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PHASE I REPORT

HYDROLOGIC ANALYSIS
BUCKEYE FLOODWATER RETARDING
STRUCTURES #1, #2, AND #3
FOR
FLOOD CONTROL DISTRICT
OF
MARICOPA COUNTY
FCD PROJECT 88-63

DAMES & MOORE

D&M Job No. 15448-003-022
January 23, 1990

DAMES & MOORE A PROFESSIONAL LIMITED PARTNERSHIP
POINTE CORPORATE CENTRE, 7500 NORTH DREAMY DRAW DRIVE, SUITE 145
PHOENIX, ARIZONA 85020 (602) 371-1110

January 23, 1990

D&M Job No. 15448-003-022

Flood Control District of
Maricopa County
3355 West Durango Street
Phoenix, Arizona 85009

Attention: Mr. Joe Rumann, Hydrologist III

Phase I Report
Hydrologic Analysis
Buckeye Floodwater Retarding
Structures #1, #2, and #3
for the Flood Control District
of Maricopa County
FCD Project 88-63

With this letter, we are pleased to submit the following items:

- Five copies of the above-referenced report.
- Three bound sets of the project calculations.
- One full size bound set of HEC-1 printouts.
- One floppy disk of the HEC-1 input files.

This submission completes the work required for Phase I of this project. We have enjoyed completing Phase I of this project for you. Should you have any questions regarding any of the materials submitted, please contact us.

Very truly yours,

DAMES & MOORE

George J. Geiser, P.E.
Project Manager

Robert J. Neukirchner, P.E.
Manager, Design Services Group

GJG/RJN/baw

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HYDROLOGIC ANALYSIS
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Dames & Moore
Pointe Corporate Centre
7500 North Dreamy Draw Drive, Suite 145
Phoenix, Arizona 85020

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1.0 INTRODUCTION

This report presents the results of Dames & Moore's Phase I hydrologic analysis of the upslope portions of the Buckeye watershed in western Maricopa County, Arizona. This work was completed under the terms of contract number FCD 88-63 between the Flood Control District (FCD) of Maricopa County and Dames & Moore. Phase II of this project will consist of dam-break analysis for the three Buckeye Floodwater Retarding Structures (FRSs) and will be submitted under separate cover.

1.1 OBJECTIVES AND SCOPE OF WORK

The objectives and scope of work for this project are identified below.

1.1.1 Objectives

The objectives of this project were to complete sufficient hydrologic analysis of the three existing Buckeye FRSs to:

- Develop inflow hydrographs for use in dam break analysis.
- Develop outflow hydrographs from principal and emergency spillways for specified events.
- Determine the adequacy of each FRS to protect the downstream watershed from the specified events.

1.1.2 Scope of Work

The scope of work for this project was negotiated between the FCD and Dames & Moore. The final scope of work is dated September 25, 1989 and is attached to and a part of the contract (Dames & Moore 1989). The scope of work is not repeated herein.

1.2 DESCRIPTION OF EXISTING FACILITIES

The three Buckeye FRSs are generally described below:

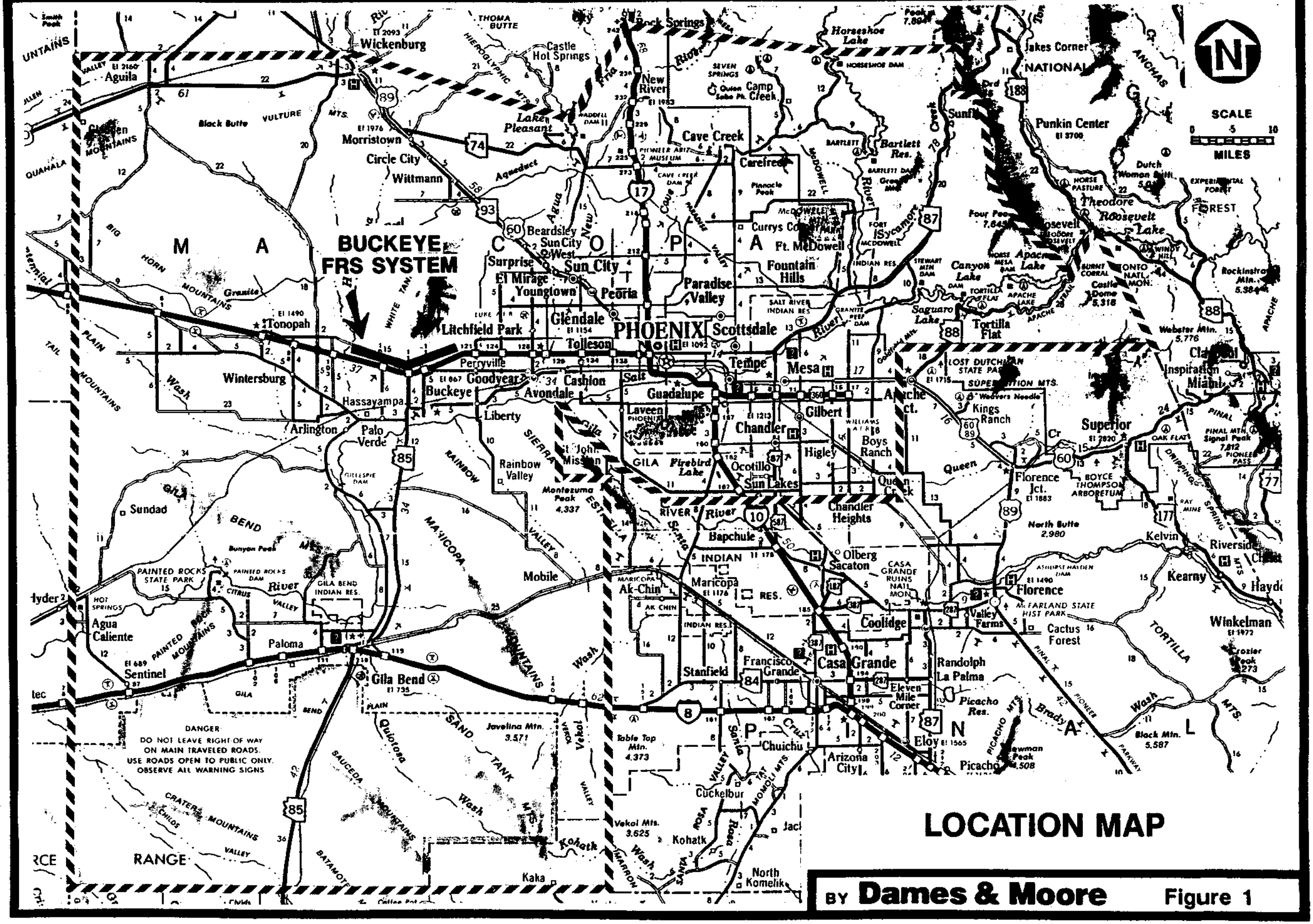
STRUCTURE: Buckeye FRS #1 (AZ No. 7-42)
LOCATION: T1N, R4W, SEC 6-10, 14, 15, T1N, R5W, SEC 1-3, 12;
T2N, R5W, SEC 34, 35
SIZE CLASSIFICATION: Medium
HAZARD CLASSIFICATION: High
INFLOW DESIGN FLOOD MAGNITUDE: PMF

STRUCTURE: Buckeye FRS #2 (AZ No. 7-44)
LOCATION: T1N, R3W, SEC 7-10; T1N, R4W, SEC 13, 14
SIZE CLASSIFICATION: Medium
HAZARD CLASSIFICATION: High
INFLOW DESIGN FLOOD MAGNITUDE: PMF

STRUCTURE: Buckeye FRS #3 (AZ No. 7-45)
LOCATION: T1N, R3W, SEC 2, 3, 10; T2N, R3W, SEC 36
SIZE CLASSIFICATION: Medium
HAZARD CLASSIFICATION: High
INFLOW DESIGN FLOOD MAGNITUDE: PMF

The general locations of these three FRSs are shown on Figure 1. More specific information on the location of the three FRSs is presented on Figure 2.

The three FRSs were designed and constructed by the Soil Conservation Service of the U.S. Department of Agriculture. The intended purpose of the three FRSs was to protect the lower portions of the Buckeye watershed area from excessive and potentially damaging surface water flows from the upslope portions of the watershed. The structures were designed to detain runoff from storms up to and including the storm with a one percent exceedance level (the 100-year event). The three FRSs were designed to function as a single system with the detained flows cascading west to eventual outfall to the Hassayampa River. Ungated low level outlets serve as principal spillways releasing runoff to the west (see Figure 2). Free surface emergency spillways were provided for each FRS to provide controlled discharge for storms in excess of the 100-year event. Emergency spillway discharges do not cascade to other FRSs but flow generally to the south toward the Gila River floodplain. Selected engineering design data for the three FRSs are presented in Table 1-1.



LOCATION MAP

BY **Dames & Moore** Figure 1

Table 1.1

SELECTED ENGINEERING DESIGN DATA FOR BUCKEYE FRS SYSTEM

	Units	FRS Identification		
		Buckeye #1	Buckeye #2	Buckeye #3
Embankment				
Length	Miles	7.0	2.3	3.0
Maximum Height	Feet	48	26	34
Crest Elevation	Feet	1088.0[a]	1117.0	1170.0
Principal Spillway				
Conduit Diameter	Inches	60	48	30
Emergency Spillway				
Crest Width	Feet	800	350	400
Crest Elevation	Feet	1079.8	1111.2	1163.2
Reservoir				
Surface Area				
@ E. Spillway Crest	Acres	1137	150	180
@ Dam Crest	Acres	1952	235	335
Storage Volume				
@ E. Spillway Crest	Acre Feet	8200	780	920
@ Dam Crest	Acre Feet	19024	1920	2786

[a] Buckeye FRS #1 embankment crest includes a 5580-foot-long level section at elevation 1088.0 feet, a 31,500-foot-long level section at elevation 1089.5 feet and a 600-foot-long sloping transition section between the two level sections.

Ref: Arizona Water Commission 1979, a, b

2.0 HYDROLOGIC ANALYSIS

The hydrologic analysis completed for this project was oriented at meeting all of the project objectives. It involved review of aerial photographs, maps, reports and construction drawings for the structures, a site visit and engineering analysis. The U.S. Army Corps of Engineers computer program Flood Hydrograph Package (HEC-1) was used to develop the inflow hydrographs and route the hydrographs through the reservoirs (USACOE 1985). A description of each step of this process is presented below.

2.1 DESCRIPTION OF STUDY AREA

The study area defined for this hydrologic analysis includes only that portion of the Buckeye watershed which is tributary to the Buckeye FRS system (see Figure 2). (where?) The study area includes a total of about 90 square miles located on the south and west flanks of the White Tank Mountains west of the Phoenix metropolitan area (see Figure 1). There is very little development in the study area and the ground varies from steep, rocky mountain slopes to the flatter alluvial areas at the lower elevations. The area is arid with sparse vegetation and creosotebrush association ground cover. A recent addition to the study area is the completion of the Sun Valley Parkway. This new road extends generally north-south across the study area on an alignment with Palo Verde Road. A new drainage channel extends north from the Buckeye FRS #1 reservoir area a distance of about 2.3 miles along the east side of the Sun Valley Parkway (see Figure 2). This channel is shotcrete lined and apparently intended to intercept surface flows and divert them south to the FRS system. A new box culvert was reportedly installed under the Sun Valley Parkway near the FRS system to allow detained runoff to flow under the parkway without overtopping the parkway. Analysis of this channel and box culvert was not in the scope of work for this project.

Drainage is generally to the south or west away from the mountains. The Hassayampa River is aligned generally south to north just west of the Buckeye FRS #1 emergency spillway. The Hassayampa River outfalls to the Gila River about nine miles south of the west end of Buckeye FRS #1.

The Gila River is aligned generally east to west and from six to nine miles south of the Buckeye FRS system.

The areas downslope of the Buckeye FRS system include significant areas of irrigation and both the Roosevelt and Buckeye canals. This downslope area also includes the town of Buckeye, the community of Palo Verde and one alignment of the Southern Pacific Railway system. The Interstate-10 freeway is located just downslope of the Buckeye FRS system (see Figure 2).

2.2 HEC-1 MODELING APPROACH

The hydrologic and hydraulic modeling of the Buckeye watershed and the FRSs was completed using the U.S. Army Corps of Engineers computer program (HEC-1) Flood Hydrograph Package (USACOE 1985). Dames & Moore's copy of the program is dated June 1988. Schematic diagrams of the HEC-1 modeling for the three FRSs are presented on Figures 3-5 (see also Figure 2).

2.3 PRECIPITATION DEVELOPMENT

The hypothetical 100-year storm, the general storm probable maximum precipitation (PMP), and the local storm PMP were developed for the study area. Durations for these storm events were 24-, 6-, and 72-hours, respectively. A single rainfall sequence was used to cover the entire tributary area for each storm event. PMP

The 100-year 24-hour storm was derived from the NOAA Atlas II (NOAA 1973). The 6-hour local and the 72-hour general storm PMPs were developed using HMR-49 (NOAA 1971).

The rainfall depths for each hypothetical storm are presented in Table 2.1. Precipitation depths during the peak six hours of the general PMP and during the peak 15 minutes of the local PMP were estimated from a smooth fit curve.

SCHEMATIC OF FRS #1
HEC-1 COMPUTER MODEL

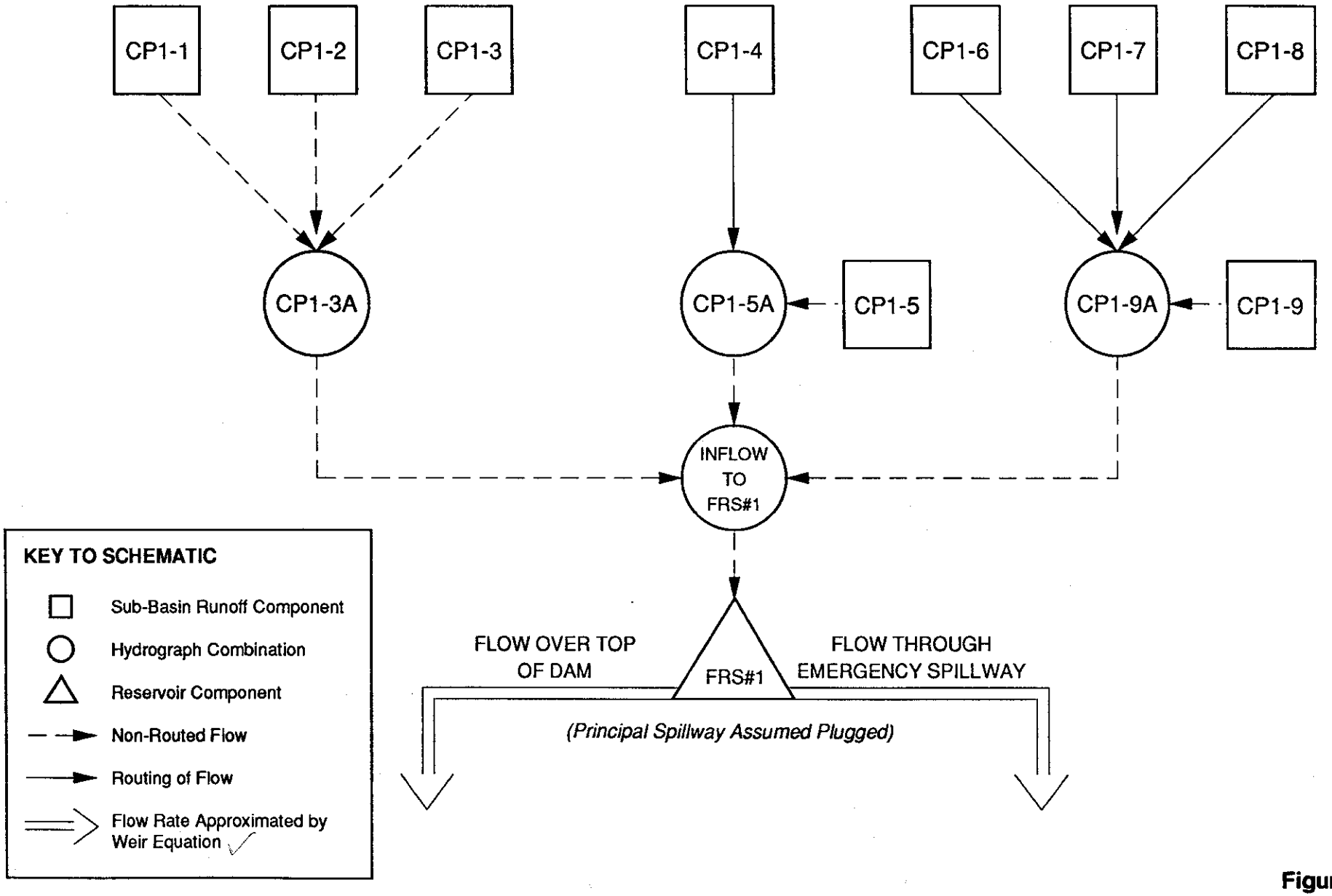


Figure 3

SCHEMATIC OF FRS #2
HEC-1 COMPUTER MODEL

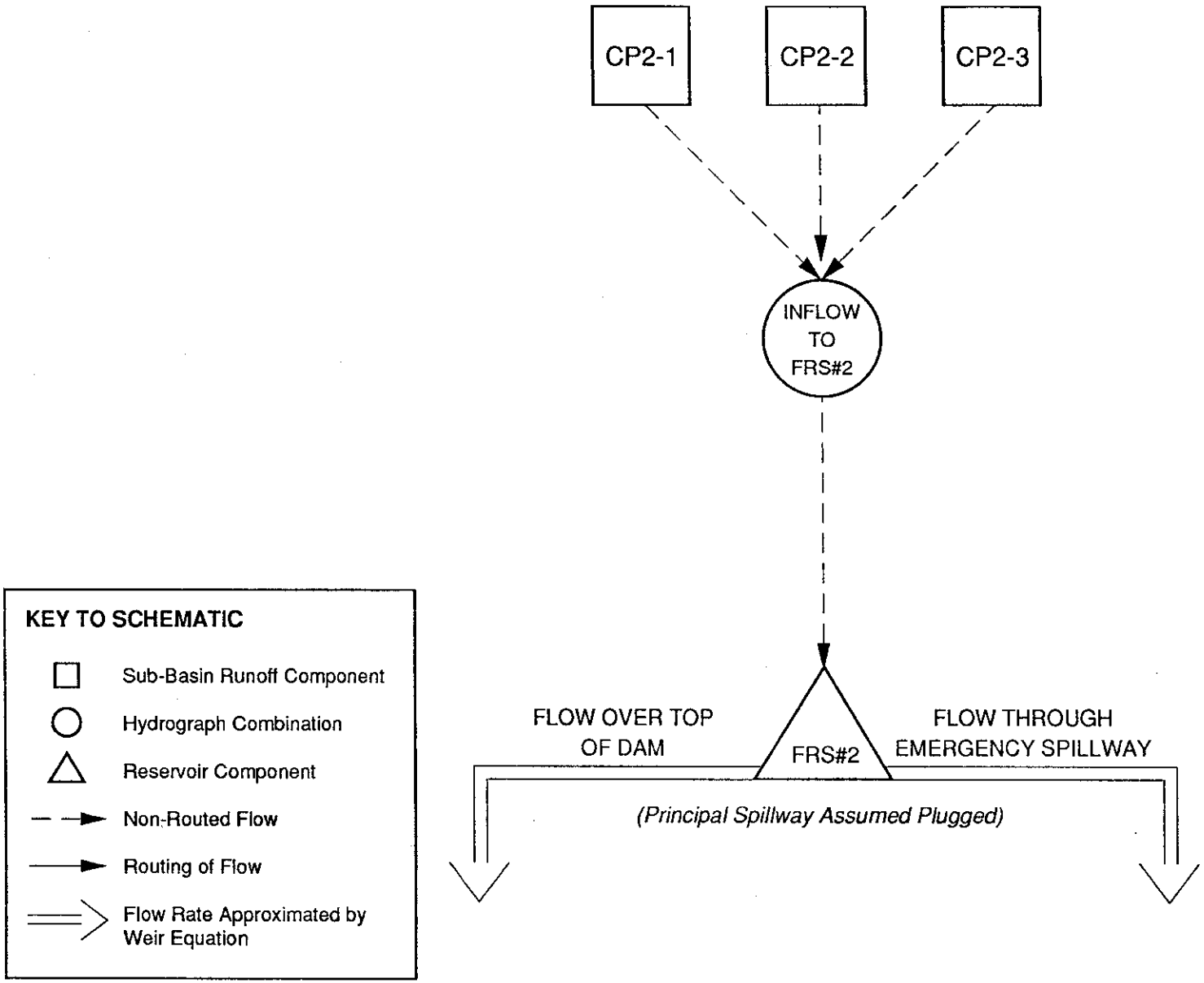


Figure 4

SCHEMATIC OF FRS #3
HEC-1 COMPUTER MODEL

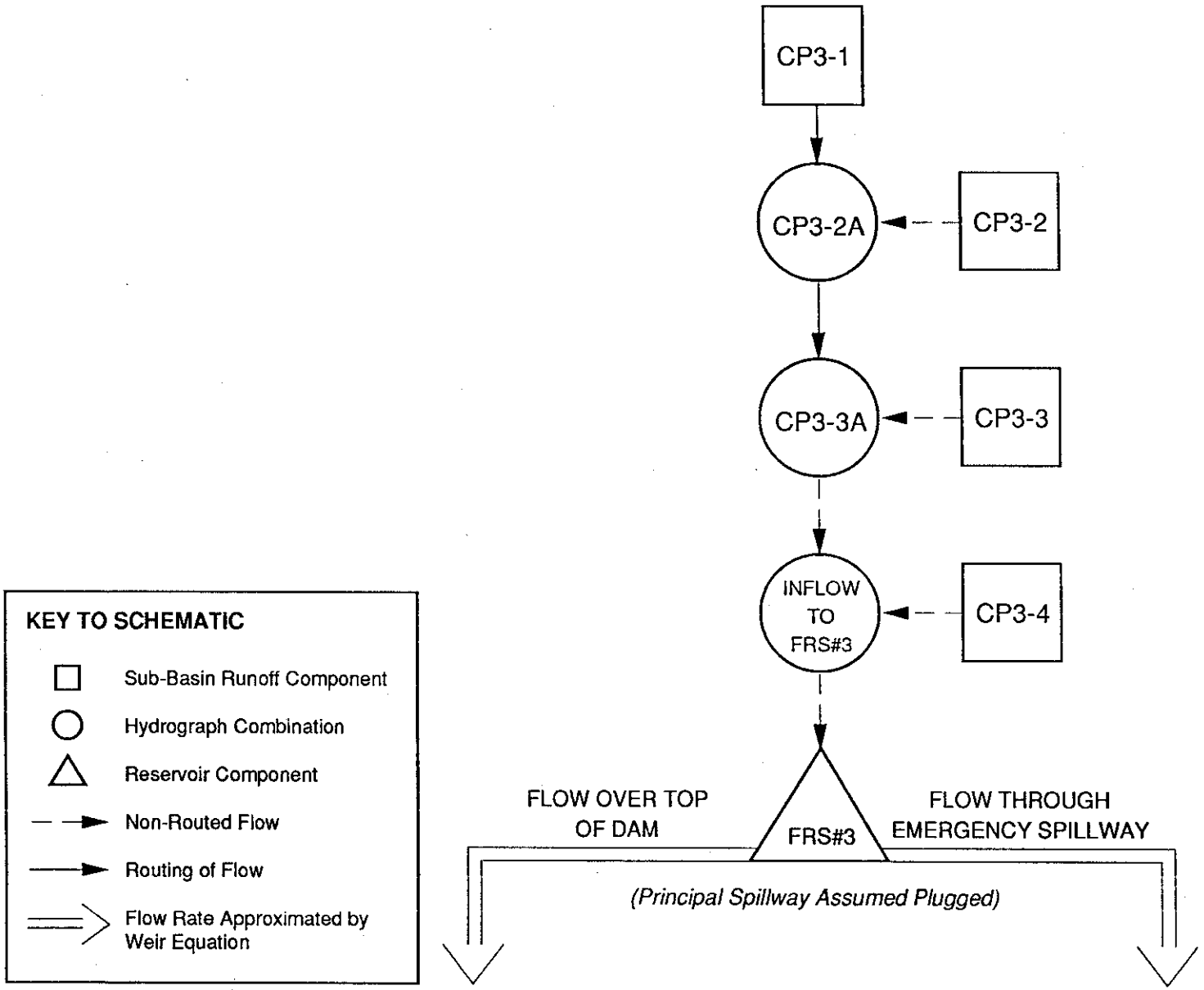


Figure 5

Table 2.1

PRECIPITATION DEPTHS FOR DESIGN STORMS

Storm Duration	24-Hour 100-Year Storm	6-Hour Local PMP	72-Hour General PMP
5 min.	0.7	3.1	0.9
10 min.	1.1	4.9	2.8
15 min.	1.3	6.2	3.3
30 min.	1.8	8.3	3.9
1 hr.	2.3	10.0	7.3
2 hr.	2.7	11.8	8.6
3 hr.	2.8	12.8	8.9
6 hr.	3.2	14.3	10.2
12 hr.	3.7	--	12.5
24 hr.	4.2	--	14.6
48 hr.	--	--	16.9
72 hr.	--	--	17.8

2.4 DRAINAGE AREA AND SUB-BASIN DELINEATION

The drainage areas for each FRS and sub-basins within these drainage areas were delineated using 1-inch = 2000 feet, 20 foot contour interval, topographic maps (see map reference on Figure 2). Area estimates were made using a LASICO Auto-Scaler planimeter model number L-1250 S-1. The drainage areas are presented in Table 2.2 of this report.

Table 2.2

HEC-1 MODELING PARAMETERS

Dam	Sub Basin	Area (square miles)	CN AMC II	CN AMC III	T_c (hours)	T_p (hours)
FRS #1	CP1-1[a]	2.78	84	93	1.25	0.75
	CP1-2	7.10	81	92	1.85	1.11
	CP1-3	19.32	82	92	3.44	2.06
	CP1-4	8.38	83	93	2.47	1.48
	CP1-5	5.45	79	91	2.23	1.34
	CP1-6	5.13	82	92	1.91	1.15
	CP1-7	8.67	82	92	1.48	0.89
	CP1-8	2.65	87	95	0.98	0.59
	CP1-9	16.39	78	90	5.36	3.22
	Total	75.87				
FRS #2	CP2-1	1.95	83	93	0.53	0.32
	CP2-2	2.46	82	92	0.94	0.56
	CP2-3	1.39	82	92	0.55	0.33
	Total	5.80				
FRS #3	CP3-1	1.42	86	94	0.28	0.17
	CP3-2	2.38	87	95	0.38	0.23
	CP3-3	2.61	84	93	0.80	0.48
	CP3-4	2.29	83	93	1.39	0.83
	Total	8.70				

[a] CP1-1 is located upslope of Floodway #2.

