XSECTION 19	RUNOFF	.13	1	2	.08	.0	4.40	24.00	2.42	---	5.94	364.75	2805.8
STRUCTURE 19	ADDFYD	50.13	1	2	.08	.0	4.40	24.00	1.14	---	6.18	13012.77	259.6
XSECTION 20	RUNOFF	.10	1	2	.08	.0	4.40	24.00	1.40	---	6.04	164.42	1264.8
XSECTION 120	REACH	.13	1	2	.08	.0	4.40	24.00	1.40	---	6.04	164.42	1264.8
STRUCTURE 19	ADDFYD	50.26	1	2	.08	.0	4.40	24.00	1.14	---	6.17	13104.79	260.7
XSECTION 23	RUNOFF	.20	1	2	.08	.0	4.40	24.00	1.14	---	6.13	154.75	773.7
XSECTION 123	REACH	.20	1	2	.08	.0	4.40	24.00	1.14	---	6.25	117.87	585.4
XSECTION 18	RUNOFF	.30	1	2	.08	.0	4.40	24.00	2.46	---	6.18	472.45	1535.3
STRUCTURE 18	ADDFYD	.50	1	2	.08	.0	4.40	24.00	1.93	---	6.21	556.58	1113.2
XSECTION 118	REACH	.50	1	2	.08	.0	4.40	24.00	1.93	---	6.21	556.58	1113.2
STRUCTURE 19	ADDFYD	50.76	1	2	.08	.0	4.40	24.00	1.15	---	6.17	13651.79	268.9
XSECTION 136	REACH	50.76	1	2	.08	.0	4.40	24.00	1.15	---	6.17	13651.39	268.9
XSECTION 36	RUNOFF	.10	1	2	.08	.0	4.40	24.00	1.84	---	5.94	226.81	1268.1
STRUCTURE 36	ADDFYD	50.86	1	2	.08	.0	4.40	24.00	1.15	---	6.17	13669.83	268.7
XSECTION 115	REACH	50.86	1	2	.08	.0	4.40	24.00	1.15	---	6.17	13669.88	268.8
XSECTION 16	RUNOFF	.15	1	2	.08	.0	4.40	24.00	1.89	---	6.15	187.06	1247.1
STRUCTURE 13	ADDFYD	51.01	1	2	.08	.0	4.40	24.00	1.16	---	6.17	13685.63	271.6
XSECTION 15	RUNOFF	.16	1	2	.08	.0	4.40	24.00	1.22	---	5.96	151.37	1515.7
STRUCTURE 15	ADDFYD	51.11	1	2	.08	.0	4.40	24.00	1.16	---	6.17	13687.50	271.3
XSECTION 14	RUNOFF	.23	1	2	.08	.0	4.40	24.00	1.89	---	6.20	251.21	1596.6
STRUCTURE 15	ADDFYD	51.34	1	2	.08	.0	4.40	24.00	1.16	---	6.17	14116.51	273.0
XSECTION 13	RUNOFF	.37	1	2	.08	.0	4.40	24.00	2.64	---	6.17	821.39	1579.4
STRUCTURE 15	ADDFYD	51.71	1	2	.08	.0	4.40	24.00	1.17	---	6.17	14739.84	285.3
XSECTION 17	RUNOFF	.21	1	2	.08	.0	4.40	24.00	2.21	---	6.21	272.48	1597.4

AREA	NO.	112	PERCH	92.72	1	2	1.08	1.0	4.40	24.00	2.40	---	6.94	768.99	2451.7
XSECTION	12	RUNOFF		.25	1	2	.08	1.0	4.40	24.00	2.40	---	6.94	768.99	2451.7
STRUCTURE	12	ADDHYD		52.31	1	2	.08	1.0	4.40	24.00	1.16	---	6.28	14916.38	285.7
XSECTION	8	RUNOFF		.11	1	2	.08	1.0	4.40	24.00	2.04	---	6.83	62.67	564.6
STRUCTURE	12	ADDHYD		52.32	1	2	.08	1.0	4.40	24.00	1.16	---	6.28	14947.96	285.7
XSECTION	9	RUNOFF		.13	1	2	.08	1.0	4.40	24.00	2.33	---	6.13	230.13	1770.4
STRUCTURE	12	ADDHYD		52.45	1	2	.08	1.0	4.40	24.00	1.19	---	6.28	15177.73	289.4

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFB) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC X0187 COND	MAIN TIME INCRM (HR)	PRECIPITATION			RUNOFF AMOUNT (IA)	PEAK DISCHARGE				
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFB)	RATE (CSM)	
ALTERNATE 1 STORM 1														
+														
XSECTION	7	RUNOFF	.13	1	2	.08	1.0	4.40	24.00	2.64	---	6.13	238.16	1632.0
STRUCTURE	12	ADDHYD	52.58	1	2	.08	1.0	4.40	24.00	1.19	---	6.26	15372.52	292.4
XSECTION	11	RUNOFF	.25	1	2	.08	1.0	4.40	24.00	2.29	---	6.16	355.73	1402.5
XSECTION	108	REACH	.25	1	2	.08	1.0	4.40	24.00	2.29	---	6.32	327.35	1319.4
STRUCTURE	12	ADDHYD	52.85	1	2	.08	1.0	4.40	24.00	1.20	---	6.26	15688.82	297.0
XSECTION	6	RUNOFF	.23	1	2	.08	1.0	4.40	24.00	2.64	---	6.03	556.01	2326.1
XSECTION	107	REACH	.23	1	2	.08	1.0	4.40	24.00	2.63	---	6.14	487.56	2121.5
STRUCTURE	12	ADDHYD	53.06	1	2	.08	1.0	4.40	24.00	1.20	---	6.25	16088.21	301.2
XSECTION	10	RUNOFF	.11	1	2	.08	1.0	4.40	24.00	2.05	---	6.09	170.14	1646.7
XSECTION	109	REACH	.11	1	2	.08	1.0	4.40	24.00	2.05	---	6.24	146.55	1332.7
STRUCTURE	12	ADDHYD	53.17	1	2	.08	1.0	4.40	24.00	1.20	---	6.25	16234.54	305.3
XSECTION	104	REACH	53.17	1	2	.08	1.0	4.40	24.00	1.20	---	6.25	16234.54	305.3
XSECTION	4	RUNOFF	.14	1	2	.08	1.0	4.40	24.00	3.20	---	6.02	390.66	2790.4
STRUCTURE	4	ADDHYD	53.31	1	2	.08	1.0	4.40	24.00	1.21	---	6.24	16364.03	307.0
XSECTION	103	REACH	53.31	1	2	.08	1.0	4.40	24.00	1.21	---	6.24	16364.03	307.0
XSECTION	3	RUNOFF	.16	1	2	.08	1.0	4.40	24.00	3.61	---	6.12	398.34	2489.6
STRUCTURE	3	ADDHYD	53.47	1	2	.08	1.0	4.40	24.00	1.22	---	6.23	16709.90	312.5
XSECTION	5	RUNOFF	.23	1	2	.08	1.0	4.40	24.00	2.35	---	5.95	568.73	2472.7
XSECTION	105	REACH	.23	1	2	.08	1.0	4.40	24.00	2.37	---	6.04	523.19	2274.7
STRUCTURE	3	ADDHYD	53.70	1	2	.08	1.0	4.40	24.00	1.22	---	6.21	16889.11	314.5
XSECTION	102	REACH	53.70	1	2	.08	1.0	4.40	24.00	1.22	---	6.21	16889.11	314.5
XSECTION	2	RUNOFF	.21	1	2	.08	1.0	4.40	24.00	1.22	---	5.93	459.25	1515.7
STRUCTURE	2	ADDHYD	54.01	1	2	.08	1.0	4.40	24.00	1.22	---	6.21	16971.34	315.5
XSECTION	101	REACH	54.01	1	2	.08	1.0	4.40	24.00	1.22	---	6.21	16971.34	315.5
XSECTION	1	RUNOFF	.19	1	2	.08	1.0	4.40	24.00	1.55	---	6.25	41.30	217.4
STRUCTURE	1	ADDHYD	54.20	1	2	.08	1.0	4.40	24.00	1.22	---	6.21	16972.30	315.1

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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

(B) QUESTION MARK (?) AFTER COEFF. (C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS. SEE PREVIOUS WARNINGS

HYDROGRAPH INFORMATION										ROUTING PARAMETERS						PEAK				
OUTFLOW*										VOLUME	WAIN	ITER-	Q AND A		PEAK	3/2	ATT-	TRAVEL TIME		
XSEC PEACH	INFLOW		OUTFLOW		INTERV. AREA		BASE-	ABOVE	TIME	ATION	EQUATION	LENGTH	RATIO	QPEAK	MIN	STOR-	KINE-			
ID	LENGTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	BASE	INCR	#	COEFF	POWER	FACTOR	3/1	(K)	COEFF	AGE	MATIC	
	(FT)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(IN)	(HR)		(X)	(M)	(KX)	(OX)	(SEC)	(C)	(HR)	(HR)	
ALTERNATE		1	STORM	2																
												1.90								
+135	2600	445	6.1	444	6.1			0	2.14	.08	1	1.47	.031	.995	163	.967	.08	.01		
												1.400								
+149	1	472	6.1	472	6.1			0	1.65	.08	0	1.00	.001	1.000	3	1.007	.00	.00		
												.100								
+135	4300	5555	5.9	5514	6.1			0	1.00	.08	1	1.65	.017	.991	352	.60	.17	.10		
												.300								
+133	2800	264	6.1	232	6.2			0	2.29	.08	1	1.60	.131	.977	459	.45	.08	.13		
												.200								
+132	2300	6246	6.1	6246	6.1			0	1.03	.08	0	1.60	.005	1.000	148	1.007	.00	.00		
												.300								
+130	2400	6564	6.1	6564	6.1			0	1.05	.08	0	1.60	.004	1.000	118	1.007	.00	.00		
												.300								
+128	1700	7120	6.1	7120	6.1			0	1.08	.08	0	1.60	.002	1.000	81	1.007	.00	.00		
												1.40								
+125	500	481	6.1	481	6.1			0	3.61	.05	0	1.60	.001	1.000	25	1.007	.00	.00		
												.200								
+127	2100	7700	6.0	7628	6.1			0	1.11	.03	1	1.60	.008	.990	185	.997	.08	.05		
												.100								
+125	5000	11219	5.9	10959	6.1			0	1.26	.08	1	1.60	.028	.968	398	.55	.17	.11		
												.200								
+121	1500	11231	6.1	11231	6.1			0	1.25	.08	0	1.60	.004	1.000	129	1.007	.00	.00		
												1.90								
+146	1900	710	6.1	710	6.1			0	2.32	.03	0	1.50	.003	1.000	92	1.007	.00	.00		
												2.10								
+145	700	856	6.1	856	6.1			0	2.35	.08	0	1.50	.001	1.000	30	1.007	.00	.00		
												1.60								
+144	2100	1051	6.1	1052	6.1			0	2.13	.08	0	1.50	.010	1.000	129	1.007	.00	.00		

+						---	---												
+142	3100	1296	6.1	1291	6.2			0	1.91	.08	1	.600	1.60	.012	.995	151	.907	.08	.01
+						---	---												
+141	3400	1531	6.2	1525	6.3			0	1.90	.08	1	.300	1.60	.010	.999	155	.987	.08	.04
+						---	---												
+122	3200	4085	7.7	4085	7.8			0	1.04	.02	1	.300	1.60	.002	.999	165	.997	.06	.01
+						---	---												
+119	2000	12946	6.1	12946	6.1			0	1.14	.00	0	.200	1.60	.001	1.000	98	1.007	.00	.00
+						---	---												
+120	600	163	6.1	163	6.1			0	1.40	.08	0	1.30	1.40	.013	1.000	83	1.007	.00	.00
+						---	---												
+123	3500	154	6.1	158	6.3			0	1.14	.08	1	.600	1.50	.038	.762	612	.39	.17	.18
+						---	---												
+118	600	556	6.2	556	6.2			0	1.93	.08	0	1.30	1.40	.004	1.000	58	1.007	.00	.00
+						---	---												
+136	1500	13618	6.1	13618	6.1			0	1.15	.08	0	.200	1.60	.001	1.000	72	1.007	.00	.00
+						---	---												
+115	3100	13636	6.1	13636	6.1			0	1.15	.08	0	.100	1.70	.002	1.000	140	1.007	.00	.00
+						---	---												
+116	2400	272	6.2	258	6.3			0	2.21	.08	1	1.10	1.40	.045	.948	323	.63	.08	.09
+						---	---												
+112	3900	14882	6.1	14840	6.3			0	1.17	.08	1	.200	1.60	.004	.997	182	.907	.17	.05
+						---	---												
+108	3200	350	6.1	327	6.3			0	2.29	.08	1	.400	1.60	.056	.933	394	.55	.17	.11
+						---	---												
+107	3400	528	6.1	489	6.1			0	2.64	.08	1	.400	1.60	.086	.925	359	.59	.08	.10
+						---	---												
+109	3600	168	6.1	146	6.2			0	2.05	.08	1	.600	1.60	.106	.873	479	.48	.17	.14
+						---	---												
+104	1800	16206	6.2	16206	6.2			0	1.20	.08	0	.200	1.60	.001	1.000	81	1.007	.00	.00
+						---	---												
+103	1400	16355	6.2	16355	6.2			0	1.21	.08	0	.200	1.60	.001	1.000	63	1.007	.00	.00
+						---	---												
+105	3600	552	6.0	519	6.1			0	2.35	.08	1	.600	1.60	.086	.940	306	.65	.08	.09
+						---	---												

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	5569.99	
0 STRUCTURE 47	.41	
+		
ALTERNATE 1	712.64	
0 STRUCTURE 46	.56	
+		
ALTERNATE 1	857.71	
0 STRUCTURE 45	.83	
+		
ALTERNATE 1	1070.06	
0 STRUCTURE 44	1.12	
+		
ALTERNATE 1	1191.50	
0 STRUCTURE 43	1.32	
+		
ALTERNATE 1	1296.53	
0 STRUCTURE 42	1.57	
+		
ALTERNATE 1	1532.46	
0 STRUCTURE 41	26.13	
+		
ALTERNATE 1	4089.07	
0 STRUCTURE 38	.32	
+		
ALTERNATE 1	493.06	
0 STRUCTURE 36	50.80	
+		
ALTERNATE 1	13572.80	
0 STRUCTURE 35	16.86	
+		
ALTERNATE 1	6250.98	
0 STRUCTURE 32	17.14	
+		
ALTERNATE 1	6565.62	
0 STRUCTURE 30	17.54	
+		
ALTERNATE 1	7132.55	
0 STRUCTURE 28	17.62	
+		
ALTERNATE 1	7291.63	
1		

STRUCTURE 28 = DP 28

Platte Ave Bridge

$Q = 7132.55$

$A = 17.62$

(EX COND)

100-YR

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	11309.23	
0 STRUCTURE 25	23.49	
+		
ALTERNATE 1	11230.59	
0 STRUCTURE 21	49.77	
+		
ALTERNATE 1	12863.13	
0 STRUCTURE 19	50.70	
+		
ALTERNATE 1	13554.31	
0 STRUCTURE 18	.44	
+		
ALTERNATE 1	467.25	
0 STRUCTURE 15	51.86	
+		
ALTERNATE 1	14848.05	
0 STRUCTURE 12	53.11	
+		
ALTERNATE 1	16137.14	
0 STRUCTURE 4	53.25	
+		
ALTERNATE 1	16266.55	
0 STRUCTURE 3	53.64	
+		
ALTERNATE 1	16792.36	
0 STRUCTURE 2	53.95	
+		
ALTERNATE 1	16834.58	
0 STRUCTURE 1	54.14	
+		
ALTERNATE 1	16875.25	
0 XSECTION 1	.19	
+		
ALTERNATE 1	41.30	
0 XSECTION 2	.31	
+		
ALTERNATE 1	469.85	
0 XSECTION 3	.16	

+		
	ALTERNATE 1	398.34
1		

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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 4	.14	
+		
ALTERNATE 1		390.66
0 XSECTION 5	.23	
+		
ALTERNATE 1		568.73
0 XSECTION 6	.23	
+		
ALTERNATE 1		535.01
0 XSECTION 7	.13	
+		
ALTERNATE 1		238.16
0 XSECTION 8	.11	
+		
ALTERNATE 1		62.67
0 XSECTION 9	.13	
+		
ALTERNATE 1		230.15
0 XSECTION 10	.11	
+		
ALTERNATE 1		170.14
0 XSECTION 11	.25	
+		
ALTERNATE 1		355.73
0 XSECTION 12	.29	
+		
ALTERNATE 1		768.99
0 XSECTION 13	.37	
+		
ALTERNATE 1		621.39
0 XSECTION 14	.23	
+		
ALTERNATE 1		252.21
0 XSECTION 15	.10	

+		
ALTERNATE	1	151.57
0 XSECTION	16	.15
+		
ALTERNATE	1	187.06
0 XSECTION	17	.21
+		
ALTERNATE	1	272.45
1		

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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 18 .24		
+		
ALTERNATE	1	361.99
0 XSECTION	19	.13
+		
ALTERNATE	1	364.75
0 XSECTION	20	.13
+		
ALTERNATE	1	164.42
0 XSECTION	21	50.00
+		
ALTERNATE	1	12977.55
0 XSECTION	22	.23
+		
ALTERNATE	1	372.45
0 XSECTION	23	.20
+		
ALTERNATE	1	154.75
0 XSECTION	24	.10
+		
ALTERNATE	1	99.19
0 XSECTION	25	.36
+		
ALTERNATE	1	174.67
0 XSECTION	26	.11
+		
ALTERNATE	1	63.70
0 XSECTION	27	.10

+		
ALTERNATE	1	160.95
0 XSECTION	28	.08
+		
ALTERNATE	1	274.33
0 XSECTION	29	.16
+		
ALTERNATE	1	465.93
0 XSECTION	30	.15
+		
ALTERNATE	1	359.23
0 XSECTION	31	.25
+		
ALTERNATE	1	547.12
1		

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SUMMARY			
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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 32	.28	
+		
ALTERNATE 1		320.76
0 XSECTION 33	.12	
+		
ALTERNATE 1		28.64
0 XSECTION 34	.13	
+		
ALTERNATE 1		270.93
0 XSECTION 35	.24	
+		
ALTERNATE 1		541.57
0 XSECTION 36	.10	
+		
ALTERNATE 1		226.81
0 XSECTION 37	.23	
+		
ALTERNATE 1		464.01
0 XSECTION 38	.09	
+		
ALTERNATE 1		37.06
0 XSECTION 41	.24	

+		
ALTERNATE	1	431.88
0 XSECTION	42	.25
+		
ALTERNATE	1	242.81
0 XSECTION	43	.20
+		
ALTERNATE	1	357.09
0 XSECTION	44	.29
+		
ALTERNATE	1	170.05
0 XSECTION	45	.27
+		
ALTERNATE	1	253.96
0 XSECTION	46	.15
+		
ALTERNATE	1	171.48
0 XSECTION	47	.28
+		
ALTERNATE	1	675.90
1		

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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	88.71
0 XSECTION	49	.01
+		
ALTERNATE	1	5.32
0 XSECTION	101	53.95
+		
ALTERNATE	1	16834.58
0 XSECTION	102	53.64
+		
ALTERNATE	1	16792.36
0 XSECTION	103	53.25
+		
ALTERNATE	1	16266.55
0 XSECTION	104	53.11

+		
ALTERNATE	1	16137.14
0 XSECTION 105		.23
+		
ALTERNATE	1	523.19
0 XSECTION 107		.23
+		
ALTERNATE	1	487.96
0 XSECTION 108		.25
+		
ALTERNATE	1	327.35
0 XSECTION 109		.11
+		
ALTERNATE	1	146.59
0 XSECTION 112		51.86
+		
ALTERNATE	1	14758.72
0 XSECTION 115		50.80
+		
ALTERNATE	1	13572.80
0 XSECTION 116		.21
+		
ALTERNATE	1	259.03
0 XSECTION 118		.44
+		
ALTERNATE	1	467.25

1

TR20 XEQ 2/3/92 12:26 LOWER SAND CREEK EX CONDITION
SUMMARY

JOB 1

REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24EX.DAT
PAGE 44

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 50.00		
+		
ALTERNATE	1	12977.55
0 XSECTION 120		.13
+		
ALTERNATE	1	164.42
0 XSECTION 121		23.49
+		
ALTERNATE	1	11230.59
0 XSECTION 122		26.13

+		
ALTERNATE	1	4084.78
0 XSECTION	123	.20
+		
ALTERNATE	1	117.87
0 XSECTION	125	23.03
+		
ALTERNATE	1	10970.14
0 XSECTION	126	.16
+		
ALTERNATE	1	463.39
0 XSECTION	127	17.62
+		
ALTERNATE	1	7240.48
0 XSECTION	128	17.54
+		
ALTERNATE	1	7132.55
0 XSECTION	130	17.14
+		
ALTERNATE	1	6565.62
0 XSECTION	132	16.86
+		
ALTERNATE	1	6250.98
0 XSECTION	133	.13
+		
ALTERNATE	1	231.89
0 XSECTION	135	16.37
+		
ALTERNATE	1	5515.56
0 XSECTION	136	50.70
+		
ALTERNATE	1	13554.31
1		