2.5 CURVE NUMBER SELECTION

The Soil Conservation Service (SCS) curve numbers (CNs) for soil-cover complexes occurring within the study area were selected based on the TR-55 (SCS 1986) suggested curve numbers for pasture or range land. TR-55 also lists suggested curve numbers for areas covered predominately by desert shurubs; however, Dames & Moore elected to use the slightly higher CNs listed for pasture or range land. The higher values were selected due to the steep slopes and large areas consisting of soil complexes classified as hydrologic soil group D in the mountainous sections of the study area. The CNs selected for antecedent moisture condition II (AMC II) are 68, 79, 86, and 89 for hydrologic soil groups A, B, C and D, respectively.

A weighted CN for each sub-basin was estimated using an area-weighted method of calculation:

$$CN = \frac{\sum A_i\% \ CN_i}{100\%}$$

where, CN = Weighted sub-basin CNs
$A_i\%$ = Percentage of total sub-basin area represented by soils of a hydrologic group.
CN_i = CN selected for soils of a hydrologic group (AMC II).

Soils within the study area were hydrologically classified using SCS soil survey maps (SCS 1977 and 1986a). The boundaries and hydrologic group classification for soils within the study area are presented on Figure 2. Weighted CNs developed for each sub-basin are listed in Table 2.2. Weighted CNs for AMC III were selected using SCS National Engineering Handbook, Section 4, Hydrology and were based on the CNs for AMC II (SCS 1972).

2.6 TIME OF CONCENTRATION AND TIME TO PEAK ESTIMATION

The time of concentration (T_c) for each sub-basin was evaluated using four different methods:

1. Empirical Method (USBR 1973)
2. Upland Method (SCS 1975)
3. Curve Number Method (SCS 1975)
4. Manning Equation

Method 1, the empirical method, approximates T_c for a basin based on the length of the longest hydraulic reach and the elevation difference between the beginning and the end of the reach:

$$T_c = \left[\frac{11.9 \ L^3}{H}\right]^{0.385}$$

where, T_c = time of concentration (in hours),
L = length of the longest hydraulic reach (in miles), and
H = elevation difference associated with L (in feet).

Method 2, the upland method for estimating T_c, is similar to method 4 except that the velocity of flow is selected from Figure 15.2 (SCS 1975) based on the average slope and type of soil cover through a reach.

Method 3, the curve number method for estimating T_c for a basin, uses the average slope and the weighted curve number for the basin to estimate the lag time in hours. Using parameters stated, the basin's lag time is selected from Figure 15.3 (SCS 1975) and the following equation is used to approximate T_c:

$$T_c = \frac{L}{0.6}$$

where, T_c = time of concentration (in hours), and
L = lag time (in hours)

Times of concentration for the sub-basins based on method 4 were evaluated using the following procedures:

1. Select the hydraulically longest watercourse from the point of interest to the upslope boundary of the sub-basin.

2. Divide the watercourse into reaches such that the slope along each reach is fairly constant.

3. Estimate an average velocity of flow through each reach using the Manning equation:

$$V = \frac{1.49}{n} R^{0.67} S^{0.5}$$

where, V = average velocity of flow through reach (in feet per second),
n = Manning n (assumed to be 0.040 for this study),
R = hydraulic radius of the channel, and
S = the average slope of that reach (in feet/feet).

4. Estimate the travel time of the flow through each reach L using the following equation:

$$T_t = \frac{L}{3600\ V}$$

where, T_t = travel time (in hours)
L = length of reach (in feet), and
V = average flow velocity in the reach (in feet per second).

5. Estimate the time of concentration (T_c) in hours, for the sub-basin of interest as being:

$$T_c = \sum T_t$$

Times of concentration estimated by the Manning Equation, method 4, were selected as most representative of the study area based on the site visit, a review of soils information, and engineering judgment. The times of concentration for each sub-basin were developed using the four methods described above and are presented in Dames & Moore's calucations bound separately. Only the times of concentration developed using method 4 are presented in Table 2.2.

To estimate the time to peak (T_p) for a basin, Dames & Moore assumed that T_p was sixty percent of T_c:

$$T_p = 0.60\ T_c$$

The estimated times to peak for the sub-basins are presented in Table 2.2.

2.7 CHANNEL ROUTING PARAMETERS

The routing of developed hydrographs through downslope reaches to a control point (CP) was completed using one of two methods. The first routing method for reaches one mile or less in length was a lagging of the hydrograph for time to travel through the reach. The second routing method used for reaches greater than one mile in length was the Muskingum method (USACOE 1985) which computes outflow from a reach using the following equations:

$$Qout_n = (CA - CB)\ Qin_{n-1} + (1 - CA)\ Qout_{n-1} + (CB)\ Qin_n$$

where,

$$CA = \frac{2t}{2K\ (1-X) + t}$$

$$CB = \frac{t - 2KX}{2K\ (1-X) + t}$$

n = routing period,
Qin = inflow rate to reach for the routing period N (in cubic feet per second),
Qout = outflow rate to reach for the routing period N (in cubic feet per second),
t = time interval of routing period (in hours),
K = storage constant (approximately equal to the travel time through the reach), and
X = the Muskingum weighting factor (dimensionless) for the reach $0.0 \leq X \leq 0.5$).

The storage constant K was approximated using method 4 for calculating T_c and was assumed equal to T_c. The Muskingum weighting factor X was selected to be 0.40 based on a review of references, the site visit and engineering judgment (Barfield and Warner 1981, Chow 1959, Linsley et. al. 1982). The routing parameters used and the reaches that the hydrographs were routed through are presented in Table 2.3.

Table 2.3

HYDROGRAPH ROUTING PARAMETERS

Reach		Distance	Routing	Lag Time	Muskingum Parameters	
From	To	(miles)	Method	(minutes)	X	K
CP1-4	CP1-5	3.4	Muskingum	--	0.40	1.69
CP1-6	CP1-9	5.9	Muskingum	--	0.40	2.77
CP1-7	CP1-9	6.9	Muskingum	--	0.40	3.22
CP1-8	CP1-9	8.0	Muskingum	--	0.40	3.77
CP3-1	CP3-2	1.0	Lagged	15		
CP3-2	CP3-3	2.5	Muskingum	--	0.40	0.75

To ensure numerical stability of the calculations performed by the Muskingum routing subroutine used in the HEC-1 computer program, reaches were further divided into subreaches. The number of subreaches used was based on storm duration and the time interval selected for the HEC-1 modelling of each storm.

2.8 REVIEW OF RESERVOIR AREA AND VOLUME VERSUS ELEVATION DATA

Dames & Moore reviewed the capacity charts shown on the design drawings for FRS #1 (Sheet 2), FRS #2 (Sheet 29), and FRS #3 (Sheet 3) (SCS 1971 and 1972). To initiate this review, Dames & Moore assumed that the drawings for each FRS structure accurately represent the as-built structures and reservoirs as they are today. Reservoir water surface areas were developed from the 4-foot interval contours shown on the plan views of the construction drawings for each FRS using a LASCIO planimeter. The storage volume at each respective water surface elevation was then approximated using the average end area method. The results of Dames & Moore's derived storage volume versus water surface elevation relationships for each of the three FRSs closely approximated the curves shown on the capacity charts.

Two discrepancies, however, were discovered on the capacity chart presented on the construction drawings for FRS #3. First, the capacity chart has a heading for elevation and surface area but does not have a heading for storage volume. The bottom axis on the chart is titled "Storage Area in Feet" (SCS 1972). Dames & Moore assumes that the axis would be more correctly titled "Storage Volume in Acre-Feet". The second discrepancy on the capacity chart is the called out reservoir storage volume of 920 acre-feet at the emergency spillway crest elevation of 1163.2 feet. The spillway crest elevation appears to have been plotted at 1162.2 feet and then mislabeled as 1163.2 feet. Dames & Moore reads the reservoir storage volume at the correct emergency spillway crest elevation of 1163.2 feet on this chart as 1220 acre-feet.

Except for the stated discrepancies, Dames & Moore found that the information given on the capacity charts was accurate enough to represent the reservoir surface area and volume versus elevation data used in the HEC-1 computer models. It is noted that the topography shown on the construction drawings represents pre-construction contours and does not allow for construction borrow areas or reservoir sedimentation. Input data for the models were obtained for each reservoir by scaling off the area and

volume for selected elevations from the respective curves shown on the capacity charts for each FRS.

2.9 RESERVOIR ROUTING

An inflow hydrograph was routed through a reservoir by assuming that:

- Principal spillways were clogged and no flow could pass through them (Dames & Moore 1989a).
- All reservoirs are empty prior to the start of a storm event.
- The dams would maintain their structural integrity during an overtopping event.
- The relationship between a reservoir's water surface elevation and outflow through an emergency spillway or over the dam's crest could be approximated by the weir equation.

The weir equation for approximating outflow from a reservoir is:

$$Q = CLH^x$$

where, Q = outflow (in cubic feet per second),
C = weir coefficient of discharge,
L = the length of the weir perpendicular to the flow (in feet),
H = the difference between the reservoir mean water surface elevation and the crest elevation for the weir (in feet), and
x = the exponent of head.

The exponent of head (x), used in the weir equation is typically 1.5, and this value was assigned to x for modeling purposes (USACOE 1985). The other modelling parameters used in the weir equation are listed in Table 2.4.

Table 2.4

RESERVOIR ROUTING PARAMETERS

Structure	Crest Elevation (feet)	Length L (feet)	Coefficient of Discharge C	Exponent of Head x
FRS #1				
Emergency Spillway	1079.8	800	2.7	1.5
Dam overtopping				
Sta. 555+00 to 873+00	1089.5	31,800	2.7	1.5
Sta. 873+00 to 931+80	1088.0	5,880	2.7	1.5
FRS #2				
Emergency Spillway	1111.2	350	2.7	1.5
Dam overtopping	1117.0	9,455[a]	2.7	1.5
FRS #3				
Emergency Spillway	1163.2	400	2.5[b]	1.5
Dam overtopping	1170.0	16,851	2.7	1.5

Notes:

[a] The total embankment length is 12,105± feet. The crest elevation begins at 1131.58 and then slopes downward for 2,650 feet to a crest elevation of 1117.0 feet. The sloping section of the embankment was not included for modelling purposes.

[b] The coefficient of discharge was reduced by 0.2 to account for head losses in the 750-foot-long approach channel.

3.0 RESULTS OF HYDROLOGIC ANALYSIS

The results of the hydrologic analysis for the Buckeye FRS system are presented herein. The three objectives for this phase of the project are listed in Section 1.1.1 of this report. Each of the three objectives is discussed below.

- The inflow hydrographs for each of the three FRSs and for each of the 100-year, 6-hour PMP and 72-hour PMP are summarized in Table 3.1 and presented in detail in the HEC-1 printouts in the appendix.

- The outflow hydrographs for each of the three FRSs and the selected storms are also summarized in Table 3.1 and presented in detail in the HEC-1 printouts in the appendix. It is noted that the 100-year storm essentially is fully detained by the three FRSs and that some of the PMP events overtop some of the FRSs, and in these cases, the outflow hydrographs include a combined emergency spillway and dam overtopping hydrograph. No principal spillway outflow hydrographs are presented because the FCD requested that the principal spillways be assumed completely plugged for the HEC-1 modeling.

- The adequacy of the three FRSs to protect the downslope watershed is also presented in Table 3.1. As can be seen in the table, each FRS is capable of fully detaining the runoff from a 100-year event (with an accuracy of about six percent). FRSs #2 and #3 can pass the reservoir-routed 72-hour PMF through the emergency spillway without dam overtopping, but with minimum freeboards of 1.6 and 2.0 feet, respectively. FRS #1 can pass only 76 percent of the reservoir-routed 72-hour PMF through the emergency spillway without dam overtopping. Between 37 and 49 percent of the reservoir-routed 6-hour PMF can be passed through the FRS emergency spillways without dam overtopping.

Table 3.1

SUMMARY OF RESERVOIR ROUTING ANALYSES
FOR BUCKEYE FRS SYSTEM

	Units	Buckeye FRS #1			Buckeye FRS #2			Buckeye FRS #3		
		100-Year Storm	6-Hour PMP	72-Hour PMP	100-Year Storm	6-Hour PMP	72-Hour PMP	100-Year Storm	6-Hour PMP	72-Hour PMP
Reservoir Physical Parameters										
Embankment Crest Elevation	feet	1088.0[a]	1088.0[a]	1088.0[a]	1117.0	1117.0	1117.0	1170.0	1170.0	1170.0
Emergency Spillway Crest Elevation	feet	1079.8	1079.8	1079.8	1111.2	1111.2	1111.2	1163.2	1163.2	1163.2
Storage Volume Below Emergency Spillway Crest Elevation	acft	8,200	8,200	8,200	780	780	780	1,220	1,220	1,220
Reservoir Inflow										
Volume	acft	8,826	53,711	67,819	740	4,130	5,209	1,212	6,275	7,895
Peak Flow Rate	cfs	21,297	144,648	84,550	6,714	42,243	16,845	9,147	54,275	20,157
Time of Peak	hrs[b]	16.2	7.2	40.3	12.4	3.5	36.7	13.1	4.2	37.3
Reservoir Routing										
Maximum Water Surface Elevation	feet	1080.3	1089.9	1088.7	1110.9	1117.6	1115.4	1163.2	1170.7	1168.0
Minimum Freeboard	feet	7.7	0.0	0.0	6.1	0.0	1.6	6.8	0.0	2.0
Maximum Reservoir Storage Volume	acft	8,710	24,697	21,847	740	2,035	1,530	1,212	3,215	2,501
Maximum Reservoir Storage Volume as a Percentage of Storage Volume Below Emergency Spillway Crest Elevation	%	106	301	266	95	261	196	99	264	205
Time That Embankment Crest Overtopping Starts	hrs[b]	—	6.3	40.6	—	3.5	—	—	4.3	—
Maximum Depth of Embankment Crest Overtopping	feet	0.0	1.9[a]	0.7[a]	0.0	0.6	0.0	0.0	0.7	0.0
Duration of Embankment Crest Overtopping	hrs	—	3.7	4.0	—	0.8	—	—	0.8	—
Emergency Spillway Capacity at Embankment Crest Elevation	cfs	50,719	50,719	50,719	13,229	13,229	13,229	17,732	17,732	17,732
Total Reservoir Discharge	cfs	787	137,708	66,653	0	28,203	8,138	0	45,452	10,650
Percent of Total Reservoir Discharge which can be Passed Through Emergency Spillway Below Embankment Crest Elevation	%	100	37	76	—	47	100	100	39	100

[a] Buckeye FRS #1 embankment crest includes a 5580-foot-long level section at elevation 1088.0 feet, a 31,500-foot-long level section at elevation 1089.5 feet and a 600-foot-long sloping transition section between the two level sections

[b] After start of storm

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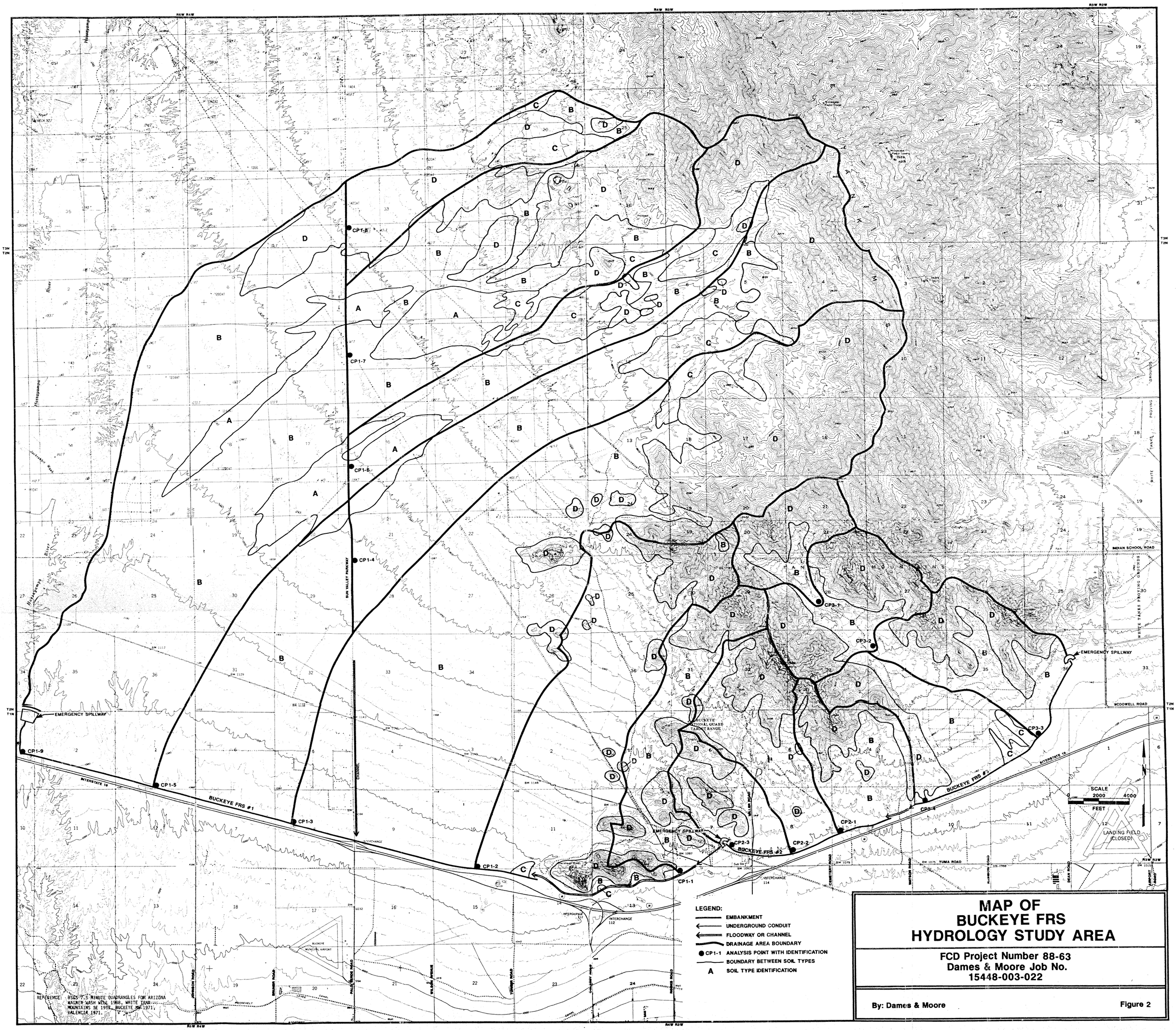
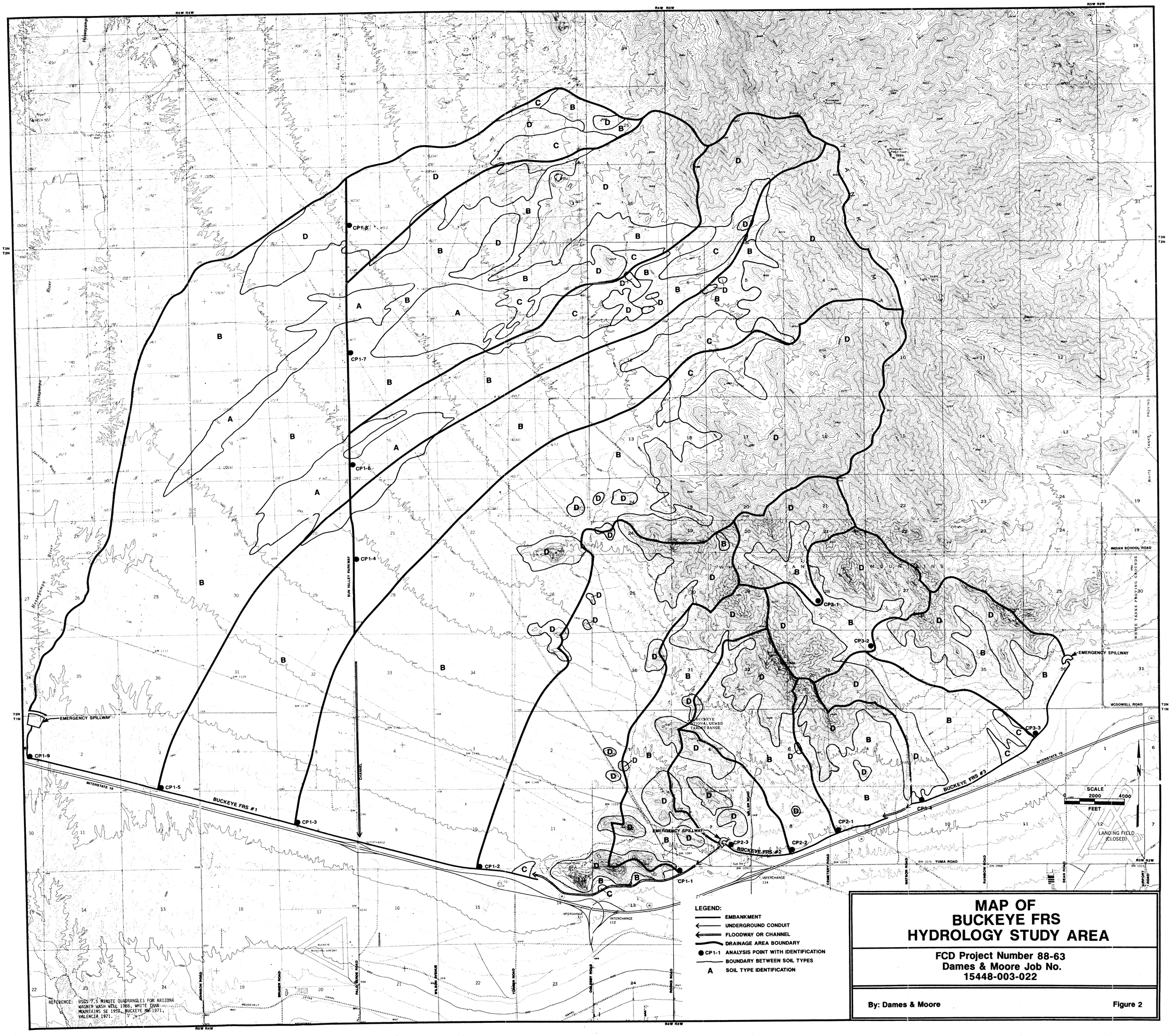


MAP OF BUCKEYE FRS HYDROLOGY STUDY AREA

FCD Project Number 88-63
Dames & Moore Job No.
15448-003-022

By: Dames & Moore

Figure 2



MAP OF BUCKEYE FRS HYDROLOGY STUDY AREA

FCD Project Number 88-63
Dames & Moore Job No.
15448-003-022

By: Dames & Moore

Figure 2

APPENDIX

TABLE OF CONTENTS

HEC-1 MODELING

- Buckeye FRS #1 - 100-Year Storm
- Buckeye FRS #1 - 6-Hour PMP
- Buckeye FRS #1 - 72-Hour PMP
- Buckeye FRS #2 - 100-Year Storm
- Buckeye FRS #2 - 6-Hour PMP
- Buckeye FRS #2 - 72-Hour PMP
- Buckeye FRS #3 - 100-Year Storm
- Buckeye FRS #3 - 6-Hour PMP
- Buckeye FRS #3 - 72-Hour PMP

BUCKEYE FRS #1

100-YEAR STORM

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*          REVISED 01 JUN 88            *
*                                       *
*  RUN DATE  01/19/1990  TIME  08:20:54 *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*     U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*          (916) 551-1748               *
*                                       *
*****************************************
```

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

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

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

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

  1           ID        DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
  2           ID        OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
  3           ID        STRUCTURE #1 (AZ No. 7-42) **** 100-YEAR STORM **** (REVISED 1-10-90)
              *DIAGRAM
  4           IT       5  1DEC89    0000     300
  5           IO       3       0

  6           KK   CP1-1  DEVELOP HYDROGRAPH FOR CP1-1
  7           KM          CP1-1 IS LOCATED IN FLOODWAY #2, FLOW IS TO FRS #1
  8           BA    2.78
  9           PH       1            0.7     1.3     2.3     2.7     2.8     3.2     3.7     4.2
 10           LS     0.0      84
 11           UD    0.75

 12           KK   CP1-2  DEVELOP HYDROGRAPH FOR CP1-2
 13           BA    7.10
 14           LS     0.0      81
 15           UD    1.11

 16           KK   CP1-3  DEVELOP HYDROGRAPH FOR CP1-3
 17           BA   19.32
 18           LS     0.0      82
 19           UD    2.06

 20           KK  CP1-3A  COMBINE HYDROGRAPHS CP1-1, CP1-2, AND CP1-3 (= CP1-3A)
 21           HC       3

 22           KK   CP1-4  DEVELOP HYDROGRAPH FOR CP1-4
 23           BA    8.38
 24           LS     0.0      83
 25           UD    1.48

 26           KK  CP1-4R  MUSKINGUM ROUTING OF CP1-4 HYDROGRAPH 3.38 MILES TO CP1-5
 27           RM      24    1.69    0.40

 28           KK   CP1-5  DEVELOP HYDROGRAPH FOR CP1-5
 29           BA    5.45
 30           LS     0.0      79
 31           UD    1.34

 32           KK  CP1-5A  COMBINE HYDROGRAPH CP1-4R WITH CP1-5 (= CP1-5A)
 33           HC       2

 34           KK   CP1-6  DEVELOP HYDROGRAPH FOR CP1-6
 35           BA    5.13
 36           LS     0.0      82
 37           UD    1.15

 38           KK  CP1-6R  MUSKINGUM ROUTING OF CP1-6 HYDROGRAPH 5.89 MILES TO CP1-9A
 39           RM      39    2.77    0.40
```

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

  40          KK   CP1-7  DEVELOP HYDROGRAPH FOR CP1-7
  41          BA    8.67
  42          LS     0.0       82
  43          UD    0.89

  44          KK  CP1-7R  MUSKINGUM ROUTING OF CP1-7 HYDROGRAPH 6.86 MILES TO CP1-9A
  45          RM      46    3.22    0.40

  46          KK   CP1-8  DEVELOP HYDROGRAPH FOR CP1-8
  47          BA    2.65
  48          LS     0.0       87
  49          UD    0.59

  50          KK  CP1-8R  MUSKINGUM ROUTING OF CP1-8 HYDROGRAPH 8.01 MILES TO CP1-9A
  51          RM      54    3.77    0.40