Stream Segment
128 through Platte
DA = 17.54
Q = 7240.48
(EX COND)

TR20 XEQ 2/ 3/92 12:26 LOWER SAND CREEK EX CONDITION JOB 1
SUMMARY
REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24EX.DAT
PAGE 45

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 138	.23	
+		
ALTERNATE 1	461.45	
0 XSECTION 141	1.57	

+		
ALTERNATE 1		1531.29
0 XSECTION 142	1.32	
+		
ALTERNATE 1		1291.04
0 XSECTION 143	1.12	
+		
ALTERNATE 1		1185.26
0 XSECTION 144	.83	
+		
ALTERNATE 1		1070.06
0 XSECTION 145	.56	
+		
ALTERNATE 1		857.71
0 XSECTION 146	.41	
+		
ALTERNATE 1		712.64
0 XSECTION 149	.33	
+		
ALTERNATE 1		495.63
1END OF 1 JOBS IN THIS RUN		

*****60-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****

JOB TR-20		SUMMARY		NOFLUTE	
TITLE 001 LOWER SAND CREEK		FUT	CONDITION		
TITLE 24 HR TYPE IIA STORM (100YR		AND=2)	FILE NAME	D24FU.DAT	
5	RAINFALL	1	.50		
8		0.000	.0015	0.003	.0075
8		0.015	0.020	0.025	0.030
8		0.060	0.100	0.700	0.750
8		0.758	0.820	0.830	0.840
8		0.860	0.885	0.870	0.885
8		0.900	0.905	0.910	0.915
8		0.927	0.933	0.940	0.945
8		0.955	0.960	0.965	0.970
8		0.980	0.983	0.985	0.988
8		0.993	0.995	0.998	1.000
9	ENDTEL				
6	RUNOFF	1 37	1	.23	85
6	REACH	3 136	1 2	2600.	1.9
6	RUNOFF	1 38	1	.09	86.0
6	ADDDHYD	4 38 1 2 3			.20
6	RUNOFF	1 49	1	.01	86.0
6	ADDDHYD	4 49 1 3 2			0.1
6	REACH	3 149	2 1	1.0	.4
6	ADDDHYD	4 49 7 1 3			1 1 1 1
6	REACH	3 135	3 1	4300.	0.1
6	RUNOFF	1 35	2	0.24	91.0
6	ADDDHYD	4 35 1 2 3			0.49
6	RUNOFF	1 33	2	0.12	77.0
6	ADDDHYD	4 35 3 2 1			0.60
6	RUNOFF	1 34	2	0.13	85.0
6	REACH	3 133	2 3	2800.0	0.3
6	ADDDHYD	4 35 1 3 2			1.6
6	REACH	3 132	2 1	2300.0	0.2
6	RUNOFF	1 32	2	0.28	86.0
6	ADDDHYD	4 32 1 2 3			0.48
6	REACH	3 130	3 2	2400.0	0.3
6	RUNOFF	1 30	1	0.15	85.0
6	ADDDHYD	4 30 2 1 3			0.03
6	RUNOFF	1 31	2	0.25	83.0
6	ADDDHYD	4 30 3 2 1			0.38
6	REACH	3 128	1 2	1700.0	0.3
6	RUNOFF	1 28	1	0.08	93.0
6	ADDDHYD	4 28 1 2 3			.07
6	RUNOFF	1 29	1	0.16	93.0
6	REACH	3 129	1 2	500.0	1.4
6	ADDDHYD	4 28 2 3 4			1.6
6	REACH	3 127	4 1	3100.0	0.2

*****60-80 LIST OF INPUT DATA (CONTINUED)*****

6	ADDDHYD	4 27 1 1 2			
6	RUNOFF	1 27	3	0.10	93.0
6	ADDDHYD	4 27 2 3 1			0.11
6	RUNOFF	1 26	3	0.11	93.0
6	ADDDHYD	4 27 1 3 1			1.15

6	ADDHYD	4	21	1	1			
6	RUNOFF	1	24		1	0.10	90.0	0.28
6	ADDHYD	4	23	1	1			1 1 1 1
6	REACH	3	121	3	1	2600.0	0.2	1.6
6	RUNOFF	1	21		2	0.15	87.0	0.04
6	ADDHYD	4	21	1	2			
6	RUNOFF	1	48		1	0.13	71.0	0.55
6	RUNOFF	1	47		2	0.28	88.0	0.30
6	ADDHYD	4	47	1	2			
6	REACH	3	145	3	1	1900.0	1.9	1.5
6	RUNOFF	1	48		3	0.15	82.0	0.51
6	ADDHYD	4	48	3	1			
6	REACH	3	145	2	1	700.0	2.1	1.5
6	RUNOFF	1	45		3	0.27	60.0	0.54
6	ADDHYD	4	45	3	1			
6	REACH	3	144	2	1	2600.0	1.6	1.5
6	RUNOFF	1	44		3	0.29	80.0	0.64
6	ADDHYD	4	44	3	1			
6	REACH	3	143	2	1	2500.0	0.4	1.6
6	RUNOFF	1	43		2	0.20	78.0	0.06
6	ADDHYD	4	43	1	2			
6	REACH	3	142	3	1	3100.0	0.3	1.6
6	RUNOFF	1	42		2	0.25	82.0	0.65
6	ADDHYD	4	42	1	2			
6	REACH	3	141	3	2	3400.0	0.4	1.6
6	RUNOFF	1	41		1	0.24	82.0	0.19
6	ADDHYD	4	41	1	2			1 1 1 1 CENTER
6	ADDHYD	4	41	3	5			1 1 1 1 EFSC
6	REACH	3	122	1	2	3200.0	0.3	1.6
6	ADDHYD	4	21	2	4			
6	RUNOFF	1	22		1	.03	87.0	.17
6	ADDHYD	4	21	1	3			
6	REACH	3	119	4	2	2000.0	0.2	1.6
6	RUNOFF	1	19		1	0.13	85.0	0.02
6	ADDHYD	4	19	2	1			
6	RUNOFF	1	20		2	0.13	85.0	0.21
6	REACH	3	120	2	3	600.0	1.3	1.4
6	ADDHYD	4	19	4	3			
6	RUNOFF	1	23		1	0.20	92.0	0.36

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

6	REACH	3	123	1	3	3500.0	0.6	1.5
6	RUNOFF	1	18		1	0.30	86.0	0.54
6	ADDHYD	4	18	3	1			
6	REACH	3	118	4	3	600.0	1.3	1.4
6	ADDHYD	4	18	3	2			
6	REACH	3	135	1	2	1500.0	.2	1.6
6	RUNOFF	1	36		3	0.10	91.0	0.02
6	ADDHYD	4	35	3	2			
6	REACH	3	115	1	3	3100.0	0.3	1.7
6	RUNOFF	1	15		1	0.15	85.0	0.45
6	ADDHYD	4	15	3	1			
6	RUNOFF	1	15		1	0.10	90.0	0.04
6	ADDHYD	4	15	1	2			
6	RUNOFF	1	14		2	0.23	91.0	0.54
6	ADDHYD	4	15	3	2			
6	RUNOFF	1	13		2	0.37	85.0	0.53
6	ADDHYD	4	15	1	2			
6	RUNOFF	1	17		1	0.21	87.0	0.57
6	REACH	3	116	1	2	2400.0	1.1	1.4

5	572.	513.	496.	482.	481.
6	504.	542.	585.	625.	661.
7	684.	684.	667.	645.	624.
8	604.	560.	586.	591.	599.
9	607.	616.	620.	614.	601.
10	585.	569.	553.	536.	519.
11	501.	486.	471.	456.	447.
12	433.	430.	423.	416.	410.
13	405.	403.	403.	403.	404.
14	405.	405.	405.	409.	411.

*****#B)-20 LIST OF INPUT DATA (CONTINUED)*****

5	413.	415.	417.	419.	420.
6	422.	424.	425.	428.	433.
7	439.	445.	452.	457.	461.
8	460.	453.	449.	442.	437.
9	431.	425.	420.	414.	410.
10	405.	402.	398.	395.	393.