  52          KK   CP1-9  DEVELOP HYDROGRAPH FOR CP1-9
  53          BA   16.39
  54          LS     0.0       78
  55          UD    3.22

  56          KK  CP1-9A  COMBINE HYDROGRAPHS CP1-6R, 7R, 8R AND 9 (= CP1-9A)
  57          HC       4

  58          KK  FRS #1  COMBINE HYDROGRAPHS CP1-3A, CP1-5A, AND CP1-9A (= FRS #1)
  59          KO       1
  60          HC       3

  61          KK   ROUTE  RESERVIOR ROUTING OF FRS #1 USING FRS #1 HYDROGRAPH
  62          KM          RESERVIOR ASSUMED EMPTY
  63          KO       1
  64          RS       1    STOR     0.0
  65          ST  1088.0    5880     2.70     1.5
  66          SV    5880    5880    37680
  67          SE  1088.0  1089.5   1089.5
  68          SS  1079.8     800     2.70     1.5
  69          SV       0     200      750     2000     4500     6300     8200    10400    13200    16600
  70          SV   20300   25000
  71          SE    1060    1064     1068     1072     1076     1078   1079.8     1082     1084     1086
  72          SE    1088    1090
  73          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

(U) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW

```
INPUT
 LINE
  NO.
   6     CP1-1
                 .
  12             .       CP1-2
                 .          .
  16             .          .       CP1-3
                 .          .          .
  20     CP1-3A.......................
                 .
  22             .       CP1-4
                 .          U
                 .          U
  26             .       CP1-4R
                 .          .
  28             .          .       CP1-5
                 .          .          .
  32             .       CP1-5A............
                 .          .
  34             .          .       CP1-6
                 .          .          U
                 .          .          U
  38             .          .       CP1-6R
                 .          .          .
  40             .          .          .       CP1-7
                 .          .          .          U
                 .          .          .          U
  44             .          .          .       CP1-7R
                 .          .          .          .
  46             .          .          .          .       CP1-8
                 .          .          .          .          U
                 .          .          .          .          U
  50             .          .          .          .       CP1-8R
                 .          .          .          .          .
  52             .          .          .          .          .       CP1-9
                 .          .          .          .          .          .
  56             .          .       CP1-9A.....................................
                 .          .          .
  58     FRS #1.......................
                U
                U
  61     ROUTE
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*          FEBRUARY 1981            *
*        REVISED 01 JUN 80          *
*                                   *
*  RUN DATE  01/19/1990  TIME  08:20:54 *
*                                   *
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*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*  THE HYDROLOGIC ENGINEERING CENTER *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

DANES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
STRUCTURE #1 (AZ No. 7-42) **** 100-YEAR STORM **** (REVISED 1-10-90)

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

   IT         HYDROGRAPH TIME DATA
                    NMIN          5  MINUTES IN COMPUTATION INTERVAL
                   IDATE    1DEC89  STARTING DATE
                   ITIME      0000  STARTING TIME
                      NQ       300  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE    2DEC89  ENDING DATE
                  NDTIME      0055  ENDING TIME
                   ICENT        19  CENTURY MARK

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   24.92 HOURS

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

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

          **************
          *            *
  6 KK    *    CP1-1   *      DEVELOP HYDROGRAPH FOR CP1-1
          *            *
          **************
                          CP1-1 IS LOCATED IN FLOODWAY #2, FLOW IS TO FRS #1

            SUBBASIN RUNOFF DATA

  8 BA        SUBBASIN CHARACTERISTICS
                  TAREA        2.70  SUBBASIN AREA
```

```
                PRECIPITATION DATA

  9 PH                                DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                 5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                   .70    1.30   2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00

                                                STORM AREA =    2.78

 10 LS            SCS LOSS RATE
                        STRTL        .30  INITIAL ABSTRACTION
                       CRVNBR      84.00  CURVE NUMBER
                        RTIMP        .00  PERCENT IMPERVIOUS AREA

 11 UD            SCS DIMENSIONLESS UNITGRAPH
                         TLAG        .75  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                          47 END-OF-PERIOD ORDINATES
                 57.     186.     355.     584.     803.    1207.    1462.    1623.    1690.    1690.
               1623.    1505.    1368.    1200.     994.     808.     675.     566.     476.     410.
                346.     293.     243.     207.     174.     147.     123.     103.      87.      73.
                 62.      52.      44.      37.      31.      26.      22.      19.      17.      14.
                 12.      10.       8.       6.       4.       3.       1.

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

                       HYDROGRAPH AT STATION    CP1-1

    TOTAL RAINFALL =    4.18, TOTAL LOSS =    1.65, TOTAL EXCESS =    2.53

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                    6-HR       24-HR       72-HR     24.92-HR
   2477.      12.83        (CFS)      649.        189.        182.        182.
                         (INCHES)    2.171       2.528       2.528       2.528
                          (AC-FT)     322.        375.        375.        375.

                       CUMULATIVE AREA =    2.78 SQ MI

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

            **************
            *            *
 12 KK      *    CP1-2   *       DEVELOP HYDROGRAPH FOR CP1-2
            *            *
            **************

              SUBBASIN RUNOFF DATA

 13 BA            SUBBASIN CHARACTERISTICS
                        TAREA       7.10  SUBBASIN AREA

                PRECIPITATION DATA
```

```
 9 PH                                   DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                        ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                      5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR    2-DAY   4-DAY   7-DAY  10-DAY
                       .70    1.30    2.30    2.70    2.80    3.20    3.70    4.20      .00     .00     .00     .00

                                                   STORM AREA =     7.10

 14 LS          SCS LOSS RATE
                      STRTL        .47  INITIAL ABSTRACTION
                     CRVNBR      81.00  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 15 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG       1.11  LAG

                                                   ***

                                                 UNIT HYDROGRAPH
                                            69 END-OF-PERIOD ORDINATES
                 65.     183.     344.     530.     787.    1086.    1437.    1846.    2210.    2519.
               2756.    2892.    2961.    2974.    2953.    2845.    2707.    2555.    2383.    2182.
               1955.    1697.    1476.    1294.    1145.    1016.     903.     806.     727.     648.
                570.     513.     449.     402.     359.     316.     284.     252.     222.     198.
                175.     155.     139.     123.     110.      98.      86.      78.      69.      61.
                 54.      48.      43.      38.      34.      31.      28.      26.      23.      21.
                 18.      15.      13.      11.       9.       7.       5.       2.       0.

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

                      HYDROGRAPH AT STATION    CP1-2

    TOTAL RAINFALL =    4.16, TOTAL LOSS =    1.90, TOTAL EXCESS =    2.26

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                   6-HR      24-HR      72-HR    24.92-HR
   4187.      13.25        (CFS)     1465.       428.       412.       412.
                        (INCHES)     1.918      2.241      2.241      2.241
                         (AC-FT)      726.       849.       849.       849.

                      CUMULATIVE AREA =    7.10 SQ MI

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

                 **************
                 *            *
 16 KK           *    CP1-3   *        DEVELOP HYDROGRAPH FOR CP1-3
                 *            *
                 **************

                SUBBASIN RUNOFF DATA

 17 BA            SUBBASIN CHARACTERISTICS
                       TAREA      19.32  SUBBASIN AREA

                  PRECIPITATION DATA
```

9 PH DEPTHS FOR 1-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
.70	1.30	2.30	2.70	2.80	3.20	3.70	4.20	.00	.00	.00	.00

STORM AREA = 19.32

10 LS SCS LOSS RATE

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

19 UD SCS DIMENSIONLESS UNITGRAPH

TLAG 2.06 LAG

***

UNIT HYDROGRAPH
126 END-OF-PERIOD ORDINATES

53.	106.	192.	315.	439.	596.	754.	935.	1147.	1358.
1634.	1915.	2218.	2552.	2887.	3175.	3457.	3708.	3902.	4096.
4217.	4323.	4402.	4419.	4437.	4427.	4409.	4369.	4263.	4158.
4039.	3916.	3789.	3648.	3507.	3342.	3166.	2984.	2772.	2561.
2373.	2197.	2027.	1904.	1781.	1668.	1562.	1458.	1370.	1282.
1207.	1143.	1079.	1015.	950.	892.	839.	786.	733.	681.
636.	601.	566.	531.	495.	464.	437.	411.	385.	358.
334.	315.	296.	276.	257.	240.	227.	213.	200.	187.
175.	165.	155.	146.	136.	127.	120.	113.	106.	99.
92.	87.	82.	76.	71.	66.	63.	59.	55.	52.
49.	46.	44.	42.	40.	38.	36.	34.	32.	30.
27.	25.	23.	21.	20.	18.	16.	14.	13.	11.
9.	7.	5.	4.	2.	0.				

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

HYDROGRAPH AT STATION CP1-3

TOTAL RAINFALL = 4.10, TOTAL LOSS = 1.81, TOTAL EXCESS = 2.29

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
6931.	14.25	(CFS)	3811.	1161.	1119.	1119.
		(INCHES)	1.834	2.236	2.236	2.236
		(AC-FT)	1890.	2304.	2304.	2304.

CUMULATIVE AREA = 19.32 SQ MI

*** ***

20 KK CP1-3A COMBINE HYDROGRAPHS CP1-1, CP1-2, AND CP1-3 (= CP1-3A)

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21 HC          HYDROGRAPH COMBINATION
                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

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

                    HYDROGRAPH AT STATION   CP1-3A

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR        24-HR        72-HR      24.92-HR
  10669.     13.50        (CFS)   5879.        1778.        1713.        1713.
                        (INCHES)   1.872        2.265        2.265        2.265
                         (AC-FT)   2915.        3527.        3527.        3527.

                       CUMULATIVE AREA =   29.20 SQ MI

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

            **************
            *            *
22 KK       *   CP1-4    *       DEVELOP HYDROGRAPH FOR CP1-4
            *            *
            **************

            SUBBASIN RUNOFF DATA

23 BA          SUBBASIN CHARACTERISTICS
                    TAREA        8.38  SUBBASIN AREA

               PRECIPITATION DATA

 9 PR                                DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
               ..... HYDRO-35 .....  ............... TP-40 ...............  ........... TP-49 ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 .70    1.30   2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00

                                                STORM AREA =    8.38

24 LS          SCS LOSS RATE
                    STRTL         .41  INITIAL ABSTRACTION
                   CRVNBR       83.00  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

25 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG        1.48  LAG
                                                          ***

                                                UNIT HYDROGRAPH
                                            91 END-OF-PERIOD ORDINATES
                 44.      98.     200.     312.     443.     597.     772.     987.    1220.    1491.
               1766.    1999.    2217.    2377.    2508.    2596.    2642.    2657.    2650.    2635.
               2554.    2465.    2363.    2257.    2141.    2012.    1866.    1702.    1528.    1376.
               1230.    1126.    1026.     939.     856.     783.     719.     666.     613.     560.
                515.     471.     427.     386.     357.     328.     299.     273.     251.     230.
```

208.	191.	175.	159.	144.	133.	122.	111.	102.	94.
86.	78.	72.	66.	60.	55.	50.	46.	42.	38.
35.	32.	29.	28.	26.	24.	22.	21.	19.	17.
15.	14.	12.	11.	9.	8.	6.	5.	3.	2.
0.									

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

HYDROGRAPH AT STATION CP1-4

TOTAL RAINFALL = 4.16, TOTAL LOSS = 1.73, TOTAL EXCESS = 2.42

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
4243.	13.67	(CFS)	1826.	530.	519.	519.
		(INCHES)	2.026	2.390	2.390	2.390
		(AC-FT)	905.	1068.	1068.	1068.

CUMULATIVE AREA = 8.38 SQ MI

*** ***

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              **************
              *            *
26 KK         *   CP1-4R   *      MUSKINGUM ROUTING OF CP1-4 HYDROGRAPH 3.38 MILES TO CP1-5
              *            *
              **************
```

HYDROGRAPH ROUTING DATA

27 RM MUSKINGUM ROUTING

MSTPS	24	NUMBER OF SUBREACHES
AMSKK	1.69	MUSKINGUM K
X	.40	MUSKINGUM X

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

HYDROGRAPH AT STATION CP1-4R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
4179.	15.33	(CFS)	1823.	526.	507.	507.
		(INCHES)	2.022	2.335	2.335	2.335
		(AC-FT)	904.	1043.	1043.	1043.

CUMULATIVE AREA = 8.38 SQ MI

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28 KK        *          *        DEVELOP HYDROGRAPH FOR CP1-5
             *   CP1-5  *
             *          *
             **************

             SUBBASIN RUNOFF DATA

29 BA          SUBBASIN CHARACTERISTICS
                    TAREA        5.45  SUBBASIN AREA

               PRECIPITATION DATA

 9 PH                                  DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                                                        TP-40                          TP-49
               ..... HYDRO-35 .....   ............... ..............   ........... ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 .70    1.30    2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00

                                                  STORM AREA =    5.45

30 LS          SCS LOSS RATE
                    STRTL         .53  INITIAL ABSTRACTION
                   CRVNBR       79.00  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

31 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG        1.34  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            82 END-OF-PERIOD ORDINATES
                 34.     85.    165.    261.    366.    504.    650.    842.   1051.   1267.
               1451.   1612.   1739.   1823.   1887.   1899.   1901.   1889.   1834.   1764.
               1683.   1598.   1506.   1396.   1278.   1140.   1013.    898.    811.    732.
                663.    600.    543.    498.    456.    414.    376.    342.    307.    275.
                252.    229.    206.    188.    171.    154.    139.    127.    114.    103.
                 94.     85.     77.     70.     64.     58.     52.     48.     43.     39.
                 35.     32.     29.     26.     24.     22.     20.     19.     17.     16.
                 15.     13.     12.     10.      9.      8.      7.      6.      4.      3.
                  2.      1.

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

                     HYDROGRAPH AT STATION    CP1-5

   TOTAL RAINFALL =    4.17, TOTAL LOSS =    2.07, TOTAL EXCESS =    2.10

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     24.92-HR
  2586.     13.50          (CFS)    1039.        305.        293.        293.
                         (INCHES)   1.772       2.078       2.078       2.078
                          (AC-FT)    515.        604.        604.        604.

                     CUMULATIVE AREA =    5.45 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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                 **************
                 *            *
 32 KK           *   CP1-5A   *      COMBINE HYDROGRAPH CP1-4R WITH CP1-5 (= CP1-5A)
                 *            *
                 **************

 33 HC              HYDROGRAPH COMBINATION
                         ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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

                        HYDROGRAPH AT STATION   CP1-5A

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR      72-HR      24.92-HR
   4978.       15.25        (CFS)    2759.      831.       800.        800.
                         (INCHES)    1.855      2.233      2.233       2.233
                          (AC-FT)    1360.      1647.      1647.       1647.

                        CUMULATIVE AREA =   13.83 SQ MI

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

                 **************
                 *            *
 34 KK           *   CP1-6    *      DEVELOP HYDROGRAPH FOR CP1-6
                 *            *
                 **************

              SUBBASIN RUNOFF DATA

 35 BA          SUBBASIN CHARACTERISTICS
                      TAREA        5.13  SUBBASIN AREA

                PRECIPITATION DATA

  9 PH                                 DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 ......  ............... TP-40 ...............  ........... TP-49 ...........
                 5-MIN  15-MIN  60-MIN    2-HR     3-HR     6-HR    12-HR    24-HR    2-DAY    4-DAY    7-DAY   10-DAY
                  .70    1.30    2.30    2.70     2.80     3.20     3.70     4.20      .00      .00      .00      .00

                                                STORM AREA =     5.13

 36 LS          SCS LOSS RATE
                      STRTL         .44  INITIAL ABSTRACTION
                     CRVNBR       82.00  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 37 UD          SCS DIMENSIONLESS UNITGRAPH
                       TLAG        1.15  LAG

                                                                  ***
```

UNIT HYDROGRAPH
71 END-OF-PERIOD ORDINATES

44.	120.	226.	357.	519.	710.	942.	1212.	1470.	1703.
1863.	1983.	2060.	2075.	2069.	2035.	1948.	1848.	1741.	1624.
1479.	1318.	1147.	1002.	886.	788.	701.	626.	561.	508.
455.	407.	363.	320.	286.	257.	228.	205.	183.	161.
145.	129.	113.	102.	91.	81.	73.	65.	58.	52.
46.	41.	37.	33.	29.	26.	23.	21.	20.	18.
16.	14.	13.	11.	9.	8.	7.	5.	4.	2.
1.									

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

HYDROGRAPH AT STATION CP1-6

TOTAL RAINFALL = 4.17, TOTAL LOSS = 1.82, TOTAL EXCESS = 2.35

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
3085.	13.25	(CFS)	1102.	322.	310.	310.
		(INCHES)	1.997	2.332	2.332	2.332
		(AC-FT)	546.	638.	638.	638.

CUMULATIVE AREA = 5.13 SQ MI

*** ***

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              **************
              *            *
38 KK         *   CP1-6R   *      MUSKINGUM ROUTING OF CP1-6 HYDROGRAPH 5.89 MILES TO CP1-9A
              *            *
              **************
```

HYDROGRAPH ROUTING DATA

39 RM MUSKINGUM ROUTING

NSTPS	39	NUMBER OF SUBREACHES
AMSKK	2.77	MUSKINGUM K
X	.40	MUSKINGUM X

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

HYDROGRAPH AT STATION CP1-6R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
2969.	16.08	(CFS)	1099.	309.	298.	298.
		(INCHES)	1.992	2.243	2.243	2.243
		(AC-FT)	545.	614.	614.	614.

CUMULATIVE AREA = 5.13 SQ MI

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

              **************
              *            *
40 KK         *   CP1-7    *      DEVELOP HYDROGRAPH FOR CP1-7
              *            *
              **************

          SUBBASIN RUNOFF DATA

41 BA          SUBBASIN CHARACTERISTICS
                    TAREA        8.67  SUBBASIN AREA

               PRECIPITATION DATA

 9 PM                                DEPTHS FOR  1-PERCENT HYPOTHETICAL STORM
                                                   TP-40                          TP-49
               ..... HYDRO-35 ......  ............... ..............  ........... ...........
               5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                 .70    1.30    2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00

                                                STORM AREA =     8.67

42 LS          SCS LOSS RATE
                    STRTL         .44  INITIAL ABSTRACTION
                   CRVNBR       82.00  CURVE NUMBER
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

43 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG         .89  LAG

                                                   ***

                                                UNIT HYDROGRAPH
                                            55 END-OF-PERIOD ORDINATES
            121.     383.     726.    1166.    1733.    2426.    3155.    3763.    4194.    4435.
           4488.    4462.    4281.    4016.    3716.    3366.    2946.    2472.    2070.    1788.
           1542.    1331.    1165.    1018.     882.     761.     647.     567.     486.     425.
            364.     315.     271.     233.     203.     175.     153.     131.     114.      98.
             85.      73.      63.      55.      48.      43.      38.      34.      29.      24.
             20.      16.      12.       8.       4.

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

                    HYDROGRAPH AT STATION    CP1-7

   TOTAL RAINFALL =    4.15, TOTAL LOSS =    1.82, TOTAL EXCESS =    2.34

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
 (CFS)        (HR)                   6-HR     24-HR     72-HR    24.92-HR
  6188.      13.00          (CFS)    1856.      542.      522.       522.
                          (INCHES)   1.990     2.325     2.325      2.325
                           (AC-FT)    920.     1075.     1075.      1075.

                    CUMULATIVE AREA =    8.67 SQ MI
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*** ***

```
44 KK      **************
           *            *
           *   CP1-7R   *      MUSKINGUM ROUTING OF CP1-7 HYDROGRAPH 6.86 MILES TO CP1-9A
           *            *
           **************
```

HYDROGRAPH ROUTING DATA

```
45 RM        MUSKINGUM ROUTING
                  NSTPS        46 NUMBER OF SUBREACHES
                  AMSKK      3.22 MUSKINGUM K
                      X       .40 MUSKINGUM X
```

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

HYDROGRAPH AT STATION CP1-7R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
5790.	16.25	(CFS)	1851.	518.	499.	499.
		(INCHES)	1.985	2.223	2.223	2.223
		(AC-FT)	918.	1028.	1028.	1028.

CUMULATIVE AREA = 8.67 SQ MI

*** ***

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46 KK      **************
           *            *
           *   CP1-8    *      DEVELOP HYDROGRAPH FOR CP1-8
           *            *
           **************
```

SUBBASIN RUNOFF DATA

```
47 BA        SUBBASIN CHARACTERISTICS
                  TAREA        2.65  SUBBASIN AREA

             PRECIPITATION DATA
```

9 PH — DEPTHS FOR 1-PERCENT HYPOTHETICAL STORM

HYDRO-35 5-MIN	15-MIN	60-MIN	TP-40 2-HR	3-HR	6-HR	12-HR	24-HR	TP-49 2-DAY	4-DAY	7-DAY	10-DAY
.70	1.30	2.30	2.70	2.80	3.20	3.70	4.20	.00	.00	.00	.00

STORM AREA = 2.65

```
48 LS        SCS LOSS RATE
                  STRTL         .30  INITIAL ABSTRACTION
                 CRVNBR       87.00  CURVE NUMBER
                  RTIMP         .00  PERCENT IMPERVIOUS AREA
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```
49 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG        .59  LAG

                                                    ***

                                              UNIT HYDROGRAPH
                                         37 END-OF-PERIOD ORDINATES
          106.     319.     618.    1060.    1532.    1867.    2013.    2017.    1902.    1713.
         1478.    1177.     912.     734.     589.     486.     394.     314.     255.     205.
          165.     133.     106.      86.      70.      56.      46.      37.      29.      24.
           20.      17.      14.      10.       8.       5.       2.

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

                    HYDROGRAPH AT STATION    CP1-8

   TOTAL RAINFALL =    4.19, TOTAL LOSS =    1.38, TOTAL EXCESS =    2.81

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     24.92-HR
  3061.      12.67        (CFS)      682.        200.        192.        192.
                        (INCHES)    2.393       2.804       2.804       2.804
                         (AC-FT)     338.        396.        396.        396.

                    CUMULATIVE AREA =    2.65 SQ MI


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


          **************
          *            *
50 KK     *   CP1-8R   *      MUSKINGUM ROUTING OF CP1-8 HYDROGRAPH 8.01 MILES TO CP1-9A
          *            *
          **************

          HYDROGRAPH ROUTING DATA

51 RM          MUSKINGUM ROUTING
                    NSTPS        54 NUMBER OF SUBREACHES
                    AMSKK      3.77 MUSKINGUM K
                        X       .40 MUSKINGUM X

                                                    ***

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

                    HYDROGRAPH AT STATION    CP1-8R

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     24.92-HR
  2657.      16.50        (CFS)      681.        191.        184.        184.
                        (INCHES)    2.389       2.682       2.682       2.682
                         (AC-FT)     338.        379.        379.        379.

                    CUMULATIVE AREA =    2.65 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

                 **************
                 *            *
 52 KK           *   CP1-9    *        DEVELOP HYDROGRAPH FOR CP1-9
                 *            *
                 **************

            SUBBASIN RUNOFF DATA

 53 BA        SUBBASIN CHARACTERISTICS
                   TAREA        16.39  SUBBASIN AREA

              PRECIPITATION DATA

  9 PH                                 DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 ......  ............... TP-40 ...............  ........... TP-49 ...........
              5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                .70    1.30    2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00

                                                 STORM AREA =    16.39

 54 LS        SCS LOSS RATE
                   STRTL         .56  INITIAL ABSTRACTION
                  CRVNBR       70.00  CURVE NUMBER
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 55 UD        SCS DIMENSIONLESS UNITGRAPH
                    TLAG        3.22  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          195 END-OF-PERIOD ORDINATES
            19.      37.      56.      77.     120.     163.     207.     252.     308.     364.
           420.     480.     555.     629.     704.     787.     886.     985.    1084.    1192.
          1309.    1427.    1545.    1653.    1752.    1852.    1951.    2031.    2100.    2168.
          2236.    2283.    2320.    2357.    2395.    2408.    2414.    2420.    2426.    2422.
          2416.    2410.    2403.    2368.    2331.    2293.    2256.    2213.    2169.    2126.
          2082.    2032.    1982.    1933.    1881.    1819.    1757.    1695.    1629.    1555.
          1480.    1406.    1336.    1274.    1212.    1150.    1097.    1053.    1010.     966.
           926.     889.     852.     815.     781.     750.     719.     688.     663.     641.
           618.     595.     573.     550.     528.     505.     486.     467.     449.     430.
           411.     393.     374.     356.     344.     331.     319.     306.     294.     282.
           269.     258.     248.     239.     230.     220.     211.     202.     192.     184.
           177.     170.     164.     157.     150.     143.     136.     131.     126.     122.
           117.     112.     108.     103.      98.      95.      91.      88.      84.      81.
            77.      74.      71.      68.      66.      63.      61.      58.      56.      53.
            51.      49.      47.      45.      43.      41.      40.      38.      36.      35.
            34.      32.      31.      30.      29.      27.      26.      26.      25.      24.
            23.      23.      22.      21.      20.      20.      19.      18.      17.      17.
            16.      15.      14.      14.      13.      12.      12.      11.      10.      10.
             9.       8.       8.       7.       7.       6.       5.       5.       4.       4.
             3.       2.       2.       1.       0.

   ***      ***      ***      ***      ***
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                    HYDROGRAPH AT STATION    CP1-9

  TOTAL RAINFALL =    4.12, TOTAL LOSS =    2.14, TOTAL EXCESS =    1.98

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR      24-HR      72-HR     24.92-HR
   3483.      15.58        (CFS)    2493.       822.       792.        792.
                         (INCHES)   1.414      1.866      1.866       1.866
                          (AC-FT)   1236.      1631.      1631.       1631.

                    CUMULATIVE AREA =   16.39 SQ MI


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


          **************
          *            *
 56 KK    *   CP1-9A   *      COMBINE HYDROGRAPHS CP1-6R, 7R, 8R AND 9 (= CP1-9A)
          *            *
          **************

 57 HC          HYDROGRAPH COMBINATION
                     ICOMP          4  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***
   ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION   CP1-9A

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR      24-HR      72-HR     24.92-HR
  14277.      16.33        (CFS)    6015.      1841.      1773.       1773.
                         (INCHES)   1.703      2.085      2.085       2.085
                          (AC-FT)   2983.      3652.      3652.       3652.