9 ENDTBL

7 READHD 6 W/FORK

7 READHD 7	0.00	.03	5.04	.0000	
8	0.	0.	0.	0.	0.
9	0.	0.	0.	0.	0.
10	0.	0.	0.	0.	0.
11	0.	0.	0.	0.	0.
12	0.	0.	0.	0.	0.
13	0.	0.	0.	0.	0.
14	0.	0.	0.	0.	0.
15	0.	0.	0.	0.	0.
16	0.	0.	0.	0.	0.
17	0.	0.	0.	0.	0.
18	0.	0.	0.	0.	0.
19	0.	0.	0.	0.	0.
20	0.	0.	0.	0.	0.
21	0.	0.	0.	0.	0.
22	0.	0.	0.	0.	0.
23	0.	0.	0.	0.	0.
24	0.	0.	0.	0.	0.
25	0.	0.	0.	0.	0.
26	0.	0.	0.	0.	0.
27	0.	0.	0.	0.	0.
28	0.	0.	0.	0.	0.
29	0.	0.	0.	0.	0.
30	0.	0.	0.	0.	0.
31	0.	0.	0.	0.	0.
32	0.	0.	0.	0.	0.
33	0.	0.	0.	0.	0.
34	0.	0.	0.	0.	0.
35	0.	0.	0.	0.	0.
36	0.	0.	0.	0.	0.
37	0.	0.	0.	0.	0.
38	0.	0.	0.	0.	0.
39	0.	0.	0.	0.	0.
40	0.	0.	0.	0.	0.
41	0.	0.	0.	0.	0.
42	0.	0.	0.	0.	0.
43	0.	0.	0.	0.	0.
44	0.	0.	0.	0.	0.
45	0.	0.	0.	0.	0.
46	0.	0.	0.	0.	0.
47	0.	0.	0.	0.	0.
48	0.	0.	0.	0.	0.
49	0.	0.	0.	0.	0.
50	0.	0.	0.	0.	0.
51	0.	0.	0.	0.	0.
52	0.	0.	0.	0.	0.
53	0.	0.	0.	0.	0.
54	0.	0.	0.	0.	0.
55	0.	0.	0.	0.	0.
56	0.	0.	0.	0.	0.
57	0.	0.	0.	0.	0.
58	0.	0.	0.	0.	0.
59	0.	0.	0.	0.	0.
60	0.	0.	0.	0.	0.
61	0.	0.	0.	0.	0.
62	0.	0.	0.	0.	0.
63	0.	0.	0.	0.	0.
64	0.	0.	0.	0.	0.
65	0.	0.	0.	0.	0.
66	0.	0.	0.	0.	0.
67	0.	0.	0.	0.	0.
68	0.	0.	0.	0.	0.
69	0.	0.	0.	0.	0.
70	0.	0.	0.	0.	0.
71	0.	0.	0.	0.	0.
72	0.	0.	0.	0.	0.
73	0.	0.	0.	0.	0.
74	0.	0.	0.	0.	0.
75	0.	0.	0.	0.	0.
76	0.	0.	0.	0.	0.
77	0.	0.	0.	0.	0.
78	0.	0.	0.	0.	0.
79	0.	0.	0.	0.	0.
80	0.	0.	0.	0.	0.
81	0.	0.	0.	0.	0.
82	0.	0.	0.	0.	0.
83	0.	0.	0.	0.	0.
84	0.	0.	0.	0.	0.
85	0.	0.	0.	0.	0.
86	0.	0.	0.	0.	0.
87	0.	0.	0.	0.	0.
88	0.	0.	0.	0.	0.
89	0.	0.	0.	0.	0.
90	0.	0.	0.	0.	0.
91	0.	0.	0.	0.	0.
92	0.	0.	0.	0.	0.
93	0.	0.	0.	0.	0.
94	0.	0.	0.	0.	0.
95	0.	0.	0.	0.	0.
96	0.	0.	0.	0.	0.
97	0.	0.	0.	0.	0.
98	0.	0.	0.	0.	0.
99	0.	0.	0.	0.	0.
100	0.	0.	0.	0.	0.
101	0.	0.	0.	0.	0.
102	0.	0.	0.	0.	0.
103	0.	0.	0.	0.	0.
104	0.	0.	0.	0.	0.
105	0.	0.	0.	0.	0.
106	0.	0.	0.	0.	0.
107	0.	0.	0.	0.	0.
108	0.	0.	0.	0.	0.
109	0.	0.	0.	0.	0.
110	0.	0.	0.	0.	0.
111	0.	0.	0.	0.	0.
112	0.	0.	0.	0.	0.
113	0.	0.	0.	0.	0.
114	0.	0.	0.	0.	0.
115	0.	0.	0.	0.	0.
116	0.	0.	0.	0.	0.
117	0.	0.	0.	0.	0.
118	0.	0.	0.	0.	0.
119	0.	0.	0.	0.	0.
120	0.	0.	0.	0.	0.
121	0.	0.	0.	0.	0.
122	0.	0.	0.	0.	0.
123	0.	0.	0.	0.	0.
124	0.	0.	0.	0.	0.
125	0.	0.	0.	0.	0.
126	0.	0.	0.	0.	0.
127	0.	0.	0.	0.	0.
128	0.	0.	0.	0.	0.
129	0.	0.	0.	0.	0.
130	0.	0.	0.	0.	0.
131	0.	0.	0.	0.	0.
132	0.	0.	0.	0.	0.
133	0.	0.	0.	0.	0.
134	0.	0.	0.	0.	0.
135	0.	0.	0.	0.	0.
136	0.	0.	0.	0.	0.
137	0.	0.	0.	0.	0.
138	0.	0.	0.	0.	0.
139	0.	0.	0.	0.	0.
140	0.	0.	0.	0.	0.
141	0.	0.	0.	0.	0.
142	0.	0.	0.	0.	0.
143	0.	0.	0.	0.	0.
144	0.	0.	0.	0.	0.
145	0.	0.	0.	0.	0.
146	0.	0.	0.	0.	0.
147	0.	0.	0.	0.	0.
148	0.	0.	0.	0.	0.
149	0.	0.	0.	0.	0.
150	0.	0.	0.	0.	0.
151	0.	0.	0.	0.	0.
152	0.	0.	0.	0.	0.
153	0.	0.	0.	0.	0.
154	0.	0.	0.	0.	0.
155	0.	0.	0.	0.	0.
156	0.	0.	0.	0.	0.
157	0.	0.	0.	0.	0.
158	0.	0.	0.	0.	0.
159	0.	0.	0.	0.	0.
160	0.	0.	0.	0.	0.
161	0.	0.	0.	0.	0.
162	0.	0.	0.	0.	0.
163	0.	0.	0.	0.	0.
164	0.	0.	0.	0.	0.
165	0.	0.	0.	0.	0.
166	0.	0.	0.	0.	0.
167	0.	0.	0.	0.	0.
168	0.	0.	0.	0.	0.
169	0.	0.	0.	0.	0.
170	0.	0.	0.	0.	0.
171	0.	0.	0.	0.	0.
172	0.	0.	0.	0.	0.
173	0.	0.	0.	0.	0.
174	0.	0.	0.	0.	0.
175	0.	0.	0.	0.	0.
176	0.	0.	0.	0.	0.
177	0.	0.	0.	0.	0.
178	0.	0.	0.	0.	0.
179	0.	0.	0.	0.	0.
180	0.	0.	0.	0.	0.
181	0.	0.	0.	0.	0.
182	0.	0.	0.	0.	0.
183	0.	0.	0.	0.	0.
184	0.	0.	0.	0.	0.
185	0.	0.	0.	0.	0.
186	0.	0.	0.	0.	0.
187	0.	0.	0.	0.	0.
188	0.	0.	0.	0.	0.
189	0.	0.	0.	0.	0.
190	0.	0.	0.	0.	0.
191	0.	0.	0.	0.	0.
192	0.	0.	0.	0.	0.
193	0.	0.	0.	0.	0.
194	0.	0.	0.	0.	0.
195	0.	0.	0.	0.	0.
196	0.	0.	0.	0.	0.
197	0.	0.	0.	0.	0.
198	0.	0.	0.	0.	0.
199	0.	0.	0.	0.	0.
200	0.	0.	0.	0.	0.
201	0.	0.	0.	0.	0.
202	0.	0.	0.	0.	0.
203	0.	0.	0.	0.	0.
204	0.	0.	0.	0.	0.
205	0.	0.	0.	0.	0.
206	0.	0.	0.	0.	0.
207	0.	0.	0.	0.	0.
208	0.	0.	0.	0.	0.
209	0.	0.	0.	0.	0.
210	0.	0.	0.	0.	0.
211	0.	0.	0.	0.	0.
212	0.	0.	0.	0.	0.
213	0.	0.	0.	0.	0.
214	0.	0.	0.	0.	0.
215	0.	0.	0.	0.	0.
216	0.	0.	0.	0.	0.
217	0.	0.	0.	0.	0.
218	0.	0.	0.	0.	0.
219	0.	0.	0.	0.	0.
220	0.	0.	0.	0.	0.
221	0.	0.	0.	0.	0.
222	0.	0.	0.	0.	0.
223	0.	0.	0.	0.	0.
224	0.	0.	0.	0.	0.
225	0.	0.	0.	0.	0.
226	0.	0.	0.	0.	0.
227	0.	0.	0.	0.	0.
228	0.	0.	0.	0.	0.
229	0.	0.	0.	0.	0.
230	0.	0.	0.	0.	0.
231	0.	0.	0.	0.	0.
232	0.	0.	0.	0.	0.
233	0.	0.	0.	0.	0.
234	0.	0.	0.	0.	0.
235	0.	0.	0.	0.	0.
236	0.	0.	0.	0.	0.
237	0.	0.	0.	0.	0.
238	0.	0.	0.	0.	0.
239	0.	0.	0.	0.	0.
240	0.	0.	0.	0.	0.
241	0.	0.	0.	0.	0.
242	0.	0.	0.	0.	0.
243	0.	0.	0.	0.	0.
244	0.	0.	0.	0.	0.
245	0.	0.	0.	0.	0.
246	0.	0.	0.	0.	0.
247	0.	0.	0.	0.	0.
248	0.	0.	0.	0.	0.
249	0.	0.	0.	0.	0.
250	0.	0.	0.	0.	0.
251	0.	0.	0.	0.	0.
252	0.	0.	0.	0.	0.
253	0.	0.	0.	0.	0.
254	0.	0.	0.	0.	0.
255	0.	0.	0.	0.	0.
256	0.	0.	0.	0.	0.
257	0.	0.	0.	0.	0.
258	0.	0.	0.	0.	0.
259	0.	0.	0.	0.	0.
260	0.	0.	0.	0.	0.
261	0.	0.	0.	0.	0.
262	0.	0.	0.	0.	0.
263	0.	0.	0.	0.	0.
264	0.	0.	0.	0.	0.
265	0.	0.	0.	0.	0.
266	0.	0.	0.	0.	0.
267	0.	0.	0.	0.	0.
268	0.	0.	0.	0.	0.
269	0.	0.	0.	0.	0.
270	0.	0.	0.	0.	0.
271	0.	0.	0.	0.	0.
272	0				

*****B0-B0 LIST OF INPUT DATA (CONTINUED)*****

5	5735.	5155.	6485.	5715.	5829.
5	5831.	5728.	5829.	5252.	5919.
5	5533.	5164.	4777.	4482.	4046.
5	3716.	3411.	3133.	2981.	2653.
5	2448.	2263.	2096.	1948.	1811.
5	1690.	1581.	1483.	1396.	1318.
5	1246.	1183.	1125.	1071.	1023.
5	977.	935.	894.	857.	822.
5	755.	759.	731.	705.	683.
5	560.	543.	526.	510.	496.
5	557.	573.	564.	555.	547.
5	540.	533.	527.	522.	515.
5	510.	504.	496.	488.	478.
5	467.	455.	441.	427.	413.
5	393.	382.	369.	356.	344.
5	334.	322.	310.	305.	299.
5	291.	285.	280.	275.	271.
5	265.	265.	262.	259.	257.
5	250.	254.	252.	250.	250.
5	245.	246.	245.	246.	245.
5	245.	245.	245.	244.	244.