                    CUMULATIVE AREA =   32.84 SQ MI


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


          **************
          *            *
 58 KK    *   FRS #1   *      COMBINE HYDROGRAPHS CP1-3A, CP1-5A, AND CP1-9A (= FRS #1)
          *            *
          **************

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

 60 HC          HYDROGRAPH COMBINATION
```

ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

HYDROGRAPH AT STATION FRS #1
SUM OF 3 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1	DEC	0000	1	0.	1	DEC	0615	76	0.	1	DEC	1230	151	5830.	1	DEC	1845	226	5445.
1	DEC	0005	2	0.	1	DEC	0620	77	0.	1	DEC	1235	152	7025.	1	DEC	1850	227	5300.
1	DEC	0010	3	0.	1	DEC	0625	78	0.	1	DEC	1240	153	8221.	1	DEC	1855	228	5163.
1	DEC	0015	4	0.	1	DEC	0630	79	0.	1	DEC	1245	154	9367.	1	DEC	1900	229	5032.
1	DEC	0020	5	0.	1	DEC	0635	80	0.	1	DEC	1250	155	10427.	1	DEC	1905	230	4908.
1	DEC	0025	6	0.	1	DEC	0640	81	0.	1	DEC	1255	156	11381.	1	DEC	1910	231	4789.
1	DEC	0030	7	0.	1	DEC	0645	82	0.	1	DEC	1300	157	12206.	1	DEC	1915	232	4678.
1	DEC	0035	8	0.	1	DEC	0650	83	0.	1	DEC	1305	158	12916.	1	DEC	1920	233	4571.
1	DEC	0040	9	0.	1	DEC	0655	84	0.	1	DEC	1310	159	13511.	1	DEC	1925	234	4467.
1	DEC	0045	10	0.	1	DEC	0700	85	0.	1	DEC	1315	160	13989.	1	DEC	1930	235	4368.
1	DEC	0050	11	0.	1	DEC	0705	86	0.	1	DEC	1320	161	14350.	1	DEC	1935	236	4272.
1	DEC	0055	12	0.	1	DEC	0710	87	0.	1	DEC	1325	162	14650.	1	DEC	1940	237	4179.
1	DEC	0100	13	0.	1	DEC	0715	88	0.	1	DEC	1330	163	14881.	1	DEC	1945	238	4090.
1	DEC	0105	14	0.	1	DEC	0720	89	0.	1	DEC	1335	164	15035.	1	DEC	1950	239	4004.
1	DEC	0110	15	0.	1	DEC	0725	90	0.	1	DEC	1340	165	15138.	1	DEC	1955	240	3923.
1	DEC	0115	16	0.	1	DEC	0730	91	0.	1	DEC	1345	166	15160.	1	DEC	2000	241	3845.
1	DEC	0120	17	0.	1	DEC	0735	92	0.	1	DEC	1350	167	15194.	1	DEC	2005	242	3770.
1	DEC	0125	18	0.	1	DEC	0740	93	0.	1	DEC	1355	168	15204.	1	DEC	2010	243	3697.
1	DEC	0130	19	0.	1	DEC	0745	94	0.	1	DEC	1400	169	15213.	1	DEC	2015	244	3627.
1	DEC	0135	20	0.	1	DEC	0750	95	0.	1	DEC	1405	170	15240.	1	DEC	2020	245	3559.
1	DEC	0140	21	0.	1	DEC	0755	96	0.	1	DEC	1410	171	15280.	1	DEC	2025	246	3493.
1	DEC	0145	22	0.	1	DEC	0800	97	0.	1	DEC	1415	172	15347.	1	DEC	2030	247	3429.
1	DEC	0150	23	0.	1	DEC	0805	98	0.	1	DEC	1420	173	15434.	1	DEC	2035	248	3368.
1	DEC	0155	24	0.	1	DEC	0810	99	0.	1	DEC	1425	174	15535.	1	DEC	2040	249	3308.
1	DEC	0200	25	0.	1	DEC	0815	100	0.	1	DEC	1430	175	15654.	1	DEC	2045	250	3250.
1	DEC	0205	26	0.	1	DEC	0820	101	1.	1	DEC	1435	176	15786.	1	DEC	2050	251	3194.
1	DEC	0210	27	0.	1	DEC	0825	102	1.	1	DEC	1440	177	15920.	1	DEC	2055	252	3139.
1	DEC	0215	28	0.	1	DEC	0830	103	1.	1	DEC	1445	178	16054.	1	DEC	2100	253	3085.
1	DEC	0220	29	0.	1	DEC	0835	104	2.	1	DEC	1450	179	16193.	1	DEC	2105	254	3033.
1	DEC	0225	30	0.	1	DEC	0840	105	3.	1	DEC	1455	180	16335.	1	DEC	2110	255	2982.
1	DEC	0230	31	0.	1	DEC	0845	106	3.	1	DEC	1500	181	16474.	1	DEC	2115	256	2933.
1	DEC	0235	32	0.	1	DEC	0850	107	4.	1	DEC	1505	182	16631.	1	DEC	2120	257	2886.
1	DEC	0240	33	0.	1	DEC	0855	108	6.	1	DEC	1510	183	16810.	1	DEC	2125	258	2839.
1	DEC	0245	34	0.	1	DEC	0900	109	7.	1	DEC	1515	184	17046.	1	DEC	2130	259	2794.
1	DEC	0250	35	0.	1	DEC	0905	110	9.	1	DEC	1520	185	17334.	1	DEC	2135	260	2749.
1	DEC	0255	36	0.	1	DEC	0910	111	10.	1	DEC	1525	186	17697.	1	DEC	2140	261	2706.
1	DEC	0300	37	0.	1	DEC	0915	112	13.	1	DEC	1530	187	18130.	1	DEC	2145	262	2663.
1	DEC	0305	38	0.	1	DEC	0920	113	15.	1	DEC	1535	188	18621.	1	DEC	2150	263	2621.
1	DEC	0310	39	0.	1	DEC	0925	114	18.	1	DEC	1540	189	19153.	1	DEC	2155	264	2580.
1	DEC	0315	40	0.	1	DEC	0930	115	21.	1	DEC	1545	190	19693.	1	DEC	2200	265	2540.
1	DEC	0320	41	0.	1	DEC	0935	116	25.	1	DEC	1550	191	20209.	1	DEC	2205	266	2501.
1	DEC	0325	42	0.	1	DEC	0940	117	29.	1	DEC	1555	192	20662.	1	DEC	2210	267	2462.
1	DEC	0330	43	0.	1	DEC	0945	118	34.	1	DEC	1600	193	21015.	1	DEC	2215	268	2424.
1	DEC	0335	44	0.	1	DEC	0950	119	40.	1	DEC	1605	194	21237.	1	DEC	2220	269	2388.
1	DEC	0340	45	0.	1	DEC	0955	120	46.	1	DEC	1610	195	21297.	1	DEC	2225	270	2352.
1	DEC	0345	46	0.	1	DEC	1000	121	53.	1	DEC	1615	196	21180.	1	DEC	2230	271	2318.
1	DEC	0350	47	0.	1	DEC	1005	122	61.	1	DEC	1620	197	20873.	1	DEC	2235	272	2286.

1	DEC	0355	48	0.	*	1	DEC	1010	123	70.	*	1	DEC	1625	198	20374.	*	1	DEC	2240	273	2255.							
1	DEC	0400	49	0.	*	1	DEC	1015	124	80.	*	1	DEC	1630	199	19699.	*	1	DEC	2245	274	2226.							
1	DEC	0405	50	0.	*	1	DEC	1020	125	92.	*	1	DEC	1635	200	18873.	*	1	DEC	2250	275	2198.							
1	DEC	0410	51	0.	*	1	DEC	1025	126	104.	*	1	DEC	1640	201	17937.	*	1	DEC	2255	276	2170.							
1	DEC	0415	52	0.	*	1	DEC	1030	127	118.	*	1	DEC	1645	202	16936.	*	1	DEC	2300	277	2144.							
1	DEC	0420	53	0.	*	1	DEC	1035	128	133.	*	1	DEC	1650	203	15914.	*	1	DEC	2305	278	2119.							
1	DEC	0425	54	0.	*	1	DEC	1040	129	149.	*	1	DEC	1655	204	14907.	*	1	DEC	2310	279	2095.							
1	DEC	0430	55	0.	*	1	DEC	1045	130	166.	*	1	DEC	1700	205	13943.	*	1	DEC	2315	280	2071.							
1	DEC	0435	56	0.	*	1	DEC	1050	131	184.	*	1	DEC	1705	206	13042.	*	1	DEC	2320	281	2049.							
1	DEC	0440	57	0.	*	1	DEC	1055	132	202.	*	1	DEC	1710	207	12215.	*	1	DEC	2325	282	2027.							
1	DEC	0445	58	0.	*	1	DEC	1100	133	220.	*	1	DEC	1715	208	11460.	*	1	DEC	2330	283	2005.							
1	DEC	0450	59	0.	*	1	DEC	1105	134	240.	*	1	DEC	1720	209	10775.	*	1	DEC	2335	284	1985.							
1	DEC	0455	60	0.	*	1	DEC	1110	135	262.	*	1	DEC	1725	210	10155.	*	1	DEC	2340	285	1964.							
1	DEC	0500	61	0.	*	1	DEC	1115	136	287.	*	1	DEC	1730	211	9596.	*	1	DEC	2345	286	1945.							
1	DEC	0505	62	0.	*	1	DEC	1120	137	316.	*	1	DEC	1735	212	9097.	*	1	DEC	2350	287	1926.							
1	DEC	0510	63	0.	*	1	DEC	1125	138	351.	*	1	DEC	1740	213	8652.	*	1	DEC	2355	288	1907.							
1	DEC	0515	64	0.	*	1	DEC	1130	139	395.	*	1	DEC	1745	214	8251.	*	2	DEC	0000	289	1889.							
1	DEC	0520	65	0.	*	1	DEC	1135	140	450.	*	1	DEC	1750	215	7891.	*	2	DEC	0005	290	1871.							
1	DEC	0525	66	0.	*	1	DEC	1140	141	520.	*	1	DEC	1755	216	7567.	*	2	DEC	0010	291	1852.							
1	DEC	0530	67	0.	*	1	DEC	1145	142	610.	*	1	DEC	1800	217	7275.	*	2	DEC	0015	292	1832.							
1	DEC	0535	68	0.	*	1	DEC	1150	143	730.	*	1	DEC	1805	218	7007.	*	2	DEC	0020	293	1812.							
1	DEC	0540	69	0.	*	1	DEC	1155	144	893.	*	1	DEC	1810	219	6759.	*	2	DEC	0025	294	1790.							
1	DEC	0545	70	0.	*	1	DEC	1200	145	1132.	*	1	DEC	1815	220	6530.	*	2	DEC	0030	295	1766.							
1	DEC	0550	71	0.	*	1	DEC	1205	146	1529.	*	1	DEC	1820	221	6318.	*	2	DEC	0035	296	1740.							
1	DEC	0555	72	0.	*	1	DEC	1210	147	2082.	*	1	DEC	1825	222	6121.	*	2	DEC	0040	297	1712.							
1	DEC	0600	73	0.	*	1	DEC	1215	148	2797.	*	1	DEC	1830	223	5935.	*	2	DEC	0045	298	1683.							
1	DEC	0605	74	0.	*	1	DEC	1220	149	3670.	*	1	DEC	1835	224	5762.	*	2	DEC	0050	299	1652.							
1	DEC	0610	75	0.	*	1	DEC	1225	150	4695.	*	1	DEC	1840	225	5599.	*	2	DEC	0055	300	1620.							

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
21297.	16.17	(CFS)	14221.	4450.	4286.	4286.
		(INCHES)	1.743	2.181	2.181	2.181
		(AC-FT)	7052.	8826.	8826.	8826.

CUMULATIVE AREA = 75.87 SQ MI

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 61 KK      *   ROUTE    *      RESERVIOR ROUTING OF FRS #1 USING FRS #1 HYDROGRAPH
            *            *
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                                RESERVIOR ASSUMED EMPTY

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

              HYDROGRAPH ROUTING DATA

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

69 SV          STORAGE          .0     200.0     750.0    2000.0    4500.0    6300.0    8200.0   10400.0   13200.0   16600.0
                            20300.0   25000.0

71 SE        ELEVATION      1060.00   1064.00   1068.00   1072.00   1076.00   1078.00   1079.80   1082.00   1084.00   1086.00
                            1088.00   1090.00

68 SS        SPILLWAY
                   CREL      1079.80  SPILLWAY CREST ELEVATION
                  SPWID       800.00  SPILLWAY WIDTH
                   COQW         2.70  WEIR COEFFICIENT
                   EXPW         1.50  EXPONENT OF HEAD

65 ST        TOP OF DAM
                  TOPEL      1088.00  ELEVATION AT TOP OF DAM
                 DAMWID      5880.00  DAM WIDTH
                   COQD         2.70  WEIR COEFFICIENT
                   EXPD         1.50  EXPONENT OF HEAD

   SW        DAM WIDTH      5880.00   5880.00  37680.00
   SE        ELEVATION      1088.00   1089.50   1089.50

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                                   COMPUTED OUTFLOW-ELEVATION DATA

                                   (EXCLUDING FLOW OVER DAM)

          OUTFLOW        .00       .00     12.07     96.58    325.75    772.08   1508.01   2605.98   4138.42   6177.21
        ELEVATION    1060.00   1079.80   1079.83   1079.93   1080.08   1080.30   1080.59   1080.93   1081.34   1081.81

          OUTFLOW    8795.19  12065.51  16058.50  20848.70  26506.93  33106.40  40719.53  49418.78  59276.56  70364.06
        ELEVATION    1082.35   1082.95   1083.61   1084.33   1085.12   1085.97   1086.88   1087.86   1088.90   1090.00

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                                   (INCLUDING FLOW OVER DAM)

          STORAGE        .00    200.00    750.00   2000.00   4500.00   6300.00   8200.00   8231.50   8325.98   8483.33
          OUTFLOW        .00       .00       .00       .00       .00       .00       .00     12.07     96.58    325.75
        ELEVATION    1060.00   1064.00   1068.00   1072.00   1076.00   1078.00   1079.80   1079.83   1079.93   1080.08

          STORAGE    8703.67   8987.00   9333.33   9742.64  10214.82  10400.00  10889.97  11727.54  12652.95  13200.00
          OUTFLOW     772.08   1508.01   2605.98   4138.42   6177.21   7048.12   8795.19  12065.51  16058.50  18591.74
        ELEVATION    1080.30   1080.59   1080.93   1081.34   1081.81   1082.00   1082.35   1082.95   1083.61   1084.00

          STORAGE   13766.74  15104.61  16549.57  16600.00  18234.11  20039.62  20300.00  22410.75  25000.00
          OUTFLOW   20848.70  26506.93  33106.40  33345.42  40719.53  49418.78  50719.00  74737.16 156462.60
        ELEVATION    1084.33   1085.12   1085.97   1086.00   1086.88   1087.86   1088.00   1088.90   1090.00
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HYDROGRAPH AT STATION ROUTE

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	DEC	0000	1	0.	.0	1060.0	1	DEC	0820	101	0.	.0	1060.0	1	DEC	1640	201	0.	5697.8	1077.3
1	DEC	0005	2	0.	.0	1060.0	1	DEC	0825	102	0.	.0	1060.0	1	DEC	1645	202	0.	5817.9	1077.5
1	DEC	0010	3	0.	.0	1060.0	1	DEC	0830	103	0.	.0	1060.0	1	DEC	1650	203	0.	5931.1	1077.6
1	DEC	0015	4	0.	.0	1060.0	1	DEC	0835	104	0.	.0	1060.0	1	DEC	1655	204	0.	6037.1	1077.7
1	DEC	0020	5	0.	.0	1060.0	1	DEC	0840	105	0.	.0	1060.0	1	DEC	1700	205	0.	6136.4	1077.8
1	DEC	0025	6	0.	.0	1060.0	1	DEC	0845	106	0.	.1	1060.0	1	DEC	1705	206	0.	6229.2	1077.9
1	DEC	0030	7	0.	.0	1060.0	1	DEC	0850	107	0.	.1	1060.0	1	DEC	1710	207	0.	6316.2	1078.0
1	DEC	0035	8	0.	.0	1060.0	1	DEC	0855	108	0.	.1	1060.0	1	DEC	1715	208	0.	6397.8	1078.1
1	DEC	0040	9	0.	.0	1060.0	1	DEC	0900	109	0.	.2	1060.0	1	DEC	1720	209	0.	6474.3	1078.2
1	DEC	0045	10	0.	.0	1060.0	1	DEC	0905	110	0.	.2	1060.0	1	DEC	1725	210	0.	6546.4	1078.2
1	DEC	0050	11	0.	.0	1060.0	1	DEC	0910	111	0.	.3	1060.0	1	DEC	1730	211	0.	6614.4	1078.3
1	DEC	0055	12	0.	.0	1060.0	1	DEC	0915	112	0.	.4	1060.0	1	DEC	1735	212	0.	6678.8	1078.4
1	DEC	0100	13	0.	.0	1060.0	1	DEC	0920	113	0.	.5	1060.0	1	DEC	1740	213	0.	6739.9	1078.4
1	DEC	0105	14	0.	.0	1060.0	1	DEC	0925	114	0.	.6	1060.0	1	DEC	1745	214	0.	6798.1	1078.5
1	DEC	0110	15	0.	.0	1060.0	1	DEC	0930	115	0.	.7	1060.0	1	DEC	1750	215	0.	6853.7	1078.5
1	DEC	0115	16	0.	.0	1060.0	1	DEC	0935	116	0.	.9	1060.0	1	DEC	1755	216	0.	6906.9	1078.6
1	DEC	0120	17	0.	.0	1060.0	1	DEC	0940	117	0.	1.1	1060.0	1	DEC	1800	217	0.	6958.0	1078.6
1	DEC	0125	18	0.	.0	1060.0	1	DEC	0945	118	0.	1.3	1060.0	1	DEC	1805	218	0.	7007.2	1078.7
1	DEC	0130	19	0.	.0	1060.0	1	DEC	0950	119	0.	1.5	1060.0	1	DEC	1810	219	0.	7054.7	1078.7
1	DEC	0135	20	0.	.0	1060.0	1	DEC	0955	120	0.	1.8	1060.0	1	DEC	1815	220	0.	7100.4	1078.8
1	DEC	0140	21	0.	.0	1060.0	1	DEC	1000	121	0.	2.2	1060.0	1	DEC	1820	221	0.	7144.6	1078.8
1	DEC	0145	22	0.	.0	1060.0	1	DEC	1005	122	0.	2.6	1060.1	1	DEC	1825	222	0.	7187.4	1078.8
1	DEC	0150	23	0.	.0	1060.0	1	DEC	1010	123	0.	3.0	1060.1	1	DEC	1830	223	0.	7228.9	1078.9
1	DEC	0155	24	0.	.0	1060.0	1	DEC	1015	124	0.	3.5	1060.1	1	DEC	1835	224	0.	7269.2	1078.9
1	DEC	0200	25	0.	.0	1060.0	1	DEC	1020	125	0.	4.1	1060.1	1	DEC	1840	225	0.	7308.4	1079.0
1	DEC	0205	26	0.	.0	1060.0	1	DEC	1025	126	0.	4.8	1060.1	1	DEC	1845	226	0.	7346.4	1079.0
1	DEC	0210	27	0.	.0	1060.0	1	DEC	1030	127	0.	5.6	1060.1	1	DEC	1850	227	0.	7383.4	1079.0
1	DEC	0215	28	0.	.0	1060.0	1	DEC	1035	128	0.	6.4	1060.1	1	DEC	1855	228	0.	7419.4	1079.1
1	DEC	0220	29	0.	.0	1060.0	1	DEC	1040	129	0.	7.4	1060.1	1	DEC	1900	229	0.	7454.5	1079.1
1	DEC	0225	30	0.	.0	1060.0	1	DEC	1045	130	0.	8.5	1060.2	1	DEC	1905	230	0.	7488.8	1079.1
1	DEC	0230	31	0.	.0	1060.0	1	DEC	1050	131	0.	9.7	1060.2	1	DEC	1910	231	0.	7522.1	1079.2
1	DEC	0235	32	0.	.0	1060.0	1	DEC	1055	132	0.	11.0	1060.2	1	DEC	1915	232	0.	7554.7	1079.2
1	DEC	0240	33	0.	.0	1060.0	1	DEC	1100	133	0.	12.5	1060.2	1	DEC	1920	233	0.	7586.6	1079.2
1	DEC	0245	34	0.	.0	1060.0	1	DEC	1105	134	0.	14.1	1060.3	1	DEC	1925	234	0.	7617.7	1079.2
1	DEC	0250	35	0.	.0	1060.0	1	DEC	1110	135	0.	15.8	1060.3	1	DEC	1930	235	0.	7648.1	1079.3
1	DEC	0255	36	0.	.0	1060.0	1	DEC	1115	136	0.	17.7	1060.4	1	DEC	1935	236	0.	7677.9	1079.3
1	DEC	0300	37	0.	.0	1060.0	1	DEC	1120	137	0.	19.8	1060.4	1	DEC	1940	237	0.	7707.0	1079.3
1	DEC	0305	38	0.	.0	1060.0	1	DEC	1125	138	0.	22.1	1060.4	1	DEC	1945	238	0.	7735.6	1079.4
1	DEC	0310	39	0.	.0	1060.0	1	DEC	1130	139	0.	24.6	1060.5	1	DEC	1950	239	0.	7763.5	1079.4
1	DEC	0315	40	0.	.0	1060.0	1	DEC	1135	140	0.	27.5	1060.6	1	DEC	1955	240	0.	7790.8	1079.4
1	DEC	0320	41	0.	.0	1060.0	1	DEC	1140	141	0.	30.9	1060.6	1	DEC	2000	241	0.	7817.6	1079.4
1	DEC	0325	42	0.	.0	1060.0	1	DEC	1145	142	0.	34.8	1060.7	1	DEC	2005	242	0.	7843.7	1079.5
1	DEC	0330	43	0.	.0	1060.0	1	DEC	1150	143	0.	39.4	1060.8	1	DEC	2010	243	0.	7869.5	1079.5
1	DEC	0335	44	0.	.0	1060.0	1	DEC	1155	144	0.	45.0	1060.9	1	DEC	2015	244	0.	7894.8	1079.5
1	DEC	0340	45	0.	.0	1060.0	1	DEC	1200	145	0.	52.0	1061.0	1	DEC	2020	245	0.	7919.5	1079.5
1	DEC	0345	46	0.	.0	1060.0	1	DEC	1205	146	0.	61.1	1061.2	1	DEC	2025	246	0.	7943.7	1079.6
1	DEC	0350	47	0.	.0	1060.0	1	DEC	1210	147	0.	73.6	1061.5	1	DEC	2030	247	0.	7967.6	1079.6
1	DEC	0355	48	0.	.0	1060.0	1	DEC	1215	148	0.	90.4	1061.8	1	DEC	2035	248	0.	7991.0	1079.6
1	DEC	0400	49	0.	.0	1060.0	1	DEC	1220	149	0.	112.6	1062.3	1	DEC	2040	249	0.	8013.9	1079.6
1	DEC	0405	50	0.	.0	1060.0	1	DEC	1225	150	0.	141.4	1062.8	1	DEC	2045	250	0.	8036.5	1079.6
1	DEC	0410	51	0.	.0	1060.0	1	DEC	1230	151	0.	177.7	1063.6	1	DEC	2050	251	0.	8058.7	1079.7
1	DEC	0415	52	0.	.0	1060.0	1	DEC	1235	152	0.	222.0	1064.2	1	DEC	2055	252	0.	8080.4	1079.7
1	DEC	0420	53	0.	.0	1060.0	1	DEC	1240	153	0.	274.5	1064.5	1	DEC	2100	253	0.	8101.8	1079.7
1	DEC	0425	54	0.	.0	1060.0	1	DEC	1245	154	0.	335.1	1065.0	1	DEC	2105	254	0.	8122.9	1079.7
1	DEC	0430	55	0.	.0	1060.0	1	DEC	1250	155	0.	403.2	1065.5	1	DEC	2110	255	0.	8143.7	1079.7
1	DEC	0435	56	0.	.0	1060.0	1	DEC	1255	156	0.	478.3	1066.0	1	DEC	2115	256	0.	8164.1	1079.8
1	DEC	0440	57	0.	.0	1060.0	1	DEC	1300	157	0.	559.5	1066.6	1	DEC	2120	257	0.	8184.2	1079.8

1	DEC	0445	58	0.	.0	1060.0	*	1	DEC	1305	158	0.	646.1	1067.2	*	1	DEC	2125	258	1.	8203.9	1079.8
1	DEC	0450	59	0.	.0	1060.0	*	1	DEC	1310	159	0.	737.1	1067.9	*	1	DEC	2130	259	8.	8223.2	1079.8
1	DEC	0455	60	0.	.0	1060.0	*	1	DEC	1315	160	0.	831.7	1068.3	*	1	DEC	2135	260	19.	8242.1	1079.8
1	DEC	0500	61	0.	.0	1060.0	*	1	DEC	1320	161	0.	929.3	1068.6	*	1	DEC	2140	261	32.	8260.7	1079.9
1	DEC	0505	62	0.	.0	1060.0	*	1	DEC	1325	162	0.	1029.2	1068.9	*	1	DEC	2145	262	48.	8278.9	1079.9
1	DEC	0510	63	0.	.0	1060.0	*	1	DEC	1330	163	0.	1130.9	1069.2	*	1	DEC	2150	263	65.	8296.7	1079.9
1	DEC	0515	64	0.	.0	1060.0	*	1	DEC	1335	164	0.	1233.9	1069.5	*	1	DEC	2155	264	83.	8314.0	1079.9
1	DEC	0520	65	0.	.0	1060.0	*	1	DEC	1340	165	0.	1337.8	1069.9	*	1	DEC	2200	265	102.	8331.0	1079.9
1	DEC	0525	66	0.	.0	1060.0	*	1	DEC	1345	166	0.	1442.3	1070.2	*	1	DEC	2205	266	122.	8347.6	1079.9
1	DEC	0530	67	0.	.0	1060.0	*	1	DEC	1350	167	0.	1546.9	1070.5	*	1	DEC	2210	267	143.	8363.7	1080.0
1	DEC	0535	68	0.	.0	1060.0	*	1	DEC	1355	168	0.	1651.5	1070.9	*	1	DEC	2215	268	164.	8379.4	1080.0
1	DEC	0540	69	0.	.0	1060.0	*	1	DEC	1400	169	0.	1756.3	1071.2	*	1	DEC	2220	269	186.	8394.8	1080.0
1	DEC	0545	70	0.	.0	1060.0	*	1	DEC	1405	170	0.	1861.1	1071.6	*	1	DEC	2225	270	207.	8409.7	1080.0
1	DEC	0550	71	0.	.0	1060.0	*	1	DEC	1410	171	0.	1966.1	1071.9	*	1	DEC	2230	271	229.	8424.2	1080.0
1	DEC	0555	72	0.	.0	1060.0	*	1	DEC	1415	172	0.	2071.6	1072.1	*	1	DEC	2235	272	251.	8438.4	1080.0
1	DEC	0600	73	0.	.0	1060.0	*	1	DEC	1420	173	0.	2177.5	1072.3	*	1	DEC	2240	273	274.	8452.2	1080.1
1	DEC	0605	74	0.	.0	1060.0	*	1	DEC	1425	174	0.	2284.2	1072.5	*	1	DEC	2245	274	296.	8465.6	1080.1
1	DEC	0610	75	0.	.0	1060.0	*	1	DEC	1430	175	0.	2391.6	1072.6	*	1	DEC	2250	275	318.	8478.7	1080.1
1	DEC	0615	76	0.	.0	1060.0	*	1	DEC	1435	176	0.	2499.9	1072.8	*	1	DEC	2255	276	340.	8491.5	1080.1
1	DEC	0620	77	0.	.0	1060.0	*	1	DEC	1440	177	0.	2609.1	1073.0	*	1	DEC	2300	277	362.	8504.0	1080.1
1	DEC	0625	78	0.	.0	1060.0	*	1	DEC	1445	178	0.	2719.1	1073.2	*	1	DEC	2305	278	384.	8516.0	1080.1
1	DEC	0630	79	0.	.0	1060.0	*	1	DEC	1450	179	0.	2830.2	1073.3	*	1	DEC	2310	279	406.	8527.9	1080.1
1	DEC	0635	80	0.	.0	1060.0	*	1	DEC	1455	180	0.	2942.2	1073.5	*	1	DEC	2315	280	427.	8539.4	1080.1
1	DEC	0640	81	0.	.0	1060.0	*	1	DEC	1500	181	0.	3055.1	1073.7	*	1	DEC	2320	281	448.	8550.5	1080.2
1	DEC	0645	82	0.	.0	1060.0	*	1	DEC	1505	182	0.	3169.1	1073.9	*	1	DEC	2325	282	469.	8561.3	1080.2
1	DEC	0650	83	0.	.0	1060.0	*	1	DEC	1510	183	0.	3284.3	1074.1	*	1	DEC	2330	283	490.	8572.0	1080.2
1	DEC	0655	84	0.	.0	1060.0	*	1	DEC	1515	184	0.	3400.9	1074.2	*	1	DEC	2335	284	510.	8582.2	1080.2
1	DEC	0700	85	0.	.0	1060.0	*	1	DEC	1520	185	0.	3519.3	1074.4	*	1	DEC	2340	285	531.	8592.2	1080.2
1	DEC	0705	86	0.	.0	1060.0	*	1	DEC	1525	186	0.	3639.9	1074.6	*	1	DEC	2345	286	550.	8602.0	1080.2
1	DEC	0710	87	0.	.0	1060.0	*	1	DEC	1530	187	0.	3763.3	1074.8	*	1	DEC	2350	287	570.	8611.5	1080.2
1	DEC	0715	88	0.	.0	1060.0	*	1	DEC	1535	188	0.	3889.9	1075.0	*	1	DEC	2355	288	589.	8620.7	1080.2
1	DEC	0720	89	0.	.0	1060.0	*	1	DEC	1540	189	0.	4020.0	1075.2	*	2	DEC	0000	289	608.	8629.6	1080.2
1	DEC	0725	90	0.	.0	1060.0	*	1	DEC	1545	190	0.	4153.7	1075.4	*	2	DEC	0005	290	627.	8638.2	1080.2
1	DEC	0730	91	0.	.0	1060.0	*	1	DEC	1550	191	0.	4291.1	1075.7	*	2	DEC	0010	291	645.	8646.7	1080.2
1	DEC	0735	92	0.	.0	1060.0	*	1	DEC	1555	192	0.	4431.7	1075.9	*	2	DEC	0015	292	663.	8654.8	1080.3
1	DEC	0740	93	0.	.0	1060.0	*	1	DEC	1600	193	0.	4575.3	1076.1	*	2	DEC	0020	293	680.	8662.8	1080.3
1	DEC	0745	94	0.	.0	1060.0	*	1	DEC	1605	194	0.	4720.7	1076.2	*	2	DEC	0025	294	697.	8670.5	1080.3
1	DEC	0750	95	0.	.0	1060.0	*	1	DEC	1610	195	0.	4867.2	1076.4	*	2	DEC	0030	295	713.	8677.8	1080.3
1	DEC	0755	96	0.	.0	1060.0	*	1	DEC	1615	196	0.	5013.4	1076.6	*	2	DEC	0035	296	729.	8684.9	1080.3
1	DEC	0800	97	0.	.0	1060.0	*	1	DEC	1620	197	0.	5158.2	1076.7	*	2	DEC	0040	297	745.	8691.7	1080.3
1	DEC	0805	98	0.	.0	1060.0	*	1	DEC	1625	198	0.	5300.2	1076.9	*	2	DEC	0045	298	759.	8698.2	1080.3
1	DEC	0810	99	0.	.0	1060.0	*	1	DEC	1630	199	0.	5438.2	1077.0	*	2	DEC	0050	299	774.	8704.4	1080.3
1	DEC	0815	100	0.	.0	1060.0	*	1	DEC	1635	200	0.	5571.1	1077.2	*	2	DEC	0055	300	787.	8710.3	1080.3

****

PEAK OUTFLOW IS 787. AT TIME 24.92 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
787.	24.92	(CFS)	231.	58.	56.	56.
		(INCHES)	.028	.028	.028	.028
		(AC-FT)	115.	115.	115.	115.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
8710.	24.92	8232.	3149.	3033.	3033.

PEAK STAGE TIME MAXIMUM AVERAGE STAGE

(FEET)	(HR)	6-HR	24-HR	72-HR	24.92-HR
1080.31	24.92	1079.04	1068.05	1068.53	1068.53

CUMULATIVE AREA = 75.87 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CP1-1	2477.	12.83	649.	189.	182.	2.78		
HYDROGRAPH AT	CP1-2	4187.	13.25	1465.	428.	412.	7.10		
HYDROGRAPH AT	CP1-3	6931.	14.25	3811.	1161.	1119.	19.32		
3 COMBINED AT	CP1-3A	10669.	13.50	5879.	1778.	1713.	29.20		
HYDROGRAPH AT	CP1-4	4243.	13.67	1826.	538.	519.	8.38		
ROUTED TO	CP1-4R	4179.	15.33	1823.	526.	507.	8.38		
HYDROGRAPH AT	CP1-5	2586.	13.50	1039.	305.	293.	5.45		
2 COMBINED AT	CP1-5A	4978.	15.25	2759.	831.	800.	13.83		
HYDROGRAPH AT	CP1-6	3085.	13.25	1102.	322.	310.	5.13		
ROUTED TO	CP1-6R	2969.	16.08	1099.	309.	298.	5.13		
HYDROGRAPH AT	CP1-7	6188.	13.00	1856.	542.	522.	8.67		
ROUTED TO	CP1-7R	5790.	16.25	1851.	518.	499.	8.67		
HYDROGRAPH AT	CP1-8	3061.	12.67	682.	200.	192.	2.65		
ROUTED TO	CP1-8R	2657.	16.50	681.	191.	184.	2.65		
HYDROGRAPH AT	CP1-9	3483.	15.58	2493.	822.	792.	16.39		
4 COMBINED AT	CP1-9A	14277.	16.33	6015.	1841.	1773.	32.84		
3 COMBINED AT	FRS #1	21297.	16.17	14221.	4450.	4286.	75.87		
ROUTED TO	ROUTE	787.	24.92	231.	58.	56.	75.87	1080.31	24.92

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION ROUTE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1060.00	1079.80	1088.00
STORAGE	0.	8200.	20300.
OUTFLOW	0.	0.	50719.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1080.31	.00	8710.	787.	.00	24.92	.00

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

BUCKEYE FRS #1

6-HOUR PMP

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*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*          FEBRUARY 1981            *
*         REVISED 01 JUN 88         *
*                                   *
* RUN DATE  01/19/1990  TIME  08:21:40 *
*                                   *
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*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*  THE HYDROLOGIC ENGINEERING CENTER *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 551-1748           *
*                                   *
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

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

  1           ID        DAMES & MOORE JOB NUMBER 15440-003-022, FOR THE FLOOD CONTROL DISTRICT
  2           ID        OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
  3           ID        STRUCTURE #1 (AZ No. 7-42) **** 6-HOUR PMP **** (REVISED 1-10-90)
              *DIAGRAM
  4           IT        5  1DEC89    0000     300
  5           IO        3

  6           KK   CP1-1  DEVELOP HYDROGRAPH FOR CP1-1
  7           KM          CP1-1 IS LOCATED IN FLOODWAY #2, FLOW IS TO FRS #1
  8           BA     2.78
  9           PB        0
 10           PI    0.030    0.030    0.031    0.032    0.032    0.033    0.034    0.034    0.035    0.036
 11           PI    0.036    0.037    0.045    0.045    0.045    0.045    0.046    0.046    0.047    0.049
 12           PI    0.052    0.056    0.060    0.064    0.118    0.120    0.121    0.125    0.129    0.134
 13           PI    0.136    0.155    0.162    0.177    0.197    0.226    3.100    1.800    1.300    0.800
 14           PI    0.700    0.600    0.310    0.300    0.290    0.280    0.265    0.255    0.112    0.104
 15           PI    0.097    0.091    0.086    0.082    0.077    0.075    0.071    0.070    0.069    0.066
 16           PI    0.045    0.045    0.044    0.043    0.043    0.042    0.041    0.041    0.040    0.039
 17           PI    0.039    0.038
 18           LS      0.0       93
 19           UD     0.75

 20           KK   CP1-2  DEVELOP HYDROGRAPH FOR CP1-2
 21           BA     7.10
 22           LS      0.0       92
 23           UD     1.11

 24           KK   CP1-3  DEVELOP HYDROGRAPH FOR CP1-3
 25           BA    19.32
 26           LS      0.0       92
 27           UD     2.06

 28           KK  CP1-3A  COMBINE HYDROGRAPHS CP1-1, CP1-2, AND CP1-3 (= CP1-3A)
 29           HC        3

 30           KK   CP1-4  DEVELOP HYDROGRAPH FOR CP1-4
 31           BA     8.38
 32           LS      0.0       93
 33           UD     1.48

 34           KK  CP1-4R  MUSKINGUM ROUTING OF CP1-4 HYDROGRAPH 3.38 MILES TO CP1-5
 35           RM       24     1.69     0.40

 36           KK   CP1-5  DEVELOP HYDROGRAPH FOR CP1-5
 37           BA     5.45
 38           LS      0.0       91
 39           UD     1.34

 40           KK  CP1-5A  COMBINE HYDROGRAPH CP1-4R WITH CP1-5 (= CP1-5A)
 41           HC        2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  42          KK   CP1-6  DEVELOP HYDROGRAPH FOR CP1-6
  43          BA    5.13
  44          LS     0.0       92
  45          UD    1.15

  46          KK  CP1-6R  MUSKINGUM ROUTING OF CP1-6 HYDROGRAPH 5.89 MILES TO CP1-9A
  47          RM      39    2.77    0.40

  48          KK   CP1-7  DEVELOP HYDROGRAPH FOR CP1-7
  49          BA    8.67
  50          LS     0.0       92
  51          UD    0.89

  52          KK  CP1-7R  MUSKINGUM ROUTING OF CP1-7 HYDROGRAPH 6.86 MILES TO CP1-9A
  53          RM      46    3.22    0.40

  54          KK   CP1-8  DEVELOP HYDROGRAPH FOR CP1-8
  55          BA    2.65
  56          LS     0.0       95
  57          UD    0.59

  58          KK  CP1-8R  MUSKINGUM ROUTING OF CP1-8 HYDROGRAPH 8.01 MILES TO CP1-9A
  59          RM      54    3.77    0.40

  60          KK   CP1-9  DEVELOP HYDROGRAPH FOR CP1-9
  61          BA   16.39
  62          LS     0.0       90
  63          UD    3.22

  64          KK  CP1-9A  COMBINE HYDROGRAPHS CP1-6R, 7R, 8R AND 9 (= CP1-9A)
  65          HC       4

  66          KK  FRS #1  COMBINE HYDROGRAPHS CP1-3A, CP1-5A, AND CP1-9A (= FRS #1)
  67          KO       1
  68          HC       3

  69          KK   ROUTE  RESERVIOR ROUTING OF FRS #1 USING FRS #1 HYDROGRAPH
  70          KM          RESERVIOR ASSUMED EMPTY
  71          KO       1
  72          RS       1    STOR     0.0
  73          ST  1088.0    5880    2.70     1.5
  74          SW    5880    5880   37680
  75          SE  1088.0  1089.5  1089.5
  76          SS  1079.8     800    2.70     1.5
  77          SV       0     200     750    2000    4500    6300    8200   10400   13200   16600
  78          SV   20300   25000
  79          SE    1060    1064    1068    1072    1076    1078  1079.8    1082    1084    1086
  80          SE    1088    1090
  81          ZZ
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SCHEMATIC DIAGRAM OF STREAM NETWORK

(V) ROUTING (--->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW

INPUT LINE NO.							
6	CP1-1						
20	.	CP1-2					
24	.	.	CP1-3				
28	CP1-3A.....						
30	.	CP1-4					
	.	V					
	.	V					
34	.	CP1-4R					
36	.	.	CP1-5				
40	.	CP1-5A.....					
42	.	.	CP1-6				
	.	.	V				
	.	.	V				
46	.	.	CP1-6R				
48	.	.	.	CP1-7			
	.	.	.	V			
	.	.	.	V			
52	.	.	.	CP1-7R			
54	.	.	.	.	CP1-8		
	.	.	.	.	V		
	.	.	.	.	V		
58	.	.	.	.	CP1-8R		
60	.	.	.	.	.	CP1-9	
64	.	.	CP1-9A.....				
66	FRS #1.....						
	V						
	V						
69	ROUTE						

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            FEBRUARY 1981          *
*          REVISED 01 JUN 88        *
*                                   *
* RUN DATE  01/19/1990  TIME  08:21:40 *
*                                   *
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*  THE HYDROLOGIC ENGINEERING CENTER *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
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DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
STRUCTURE #1 (AZ No. 7-42) **** 6-HOUR PMP **** (REVISED 1-10-90)

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

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     1DEC89  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     2DEC89  ENDING DATE
                     NDTIME       0055  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL      .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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

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

          **************
          *            *
  6 KK    *    CP1-1   *      DEVELOP HYDROGRAPH FOR CP1-1
          *            *
          **************
                          CP1-1 IS LOCATED IN FLOODWAY #2, FLOW IS TO FRS #1

             SUBBASIN RUNOFF DATA

  7 BA          SUBBASIN CHARACTERISTICS
```

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                PRECIPITATION DATA

  9 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

 10 PI             INCREMENTAL PRECIPITATION PATTERN
                      .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                      .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                      .14       .16       .16       .16       .20       .23      3.10      1.80      1.30       .80
                      .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                      .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                      .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                      .04       .04

 18 LS            SCS LOSS RATE
                      STRTL        .15  INITIAL ABSTRACTION
                     CRVNBR      93.00  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 19 UD            SCS DIMENSIONLESS UNITGRAPH
                      TLAG        .75  LAG

                                                   ***

                                                UNIT HYDROGRAPH
                                            47 END-OF-PERIOD ORDINATES
              57.      186.      355.      584.      883.     1207.     1462.     1623.     1690.     1690.
            1623.     1505.     1368.     1200.      994.      808.      675.      566.      476.      410.
             346.      293.      243.      207.      174.      147.      123.      103.       87.       73.
              62.       52.       44.       37.       31.       26.       22.       19.       17.       14.
              12.       10.        8.        6.        4.        3.        1.

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

                     HYDROGRAPH AT STATION    CP1-1

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .87, TOTAL EXCESS =   13.43

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                   6-HR       24-HR       72-HR     24.92-HR
   15157.      3.92        (CFS)     3999.       1004.        967.        967.
                         (INCHES)   13.373      13.435      13.435      13.435
                          (AC-FT)    1983.       1992.       1992.       1992.

                     CUMULATIVE AREA =    2.78 SQ MI

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

            **************
            *            *
 20 KK      *    CP1-2   *      DEVELOP HYDROGRAPH FOR CP1-2
            *            *
```

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21 BA          SUBBASIN CHARACTERISTICS
                     TAREA        7.10  SUBBASIN AREA

               PRECIPITATION DATA

 9 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

10 PI            INCREMENTAL PRECIPITATION PATTERN
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                     .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                     .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                     .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                     .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                     .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                     .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                     .04       .04

22 LS          SCS LOSS RATE
                     STRTL        .17  INITIAL ABSTRACTION
                    CRVNBR      92.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

23 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        1.11  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                           69 END-OF-PERIOD ORDINATES
              65.      183.      344.      538.      787.     1086.     1437.     1846.     2210.     2519.
            2756.     2892.     2961.     2974.     2953.     2845.     2707.     2555.     2383.     2182.
            1955.     1697.     1476.     1294.     1145.     1016.      903.      806.      727.      648.
             578.      513.      449.      402.      359.      316.      284.      252.      222.      198.
             175.      155.      139.      123.      110.       98.       86.       78.       69.       61.
              54.       48.       43.       38.       34.       31.       28.       26.       23.       21.
              18.       15.       13.       11.        9.        7.        5.        2.        0.

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

                     HYDROGRAPH AT STATION    CP1-2

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .99, TOTAL EXCESS =   13.31

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     24.92-HR
  29661.      4.33        (CFS)    10053.      2540.       2447.       2447.
                        (INCHES)   13.164     13.307      13.307      13.307
                         (AC-FT)    4985.      5039.       5039.       5039.

                     CUMULATIVE AREA =    7.10 SQ MI

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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24 KK      *     CP1-3  *       DEVELOP HYDROGRAPH FOR CP1-3
           *            *
           **************

              SUBBASIN RUNOFF DATA

25 BA            SUBBASIN CHARACTERISTICS
                      TAREA        19.32  SUBBASIN AREA

                 PRECIPITATION DATA

 9 PB                 STORM        14.30  BASIN TOTAL PRECIPITATION

10 PI              INCREMENTAL PRECIPITATION PATTERN
                      .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                      .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                      .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                      .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                      .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                      .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                      .04       .04

26 LS            SCS LOSS RATE
                      STRTL         .17  INITIAL ABSTRACTION
                     CRVNBR       92.00  CURVE NUMBER
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

27 UD            SCS DIMENSIONLESS UNITGRAPH
                      TLAG         2.06  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                          126 END-OF-PERIOD ORDINATES
              53.      106.      192.      315.      439.      596.      754.      935.     1147.     1358.
            1634.     1915.     2218.     2552.     2887.     3175.     3457.     3708.     3902.     4096.
            4217.     4323.     4402.     4419.     4437.     4427.     4409.     4369.     4263.     4158.
            4039.     3916.     3789.     3648.     3507.     3342.     3166.     2984.     2772.     2561.
            2373.     2197.     2027.     1904.     1781.     1668.     1562.     1458.     1370.     1282.
            1207.     1143.     1079.     1015.      950.      892.      839.      786.      733.      681.
             636.      601.      566.      531.      495.      464.      437.      411.      385.      358.
             334.      315.      296.      276.      257.      240.      227.      213.      200.      187.
             175.      165.      155.      146.      136.      127.      120.      113.      106.       99.
              92.       87.       82.       76.       71.       66.       63.       59.       55.       52.
              49.       46.       44.       42.       40.       38.       36.       34.       32.       30.
              27.       25.       23.       21.       20.       18.       16.       14.       13.       11.
               9.        7.        5.        4.        2.        0.

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

                     HYDROGRAPH AT STATION    CP1-3

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .99, TOTAL EXCESS =   13.31

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR        24-HR        72-HR      24.92 HR
 50783.       5.33       (CFS)   26241.       6913.        6659        6119
```

CUMULATIVE AREA = 19.32 SQ MI

*** ***

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            **************
            *            *
 28 KK      *   CP1-3A   *      COMBINE HYDROGRAPHS CP1-1, CP1-2, AND CP1-3 (= CP1-3A)
            *            *
            **************
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 29 HC          HYDROGRAPH COMBINATION
                     ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
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*** *** *** *** ***

HYDROGRAPH AT STATION CP1-3A

PEAK FLOW (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	24.92-HR
77171.	4.67	(CFS)	39852.	10458.	10073.	10073.
		(INCHES)	12.689	13.319	13.319	13.319
		(AC-FT)	19761.	20742.	20742.	20742.

CUMULATIVE AREA = 29.20 SQ MI

*** ***

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            **************
            *            *
 30 KK      *   CP1-4    *      DEVELOP HYDROGRAPH FOR CP1-4
            *            *
            **************
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              SUBBASIN RUNOFF DATA

 31 BA          SUBBASIN CHARACTERISTICS
                     TAREA        8.38  SUBBASIN AREA

                PRECIPITATION DATA

  9 PB                STORM      14.30  BASIN TOTAL PRECIPITATION

 10 PI            INCREMENTAL PRECIPITATION PATTERN
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                     .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                     .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                     .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                     .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                     .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
```

```
                    .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                    .04       .04

 32 LS          SCS LOSS RATE
                     STRTL        .15  INITIAL ABSTRACTION
                    CRVNBR      93.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

 33 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG       1.48  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                          91 END-OF-PERIOD ORDINATES
              44.       98.      200.      312.      443.      597.      772.      987.     1220.     1491.
            1766.     1999.     2217.     2377.     2508.     2596.     2642.     2657.     2650.     2635.
            2554.     2465.     2363.     2257.     2141.     2012.     1866.     1702.     1528.     1376.
            1230.     1126.     1026.      939.      856.      783.      719.      666.      613.      560.
             515.      471.      427.      386.      357.      328.      299.      273.      251.      230.
             208.      191.      175.      159.      144.      133.      122.      111.      102.       94.
              86.       78.       72.       66.       60.       55.       50.       46.       42.       38.
              35.       32.       29.       28.       26.       24.       22.       21.       19.       17.
              15.       14.       12.       11.        9.        8.        6.        5.        3.        2.
              0.

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

                      HYDROGRAPH AT STATION     CP1-4

   TOTAL RAINFALL =   14.30, TOTAL LOSS =      .87, TOTAL EXCESS =   13.43

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                  6-HR       24-HR       72-HR    24.92-HR
   28618.       4.75        (CFS)    11822.       3027.       2916.       2916.
                          (INCHES)   13.117      13.435      13.435      13.435
                           (AC-FT)    5862.       6004.       6004.       6004.

                      CUMULATIVE AREA =    8.38 SQ MI


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


            **************
            *            *
 34 KK      *   CP1-4R   *      MUSKINGUM ROUTING OF CP1-4 HYDROGRAPH 3.38 MILES TO CP1-5
            *            *
            **************

              HYDROGRAPH ROUTING DATA

 35 RM          MUSKINGUM ROUTING
                     NSTPS        24 NUMBER OF SUBREACHES
                     AMSKK      1.69 MUSKINGUM K
                         X       .40 MUSKINGUM X
```

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

                    HYDROGRAPH AT STATION   CP1-4R

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                 6-HR       24-HR       72-HR     24.92-HR
  20194.     6.42        (CFS)   11816.      3027.       2916.       2916.
                       (INCHES)   13.110     13.435      13.435      13.435
                        (AC-FT)   5859.      6004.       6004.       6004.

                    CUMULATIVE AREA =    8.30 SQ MI

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

          **************
          *            *
 36 KK    *   CP1-5    *      DEVELOP HYDROGRAPH FOR CP1-5
          *            *
          **************

            SUBBASIN RUNOFF DATA

 37 BA        SUBBASIN CHARACTERISTICS
                  TAREA        5.45  SUBBASIN AREA

              PRECIPITATION DATA

  9 PB            STORM      14.30  BASIN TOTAL PRECIPITATION

 10 PI          INCREMENTAL PRECIPITATION PATTERN
                  .03        .03        .03        .03        .03        .03        .03        .03        .03        .04
                  .04        .04        .05        .05        .05        .05        .05        .05        .05        .05
                  .05        .06        .06        .06        .12        .12        .12        .13        .13        .13
                  .14        .16        .16        .18        .20        .23       3.10       1.80       1.30        .80
                  .70        .60        .31        .30        .29        .28        .27        .26        .11        .10
                  .10        .09        .09        .08        .08        .07        .07        .07        .07        .07
                  .05        .05        .04        .04        .04        .04        .04        .04        .04        .04
                  .04        .04

 38 LS        SCS LOSS RATE
                  STRTL        .20  INITIAL ABSTRACTION
                 CRVNBR      91.00  CURVE NUMBER
                  RTIMP        .00  PERCENT IMPERVIOUS AREA

 39 UD        SCS DIMENSIONLESS UNITGRAPH
                   TLAG       1.34  LAG

                                                  ***

                                          UNIT HYDROGRAPH
                                     82 END-OF-PERIOD ORDINATES
            34.       85.      165.      261.      366.      504.      658.      842.     1051.     1267.
          1451.     1612.     1739.     1823.     1887.     1899.     1901.     1889.     1834.     1764.
          1683.     1598.     1506.     1396.     1278.     1140.     1013.      898.      811.      732.
           663.      600.      543.      490.      456.      414.      376.      342.      307.      275.
```

252.	229.	206.	188.	171.	154.	139.	127.	114.	103.
94.	85.	77.	70.	64.	58.	52.	48.	43.	39.
35.	32.	29.	26.	24.	22.	20.	19.	17.	16.
15.	13.	12.	10.	9.	8.	7.	6.	4.	3.
2.	1.								

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

HYDROGRAPH AT STATION CP1-5

TOTAL RAINFALL = 14.30, TOTAL LOSS = 1.12, TOTAL EXCESS = 13.18

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
19760.	4.58	(CFS)	7596.	1931.	1860.	1860.
		(INCHES)	12.959	13.178	13.178	13.178
		(AC-FT)	3767.	3830.	3830.	3830.

CUMULATIVE AREA = 5.45 SQ MI

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             **************
             *            *
40 KK        *   CP1-5A   *      COMBINE HYDROGRAPH CP1-4R WITH CP1-5 (= CP1-5A)
             *            *
             **************
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41 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CP1-5A

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
34104.	6.25	(CFS)	10993.	4950.	4776.	4776.
		(INCHES)	12.768	13.334	13.334	13.334
		(AC-FT)	9418.	9835.	9835.	9835.