9 ENITEL

7 READHD 8 5 EF/BAND

7 READHD 9	0.0	.10	24.32	.0000	
8	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0
8	.0	.0	.0	.0	.0
8	0.00	0.00	0.00	0.00	0.00
8	0.67	3.00	14.50	49.00	136.00
8	309.00	618.00	1111.00	1779.0	2542.00
8	3266.00	3851.00	4277.00	4559.0	4715.00
8	4759.00	4710.00	4590.00	4428.00	4246.00
8	4070.00	3905.00	3761.00	2642.00	3550.00
8	3452.00	3436.00	3409.00	3395.00	3351.00
8	3390.00	3395.00	3398.00	3402.00	3406.00
8	3410.00	3415.00	3420.00	3425.0	3432.00
8	3439.00	3447.00	3456.00	3465.00	3473.00
8	3480.00	3487.00	3492.00	3495.0	3496.00
8	3495.00	3489.00	3481.00	3471.0	3458.00

1

*****B0-B0 LIST OF INPUT DATA (CONTINUED)*****

5	3444.00	3429.00	3410.00	3386.0	3360.00
5	3367.00	3357.00	3348.00	3340.0	3330.00
5	3216.00	3206.00	3271.00	3241.0	3208.00
5	3171.00	3137.00	3104.00	3067.0	3030.00
5	2992.00	2946.00	2903.00	2856.0	2809.00
5	2755.00	2717.00	2655.00	2604.0	2553.00
5	2502.00	2451.00	2402.00	2350.0	2305.00
5	2253.00	2212.00	2166.00	2122.0	2076.00
5	2005.00	1991.00	1945.00	1900.00	1852.00
5	1762.00	1742.00	1701.00	1656.00	1611.00

8	1195.00	1165.00	1137.00	1111.00	1086.00
8	1062.00	1040.00	1020.00	1000.0	982.00
8	965.00	949.00	934.00	919.00	905.00
8	894.00	882.00	870.00	861.0	850.00
8	840.00	833.00	824.00	815.00	808.00
8	800.00	793.00	786.00	779.0	772.00
8	765.00	760.00	754.00	747.0	741.00
8	732.00	727.00	718.00	709.0	703.00
8	691.00	681.00	671.00	661.00	651.00
8	642.00	634.00	627.00	620.0	613.00
8	607.00	600.00	593.00	585.0	580.00
8	573.00	567.00	562.00	557.00	551.00
8	545.00	540.00	534.00	528.0	522.00
8	517.00	512.00	508.00	504.00	499.00

```

9 ENDTBL
7 LIST
7 INCRM 6      .083      5-MIN
7 COMPUT 7 37      1      0.      4.4      1.0      1 2 01 01      100YR
  EADCMF 1
  ENDJOB 2

```

*****END OF 80-60 LIST*****

1

TR20 XEQ	5/14/83	16:17	LOWER SAND CREEK	FUT	CONDITION	JOB 1	PAGE 1
REV	PC/6/83		24 HR TYPE IIA STORM (100YR	AMD=2)	FILE NAME D24FU.DAT		PAGE 1

FILE NO. 1

0 COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

THE USERS MANUAL FOR THIS PROGRAM IS THE MAY 1982 DRAFT OF TR-20. CHANGES FROM THE 2/14/74 VERSION INCLUDE:

REACH ROUTING - THE MODIFIED ATT-KIN ROUTING PROCEDURE REPLACES THE CONVEX METHOD. INPUT DATA PREPARED FOR PREVIOUS PROGRAM VERSIONS USING CONVEX ROUTING COEFFICIENTS WILL NOT RUN ON THIS VERSION.

THE PREFERRED TYPE OF DATA ENTRY IS CROSS SECTION DATA REPRESENTATIVE OF A REACH. IT IS RECOMMENDED THAT THE OPTIONAL CROSS SECTION DISCHARGE-AREA PLOTS BE OBTAINED WHENEVER NEW CROSS SECTION DATA IS ENTERED. THE PLOTS SHOULD BE CHECKED FOR REASONABLENESS AND ADEQUACY OF INPUT DATA FOR THE COMPUTATION OF "N" VALUES USED IN THE ROUTING PROCEDURE.

GUIDELINES FOR DETERMINING OR ANALYZING REACH LENGTHS AND COEFFICIENTS (X,M) ARE AVAILABLE IN THE USERS MANUAL. SUMMARY TABLE 2 DISPLAYS REACH ROUTING RESULTS AND ROUTING PARAMETERS FOR COMPARISON AND CHECKING.

HYDROGRAPH GENERATION - THE PROCEDURE TO CALCULATE THE INTERNAL TIME INCREMENT AND PEAK TIME OF THE UNIT HYDROGRAPH HAVE BEEN IMPROVED. PEAK DISCHARGES AND TIMES MAY DIFFER FROM THE PREVIOUS VERSION. OUTPUT HYDROGRAPHS ARE STILL INTERPOLATED, PRINTED, AND ROUTED AT THE USER SELECTED MAIN TIME INCREMENT.

INTERMEDIATE PEAKS - METHOD ADDED TO PROVIDE DISCHARGES AT INTERMEDIATE POINTS WITHIN REACHES WITHOUT ROUTING.

OTHER - THIS VERSION CONTAINS SOME ADDITIONS TO THE INPUT AND NUMEROUS MODIFICATIONS TO THE OUTPUT. USER OPTIONS HAVE BEEN MODIFIED AND AUGMENTED ON THE JOB RECORD. RAINFALLS ADDED, ERROR AND WARNING MESSAGES EXPANDED, AND THE SUMMARY TABLE COMPLETELY REVISED. THE HOLDOUT OPTION IS NOT OPERATIONAL AT THIS TIME.

PROGRAM QUESTIONS OR PROBLEMS SHOULD BE DIRECTED TO HYDRAULIC ENGINEERS AT THE SOI NATIONAL TECHNICAL CENTERS:

CHESTER, PA (NORTHEAST)	-- 261-454-3400,	FORT WORTH, TX (SOUTH)	-- 334-6242 (FTE)
LINCOLN, NE (MIDWEST)	-- 541-6313 (FTE),	PORTLAND, OR (WEST)	-- 426-4055 (FTE)
OR HYDROLOGIC UNIT, ENGINEERING DIVISION, LANHAM, MD -- 436-7130 (FTE).			

5/11/83 - CORRECT COMPUTATIONS FOR ---

1. DIVISION OF BASEFLOW IN DIVERT OPERATION
2. HYDROGRAPH VOLUME SPLIT BETWEEN BASEFLOW AND ABOVE BASEFLOW
3. CROSS SECTION DATA PLOTTING POSITION
4. INTERMEDIATE PEAK WHEN "FROM" AREA IS LARGER THAN "THRU" AREA
5. STORAGE ROUTED REACH TRAVEL TIME FOR MULTIPLE PEAK HYDROGRAPH
6. ORDERING "FLOW-FREQ" FILE FROM SUMMARY TABLE #3 DATA
7. BASEFLOW ENTERED WITH REACH ID
8. LOW FLOW SPLIT DURING DIRECT PROCEDURE #2 WHEN SECTION RATINGS START AT DIFFERENT ELEVATIONS

IMPROVEMENTS ---

1. REPLACE USER MANUAL ERROR CODES (PAGE 4-9 TO 4-11) WITH MESSAGES
2. LABEL OUTPUT HYDROGRAPH FILES WITH CROSS SECTION/STRUCTURE, ALTERNATE AND STORM NO'S

5/11/83 - CORRECT INPUT AND OUTPUT ERRORS FOR INTERMEDIATE PEAKS

CORRECT COMBINATION OF RATING TABLES FOR DIVERT

CHECK REACH ROUTING PARAMETERS FOR ACCEPTABLE LIMITS

ELIMINATE MINIMUM REACH TRAVEL TIME WHEN ATT-KIN COEFFICIENT EQUALS ONE

1

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (QFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEN MOIST COND	MAIN TIME (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE	1	STORM	1										
XSECTION 37	RUNOFF	.23	1	2	.08	.0	4.40	24.00	2.82	---	6.00	580.05	2533.0
XSECTION 138	REACH	.23	1	2	.08	.0	4.40	24.00	2.81	---	6.09	580.00	2534.5
XSECTION 38	RUNOFF	.09	1	2	.08	.0	4.40	24.00	2.82	---	6.01	233.29	1192.1
STRUCTURE 38	ADDDVD	.72	1	2	.08	.0	4.40	24.00	2.84	---	6.08	809.46	2526.4
XSECTION 49	RUNOFF	.01	1	2	.08	.0	4.40	24.00	2.91	---	6.95	23.41	2841.1
STRUCTURE 49	ADDDVD	.33	1	2	.08	.0	4.40	24.00	2.84	---	6.04	329.45	2513.5
XSECTION 149	REACH	.33	1	2	.08	.0	4.40	24.00	2.84	---	6.04	329.45	2513.5
STRUCTURE 49	ADDDVD	16.37	1	2	.08	.0	4.40	24.00	2.14	---	6.11	15647.74	919.0
XSECTION 135	REACH	16.37	1	2	.08	.0	4.40	24.00	2.18	---	6.20	14151.90	834.6
XSECTION 35	RUNOFF	.24	1	2	.08	.0	4.40	24.00	3.40	---	6.13	556.92	1329.5
STRUCTURE 35	ADDDVD	16.61	1	2	.08	.0	4.40	24.00	2.20	---	6.20	14651.25	823.5
XSECTION 33	RUNOFF	.12	1	2	.08	.0	4.40	24.00	2.13	---	6.23	143.61	1196.8
STRUCTURE 35	ADDDVD	16.73	1	2	.08	.0	4.40	24.00	2.20	---	6.20	14823.73	556.0
XSECTION 34	RUNOFF	.13	1	2	.08	.0	4.40	24.00	2.22	---	6.02	329.79	2536.3
XSECTION 133	REACH	.13	1	2	.08	.0	4.40	24.00	2.81	---	6.13	294.25	2163.8
STRUCTURE 35	ADDDVD	16.86	1	2	.08	.0	4.40	24.00	2.20	---	6.20	15094.03	595.3
XSECTION 132	REACH	16.86	1	2	.08	.0	4.40	24.00	2.20	---	6.21	15094.03	595.0
XSECTION 32	RUNOFF	.28	1	2	.08	.0	4.40	24.00	2.91	---	6.14	555.76	1584.9
STRUCTURE 32	ADDDVD	17.14	1	2	.08	.0	4.40	24.00	2.21	---	6.23	15620.52	911.5
XSECTION 130	REACH	17.14	1	2	.08	.0	4.40	24.00	2.21	---	6.23	15620.52	911.5
XSECTION 30	RUNOFF	.15	1	2	.08	.0	4.40	24.00	3.04	---	6.94	470.00	2155.5
STRUCTURE 30	ADDDVD	17.25	1	2	.08	.0	4.40	24.00	2.23	---	6.20	15681.69	503.8
XSECTION 11	RUNOFF	.23	1	2	.08	.0	4.40	24.00	2.91	---	6.03	547.10	2158.5
STRUCTURE 30	ADDDVD	17.54	1	2	.08	.0	4.40	24.00	2.23	---	6.19	16120.55	915.2
XSECTION 118	REACH	17.54	1	2	.08	.0	4.40	24.00	2.23	---	6.19	16120.55	915.2
XSECTION 18	RUNOFF	.08	1	2	.08	.0	4.40	24.00	3.58	---	6.94	274.33	3423.1
STRUCTURE 18	ADDDVD	17.67	1	2	.08	.0	4.40	24.00	2.23	---	6.19	16120.55	915.2