CUMULATIVE AREA = 13.83 SQ MI

*** ***

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             **************
             *            *
42 KK        *   CP1-6    *      READ FOR HYDROGRAPH FOR CP1-6
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```
                SUBBASIN RUNOFF DATA

43 BA           SUBBASIN CHARACTERISTICS
                     TAREA        5.13  SUBBASIN AREA

                PRECIPITATION DATA

 9 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

10 PI             INCREMENTAL PRECIPITATION PATTERN
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                     .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                     .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                     .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                     .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                     .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                     .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                     .04       .04

44 LS           SCS LOSS RATE
                     STRTL        .17  INITIAL ABSTRACTION
                    CRVNBR      92.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

45 UD           SCS DIMENSIONLESS UNITGRAPH
                      TLAG       1.15  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          71 END-OF-PERIOD ORDINATES
                44.      120.      226.      357.      519.      710.      942.     1212.     1470.     1703.
              1863.     1903.     2060.     2075.     2069.     2035.     1948.     1848.     1741.     1624.
              1479.     1318.     1147.     1002.      886.      788.      701.      626.      561.      508.
               455.      407.      363.      320.      286.      257.      228.      205.      183.      161.
               145.      129.      113.      102.       91.       81.       73.       65.       58.       52.
                46.       41.       37.       33.       29.       26.       23.       21.       20.       18.
                16.       14.       13.       11.        9.        8.        7.        5.        4.        2.
                 1.

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

                    HYDROGRAPH AT STATION     CP1-6

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .99, TOTAL EXCESS =   13.31

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     24.92-HR
  20887.      4.42        (CFS)     7256.       1836.       1768.       1768.
                        (INCHES)   13.150      13.307      13.307      13.307
                         (AC-FT)    3590.       3641.       3641.       3641.

                    CUMULATIVE AREA =     5.13 SQ MI
```

```
                **************
                *            *
 46 KK          *   CP1-6R   *      MUSKINGUM ROUTING OF CP1-6 HYDROGRAPH 5.89 MILES TO CP1-9A
                *            *
                **************

            HYDROGRAPH ROUTING DATA

 47 RM          MUSKINGUM ROUTING
                      NSTPS        39 NUMBER OF SUBREACHES
                      AMSKK      2.77 MUSKINGUM K
                          X       .40 MUSKINGUM X

                                                                  ***

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

                      HYDROGRAPH AT STATION   CP1-6R

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR      72-HR      24.92-HR
   20170.      7.17        (CFS)     7250.      1836.      1768.        1768.
                         (INCHES)   13.140     13.307     13.307       13.307
                         (AC-FT)    3595.      3641.      3641.        3641.

                      CUMULATIVE AREA =     5.13 SQ MI

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

                **************
                *            *
 48 KK          *   CP1-7    *      DEVELOP HYDROGRAPH FOR CP1-7
                *            *
                **************

            SUBBASIN RUNOFF DATA

 49 BA          SUBBASIN CHARACTERISTICS
                      TAREA        8.67  SUBBASIN AREA

                PRECIPITATION DATA

  9 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

 10 PI            INCREMENTAL PRECIPITATION PATTERN
                      .03        .03        .03        .03        .03        .03        .03        .03        .03        .04
                      .04        .04        .05        .05        .05        .05        .05        .05        .05        .05
                      .05        .06        .06        .06        .12        .12        .12        .13        .13        .13
                      .14        .16        .16        .18        .20        .23       3.10       1.80       1.30        .80
                      .70        .60        .31        .30        .29        .28        .27        .26        .11        .10
                      .10        .09        .09        .08        .08        .07        .07        .07        .07        .07
                      .05        .05        .04        .04        .04        .04        .04        .04        .04        .04
                      .04        .04

 50 LS          SCS LOSS RATE
```

```
                    STRTL        .17  INITIAL ABSTRACTION
                   CRVNBR      92.00  CURVE NUMBER
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

51 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        .89  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                        55 END-OF-PERIOD ORDINATES
          121.     303.     726.    1166.    1733.    2426.    3155.    3763.    4194.    4435.
         4488.    4462.    4281.    4016.    3716.    3366.    2946.    2472.    2070.    1700.
         1542.    1331.    1165.    1010.     882.     761.     647.     567.     486.     425.
          364.     315.     271.     233.     203.     175.     153.     131.     114.      98.
           85.      73.      63.      55.      48.      43.      38.      34.      29.      24.
           20.      16.      12.       8.       4.

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

                    HYDROGRAPH AT STATION    CP1-7

  TOTAL RAINFALL =   14.30, TOTAL LOSS =     .99, TOTAL EXCESS =   13.31

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     24.92-HR
  42101.      4.08        (CFS)    12333.       3102.       2988.       2988.
                        (INCHES)   13.226      13.307      13.307      13.307
                         (AC-FT)    6116.       6153.       6153.       6153.

                    CUMULATIVE AREA =    8.67 SQ MI

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

          **************
          *            *
52 KK     *   CP1-7R   *      MUSKINGUM ROUTING OF CP1-7 HYDROGRAPH 6.86 MILES TO CP1-9A
          *            *
          **************

             HYDROGRAPH ROUTING DATA

53 RM          MUSKINGUM ROUTING
                    NSTPS        46 NUMBER OF SUBREACHES
                    AMSKK      3.22 MUSKINGUM K
                        X       .40 MUSKINGUM X

                                                  ***

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

                    HYDROGRAPH AT STATION    CP1-7R
```

```
                    (INCHES)    13.216      13.307      13.307      13.307
                     (AC-FT)     6111.       6153.       6153.       6153.

                    CUMULATIVE AREA =    0.67 SQ MI

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

          **************
          *            *
 54 KK    *    CP1-8   *      DEVELOP HYDROGRAPH FOR CP1-8
          *            *
          **************

            SUBBASIN RUNOFF DATA

 55 BA          SUBBASIN CHARACTERISTICS
                     TAREA        2.65  SUBBASIN AREA

                PRECIPITATION DATA

  9 PB                STORM      14.30  BASIN TOTAL PRECIPITATION

 10 PI            INCREMENTAL PRECIPITATION PATTERN
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                     .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                     .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                     .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                     .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                     .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                     .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                     .04       .04

 56 LS          SCS LOSS RATE
                     STRTL        .11  INITIAL ABSTRACTION
                    CRVNBR      95.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

 57 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        .59  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          37 END-OF-PERIOD ORDINATES
              106.      319.      618.     1060.     1532.     1867.     2013.     2017.     1902.     1713.
             1478.     1177.      912.      734.      589.      486.      394.      314.      255.      205.
              165.      133.      106.       86.       70.       56.       46.       37.       29.       24.
               20.       17.       14.       10.        8.        5.        2.

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

                     HYDROGRAPH AT STATION    CP1-8

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .61, TOTAL EXCESS =   13.69

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
```

```
(CFS)      (HR)                    6-HR       24-HR       72-HR      24.92-HR
16960.     3.75          (CFS)     3887.       975.        939.        939.
                       (INCHES)   13.637      13.687      13.687      13.687
                       (AC-FT)    1927.       1934.       1934.       1934.

                     CUMULATIVE AREA =    2.65 SQ MI

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

            **************
            *            *
 58 KK      *   CP1-8R   *      MUSKINGUM ROUTING OF CP1-8 HYDROGRAPH 8.01 MILES TO CP1-9A
            *            *
            **************

            HYDROGRAPH ROUTING DATA

 59 RM        MUSKINGUM ROUTING
                   MSTPS        54 NUMBER OF SUBREACHES
                   AMSKK      3.77 MUSKINGUM K
                       X       .40 MUSKINGUM X
                                                          ***
    ***            ***            ***            ***            ***

                     HYDROGRAPH AT STATION   CP1-8R

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR       24-HR       72-HR      24.92-HR
 14925.       7.58          (CFS)     3883.       975.        939.        939.
                       (INCHES)   13.624      13.687      13.687      13.687
                       (AC-FT)    1926.       1934.       1934.       1934.

                     CUMULATIVE AREA =    2.65 SQ MI

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

            **************
            *            *
 60 KK      *    CP1-9   *      DEVELOP HYDROGRAPH FOR CP1-9
            *            *
            **************

            SUBBASIN RUNOFF DATA

 61 BA        SUBBASIN CHARACTERISTICS
                   TAREA       16.39  SUBBASIN AREA

              PRECIPITATION DATA

  9 PB            STORM        14.30  BASIN TOTAL PRECIPITATION
```

10 PI INCREMENTAL PRECIPITATION PATTERN

.03	.03	.03	.03	.03	.03	.03	.03	.03	.04
.04	.04	.05	.05	.05	.05	.05	.05	.05	.05
.05	.06	.06	.06	.12	.12	.12	.13	.13	.13
.14	.16	.16	.18	.20	.23	3.10	1.80	1.30	.80
.70	.60	.31	.30	.29	.28	.27	.26	.11	.10
.10	.09	.09	.08	.08	.07	.07	.07	.07	.07
.05	.05	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04								

62 LS SCS LOSS RATE

STRTL	.22	INITIAL ABSTRACTION
CRVNBR	90.00	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

63 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	3.22	LAG

***

UNIT HYDROGRAPH
195 END-OF-PERIOD ORDINATES

19.	37.	56.	77.	120.	163.	207.	252.	308.	364.
420.	480.	555.	629.	704.	787.	886.	985.	1084.	1192.
1309.	1427.	1545.	1653.	1752.	1852.	1951.	2031.	2100.	2168.
2236.	2283.	2320.	2357.	2395.	2408.	2414.	2420.	2426.	2422.
2416.	2410.	2403.	2368.	2331.	2293.	2256.	2213.	2169.	2126.
2082.	2032.	1982.	1933.	1881.	1819.	1757.	1695.	1629.	1555.
1480.	1406.	1336.	1274.	1212.	1150.	1097.	1053.	1010.	966.
926.	889.	852.	815.	781.	750.	719.	688.	663.	641.
618.	595.	573.	550.	528.	505.	486.	467.	449.	430.
411.	393.	374.	356.	344.	331.	319.	306.	294.	282.
269.	258.	248.	239.	230.	220.	211.	202.	192.	184.
177.	170.	164.	157.	150.	143.	136.	131.	126.	122.
117.	112.	108.	103.	98.	95.	91.	88.	84.	81.
77.	74.	71.	68.	66.	63.	61.	58.	56.	53.
51.	49.	47.	45.	43.	41.	40.	38.	36.	35.
34.	32.	31.	30.	29.	27.	26.	26.	25.	24.
23.	23.	22.	21.	20.	20.	19.	18.	17.	17.
16.	15.	14.	14.	13.	12.	12.	11.	10.	10.
9.	8.	8.	7.	7.	6.	5.	5.	4.	4.
3.	2.	2.	1.	0.					

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

HYDROGRAPH AT STATION CP1-9

TOTAL RAINFALL = 14.30, TOTAL LOSS = 1.25, TOTAL EXCESS = 13.05

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
29287.	6.58	(CFS)	19716.	5750.	5539.	5539.
		(INCHES)	11.184	13.048	13.048	13.048
		(AC-FT)	9777.	11406.	11406.	11406.

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

            **************
            *            *
 64 KK      *   CP1-9A   *      COMBINE HYDROGRAPHS CP1-6R, 7R, 8R AND 9 (= CP1-9A)
            *            *
            **************

 65 HC          HYDROGRAPH COMBINATION
                     ICOMP            4  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***
    ***         ***         ***         ***         ***

                     HYDROGRAPH AT STATION   CP1-9A

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     24.92-HR
  99024.      7.42        (CFS)    43023.      11663.      11234.      11234.
                        (INCHES)   12.181      13.208      13.208      13.208
                         (AC-FT)   21334.      23134.      23134.      23134.

                     CUMULATIVE AREA =   32.84 SQ MI

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

            **************
            *            *
 66 KK      *   FRS #1   *      COMBINE HYDROGRAPHS CP1-3A, CP1-5A, AND CP1-9A (= FRS #1)
            *            *
            **************

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

 68 HC          HYDROGRAPH COMBINATION
                     ICOMP            3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***
*****************************************************************************************************************************

                                HYDROGRAPH AT STATION   FRS #1
                                     SUM OF  3 HYDROGRAPHS
*****************************************************************************************************************************

                                 *                                 *                                 *                                 *
  DA MON HRMN  ORD      FLOW     *  DA MON HRMN  ORD      FLOW     *  DA MON HRMN  ORD      FLOW     *  DA MON HRMN  ORD      FLOW
                                 *                                 *                                 *                                 *
   1 DEC 0000    1        0.     *   1 DEC 0615   76   124755.     *   1 DEC 1230  151     3089.     *   1 DEC 1845  226       86.
   1 DEC 0005    2        0.     *   1 DEC 0620   77   125627.     *   1 DEC 1235  152     2934.     *   1 DEC 1850  227       79.
```

1	DEC	0010	3	0.	*	1	DEC	0625	78	126845.	*	1	DEC	1240	153	2786.	*	1	DEC	1855	228	71.
1	DEC	0015	4	0.	*	1	DEC	0630	79	128471.	*	1	DEC	1245	154	2645.	*	1	DEC	1900	229	63.
1	DEC	0020	5	0.	*	1	DEC	0635	80	130487.	*	1	DEC	1250	155	2512.	*	1	DEC	1905	230	56.
1	DEC	0025	6	0.	*	1	DEC	0640	81	132859.	*	1	DEC	1255	156	2388.	*	1	DEC	1910	231	49.
1	DEC	0030	7	0.	*	1	DEC	0645	82	135440.	*	1	DEC	1300	157	2271.	*	1	DEC	1915	232	42.
1	DEC	0035	8	1.	*	1	DEC	0650	83	138069.	*	1	DEC	1305	158	2159.	*	1	DEC	1920	233	35.
1	DEC	0040	9	3.	*	1	DEC	0655	84	140527.	*	1	DEC	1310	159	2052.	*	1	DEC	1925	234	30.
1	DEC	0045	10	9.	*	1	DEC	0700	85	142575.	*	1	DEC	1315	160	1950.	*	1	DEC	1930	235	26.
1	DEC	0050	11	18.	*	1	DEC	0705	86	144023.	*	1	DEC	1320	161	1850.	*	1	DEC	1935	236	23.
1	DEC	0055	12	34.	*	1	DEC	0710	87	144648.	*	1	DEC	1325	162	1754.	*	1	DEC	1940	237	20.
1	DEC	0100	13	58.	*	1	DEC	0715	88	144328.	*	1	DEC	1330	163	1663.	*	1	DEC	1945	238	18.
1	DEC	0105	14	92.	*	1	DEC	0720	89	142935.	*	1	DEC	1335	164	1582.	*	1	DEC	1950	239	16.
1	DEC	0110	15	139.	*	1	DEC	0725	90	140386.	*	1	DEC	1340	165	1508.	*	1	DEC	1955	240	14.
1	DEC	0115	16	200.	*	1	DEC	0730	91	136682.	*	1	DEC	1345	166	1439.	*	1	DEC	2000	241	13.
1	DEC	0120	17	278.	*	1	DEC	0735	92	131886.	*	1	DEC	1350	167	1373.	*	1	DEC	2005	242	11.
1	DEC	0125	18	374.	*	1	DEC	0740	93	126153.	*	1	DEC	1355	168	1312.	*	1	DEC	2010	243	10.
1	DEC	0130	19	489.	*	1	DEC	0745	94	119732.	*	1	DEC	1400	169	1252.	*	1	DEC	2015	244	9.
1	DEC	0135	20	623.	*	1	DEC	0750	95	112884.	*	1	DEC	1405	170	1195.	*	1	DEC	2020	245	8.
1	DEC	0140	21	777.	*	1	DEC	0755	96	105857.	*	1	DEC	1410	171	1143.	*	1	DEC	2025	246	7.
1	DEC	0145	22	951.	*	1	DEC	0800	97	98855.	*	1	DEC	1415	172	1093.	*	1	DEC	2030	247	7.
1	DEC	0150	23	1146.	*	1	DEC	0805	98	92077.	*	1	DEC	1420	173	1046.	*	1	DEC	2035	248	6.
1	DEC	0155	24	1362.	*	1	DEC	0810	99	85645.	*	1	DEC	1425	174	1002.	*	1	DEC	2040	249	5.
1	DEC	0200	25	1601.	*	1	DEC	0815	100	79603.	*	1	DEC	1430	175	959.	*	1	DEC	2045	250	5.
1	DEC	0205	26	1873.	*	1	DEC	0820	101	73974.	*	1	DEC	1435	176	918.	*	1	DEC	2050	251	4.
1	DEC	0210	27	2185.	*	1	DEC	0825	102	68732.	*	1	DEC	1440	177	879.	*	1	DEC	2055	252	3.
1	DEC	0215	28	2545.	*	1	DEC	0830	103	63868.	*	1	DEC	1445	178	840.	*	1	DEC	2100	253	3.
1	DEC	0220	29	2960.	*	1	DEC	0835	104	59390.	*	1	DEC	1450	179	804.	*	1	DEC	2105	254	3.
1	DEC	0225	30	3439.	*	1	DEC	0840	105	55286.	*	1	DEC	1455	180	770.	*	1	DEC	2110	255	2.
1	DEC	0230	31	3991.	*	1	DEC	0845	106	51513.	*	1	DEC	1500	181	738.	*	1	DEC	2115	256	2.
1	DEC	0235	32	4618.	*	1	DEC	0850	107	48037.	*	1	DEC	1505	182	707.	*	1	DEC	2120	257	2.
1	DEC	0240	33	5325.	*	1	DEC	0855	108	44844.	*	1	DEC	1510	183	677.	*	1	DEC	2125	258	1.
1	DEC	0245	34	6114.	*	1	DEC	0900	109	41919.	*	1	DEC	1515	184	648.	*	1	DEC	2130	259	1.
1	DEC	0250	35	6987.	*	1	DEC	0905	110	39220.	*	1	DEC	1520	185	620.	*	1	DEC	2135	260	1.
1	DEC	0255	36	7949.	*	1	DEC	0910	111	36715.	*	1	DEC	1525	186	593.	*	1	DEC	2140	261	1.
1	DEC	0300	37	9007.	*	1	DEC	0915	112	34392.	*	1	DEC	1530	187	568.	*	1	DEC	2145	262	0.
1	DEC	0305	38	10801.	*	1	DEC	0920	113	32237.	*	1	DEC	1535	188	545.	*	1	DEC	2150	263	0.
1	DEC	0310	39	13448.	*	1	DEC	0925	114	30237.	*	1	DEC	1540	189	523.	*	1	DEC	2155	264	0.
1	DEC	0315	40	17078.	*	1	DEC	0930	115	28364.	*	1	DEC	1545	190	502.	*	1	DEC	2200	265	0.
1	DEC	0320	41	21736.	*	1	DEC	0935	116	26616.	*	1	DEC	1550	191	482.	*	1	DEC	2205	266	0.
1	DEC	0325	42	27514.	*	1	DEC	0940	117	24975.	*	1	DEC	1555	192	462.	*	1	DEC	2210	267	0.
1	DEC	0330	43	34423.	*	1	DEC	0945	118	23429.	*	1	DEC	1600	193	443.	*	1	DEC	2215	268	0.
1	DEC	0335	44	42037.	*	1	DEC	0950	119	21968.	*	1	DEC	1605	194	425.	*	1	DEC	2220	269	0.
1	DEC	0340	45	50175.	*	1	DEC	0955	120	20581.	*	1	DEC	1610	195	409.	*	1	DEC	2225	270	0.
1	DEC	0345	46	58443.	*	1	DEC	1000	121	19263.	*	1	DEC	1615	196	394.	*	1	DEC	2230	271	0.
1	DEC	0350	47	66522.	*	1	DEC	1005	122	18007.	*	1	DEC	1620	197	380.	*	1	DEC	2235	272	0.
1	DEC	0355	48	74197.	*	1	DEC	1010	123	16813.	*	1	DEC	1625	198	366.	*	1	DEC	2240	273	0.
1	DEC	0400	49	81178.	*	1	DEC	1015	124	15692.	*	1	DEC	1630	199	353.	*	1	DEC	2245	274	0.
1	DEC	0405	50	87495.	*	1	DEC	1020	125	14637.	*	1	DEC	1635	200	341.	*	1	DEC	2250	275	0.
1	DEC	0410	51	93096.	*	1	DEC	1025	126	13647.	*	1	DEC	1640	201	328.	*	1	DEC	2255	276	0.
1	DEC	0415	52	97977.	*	1	DEC	1030	127	12718.	*	1	DEC	1645	202	316.	*	1	DEC	2300	277	0.
1	DEC	0420	53	101938.	*	1	DEC	1035	128	11851.	*	1	DEC	1650	203	305.	*	1	DEC	2305	278	0.
1	DEC	0425	54	105352.	*	1	DEC	1040	129	11048.	*	1	DEC	1655	204	293.	*	1	DEC	2310	279	0.
1	DEC	0430	55	108270.	*	1	DEC	1045	130	10304.	*	1	DEC	1700	205	282.	*	1	DEC	2315	280	0.
1	DEC	0435	56	110565.	*	1	DEC	1050	131	9616.	*	1	DEC	1705	206	271.	*	1	DEC	2320	281	0.
1	DEC	0440	57	112410.	*	1	DEC	1055	132	8996.	*	1	DEC	1710	207	260.	*	1	DEC	2325	282	0.
1	DEC	0445	58	113691.	*	1	DEC	1100	133	8433.	*	1	DEC	1715	208	249.	*	1	DEC	2330	283	0.
1	DEC	0450	59	114565.	*	1	DEC	1105	134	7921.	*	1	DEC	1720	209	239.	*	1	DEC	2335	284	0.
1	DEC	0455	60	115214.	*	1	DEC	1110	135	7452.	*	1	DEC	1725	210	228.	*	1	DEC	2340	285	0.
1	DEC	0500	61	115658.	*	1	DEC	1115	136	7017.	*	1	DEC	1730	211	218.	*	1	DEC	2345	286	0.
1	DEC	0505	62	116076.	*	1	DEC	1120	137	6613.	*	1	DEC	1735	212	208.	*	1	DEC	2350	287	0.

1	DEC	0510	63	116436.	*	1	DEC	1125	138	6234.	*	1	DEC	1740	213	190.	*	1	DEC	2355	288	0.
1	DEC	0515	64	116884.	*	1	DEC	1130	139	5883.	*	1	DEC	1745	214	188.	*	2	DEC	0000	289	0.
1	DEC	0520	65	117416.	*	1	DEC	1135	140	5561.	*	1	DEC	1750	215	179.	*	2	DEC	0005	290	0.
1	DEC	0525	66	117966.	*	1	DEC	1140	141	5263.	*	1	DEC	1755	216	170.	*	2	DEC	0010	291	0.
1	DEC	0530	67	118598.	*	1	DEC	1145	142	4984.	*	1	DEC	1800	217	161.	*	2	DEC	0015	292	0.
1	DEC	0535	68	119319.	*	1	DEC	1150	143	4722.	*	1	DEC	1805	218	152.	*	2	DEC	0020	293	0.
1	DEC	0540	69	120057.	*	1	DEC	1155	144	4475.	*	1	DEC	1810	219	143.	*	2	DEC	0025	294	0.
1	DEC	0545	70	120772.	*	1	DEC	1200	145	4240.	*	1	DEC	1815	220	135.	*	2	DEC	0030	295	0.
1	DEC	0550	71	121499.	*	1	DEC	1205	146	4016.	*	1	DEC	1820	221	127.	*	2	DEC	0035	296	0.
1	DEC	0555	72	122238.	*	1	DEC	1210	147	3805.	*	1	DEC	1825	222	118.	*	2	DEC	0040	297	0.
1	DEC	0600	73	122864.	*	1	DEC	1215	148	3609.	*	1	DEC	1830	223	110.	*	2	DEC	0045	298	0.
1	DEC	0605	74	123445.	*	1	DEC	1220	149	3426.	*	1	DEC	1835	224	102.	*	2	DEC	0050	299	0.
1	DEC	0610	75	124064.	*	1	DEC	1225	150	3252.	*	1	DEC	1840	225	94.	*	2	DEC	0055	300	0.
					*						*						*					

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
144648.	7.17	(CFS)	99600.	27079.	26083.	26083.
		(INCHES)	12.206	13.274	13.274	13.274
		(AC-FT)	49388.	53711.	53711.	53711.

CUMULATIVE AREA = 75.87 SQ MI

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            *           *
69 KK       *   ROUTE   *      RESERVIOR ROUTING OF FRS #1 USING FRS #1 HYDROGRAPH
            *           *
            *************
                                RESERVIOR ASSUMED EMPTY

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

               HYDROGRAPH ROUTING DATA

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

77 SV            STORAGE          .0     200.0     750.0    2000.0    4500.0    6300.0    8200.0   10400.0   13200.0   16600.0
                               20300.0   25000.0

79 SE          ELEVATION      1060.00   1064.00   1068.00   1072.00   1076.00   1078.00   1079.80   1082.00   1084.00   1086.00
                              1088.00   1090.00

76 SS          SPILLWAY
                      CREL     1079.80  SPILLWAY CREST ELEVATION
                     SPWID      800.00  SPILLWAY WIDTH
                      COQW        2.70  WEIR COEFFICIENT
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	EXPW	1.50	EXPONENT OF HEAD
73 ST	TOP OF DAM		
	TOPEL	1080.00	ELEVATION AT TOP OF DAM
	DAMWID	5880.00	DAM WIDTH
	COQD	2.70	WEIR COEFFICIENT
	EXPD	1.50	EXPONENT OF HEAD

SW	DAM WIDTH	5880.00	5880.00	37680.00
SE	ELEVATION	1080.00	1089.50	1089.50

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COMPUTED OUTFLOW-ELEVATION DATA

(EXCLUDING FLOW OVER DAM)

OUTFLOW	.00	.00	12.07	96.58	325.75	772.08	1508.01	2605.98	4138.42	6177.21
ELEVATION	1060.00	1079.80	1079.83	1079.93	1080.08	1080.30	1080.59	1080.93	1081.34	1081.81
OUTFLOW	8795.19	12065.51	16058.50	20848.70	26506.93	33106.40	40719.53	49418.78	59276.56	70364.06
ELEVATION	1082.35	1082.95	1083.61	1084.33	1085.12	1085.97	1086.88	1087.86	1088.90	1090.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

(INCLUDING FLOW OVER DAM)

STORAGE	.00	200.00	750.00	2000.00	4500.00	6300.00	8200.00	8231.50	8325.98	8483.33
OUTFLOW	.00	.00	.00	.00	.00	.00	.00	12.07	96.58	325.75
ELEVATION	1060.00	1064.00	1068.00	1072.00	1076.00	1078.00	1079.80	1079.83	1079.93	1080.08
STORAGE	8703.67	8987.00	9333.33	9742.64	10214.82	10400.00	10889.97	11727.54	12652.95	13200.00
OUTFLOW	772.08	1508.01	2605.98	4138.42	6177.21	7048.12	8795.19	12065.51	16058.50	18591.74
ELEVATION	1080.30	1080.59	1080.93	1081.34	1081.81	1082.00	1082.35	1082.95	1083.61	1084.00
STORAGE	13766.74	15104.61	16549.57	16600.00	18234.11	20039.62	20300.00	22410.75	25000.00	
OUTFLOW	20848.70	26506.93	33106.40	33345.42	40719.53	49418.78	50719.00	74737.16	156462.60	
ELEVATION	1084.33	1085.12	1085.97	1086.00	1086.88	1087.86	1088.00	1088.90	1090.00	

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HYDROGRAPH AT STATION ROUTE

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	DEC	0000	1	0.	.0	1060.0	1	DEC	0820	101	97110.	23743.0	1089.5	1	DEC	1640	201	6441.	10271.8	1081.9
1	DEC	0005	2	0.	.0	1060.0	1	DEC	0825	102	94082.	23576.0	1089.4	1	DEC	1645	202	6249.	10230.3	1081.8
1	DEC	0010	3	0.	.0	1060.0	1	DEC	0830	103	90878.	23395.6	1089.3	1	DEC	1650	203	6064.	10190.0	1081.8
1	DEC	0015	4	0.	.0	1060.0	1	DEC	0835	104	87579.	23205.4	1089.2	1	DEC	1655	204	5886.	10151.0	1081.8
1	DEC	0020	5	0.	.0	1060.0	1	DEC	0840	105	84254.	23008.6	1089.2	1	DEC	1700	205	5715.	10113.0	1081.7
1	DEC	0025	6	0.	.0	1060.0	1	DEC	0845	106	80952.	22807.5	1089.1	1	DEC	1705	206	5551.	10076.1	1081.7
1	DEC	0030	7	0.	.0	1060.0	1	DEC	0850	107	77711.	22603.8	1089.0	1	DEC	1710	207	5392.	10040.3	1081.6
1	DEC	0035	8	0.	.0	1060.0	1	DEC	0855	108	74581.	22400.4	1088.9	1	DEC	1715	208	5239.	10005.3	1081.6
1	DEC	0040	9	0.	.0	1060.0	1	DEC	0900	109	71563.	22197.0	1088.8	1	DEC	1720	209	5092.	9971.4	1081.6
1	DEC	0045	10	0.	.1	1060.0	1	DEC	0905	110	68679.	21994.8	1088.7	1	DEC	1725	210	4951.	9938.4	1081.5
1	DEC	0050	11	0.	.2	1060.0	1	DEC	0910	111	65917.	21794.0	1088.6	1	DEC	1730	211	4814.	9906.3	1081.5

1	DEC	0100	13	0.	.6	1060.0	*	1	DEC	0920	113	60886.	21395.5	1088.5	*	1	DEC	1740	213	4556.	9844.7	1081.4
1	DEC	0105	14	0.	1.2	1060.0	*	1	DEC	0925	114	58610.	21199.3	1088.4	*	1	DEC	1745	214	4433.	9815.0	1081.4
1	DEC	0110	15	0.	2.0	1060.0	*	1	DEC	0930	115	56510.	21004.8	1088.3	*	1	DEC	1750	215	4315.	9786.2	1081.4
1	DEC	0115	16	0.	3.1	1060.1	*	1	DEC	0935	116	54596.	20811.5	1088.2	*	1	DEC	1755	216	4201.	9758.1	1081.4
1	DEC	0120	17	0.	4.8	1060.1	*	1	DEC	0940	117	52892.	20619.0	1088.1	*	1	DEC	1800	217	4090.	9730.7	1081.3
1	DEC	0125	18	0.	7.0	1060.1	*	1	DEC	0945	118	51446.	20426.5	1088.1	*	1	DEC	1805	218	3984.	9703.9	1081.3
1	DEC	0130	19	0.	10.0	1060.2	*	1	DEC	0950	119	50380.	20232.3	1088.0	*	1	DEC	1810	219	3880.	9677.8	1081.3
1	DEC	0135	20	0.	13.8	1060.3	*	1	DEC	0955	120	49396.	20035.1	1087.9	*	1	DEC	1815	220	3781.	9652.4	1081.3
1	DEC	0140	21	0.	18.6	1060.4	*	1	DEC	1000	121	48407.	19835.5	1087.7	*	1	DEC	1820	221	3684.	9627.6	1081.2
1	DEC	0145	22	0.	24.6	1060.5	*	1	DEC	1005	122	47415.	19633.8	1087.6	*	1	DEC	1825	222	3591.	9603.5	1081.2
1	DEC	0150	23	0.	31.8	1060.6	*	1	DEC	1010	123	46422.	19430.6	1087.5	*	1	DEC	1830	223	3501.	9579.8	1081.2
1	DEC	0155	24	0.	40.4	1060.8	*	1	DEC	1015	124	45430.	19226.2	1087.4	*	1	DEC	1835	224	3413.	9556.7	1081.2
1	DEC	0200	25	0.	50.6	1061.0	*	1	DEC	1020	125	44442.	19021.1	1087.3	*	1	DEC	1840	225	3328.	9534.1	1081.1
1	DEC	0205	26	0.	62.6	1061.3	*	1	DEC	1025	126	43461.	18815.8	1087.2	*	1	DEC	1845	226	3247.	9512.2	1081.1
1	DEC	0210	27	0.	76.6	1061.5	*	1	DEC	1030	127	42488.	18610.8	1087.1	*	1	DEC	1850	227	3167.	9490.7	1081.1
1	DEC	0215	28	0.	92.9	1061.9	*	1	DEC	1035	128	41524.	18406.2	1087.0	*	1	DEC	1855	228	3090.	9469.7	1081.1
1	DEC	0220	29	0.	111.8	1062.2	*	1	DEC	1040	129	40572.	18202.5	1086.9	*	1	DEC	1900	229	3016.	9449.2	1081.0
1	DEC	0225	30	0.	133.9	1062.7	*	1	DEC	1045	130	39633.	17999.9	1086.8	*	1	DEC	1905	230	2943.	9429.0	1081.0
1	DEC	0230	31	0.	159.4	1063.2	*	1	DEC	1050	131	38707.	17798.7	1086.6	*	1	DEC	1910	231	2873.	9409.4	1081.0
1	DEC	0235	32	0.	189.1	1063.8	*	1	DEC	1055	132	37798.	17599.5	1086.5	*	1	DEC	1915	232	2804.	9390.1	1081.0
1	DEC	0240	33	0.	223.3	1064.2	*	1	DEC	1100	133	36905.	17402.4	1086.4	*	1	DEC	1920	233	2738.	9371.3	1081.0
1	DEC	0245	34	0.	262.7	1064.5	*	1	DEC	1105	134	36030.	17207.7	1086.3	*	1	DEC	1925	234	2674.	9352.9	1081.0
1	DEC	0250	35	0.	307.8	1064.8	*	1	DEC	1110	135	35174.	17015.5	1086.2	*	1	DEC	1930	235	2611.	9334.9	1080.9
1	DEC	0255	36	0.	359.3	1065.2	*	1	DEC	1115	136	34336.	16826.1	1086.1	*	1	DEC	1935	236	2551.	9317.3	1080.9
1	DEC	0300	37	0.	417.6	1065.6	*	1	DEC	1120	137	33517.	16639.3	1086.0	*	1	DEC	1940	237	2492.	9300.1	1080.9
1	DEC	0305	38	0.	485.9	1066.1	*	1	DEC	1125	138	32663.	16455.8	1085.9	*	1	DEC	1945	238	2435.	9283.3	1080.9
1	DEC	0310	39	0.	569.4	1066.7	*	1	DEC	1130	139	31817.	16275.4	1085.8	*	1	DEC	1950	239	2380.	9266.8	1080.9
1	DEC	0315	40	0.	674.5	1067.5	*	1	DEC	1135	140	30995.	16098.6	1085.7	*	1	DEC	1955	240	2326.	9250.7	1080.9
1	DEC	0320	41	0.	808.1	1068.2	*	1	DEC	1140	141	30195.	15925.1	1085.6	*	1	DEC	2000	241	2274.	9234.9	1080.8
1	DEC	0325	42	0.	977.7	1068.7	*	1	DEC	1145	142	29418.	15755.2	1085.5	*	1	DEC	2005	242	2224.	9219.6	1080.8
1	DEC	0330	43	0.	1191.0	1069.4	*	1	DEC	1150	143	28663.	15588.8	1085.4	*	1	DEC	2010	243	2175.	9204.5	1080.8
1	DEC	0335	44	0.	1454.3	1070.3	*	1	DEC	1155	144	27931.	15425.6	1085.3	*	1	DEC	2015	244	2127.	9189.8	1080.8
1	DEC	0340	45	0.	1771.8	1071.3	*	1	DEC	1200	145	27219.	15265.9	1085.2	*	1	DEC	2020	245	2081.	9175.4	1080.8
1	DEC	0345	46	0.	2145.9	1072.2	*	1	DEC	1205	146	26527.	15109.2	1085.1	*	1	DEC	2025	246	2035.	9161.2	1080.8
1	DEC	0350	47	0.	2576.2	1072.9	*	1	DEC	1210	147	25856.	14955.8	1085.0	*	1	DEC	2030	247	1992.	9147.4	1080.7
1	DEC	0355	48	0.	3060.7	1073.7	*	1	DEC	1215	148	25203.	14805.6	1084.9	*	1	DEC	2035	248	1949.	9133.9	1080.7
1	DEC	0400	49	0.	3595.8	1074.6	*	1	DEC	1220	149	24570.	14658.4	1084.9	*	1	DEC	2040	249	1908.	9120.7	1080.7
1	DEC	0405	50	0.	4176.6	1075.5	*	1	DEC	1225	150	23955.	14514.4	1084.8	*	1	DEC	2045	250	1868.	9107.7	1080.7
1	DEC	0410	51	0.	4797.1	1076.3	*	1	DEC	1230	151	23358.	14373.3	1084.7	*	1	DEC	2050	251	1829.	9095.0	1080.7
1	DEC	0415	52	0.	5455.0	1077.1	*	1	DEC	1235	152	22778.	14235.1	1084.6	*	1	DEC	2055	252	1791.	9082.6	1080.7
1	DEC	0420	53	0.	6143.4	1077.8	*	1	DEC	1240	153	22215.	14099.8	1084.5	*	1	DEC	2100	253	1754.	9070.4	1080.7
1	DEC	0425	54	0.	6857.3	1078.5	*	1	DEC	1245	154	21668.	13967.4	1084.5	*	1	DEC	2105	254	1718.	9058.4	1080.7
1	DEC	0430	55	0.	7592.9	1079.2	*	1	DEC	1250	155	21137.	13837.7	1084.4	*	1	DEC	2110	255	1683.	9046.7	1080.6
1	DEC	0435	56	120.	8345.9	1079.9	*	1	DEC	1255	156	20622.	13710.7	1084.3	*	1	DEC	2115	256	1649.	9035.2	1080.6
1	DEC	0440	57	1868.	9107.6	1080.7	*	1	DEC	1300	157	20121.	13586.4	1084.2	*	1	DEC	2120	257	1616.	9024.0	1080.6
1	DEC	0445	58	4637.	9864.2	1081.5	*	1	DEC	1305	158	19636.	13464.8	1084.2	*	1	DEC	2125	258	1583.	9013.0	1080.6
1	DEC	0450	59	7759.	10603.9	1082.1	*	1	DEC	1310	159	19164.	13345.7	1084.1	*	1	DEC	2130	259	1552.	9002.3	1080.6
1	DEC	0455	60	10480.	11332.4	1082.7	*	1	DEC	1315	160	18705.	13229.1	1084.0	*	1	DEC	2135	260	1521.	8991.6	1080.6
1	DEC	0500	61	13393.	12045.2	1083.2	*	1	DEC	1320	161	18190.	13115.1	1083.9	*	1	DEC	2140	261	1492.	8981.3	1080.6
1	DEC	0505	62	16455.	12740.5	1083.7	*	1	DEC	1325	162	17670.	13004.0	1083.9	*	1	DEC	2145	262	1463.	8971.1	1080.6
1	DEC	0510	63	19448.	13417.5	1084.1	*	1	DEC	1330	163	17168.	12895.8	1083.8	*	1	DEC	2150	263	1434.	8961.1	1080.6
1	DEC	0515	64	22124.	14077.8	1084.5	*	1	DEC	1335	164	16683.	12790.4	1083.7	*	1	DEC	2155	264	1407.	8951.4	1080.6
1	DEC	0520	65	24846.	14722.8	1084.9	*	1	DEC	1340	165	16215.	12687.6	1083.6	*	1	DEC	2200	265	1380.	8941.7	1080.5
1	DEC	0525	66	27605.	15352.6	1085.3	*	1	DEC	1345	166	15765.	12587.7	1083.6	*	1	DEC	2205	266	1354.	8932.3	1080.5
1	DEC	0530	67	30389.	15967.5	1085.6	*	1	DEC	1350	167	15329.	12490.3	1083.5	*	1	DEC	2210	267	1328.	8923.0	1080.5
1	DEC	0535	68	33189.	16567.0	1086.0	*	1	DEC	1355	168	14909.	12395.4	1083.4	*	1	DEC	2215	268	1303.	8914.0	1080.5
1	DEC	0540	69	35984.	17152.6	1086.3	*	1	DEC	1400	169	14504.	12303.0	1083.4	*	1	DEC	2220	269	1279.	8905.1	1080.5
1	DEC	0545	70	38376.	17726.4	1086.6	*	1	DEC	1405	170	14112.	12212.9	1083.3	*	1	DEC	2225	270	1255.	8896.4	1080.5
1	DEC	0550	71	40968.	18287.4	1086.9	*	1	DEC	1410	171	13734.	12125.0	1083.2	*	1	DEC	2230	271	1232.	8887.9	1080.5
1	DEC	0555	72	43555.	18835.5	1087.2	*	1	DEC	1415	172	13369.	12039.4	1083.2	*	1	DEC	2235	272	[illegible]	[illegible]	[illegible]

1	DEC	0600	73	46131.	19370.7	1087.5	*	1	DEC	1420	173	13015.	11955.9	1083.1	*	1	DEC	2240	273	1188.	8871.2	1080.5
1	DEC	0605	74	48689.	19892.4	1087.8	*	1	DEC	1425	174	12674.	11874.5	1083.1	*	1	DEC	2245	274	1166.	8863.1	1080.5
1	DEC	0610	75	51274.	20400.1	1088.0	*	1	DEC	1430	175	12344.	11795.0	1083.0	*	1	DEC	2250	275	1145.	8855.2	1080.5
1	DEC	0615	76	55321.	20886.9	1088.2	*	1	DEC	1435	176	12025.	11717.6	1082.9	*	1	DEC	2255	276	1125.	8847.4	1080.4
1	DEC	0620	77	60330.	21348.8	1088.4	*	1	DEC	1440	177	11716.	11642.1	1082.9	*	1	DEC	2300	277	1105.	8839.7	1080.4
1	DEC	0625	78	65780.	21782.2	1088.6	*	1	DEC	1445	178	11417.	11568.3	1082.8	*	1	DEC	2305	278	1085.	8832.1	1080.4
1	DEC	0630	79	71425.	22187.6	1088.8	*	1	DEC	1450	179	11129.	11496.3	1082.8	*	1	DEC	2310	279	1066.	8824.6	1080.4
1	DEC	0635	80	77129.	22566.5	1089.0	*	1	DEC	1455	180	10849.	11426.1	1082.7	*	1	DEC	2315	280	1048.	8817.3	1080.4
1	DEC	0640	81	82810.	22921.4	1089.1	*	1	DEC	1500	181	10579.	11357.5	1082.7	*	1	DEC	2320	281	1029.	8810.1	1080.4
1	DEC	0645	82	88442.	23255.6	1089.3	*	1	DEC	1505	182	10316.	11290.6	1082.6	*	1	DEC	2325	282	1011.	8803.0	1080.4
1	DEC	0650	83	93953.	23568.8	1089.4	*	1	DEC	1510	183	10062.	11225.1	1082.6	*	1	DEC	2330	283	994.	8796.1	1080.4
1	DEC	0655	84	99470.	23860.9	1089.5	*	1	DEC	1515	184	9816.	11161.2	1082.5	*	1	DEC	2335	284	977.	8789.2	1080.4
1	DEC	0700	85	108495.	24119.0	1089.6	*	1	DEC	1520	185	9578.	11098.8	1082.5	*	1	DEC	2340	285	960.	8782.5	1080.4
1	DEC	0705	86	117820.	24326.2	1089.7	*	1	DEC	1525	186	9347.	11037.8	1082.5	*	1	DEC	2345	286	944.	8775.9	1080.4
1	DEC	0710	87	125698.	24481.3	1089.8	*	1	DEC	1530	187	9123.	10978.1	1082.4	*	1	DEC	2350	287	928.	8769.5	1080.4
1	DEC	0715	88	131420.	24586.6	1089.8	*	1	DEC	1535	188	8906.	10919.9	1082.4	*	1	DEC	2355	288	913.	8763.1	1080.4
1	DEC	0720	89	135265.	24654.6	1089.9	*	1	DEC	1540	189	8696.	10863.0	1082.3	*	2	DEC	0000	289	898.	8756.9	1080.4
1	DEC	0725	90	137323.	24690.2	1089.9	*	1	DEC	1545	190	8491.	10807.3	1082.3	*	2	DEC	0005	290	883.	8750.8	1080.4
1	DEC	0730	91	137708.	24696.8	1089.9	*	1	DEC	1550	191	8294.	10752.9	1082.3	*	2	DEC	0010	291	869.	8744.8	1080.3
1	DEC	0735	92	136606.	24677.8	1089.9	*	1	DEC	1555	192	8102.	10699.8	1082.2	*	2	DEC	0015	292	854.	8738.8	1080.3
1	DEC	0740	93	134183.	24635.7	1089.8	*	1	DEC	1600	193	7916.	10647.8	1082.2	*	2	DEC	0020	293	840.	8733.0	1080.3
1	DEC	0745	94	130671.	24573.1	1089.8	*	1	DEC	1605	194	7735.	10596.9	1082.1	*	2	DEC	0025	294	827.	8727.2	1080.3
1	DEC	0750	95	126322.	24493.1	1089.8	*	1	DEC	1610	195	7559.	10547.1	1082.1	*	2	DEC	0030	295	814.	8721.6	1080.3
1	DEC	0755	96	121185.	24394.1	1089.7	*	1	DEC	1615	196	7389.	10498.4	1082.1	*	2	DEC	0035	296	801.	8716.0	1080.3
1	DEC	0800	97	115764.	24283.1	1089.7	*	1	DEC	1620	197	7223.	10450.8	1082.0	*	2	DEC	0040	297	788.	8710.5	1080.3
1	DEC	0805	98	110307.	24162.1	1089.6	*	1	DEC	1625	198	7062.	10404.1	1082.0	*	2	DEC	0045	298	775.	8705.1	1080.3
1	DEC	0810	99	105076.	24032.4	1089.6	*	1	DEC	1630	199	6850.	10358.6	1082.0	*	2	DEC	0050	299	763.	8699.9	1080.3
1	DEC	0815	100	100400.	23894.1	1089.5	*	1	DEC	1635	200	6641.	10314.5	1081.9	*	2	DEC	0055	300	751.	8694.6	1080.3
							*								*							

****

PEAK OUTFLOW IS 137708. AT TIME 7.50 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
137708.	7.50	(CFS)	71587.	22689.	21854.	21854.
		(INCHES)	8.773	11.122	11.122	11.122
		(AC-FT)	35498.	45003.	45003.	45003.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
24697.	7.50	21133.	11841.	11406.	11406.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
1089.87	7.50	1088.26	1081.14	1080.36	1080.36

CUMULATIVE AREA = 75.87 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CP1-1	15157.	3.92	3999.	1004.	967.	2.78		
HYDROGRAPH AT	CP1-2	29661.	4.33	10053.	2540.	2447.	7.10		
HYDROGRAPH AT	CP1-3	50783.	5.33	26241.	6913.	6659.	19.32		
3 COMBINED AT	CP1-3A	77171.	4.67	39852.	10458.	10073.	29.20		
HYDROGRAPH AT	CP1-4	28618.	4.75	11822.	3027.	2916.	8.38		
ROUTED TO	CP1-4R	28194.	6.42	11816.	3027.	2916.	8.38		
HYDROGRAPH AT	CP1-5	19760.	4.58	7596.	1931.	1860.	5.45		
2 COMBINED AT	CP1-5A	34104.	6.25	18993.	4958.	4776.	13.83		
HYDROGRAPH AT	CP1-6	20887.	4.42	7256.	1836.	1768.	5.13		
ROUTED TO	CP1-6R	20170.	7.17	7250.	1836.	1768.	5.13		
HYDROGRAPH AT	CP1-7	42101.	4.08	12333.	3102.	2988.	8.67		
ROUTED TO	CP1-7R	39612.	7.33	12324.	3102.	2988.	8.67		
HYDROGRAPH AT	CP1-8	16968.	3.75	3887.	975.	939.	2.65		
ROUTED TO	CP1-8R	14925.	7.58	3883.	975.	939.	2.65		
HYDROGRAPH AT	CP1-9	29287.	6.58	19716.	5750.	5539.	16.39		
4 COMBINED AT	CP1-9A	99024.	7.42	43023.	11663.	11234.	32.84		
3 COMBINED AT	FRS #1	144648.	7.17	99600.	27079.	26083.	75.87		
ROUTED TO	ROUTE	137708.	7.50	71587.	22689.	21854.	75.87	1089.87	7.50

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION ROUTE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1060.00	1079.00	1088.00
STORAGE	0.	8200.	20300.
OUTFLOW	0.	0.	50719.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1089.07	1.07	24697.	137708.	3.67	7.50	.00

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

BUCKEYE FRS #1

72-HOUR PMP

```
*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*          FEBRUARY 1981            *
*        REVISED 01 JUN 88          *
*                                   *
*RUN DATE  01/19/1990  TIME  08:23:00*
*                                   *
*************************************
```

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*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
* THE HYDROLOGIC ENGINEERING CENTER *
*        609 SECOND STREET          *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 551-1748           *
*                                   *
*************************************
```

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

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

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

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

  1           ID        DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
  2           ID        OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
  3           ID        STRUCTURE #1 (AZ No. 7-42) **** 72-HOUR PMP **** (REVISED 1-10-90)
              *DIAGRAM
  4           IT      20  1DEC89    0000     300
  5           IO       3

  6           KK   CP1-1  DEVELOP HYDROGRAPH FOR CP1-1
  7           KM           CP1-1 IS LOCATED IN FLOODWAY #2, FLOW IS TO FRS #1
  8           BA    2.78
  9           PB       0
 10           PI   0.003   0.003   0.003   0.004   0.004   0.004   0.005   0.005   0.005   0.005
 11           PI   0.006   0.006   0.006   0.006   0.007   0.007   0.007   0.008   0.008   0.008
 12           PI   0.008   0.009   0.009   0.009   0.009   0.010   0.010   0.010   0.010   0.011
 13           PI   0.011   0.011   0.012   0.012   0.012   0.012   0.022   0.023   0.023   0.024
 14           PI   0.024   0.024   0.025   0.025   0.025   0.026   0.026   0.026   0.027   0.027
 15           PI   0.027   0.027   0.028   0.028   0.028   0.029   0.029   0.029   0.029   0.029
 16           PI   0.030   0.030   0.030   0.030   0.031   0.031   0.031   0.031   0.031   0.032
 17           PI   0.032   0.032   0.041   0.041   0.041   0.041   0.041   0.041   0.042   0.042
 18           PI   0.042   0.042   0.043   0.044   0.045   0.046   0.048   0.050   0.053   0.056
 19           PI   0.059   0.059   0.060   0.061   0.062   0.063   0.065   0.066   0.068   0.070
 20           PI   0.072   0.075   0.077   0.080   0.084   0.088   0.092   0.097   3.540   0.555
 21           PI   0.533   0.511   0.486   0.467   0.445   0.423   0.423   0.401   0.379   0.357
 22           PI   0.335   0.313   0.289   0.271   0.247   0.225   0.203   0.182   0.166   0.153
 23           PI   0.143   0.135   0.128   0.122   0.118   0.114   0.111   0.108   0.106   0.105
 24           PI   0.103   0.102   0.101   0.100   0.042   0.041   0.041   0.040   0.040   0.039
 25           PI   0.039   0.039   0.038   0.038   0.038   0.037   0.037   0.037   0.037   0.036
 26           PI   0.036   0.036   0.036   0.035   0.035   0.035   0.035   0.034   0.034   0.034
 27           PI   0.034   0.034   0.033   0.033   0.033   0.033   0.033   0.033   0.032   0.032
 28           PI   0.022   0.022   0.022   0.021   0.021   0.021   0.020   0.020   0.020   0.020
 29           PI   0.019   0.019   0.019   0.019   0.018   0.018   0.018   0.017   0.017   0.017
 30           PI   0.017   0.016   0.016   0.016   0.016   0.015   0.015   0.015   0.015   0.014
 31           PI   0.014   0.014   0.013   0.013   0.013   0.013
 32           LS     0.0      93
 33           UD    0.75

 34           KK   CP1-2  DEVELOP HYDROGRAPH FOR CP1-2
 35           BA    7.10
 36           LS     0.0      92
 37           UD    1.11

 38           KK   CP1-3  DEVELOP HYDROGRAPH FOR CP1-3
 39           BA   19.32
 40           LS     0.0      92
 41           UD    2.06

 42           KK  CP1-3A  COMBINE HYDROGRAPHS CP1-1, CP1-2, AND CP1-3 (= CP1-3A)
 43           HC       3

 44           KK   CP1-4  DEVELOP HYDROGRAPH FOR CP1-4
 45           BA    8.38
 46           LS     0.0      93
 47           UD    1.48
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  48          KK  CP1-4R  MUSKINGUM ROUTING OF CP1-4 HYDROGRAPH 3.38 MILES TO CP1-5
  49          RM       6    1.69    0.40

  50          KK   CP1-5  DEVELOP HYDROGRAPH FOR CP1-5
  51          BA    5.45
  52          LS     0.0      91
  53          UD    1.34

  54          KK  CP1-5A  COMBINE HYDROGRAPH CP1-4R WITH CP1-5 (= CP1-5A)
  55          HC       2

  56          KK   CP1-6  DEVELOP HYDROGRAPH FOR CP1-6
  57          BA    5.13
  58          LS     0.0      92
  59          UD    1.15

  60          KK  CP1-6R  MUSKINGUM ROUTING OF CP1-6 HYDROGRAPH 5.09 MILES TO CP1-9A
  61          RM       9    2.77    0.40

  62          KK   CP1-7  DEVELOP HYDROGRAPH FOR CP1-7
  63          BA    8.67
  64          LS     0.0      92
  65          UD    0.89

  66          KK  CP1-7R  MUSKINGUM ROUTING OF CP1-7 HYDROGRAPH 6.86 MILES TO CP1-9A
  67          RM      11    3.22    0.40

  68          KK   CP1-8  DEVELOP HYDROGRAPH FOR CP1-8
  69          BA    2.65
  70          LS     0.0      95
  71          UD    0.59

  72          KK  CP1-8R  MUSKINGUM ROUTING OF CP1-8 HYDROGRAPH 8.01 MILES TO CP1-9A
  73          RM      13    3.77    0.40

  74          KK   CP1-9  DEVELOP HYDROGRAPH FOR CP1-9
  75          BA   16.39
  76          LS     0.0      90
  77          UD    3.22

  78          KK  CP1-9A  COMBINE HYDROGRAPHS CP1-6R, 7R, 8R AND 9 (= CP1-9A)
  79          HC       4

  80          KK  FRS #1  COMBINE HYDROGRAPHS CP1-3A, CP1-5A, AND CP1-9A (= FRS #1)
  81          KO       1
  82          HC       3

  83          KK   ROUTE  RESERVIOR ROUTING OF FRS #1 USING FRS #1 HYDROGRAPH
  84          KM          RESERVIOR ASSUMED EMPTY
  85          KO       1
  86          RS       1    STOR     0.0
  87          SI  1088.0    5880    2.70      1.5
  88          SW    5880    5880   37680
  89          SE  1088.0  1089.5  1089.5
```