SECTION 26	ADDHYD	17.78	1	2	.08	.0	4.40	24.00	2.25	---	8.18	18438.38	928.8
XSECTION 127	REACH	17.78	1	2	.08	.0	4.40	24.00	2.25	---	8.18	18438.38	928.8
STRUCTURE 27	ADDHYD	21.82	1	2	.08	.0	4.40	24.00	2.14	---	8.19	18450.74	917.8

TR20 FEB 8/14/93 18:17 LOWER SAND CREEK F07 CONDITION JOB 1 SUMMARY
REV PC/09/83 24 HR TYPE IIA STORM FLOWR AMO=1 FILE NAME D24F09.DAT PAGE 10

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
(A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ. MI.)	RAIN TABLE #	ANTEC MODE" COND	MAIN TIME INCRM HR	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
						BEGIN (HR)	AMOUNT (IN)	DURATION HR.		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CBM)
ALTERNATE	1	STORM	1										
XSECTION 27	RUNOFF	.10	1	2	.08	.0	4.40	24.00	3.81	---	8.94	728.00	3680.0
STRUCTURE 27	ADDHYD	22.92	1	2	.08	.0	4.40	24.00	2.14	---	8.19	18701.88	910.0
XSECTION 26	RUNOFF	.11	1	2	.08	.0	4.40	24.00	3.50	---	8.57	150.53	1368.5
STRUCTURE 27	ADDHYD	23.03	1	2	.08	.0	4.40	24.00	2.15	---	8.19	18797.20	913.2
XSECTION 128	REACH	23.03	1	2	.08	.0	4.40	24.00	2.14	---	8.28	17612.48	764.8
XSECTION 25	RUNOFF	.38	1	2	.08	.0	4.40	24.00	2.48	---	8.09	878.45	1684.8
STRUCTURE 28	ADDHYD	23.39	1	2	.08	.0	4.40	24.00	2.14	---	8.28	18003.09	789.7
XSECTION 24	RUNOFF	.10	1	2	.08	.0	4.40	24.00	3.50	---	8.03	278.84	2788.4
STRUCTURE 28	ADDHYD	23.49	1	2	.08	.0	4.40	24.00	2.15	---	8.28	18099.82	770.5
XSECTION 121	REACH	23.49	1	2	.08	.0	4.40	24.00	2.15	---	8.28	18099.82	770.5
XSECTION 31	RUNOFF	.15	1	2	.08	.0	4.40	24.00	2.93	---	8.94	478.20	3188.0
STRUCTURE 21	ADDHYD	23.64	1	2	.08	.0	4.40	24.00	2.15	---	8.28	18137.23	787.2
XSECTION 48	RUNOFF	.13	1	2	.08	.0	4.40	24.00	1.67	---	8.22	122.25	940.4
XSECTION 47	RUNOFF	.28	1	2	.08	.0	4.40	24.00	2.91	---	8.08	878.90	2410.5
STRUCTURE 47	ADDHYD	.41	1	2	.08	.0	4.40	24.00	2.52	---	8.06	785.77	1987.8
XSECTION 148	REACH	.41	1	2	.08	.0	4.40	24.00	2.52	---	8.06	785.77	1987.8
XSECTION 46	RUNOFF	.15	1	2	.08	.0	4.40	24.00	2.55	---	8.18	244.50	1830.7
STRUCTURE 46	ADDHYD	.36	1	2	.08	.0	4.40	24.00	2.52	---	8.08	989.83	1767.6
XSECTION 145	REACH	.36	1	2	.08	.0	4.40	24.00	2.52	---	8.08	989.83	1767.6
XSECTION 45	RUNOFF	.17	1	2	.08	.0	4.40	24.00	2.37	---	8.18	390.40	1445.9
STRUCTURE 45	ADDHYD	.83	1	2	.08	.0	4.40	24.00	2.47	---	8.10	1344.08	1819.3
XSECTION 144	REACH	.83	1	2	.08	.0	4.40	24.00	2.47	---	8.10	1344.08	1819.3
XSECTION 44	RUNOFF	.73	1	2	.08	.0	4.40	24.00	2.38	---	8.24	375.87	1308.5
STRUCTURE 44	ADDHYD	1.12	1	2	.08	.0	4.40	24.00	2.48	---	8.12	1875.35	1493.8
XSECTION 143	REACH	1.12	1	2	.08	.0	4.40	24.00	2.48	---	8.21	1881.30	1487.8
XSECTION 43	RUNOFF	.21	1	2	.08	.0	4.40	24.00	2.15	---	8.28	480.97	1413.9
STRUCTURE 43	ADDHYD	1.32	1	2	.08	.0	4.40	24.00	2.40	---	8.21	1707.81	1273.4
XSECTION 142	REACH	1.32	1	2	.08	.0	4.40	24.00	2.40	---	8.21	1689.71	1264.7
XSECTION 42	RUNOFF	.25	1	2	.08	.0	4.40	24.00	2.88	---	8.24	380.37	1901.8
STRUCTURE 42	ADDHYD	1.57	1	2	.08	.0	4.40	24.00	2.43	---	8.30	2007.98	1278.1
XSECTION 141	REACH	1.57	1	2	.08	.0	4.40	24.00	2.43	---	8.40	1882.80	1282.7
XSECTION 41	RUNOFF	.24	1	2	.08	.0	4.40	24.00	2.58	---	8.01	584.72	1312.0
STRUCTURE 41	ADDHYD	1.78	1	2	.08	.0	4.40	24.00	2.41	---	8.21	1811.89	1271.7

STRUCTURE 21	ADDDHYD	49.77	1	2	.08	.0	4.40	24.00	2.27	---	6.29	21098.87	421.9
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TRFID NO	5-14/93	15:17	LOWER SAND CREEK	FCU	CONDITION	COE	1	SUMMARY
REV	PO/09/93		24 HR TYPE IIA STORM (100YR	AKC=2)	FILE NAME	02AF01.DAT		PAGE 12

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
 (A STAFF) AFTER THE PEAK DISCHARGE TIME AND RATE (CFB) VALUES INDICATES A FLAT TOP HYDROGRAPH
 A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC NDIST COND	MAIN TIME INCHES (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFB)	RATE (CBF)
ALTERNATE	1	STORM	1										
XSECTION 22	RUNOFF	.23	1	2	.08	.0	4.40	24.00	3.01	---	6.58	626.40	2223.8
XSECTION 21	ADDDHYD	50.00	1	2	.08	.0	4.40	24.00	2.27	---	6.29	21098.87	421.9
XSECTION 119	REACH	50.00	1	1	.08	.0	4.40	24.00	2.27	---	6.29	21098.87	421.9
XSECTION 19	RUNOFF	.17	1	2	.08	.0	4.40	24.00	2.77	---	6.94	402.89	3099.8
STRUCTURE 19	ADDDHYD	50.13	1	1	.08	.0	4.40	24.00	2.27	---	6.29	21128.35	421.5
XSECTION 20	RUNOFF	.13	1	2	.08	.0	4.40	24.00	2.82	---	6.92	324.13	2463.7
XSECTION 120	REACH	.13	1	2	.08	.0	4.40	24.00	2.82	---	6.92	324.13	2463.3
STRUCTURE 19	ADDDHYD	50.26	1	2	.08	.0	4.40	24.00	2.27	---	6.29	21159.85	421.7
XSECTION 23	RUNOFF	.20	1	2	.08	.0	4.40	24.00	3.50	---	6.96	542.35	1711.6
XSECTION 123	REACH	.20	1	2	.08	.0	4.40	24.00	3.50	---	6.96	541.86	2509.3
XSECTION 18	RUNOFF	.30	1	2	.08	.0	4.40	24.00	2.91	---	6.11	551.35	1636.1
STRUCTURE 18	ADDDHYD	.50	1	2	.08	.0	4.40	24.00	3.15	---	6.16	1049.97	2099.9
XSECTION 118	REACH	.50	1	1	.08	.0	4.40	24.00	3.15	---	6.16	1049.97	2099.9
STRUCTURE 19	ADDDHYD	50.76	1	2	.08	.0	4.40	24.00	2.28	---	6.28	22135.69	426.1
XSECTION 136	REACH	50.71	1	2	.08	.0	4.40	24.00	2.28	---	6.28	22135.69	426.1
XSECTION 36	RUNOFF	.11	1	2	.08	.0	4.40	24.00	3.37	---	6.94	749.35	3490.8
STRUCTURE 36	ADDDHYD	51.86	1	2	.08	.0	4.40	24.00	2.29	---	6.28	22152.52	426.6
XSECTION 115	REACH	50.88	1	2	.08	.0	4.40	24.00	2.29	---	6.28	22162.51	426.8
XSECTION 16	RUNOFF	.15	1	2	.08	.0	4.40	24.00	2.82	---	6.12	296.16	1974.4
STRUCTURE 16	ADDDHYD	51.11	1	2	.08	.0	4.40	24.00	2.29	---	6.28	22364.69	428.6
XSECTION 15	RUNOFF	.10	1	2	.08	.0	4.40	24.00	3.23	---	6.94	335.66	5786.6
STRUCTURE 15	ADDDHYD	51.11	1	2	.08	.0	4.40	24.00	2.29	---	6.28	22410.56	428.8
XSECTION 14	RUNOFF	.23	1	2	.08	.0	4.40	24.00	3.40	---	6.16	565.29	2155.2
STRUCTURE 14	ADDDHYD	51.34	1	2	.08	.0	4.40	24.00	2.29	---	6.28	22846.80	445.0
XSECTION 13	RUNOFF	.37	1	2	.08	.0	4.40	24.00	2.82	---	6.16	671.39	1614.6
STRUCTURE 13	ADDDHYD	51.71	1	2	.08	.0	4.40	24.00	2.30	---	6.27	22434.69	450.2
XSECTION 17	RUNOFF	.21	1	2	.08	.0	4.40	24.00	3.01	---	6.16	752.17	1957.6
XSECTION 116	REACH	.21	1	1	.08	.0	4.40	24.00	3.01	---	6.30	376.08	1601.4
STRUCTURE 13	ADDDHYD	51.92	1	1	.08	.0	4.40	24.00	2.30	---	6.28	22611.52	450.6
XSECTION 111	REACH	51.82	1	2	.08	.0	4.40	24.00	2.71	---	6.26	22790.40	446.1
XSECTION 12	RUNOFF	.18	1	2	.08	.0	4.40	24.00	2.85	---	6.14	812.68	3126.8
STRUCTURE 12	ADDDHYD	51.21	1	2	.08	.0	4.40	24.00	2.31	---	6.28	22862.01	451.7
XSECTION 11	RUNOFF	.11	1	2	.08	.0	4.40	24.00	3.50	---	6.76	123.04	1116.5
STRUCTURE 11	ADDDHYD	52.32	1	2	.08	.0	4.40	24.00	2.31	---	6.28	22947.94	457.8
STRUCTURE 11	ADDDHYD	52.32	1	2	.08	.0	4.40	24.00	2.31	---	6.28	22947.94	457.8

TR20 XEG 5/14/83 16:17 LOWER BOWL CREEK PUT CONDITION JOB 1 EUMHAR
 REV PD/05/83 24 HP TYPE IIA STORM (100Y) AND=01 FILE NAME D24F01.DAT PAGE 24

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
 (A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (DFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
 A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI.)	RAIN TABLE #	ANTEC NOIST COND	RAIN TIME INCRM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
12						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (DFS)	RATE (FSM)
ALTERNATE	1	STORM	1										
XSECTION 7	RUNOFF	.13	1	2	.08	.0	4.40	24.00	1.70	---	6.11	247.38	1782.7
STRUCTURE 12	ADDHYD	52.58	1	2	.08	.0	4.40	24.00	2.32	---	6.36	14251.88	461.3
XSECTION 11	RUNOFF	.28	1	2	.08	.0	4.40	24.00	2.73	---	6.17	406.62	1748.5
XSECTION 108	REACH	.28	1	2	.08	.0	4.40	24.00	1.70	---	6.30	407.95	1821.8
STRUCTURE 12	ADDHYD	52.83	1	2	.08	.0	4.40	24.00	2.32	---	6.36	24846.80	460.3
XSECTION 6	RUNOFF	.23	1	2	.08	.0	4.40	24.00	2.62	---	6.03	570.28	2479.5
XSECTION 107	REACH	.23	1	2	.08	.0	4.40	24.00	2.81	---	6.14	528.31	2184.0
STRUCTURE 12	ADDHYD	53.06	1	2	.08	.0	4.40	24.00	2.32	---	6.36	24897.07	469.1
XSECTION 10	RUNOFF	.11	1	2	.08	.0	4.40	24.00	2.65	---	6.07	224.98	2045.1
XSECTION 109	REACH	.11	1	2	.08	.0	4.40	24.00	1.63	---	6.21	201.42	1831.1
STRUCTURE 12	ADDHYD	53.17	1	2	.08	.0	4.40	24.00	2.32	---	6.36	25053.94	471.2
XSECTION 104	REACH	53.17	1	2	.08	.0	4.40	24.00	2.32	---	6.36	25053.94	471.2
XSECTION 4	RUNOFF	.14	1	2	.08	.0	4.40	24.00	3.61	---	6.00	422.26	3016.1
STRUCTURE 4	ADDHYD	53.31	1	2	.08	.0	4.40	24.00	2.32	---	6.36	25123.47	471.3
XSECTION 103	REACH	53.31	1	2	.08	.0	4.40	24.00	2.32	---	6.36	25123.47	471.3
XSECTION 3	RUNOFF	.16	1	2	.08	.0	4.40	24.00	3.61	---	6.12	392.34	2458.6
STRUCTURE 3	ADDHYD	53.47	1	2	.08	.0	4.40	24.00	2.33	---	6.36	25360.90	474.3
XSECTION 8	RUNOFF	.23	1	2	.08	.0	4.40	24.00	3.28	---	6.84	706.65	3290.0
XSECTION 106	REACH	.23	1	2	.08	.0	4.40	24.00	3.28	---	6.03	706.13	3010.1
STRUCTURE 3	ADDHYD	53.70	1	2	.08	.0	4.40	24.00	2.33	---	6.36	25444.18	473.5
XSECTION 102	REACH	53.70	1	2	.08	.0	4.40	24.00	2.33	---	6.36	25444.18	473.5
XSECTION 2	RUNOFF	.31	1	2	.08	.0	4.40	24.00	3.51	---	6.84	1103.08	3588.3
STRUCTURE 1	ADDHYD	54.01	1	2	.08	.0	4.40	24.00	2.34	---	6.36	25528.74	472.7
XSECTION 101	REACH	54.01	1	2	.08	.0	4.40	24.00	2.34	---	6.36	25528.74	472.7
XSECTION 1	RUNOFF	.18	1	2	.08	.0	4.40	24.00	3.11	---	6.12	469.57	2471.4
STRUCTURE 1	ADDHYD	54.20	1	2	.08	.0	4.40	24.00	2.34	---	6.36	25618.23	476.1

TR20 XEG 5/14/83 16:17 LOWER BOWL CREEK PUT CONDITION JOB 1 EUMHAR
 REV PD/05/83 24 HP TYPE IIA STORM (100Y) AND=01 FILE NAME D24F01.DAT PAGE 25

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-VIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS
 (A STAR(*) AFTER VOLUME ABOVE BASELIN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
 (A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

		OUTFLOW				VOLUME		WAIN	ITER	G AND A		PEAK	S/O	ATT	TRAVEL TIME					
SEED	REACH	INFLOW		OUTFLOW		INTERV AREA		BASE	ABOVE	TIME	ATION	EQUATION		LENGTH	RATIO	8PEAK	KIN	ETOF	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 (Y)	FACTOR (K)	O/I (%)	(X) (FEET)	COEFF (D)	AGE (HR)	MATIC (HR)	
ALTERNATE		1	STORM	1																
+138	2600	579	6.0	579	6.1	---	---	0	1.53	.06	1	1.50		1.47	.028	1.000	150	1.007	.06	.10
+149	1	826	6.1	826	6.1	---	---	0	2.84	.06	0	.400		1.30	.001	1.000	2	1.007	.00	.00
+135	4300	14100	6.1	13629	6.2	---	---	0	2.14	.06	1	.100		1.55	.012	.957	244	.767	.06	.07
+137	2800	318	6.1	294	6.1	---	---	0	1.82	.08	1	.300		1.50	.113	.925	428	.82	.06	.12
+132	2300	14530	6.2	14530	6.2	---	---	0	2.20	.05	0	.200		1.50	.003	1.000	108	1.007	.00	.00
+130	2400	15038	6.2	15038	6.2	---	---	0	2.21	.08	0	.300		1.50	.002	1.000	86	1.007	.00	.00
+125	1700	15497	6.2	15497	6.2	---	---	0	2.23	.08	0	.300		1.50	.001	1.000	61	1.007	.00	.00
+129	500	461	6.1	461	6.1	---	---	0	3.61	.03	0	1.40		1.50	.001	1.000	25	1.007	.00	.00
+127	3100	15784	6.2	15784	6.2	---	---	0	2.25	.08	0	.200		1.50	.005	1.000	141	1.007	.00	.00
+125	5000	17944	6.2	17301	6.3	---	---	0	2.15	.08	1	.100		1.50	.019	.954	335	.62	.08	.09
+121	2500	17721	6.3	17721	6.3	---	---	0	2.15	.08	0	.200		1.50	.003	1.000	105	1.007	.00	.00
+146	1900	766	6.1	766	6.1	---	---	0	2.52	.08	0	1.50		1.50	.009	1.000	50	1.007	.00	.00
+145	700	986	6.1	986	6.1	---	---	0	2.52	.08	0	2.16		1.50	.001	1.000	25	1.007	.00	.00
+144	2600	1720	6.1	1720	6.1	---	---	0	1.47	.08	0	1.60		1.50	.010	1.000	116	1.007	.00	.00
+147	2500	1670	6.1	1664	6.2	---	---	0	2.45	.08	1	.400		1.50	.015	.975	171	.537	.02	.03
+142	3100	1703	6.2	1670	6.3	---	---	0	2.40	.08	1	.500		1.50	.017	.975	182	.747	.03	.07
						---	---	0	1.50	.05	0	.400		1.50	.010	.980	117	.515	.07	.10

+121	3200	5516	6.7	5514	6.6	---	---	0	2.78	.08	1	1.50	.001	.999	168	.947	.18	.01
+																		
+119	2090	20890	6.3	20890	6.3	---	---	0	2.27	.08	0	1.20	.001	1.000	52	1.007	.10	.00
+																		
+120	800	320	6.0	320	6.0	---	---	0	2.82	.08	0	1.30	.010	1.000	45	1.007	.10	.00
+																		
+127	3500	542	6.1	496	6.2	---	---	0	3.30	.08	1	1.60	.090	.914	401	.84	.17	.11
+																		
+118	600	1039	6.1	1039	6.1	---	---	0	3.15	.08	0	1.70	.004	1.000	49	1.007	.00	.00
+																		
+115	1500	21876	6.3	21876	6.3	---	---	0	1.28	.08	0	1.60	.100	1.000	60	1.007	.00	.00
+																		
+119	3100	21903	6.3	21903	6.3	---	---	0	2.29	.08	0	1.70	.001	1.000	113	1.007	.00	.00
+																		
+116	2400	337	6.1	378	6.3	---	---	0	3.01	.08	1	1.10	.044	.976	292	.667	.17	.06
+																		
+112	3900	23479	6.3	23468	6.4	---	---	0	2.30	.08	1	1.60	.002	1.000	153	.997	.08	.04
+																		
+108	3200	404	6.1	408	6.3	---	---	0	2.73	.08	1	1.60	.053	.940	364	.88	.17	.10
+																		
+107	3400	560	6.1	525	6.1	---	---	0	2.82	.08	1	1.60	.087	.937	351	.60	.08	.10
+																		
+109	3900	224	6.1	201	6.2	---	---	0	2.67	.08	1	1.60	.054	.896	429	.52	.17	.12
+																		
+104	1800	24638	6.4	24638	6.4	---	---	0	2.32	.08	0	1.60	.001	1.000	69	1.007	.00	.00
+																		
+103	1400	24698	6.4	24698	6.4	---	---	0	2.32	.08	0	1.60	.000	1.000	54	1.007	.00	.00
+																		
+105	3800	704	6.0	689	6.1	---	---	0	3.28	.08	1	1.60	.054	.979	280	.707	.08	.06
+																		

TR20 YES 04/14/93 16:17 LOWER SAND CREEK FUL CONDITION JOB 1 SUMMARY
 REV PC/09/EZ 24 HR TYPE IIA STORM (100YR AND=2) FILE NAME 02(P0124T PAGE 31

SUMMARY TABLE 1 - SELECTED MODIFIED ATT-NIV REACH ROUTINGS IN BRIEF OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS
 * STAR * AFTER VOLUME ABOVE BASELINE INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
 * QUESTION MARK (?) AFTER COEFF. (C) INDICATES PARAMETER OUTSIDE ACCEPTABLE LIMITS. SEE PREVIOUS WARNINGS

HYDROGRAPH INFORMATION

ROUTING PARAMETERS

PEAK

OUTFLOW+

VOLUME MAIN ITER- C AND A

PEAK

S/C

ATT- TRAVEL TIME

SUMMARY

REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24FU.DAT
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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	15047.74	
0 STRUCTURE 47	.41	
+		
ALTERNATE 1	765.79	
0 STRUCTURE 46	.56	
+		
ALTERNATE 1	989.83	
0 STRUCTURE 45	.83	
+		
ALTERNATE 1	1344.06	
0 STRUCTURE 44	1.12	
+		
ALTERNATE 1	1675.36	
0 STRUCTURE 43	1.32	
+		
ALTERNATE 1	1707.92	
0 STRUCTURE 42	1.57	
+		
ALTERNATE 1	2007.98	
0 STRUCTURE 41	26.13	
+		
ALTERNATE 1	5519.65	
0 STRUCTURE 38	.32	
+		
ALTERNATE 1	808.46	
0 STRUCTURE 36	50.80	
+		
ALTERNATE 1	22148.12	
0 STRUCTURE 35	16.86	
+		
ALTERNATE 1	15094.03	
0 STRUCTURE 32	17.14	
+		
ALTERNATE 1	15623.52	
0 STRUCTURE 30	17.54	
+		
ALTERNATE 1	16123.59	
0 STRUCTURE 28	17.62	

Structure 28

DA = 17.62 SM

 $Q_{100} = 16123.59 \text{ cfs}$

FUTURE COND.

+		
ALTERNATE	1	16146.51
1		

TR20 XEQ 2/ 3/92 16:34 LOWER SAND CREEK FUT CONDITION JOB 1
SUMMARY
REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24FU.DAT
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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	18911.18	
0 STRUCTURE 25	23.49	
+		
ALTERNATE 1	18179.86	
0 STRUCTURE 21	49.77	
+		
ALTERNATE 1	21094.09	
0 STRUCTURE 19	50.70	
+		
ALTERNATE 1	22121.49	
0 STRUCTURE 18	.44	
+		
ALTERNATE 1	939.85	
0 STRUCTURE 15	51.86	
+		
ALTERNATE 1	23794.67	
0 STRUCTURE 12	53.11	
+		
ALTERNATE 1	25033.18	
0 STRUCTURE 4	53.25	
+		
ALTERNATE 1	25102.38	
0 STRUCTURE 3	53.64	
+		
ALTERNATE 1	25421.86	
0 STRUCTURE 2	53.95	
+		
ALTERNATE 1	25506.41	
0 STRUCTURE 1	54.14	
+		
ALTERNATE 1	25794.85	
0 XSECTION 1	.19	

+		
ALTERNATE	1	469.57
0 XSECTION	2	.31
+		
ALTERNATE	1	1103.08
0 XSECTION	3	.16
+		
ALTERNATE	1	398.34
1		

TR20 XEQ 2/ 3/92 16:34 LOWER SAND CREEK FUT CONDITION JOB 1
SUMMARY
REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24FU.DAT
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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 4	.14	
+		
ALTERNATE 1		422.26
0 XSECTION 5	.23	
+		
ALTERNATE 1		736.68
0 XSECTION 6	.23	
+		
ALTERNATE 1		570.28
0 XSECTION 7	.13	
+		
ALTERNATE 1		247.35
0 XSECTION 8	.11	
+		
ALTERNATE 1		123.04
0 XSECTION 9	.13	
+		
ALTERNATE 1		314.33
0 XSECTION 10	.11	
+		
ALTERNATE 1		224.98
0 XSECTION 11	.25	
+		
ALTERNATE 1		436.62
0 XSECTION 12	.29	
+		
ALTERNATE 1		877.68
0 XSECTION 13	.37	

+		
ALTERNATE	1	671.39
0 XSECTION	14	.23
+		
ALTERNATE	1	503.29
0 XSECTION	15	.10
+		
ALTERNATE	1	338.66
0 XSECTION	16	.15
+		
ALTERNATE	1	296.16
0 XSECTION	17	.21
+		
ALTERNATE	1	392.23
1		

TR20 XEQ 2/ 3/92 16:34 LOWER SAND CREEK FUT CONDITION JOB 1
SUMMARY
REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24FU.DAT
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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 18 .24		
+		
ALTERNATE	1	441.11
0 XSECTION	19	.13
+		
ALTERNATE	1	402.99
0 XSECTION	20	.13
+		
ALTERNATE	1	324.13
0 XSECTION	21	50.00
+		
ALTERNATE	1	21181.66
0 XSECTION	22	.23
+		
ALTERNATE	1	626.40
0 XSECTION	23	.20
+		
ALTERNATE	1	542.36
0 XSECTION	24	.10
+		
ALTERNATE	1	276.64
0 XSECTION	25	.36

+		
ALTERNATE	1	678.45
0 XSECTION	26	.11
+		
ALTERNATE	1	150.53
0 XSECTION	27	.10
+		
ALTERNATE	1	328.00
0 XSECTION	28	.08
+		
ALTERNATE	1	274.33
0 XSECTION	29	.16
+		
ALTERNATE	1	465.93
0 XSECTION	30	.15
+		
ALTERNATE	1	493.03
0 XSECTION	31	.25
+		
ALTERNATE	1	547.12
1		

TR20 XEQ 2/3/92 16:34 LOWER SAND CREEK FUT CONDITION JOB 1
SUMMARY
REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24FU.DAT
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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 32 .28		
+		
ALTERNATE	1	555.76
0 XSECTION	33	.12
+		
ALTERNATE	1	143.61
0 XSECTION	34	.13
+		
ALTERNATE	1	329.79
0 XSECTION	35	.24
+		
ALTERNATE	1	558.92
0 XSECTION	36	.10
+		
ALTERNATE	1	349.05
0 XSECTION	37	.23

+		
ALTERNATE	1	583.05
0 XSECTION	38	.09
+		
ALTERNATE	1	233.29
0 XSECTION	41	.24
+		
ALTERNATE	1	554.92
0 XSECTION	42	.25
+		
ALTERNATE	1	350.39
0 XSECTION	43	.20
+		
ALTERNATE	1	483.97
0 XSECTION	44	.29
+		
ALTERNATE	1	378.87
0 XSECTION	45	.27
+		
ALTERNATE	1	390.40
0 XSECTION	46	.15
+		
ALTERNATE	1	244.60
0 XSECTION	47	.28
+		
ALTERNATE	1	675.90
1		

TR20 XEQ 2/ 3/92 16:34 LOWER SAND CREEK FUT CONDITION JOB 1
SUMMARY
REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24FU.DAT
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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 48 .13		
+		
ALTERNATE	1	122.25
0 XSECTION	49	.01
+		
ALTERNATE	1	28.41
0 XSECTION	101	53.95
+		
ALTERNATE	1	25506.41
0 XSECTION	102	53.64

+		
ALTERNATE	1	25421.86
0 XSECTION	103	53.25
+		
ALTERNATE	1	25102.38
0 XSECTION	104	53.11
+		
ALTERNATE	1	25033.18
0 XSECTION	105	.23
+		
ALTERNATE	1	706.13
0 XSECTION	107	.23
+		
ALTERNATE	1	525.32
0 XSECTION	108	.25
+		
ALTERNATE	1	407.95
0 XSECTION	109	.11
+		
ALTERNATE	1	201.42
0 XSECTION	112	51.86
+		
ALTERNATE	1	23772.82
0 XSECTION	115	50.80
+		
ALTERNATE	1	22148.12
0 XSECTION	116	.21
+		
ALTERNATE	1	378.08
0 XSECTION	118	.44
+		
ALTERNATE	1	939.85
1		

TR20 XEQ 2/ 3/92 16:34 LOWER SAND CREEK FUT CONDITION

JOB 1

SUMMARY

REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24FU.DAT
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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 119 50.00

+		
ALTERNATE	1	21181.66
0 XSECTION	120	.13

+		
ALTERNATE	1	324.13
0 XSECTION	121	23.49
+		
ALTERNATE	1	18179.86
0 XSECTION	122	26.13
+		
ALTERNATE	1	5518.32
0 XSECTION	123	.20
+		
ALTERNATE	1	501.86
0 XSECTION	125	23.03
+		
ALTERNATE	1	17694.57
0 XSECTION	126	.16
+		
ALTERNATE	1	463.39
0 XSECTION	127	17.62
+		
ALTERNATE	1	16146.51
0 XSECTION	128	17.54
+		
ALTERNATE	1	16123.59
0 XSECTION	130	17.14
+		
ALTERNATE	1	15623.52
0 XSECTION	132	16.86
+		
ALTERNATE	1	15094.03
0 XSECTION	133	.13
+		
ALTERNATE	1	294.29
0 XSECTION	135	16.37
+		
ALTERNATE	1	14152.93
0 XSECTION	136	50.70
+		
ALTERNATE	1	22121.49
1		

XSEC 128
 PA = 17.54 SM
 Q₁₀₀ = 16146.51 cfs
 (FUTURE)

TR20 XEQ 2/ 3/92 16:34 LOWER SAND CREEK FUT CONDITION

JOB 1

SUMMARY

REV PC/09/83 24 HR TYPE IIA STORM (100YR AMC=2) FILE NAME D24FU.DAT
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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE	DRAINAGE AREA	STORM NUMBERS.....
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ID	(SQ MI)	1
0 XSECTION 138	.23	
+		
ALTERNATE 1		583.03
0 XSECTION 141	1.57	
+		
ALTERNATE 1		1982.50
0 XSECTION 142	1.32	
+		
ALTERNATE 1		1669.71
0 XSECTION 143	1.12	
+		
ALTERNATE 1		1666.30
0 XSECTION 144	.83	
+		
ALTERNATE 1		1344.06
0 XSECTION 145	.56	
+		
ALTERNATE 1		989.83
0 XSECTION 146	.41	
+		
ALTERNATE 1		765.79
0 XSECTION 149	.33	
+		
ALTERNATE 1		829.45
1END OF 1 JOBS IN THIS RUN		