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

  90          SS  1079.8     800    2.70     1.5
  91          SV       0     200     750    2000    4500    6300    8200   10400   13200   16600
  92          SU   20300   25000
  93          SE    1060    1064    1068    1072    1076    1078  1079.8    1082    1084    1086
  94          SE    1088    1090
  95          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

(U) ROUTING (--->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<---) RETURN OF DIVERTED OR PUMPED FLOW

```
INPUT
LINE
 NO.
  6     CP1-1
  .       .
  .       .
 34       .       CP1-2
  .       .         .
  .       .         .
 38       .         .       CP1-3
  .       .         .         .
  .       .         .         .
 42     CP1-3A.......................
  .       .
  .       .
 44       .       CP1-4
  .       .         U
  .       .         U
 48       .      CP1-4R
  .       .         .
  .       .         .
 50       .         .       CP1-5
  .       .         .         .
  .       .         .         .
 54       .      CP1-5A............
  .       .         .
  .       .         .
 56       .         .       CP1-6
  .       .         .         U
  .       .         .         U
 60       .         .      CP1-6R
  .       .         .         .
  .       .         .         .
 62       .         .         .       CP1-7
  .       .         .         .         U
  .       .         .         .         U
 66       .         .         .      CP1-7R
  .       .         .         .         .
  .       .         .         .         .
 68       .         .         .         .       CP1-8
  .       .         .         .         .         U
  .       .         .         .         .         U
 72       .         .         .         .      CP1-8R
  .       .         .         .         .         .
  .       .         .         .         .         .
 74       .         .         .         .         .       CP1-9
  .       .         .         .         .         .         .
  .       .         .         .         .         .         .
 78       .         .       CP1-9A.....................................
  .       .         .         .
  .       .         .         .
 80     FRS #1.......................
          U
          U
 83      ROUTE
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*          FEBRUARY 1981            *
*        REVISED 01 JUN 88          *
*                                   *
*  RUN DATE  01/19/1990  TIME  08:23:00 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*  THE HYDROLOGIC ENGINEERING CENTER *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 551-1748           *
*                                   *
*************************************
```

DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
STRUCTURE #1 (AZ No. 7-42) **** 72-HOUR PMP **** (REVISED 1-10-90)

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

  IT          HYDROGRAPH TIME DATA
                    NMIN         20  MINUTES IN COMPUTATION INTERVAL
                    IDATE     1DEC89  STARTING DATE
                    ITIME       0000  STARTING TIME
                      NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     5DEC89  ENDING DATE
                   NDTIME       0340  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL     .33 HOURS
                   TOTAL TIME BASE   99.67 HOURS

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

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

            **************
            *            *
  6 KK      *    CP1-1   *       DEVELOP HYDROGRAPH FOR CP1-1
            *            *
            **************

                              CP1-1 IS LOCATED IN FLOODWAY #2, FLOW IS TO FRS #1

            SUBBASIN RUNOFF DATA

  8 BA        SUBBASIN CHARACTERISTICS
```

PRECIPITATION DATA

9 PB STORM 17.80 BASIN TOTAL PRECIPITATION

10 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.02	.02	.02	.02
.02	.02	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.05	.05	.05	.05	.06
.06	.06	.06	.06	.06	.06	.07	.07	.07	.07
.07	.08	.08	.08	.08	.09	.09	.10	3.54	.55
.53	.51	.49	.47	.44	.42	.42	.40	.38	.36
.34	.31	.29	.27	.25	.23	.20	.18	.17	.15
.14	.14	.13	.12	.12	.11	.11	.11	.11	.10
.10	.10	.10	.10	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01				

32 LS SCS LOSS RATE

STRTL .15 INITIAL ABSTRACTION
CRVNBR 93.00 CURVE NUMBER
RTIMP .00 PERCENT IMPERVIOUS AREA

33 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .75 LAG

***

UNIT HYDROGRAPH
13 END-OF-PERIOD ORDINATES

389.	1242.	1447.	1060.	554.	312.	172.	95.	53.	29.
16.	10.	4.							

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

HYDROGRAPH AT STATION CP1-1

TOTAL RAINFALL = 17.80, TOTAL LOSS = .87, TOTAL EXCESS = 16.92

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
6118.	37.00	(CFS)	2879.	1074.	422.	305.
		(INCHES)	9.630	14.365	16.925	16.925
		(AC-FT)	1428.	2130.	2509.	2509.

CUMULATIVE AREA = 2.70 SQ MI

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

              **************
              *            *
34 KK         *    CP1-2   *        DEVELOP HYDROGRAPH FOR CP1-2
              *            *
              **************

                SUBBASIN RUNOFF DATA

35 BA             SUBBASIN CHARACTERISTICS
                       TAREA        7.10  SUBBASIN AREA

                  PRECIPITATION DATA

 9 PB                  STORM      17.80  BASIN TOTAL PRECIPITATION

10 PI               INCREMENTAL PRECIPITATION PATTERN
                       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                       .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                       .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                       .01       .01       .01       .01       .01       .01       .02       .02       .02       .02
                       .02       .02       .03       .03       .03       .03       .03       .03       .03       .03
                       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                       .03       .03       .04       .04       .04       .04       .04       .04       .04       .04
                       .04       .04       .04       .04       .04       .05       .05       .05       .05       .06
                       .06       .06       .06       .06       .06       .06       .07       .07       .07       .07
                       .07       .08       .08       .08       .08       .09       .09       .10      3.54       .55
                       .53       .51       .49       .47       .44       .42       .42       .40       .38       .36
                       .34       .31       .29       .27       .25       .23       .20       .18       .17       .15
                       .14       .14       .13       .12       .12       .11       .11       .11       .11       .10
                       .10       .10       .10       .10       .04       .04       .04       .04       .04       .04
                       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
                       .04       .04       .04       .03       .03       .03       .03       .03       .03       .03
                       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                       .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                       .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                       .02       .02       .02       .02       .02       .01       .01       .01       .01       .01
                       .01       .01       .01       .01       .01       .01

36 LS             SCS LOSS RATE
                       STRTL        .17  INITIAL ABSTRACTION
                      CRVNBR      92.00  CURVE NUMBER
                       RTIMP        .00  PERCENT IMPERVIOUS AREA

37 UD             SCS DIMENSIONLESS UNITGRAPH
                       TLAG       1.11  LAG

                                                  ***

                                          UNIT HYDROGRAPH
                                      19 END-OF-PERIOD ORDINATES
                 417.      1377.     2451.     2677.     2401.     1614.     1004.      666.      436.      283.
                 186.       121.       79.       52.       34.       24.       15.       8.        1.

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

HYDROGRAPH AT STATION CP1-2

TOTAL RAINFALL = 17.80, TOTAL LOSS = 1.00, TOTAL EXCESS = 16.79

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
12105.	37.33	(CFS)	7151.	2731.	1069.	772.
		(INCHES)	9.365	14.304	16.794	16.794
		(AC-FT)	3546.	5416.	6359.	6359.

CUMULATIVE AREA = 7.10 SQ MI

*** ***

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              **************
              *            *
38 KK         *   CP1-3    *      DEVELOP HYDROGRAPH FOR CP1-3
              *            *
              **************
```

SUBBASIN RUNOFF DATA

39 BA SUBBASIN CHARACTERISTICS
TAREA 19.32 SUBBASIN AREA

PRECIPITATION DATA

9 PB STORM 17.80 BASIN TOTAL PRECIPITATION

10 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.02	.02	.02	.02
.02	.02	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.05	.05	.05	.05	.06
.06	.06	.06	.06	.06	.06	.07	.07	.07	.07
.07	.08	.08	.08	.08	.09	.09	.10	3.54	.55
.53	.51	.49	.47	.44	.42	.42	.40	.38	.36
.34	.31	.29	.27	.25	.23	.20	.18	.17	.15
.14	.14	.13	.12	.12	.11	.11	.11	.11	.10
.10	.10	.10	.10	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01				

40 LS SCS LOSS RATE
STRTL .17 INITIAL ABSTRACTION
CRVNBR 92.00 CURVE NUMBER

```
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

41 UB          SCS DIMENSIONLESS UNITGRAPH
                    TLAG          2.06  LAG

                                                                  ***

                                                   UNIT HYDROGRAPH
                                              33 END-OF-PERIOD ORDINATES
              271.     794.    1628.    2756.    3659.    4143.    4169.    3902.    3444.    2861.
             2150.    1644.    1286.    1027.     810.     622.     494.     389.     302.     233.
              185.     146.     114.      89.      70.      55.      44.      36.      29.      21.
               15.       9.       3.

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

                    HYDROGRAPH AT STATION    CP1-3

   TOTAL RAINFALL =   17.80, TOTAL LOSS =    1.00, TOTAL EXCESS =   16.79

                                          MAXIMUM AVERAGE FLOW
PEAK FLOW     TIME                    6-HR      24-HR     72-HR    99.67-HR
  (CFS)       (HR)          (CFS)    18070.     7423.     2908.      2101.
 23630.      38.67       (INCHES)    8.696    14.290    16.794     16.794
                          (AC-FT)     8960.    14724.    17305.     17305.

                    CUMULATIVE AREA =   19.32 SQ MI

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

            **************
            *            *
42 KK       *   CP1-3A   *      COMBINE HYDROGRAPHS CP1-1, CP1-2, AND CP1-3 (= CP1-3A)
            *            *
            **************

43 HC          HYDROGRAPH COMBINATION
                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                    HYDROGRAPH AT STATION    CP1-3A

                                          MAXIMUM AVERAGE FLOW
PEAK FLOW     TIME                    6-HR      24-HR     72-HR    99.67-HR
  (CFS)       (HR)          (CFS)    27622.    11224.     4399.      3178.
 35088.      38.00       (INCHES)    8.795    14.296    16.807     16.807
                          (AC-FT)    13697.    22263.    26174.     26174.

                    CUMULATIVE AREA =   29.20 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            *************
            *           *
 44 KK      *   CP1-4   *      DEVELOP HYDROGRAPH FOR CP1-4
            *           *
            *************

            SUBBASIN RUNOFF DATA

 45 BA          SUBBASIN CHARACTERISTICS
                     TAREA        0.38  SUBBASIN AREA

                PRECIPITATION DATA

  9 PB              STORM       17.80  BASIN TOTAL PRECIPITATION

 10 PI          INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .02       .02       .02       .02       .02
                     .02       .02       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .04       .04       .04       .04       .04       .04       .04       .04       .04
                     .04       .04       .04       .04       .04       .05       .05       .05       .05       .06       .06
                     .06       .06       .06       .06       .06       .06       .07       .07       .07       .07       .07
                     .07       .08       .08       .08       .08       .09       .09       .10      3.54       .55       .55
                     .53       .51       .49       .47       .44       .42       .42       .40       .38       .36       .36
                     .34       .31       .29       .27       .25       .23       .20       .18       .17       .15       .15
                     .14       .14       .13       .12       .12       .11       .11       .11       .11       .10       .10
                     .10       .10       .10       .10       .04       .04       .04       .04       .04       .04       .04
                     .04       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
                     .04       .04       .04       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .02       .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                     .02       .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                     .02       .02       .02       .02       .02       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01

 46 LS          SCS LOSS RATE
                     STRTL        .15  INITIAL ABSTRACTION
                    CRVNBR      93.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

 47 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        1.48  LAG

                                                   ***

                                              UNIT HYDROGRAPH
                                          24 END-OF-PERIOD ORDINATES
            251.      782.     1653.     2303.     2458.     2263.     1877.     1330.      927.      667.
            490.      347.      252.      180.      129.       93.       67.       48.       35.       26.
             20.       14.        8.        3.

     ***       ***       ***       ***       ***
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                    HYDROGRAPH AT STATION    CP1-4

  TOTAL RAINFALL =   17.80, TOTAL LOSS =     .87, TOTAL EXCESS =   16.92

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR      24-HR      72-HR     99.67-HR
  12307.      38.00        (CFS)     8256.      3235.      1271.       918.
                        (INCHES)    9.160     14.359     16.925     16.925
                         (AC-FT)    4094.      6417.      7564.      7564.

                    CUMULATIVE AREA =    8.38 SQ MI


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


            **************
            *            *
  48 KK     *   CP1-4R   *      MUSKINGUM ROUTING OF CP1-4 HYDROGRAPH 3.38 MILES TO CP1-5
            *            *
            **************

              HYDROGRAPH ROUTING DATA

  49 RM          MUSKINGUM ROUTING
                       NSTPS        6 NUMBER OF SUBREACHES
                       AMSKK     1.69 MUSKINGUM K
                           X      .40 MUSKINGUM X
                                                          ***
    ***            ***          ***          ***          ***

                    HYDROGRAPH AT STATION   CP1-4R

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR      24-HR      72-HR     99.67-HR
  11969.      39.67        (CFS)     8182.      3235.      1271.       918.
                        (INCHES)    9.078     14.358     16.925     16.925
                         (AC-FT)    4057.      6417.      7564.      7564.

                    CUMULATIVE AREA =    8.38 SQ MI


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


            **************
            *            *
  50 KK     *    CP1-5   *      DEVELOP HYDROGRAPH FOR CP1-5
            *            *
            **************

              SUBBASIN RUNOFF DATA

  51 BA          SUBBASIN CHARACTERISTICS
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                    TAREA        5.45  SUBBASIN AREA

              PRECIPITATION DATA

 9 PB                STORM       17.80  BASIN TOTAL PRECIPITATION

10 PI           INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .02       .02       .02       .02
                     .02       .02       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .04       .04       .04       .04       .04       .04       .04       .04
                     .04       .04       .04       .04       .04       .05       .05       .05       .05       .06
                     .06       .06       .06       .06       .06       .06       .07       .07       .07       .07
                     .07       .08       .08       .08       .08       .09       .09       .10      3.54       .55
                     .53       .51       .49       .47       .44       .42       .42       .40       .38       .36
                     .34       .31       .29       .27       .25       .23       .20       .18       .17       .15
                     .14       .14       .13       .12       .12       .11       .11       .11       .11       .10
                     .10       .10       .10       .10       .04       .04       .04       .04       .04       .04
                     .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
                     .04       .04       .04       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                     .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                     .02       .02       .02       .02       .02       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01

52 LS           SCS LOSS RATE
                     STRTL        .20  INITIAL ABSTRACTION
                    CRVNBR      91.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

53 UD           SCS DIMENSIONLESS UNITGRAPH
                     TLAG       1.34  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                          22 END-OF-PERIOD ORDINATES
                 208.      660.     1330.     1713.     1722.     1463.     1085.      718.      497.      355.
                 245.      172.      120.       83.       58.       41.       28.       20.       15.       10.
                   6.        2.

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

                     HYDROGRAPH AT STATION     CP1-5

   TOTAL RAINFALL =   17.80, TOTAL LOSS =    1.13, TOTAL EXCESS =   16.66

PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                  6-HR       24-HR       72-HR     99.67-HR
   8383.      37.67        (CFS)    5389.       2087.        814.        588.
                        (INCHES)    9.194      14.238      16.663      16.663
                         (AC FT)    2672.       4139.       4847.       4847.

                     CUMULATIVE AREA =    5.45 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
 54 KK        *   CP1-5A   *      COMBINE HYDROGRAPH CP1-4R WITH CP1-5 (= CP1-5A)
              *            *
              **************

 55 HC            HYDROGRAPH COMBINATION
                        ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                        HYDROGRAPH AT STATION   CP1-5A

PEAK FLOW      TIME                              MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                    6-HR        24-HR        72-HR      99.67-HR
  17249.       39.67        (CFS)    12736.        5320.        2085.        1506.
                          (INCHES)    8.562       14.307       16.821       16.821
                           (AC-FT)    6315.       10553.       12407.       12407.

                        CUMULATIVE AREA =   13.83 SQ MI

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

              **************
              *            *
 56 KK        *   CP1-6    *      DEVELOP HYDROGRAPH FOR CP1-6
              *            *
              **************

            SUBBASIN RUNOFF DATA

 57 BA            SUBBASIN CHARACTERISTICS
                        TAREA          5.13  SUBBASIN AREA

                  PRECIPITATION DATA

  9 PB                  STORM         17.80  BASIN TOTAL PRECIPITATION

 10 PI              INCREMENTAL PRECIPITATION PATTERN
                        .00        .00        .00        .00        .00        .00        .00        .00        .00        .00
                        .01        .01        .01        .01        .01        .01        .01        .01        .01        .01
                        .01        .01        .01        .01        .01        .01        .01        .01        .01        .01
                        .01        .01        .01        .01        .01        .01        .02        .02        .02        .02
                        .02        .02        .03        .03        .03        .03        .03        .03        .03        .03
                        .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
                        .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
                        .03        .03        .04        .04        .04        .04        .04        .04        .04        .04
                        .04        .04        .04        .04        .04        .05        .05        .05        .05        .06
```

```
                    .06       .06       .06       .06       .06       .06       .07       .07       .07       .07
                    .07       .08       .08       .08       .08       .09       .09       .10      3.54       .55
                    .53       .51       .49       .47       .44       .42       .42       .40       .38       .36
                    .34       .31       .29       .27       .25       .23       .20       .18       .17       .15
                    .14       .14       .13       .12       .12       .11       .11       .11       .11       .10
                    .10       .10       .10       .10       .04       .04       .04       .04       .04       .04
                    .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
                    .04       .04       .04       .03       .03       .03       .03       .03       .03       .03
                    .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                    .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                    .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                    .02       .02       .02       .02       .02       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01

 58 LS          SCS LOSS RATE
                     STRTL        .17  INITIAL ABSTRACTION
                    CRVNBR      92.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

 59 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG       1.15  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                          19 END-OF-PERIOD ORDINATES
              279.      909.     1669.     1083.     1666.     1239.      772.      510.      346.      227.
              149.       98.       66.       44.       28.       20.       14.        8.        4.

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

                        HYDROGRAPH AT STATION    CP1-6

   TOTAL RAINFALL =   17.80, TOTAL LOSS =    1.00, TOTAL EXCESS =   16.79

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     99.67-HR
    8560.     37.67        (CFS)    5148.       1973.        772.        558.
                         (INCHES)   9.330      14.304      16.794      16.794
                          (AC-FT)   2553.       3913.       4595.       4595.

                        CUMULATIVE AREA =    5.13 SQ MI


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

            **************
            *            *
 60 KK      *   CP1-6R   *       MUSKINGUM ROUTING OF CP1-6 HYDROGRAPH 5.89 MILES TO CP1-9A
            *            *
            **************

              HYDROGRAPH ROUTING DATA

 61 RM          MUSKINGUM ROUTING
                     NSTPS        9 NUMBER OF SUBREACHES
                     AMSKK     2.77 MUSKINGUM K
```

X .40 MUSKINGUM X

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

HYDROGRAPH AT STATION CP1-6R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
7924.	40.33	(CFS)	5061.	1973.	772.	558.
		(INCHES)	9.172	14.303	16.794	16.794
		(AC-FT)	2509.	3913.	4595.	4595.

CUMULATIVE AREA = 5.13 SQ MI

*** ***

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              **************
              *            *
 62 KK        *    CP1-7   *      DEVELOP HYDROGRAPH FOR CP1-7
              *            *
              **************
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SUBBASIN RUNOFF DATA

63 BA SUBBASIN CHARACTERISTICS
TAREA 8.67 SUBBASIN AREA

PRECIPITATION DATA

9 PB STORM 17.80 BASIN TOTAL PRECIPITATION

10 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.02	.02	.02	.02
.02	.02	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.05	.05	.05	.05	.06
.06	.06	.06	.06	.06	.06	.07	.07	.07	.07
.07	.08	.08	.08	.08	.09	.09	.10	3.54	.55
.53	.51	.49	.47	.44	.42	.42	.40	.38	.36
.34	.31	.29	.27	.25	.23	.20	.18	.17	.15
.14	.14	.13	.12	.12	.11	.11	.11	.11	.10
.10	.10	.10	.10	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01				

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64 LS          SCS LOSS RATE
                    STRTL        .17  INITIAL ABSTRACTION
                   CRVNBR      92.00  CURVE NUMBER
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

65 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG        .89  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                           15 END-OF-PERIOD ORDINATES
              829.     2819.     3952.     3524.     2334.     1329.     813.     486.     289.     172.
              104.       61.       39.       24.       11.

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

                    HYDROGRAPH AT STATION    CP1-7

  TOTAL RAINFALL =   17.80, TOTAL LOSS =    1.00, TOTAL EXCESS =   16.79

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     99.67-HR
  16731.     37.33        (CFS)    8883.       3335.       1305.       943.
                        (INCHES)   9.526      14.305      16.794     16.794
                         (AC-FT)   4405.       6615.       7766.      7766.

                    CUMULATIVE AREA =    8.67 SQ MI


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

            **************
            *            *
66 KK       *   CP1-7R   *      MUSKINGUM ROUTING OF CP1-7 HYDROGRAPH 6.86 MILES TO CP1-9A
            *            *
            **************

            HYDROGRAPH ROUTING DATA

67 RM          MUSKINGUM ROUTING
                   NSTPS        11 NUMBER OF SUBREACHES
                   AMSKK      3.22 MUSKINGUM K
                       X       .40 MUSKINGUM X

                                                    ***

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

                    HYDROGRAPH AT STATION    CP1-7R

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     99.67-HR
  14670.     40.67        (CFS)    8677.       3335.       1305.       943.
                        (INCHES)   9.305      14.304      16.794     16.794
                         (AC-FT)   4303.       6614.       7766.      7766.
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                    CUMULATIVE AREA =     0.67 SQ MI

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

            **************
            *            *
 60 KK      *    CP1-8   *      DEVELOP HYDROGRAPH FOR CP1-8
            *            *
            **************

            SUBBASIN RUNOFF DATA

 69 BA          SUBBASIN CHARACTERISTICS
                     TAREA        2.65  SUBBASIN AREA

                PRECIPITATION DATA

  9 PB                STORM       17.80  BASIN TOTAL PRECIPITATION

 10 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .02       .02       .02       .02
                     .02       .02       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .04       .04       .04       .04       .04       .04       .04       .04
                     .04       .04       .04       .04       .04       .05       .05       .05       .05       .06
                     .06       .06       .06       .06       .06       .06       .07       .07       .07       .07
                     .07       .08       .08       .08       .08       .09       .09       .10      3.54       .55
                     .53       .51       .49       .47       .44       .42       .42       .40       .38       .36
                     .34       .31       .29       .27       .25       .23       .20       .18       .17       .15
                     .14       .14       .13       .12       .12       .11       .11       .11       .11       .10
                     .10       .10       .10       .10       .04       .04       .04       .04       .04       .04
                     .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
                     .04       .04       .04       .03       .03       .03       .03       .03       .03       .03
                     .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                     .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                     .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                     .02       .02       .02       .02       .02       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01

 70 LS          SCS LOSS RATE
                     STRTL         .11  INITIAL ABSTRACTION
                    CRVNBR       95.00  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 71 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG         .59  LAG

                                  ***

                          UNIT HYDROGRAPH
                     11 END OF PERIOD ORDINATES
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          639.     1667.     1436.      710.      351.      171.       83.       41.       20.       10.
            3.

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

                    HYDROGRAPH AT STATION    CP1-8

  TOTAL RAINFALL =   17.80, TOTAL LOSS =     .62, TOTAL EXCESS =   17.18

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                   6-HR       24-HR       72-HR     99.67-HR
   6452.      36.67        (CFS)     2779.       1031.        408.         295.
                         (INCHES)    9.749      14.467      17.181       17.181
                          (AC-FT)    1378.       2045.       2428.        2428.

                    CUMULATIVE AREA =    2.65 SQ MI


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


          **************
          *            *
 72 KK    *   CP1-8R   *       MUSKINGUM ROUTING OF CP1-8 HYDROGRAPH 8.01 MILES TO CP1-9A
          *            *
          **************

            HYDROGRAPH ROUTING DATA

 73 RM          MUSKINGUM ROUTING
                         NSTPS        13 NUMBER OF SUBREACHES
                         ANSKK      3.77 MUSKINGUM K
                             X       .40 MUSKINGUM X

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

                    HYDROGRAPH AT STATION   CP1-8R

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                   6-HR       24-HR       72-HR     99.67-HR
   4990.      40.67        (CFS)     2705.       1031.        408.         295.
                         (INCHES)    9.491      14.467      17.181       17.181
                          (AC-FT)    1341.       2045.       2428.        2428.

                    CUMULATIVE AREA =    2.65 SQ MI


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


          **************
          *            *
 74 KK    *   CP1-9    *       DEVELOP HYDROGRAPH FOR CP1-9
          *            *
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          SUBBASIN RUNOFF DATA

 75 BA          SUBBASIN CHARACTERISTICS
                     TAREA        16.39  SUBBASIN AREA

                PRECIPITATION DATA

  9 PB                STORM        17.80  BASIN TOTAL PRECIPITATION

 10 PI           INCREMENTAL PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .01       .02       .02       .02       .02
                      .02       .02       .03       .03       .03       .03       .03       .03       .03       .03
                      .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                      .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                      .03       .03       .04       .04       .04       .04       .04       .04       .04       .04
                      .04       .04       .04       .04       .04       .05       .05       .05       .05       .06
                      .06       .06       .06       .06       .06       .06       .07       .07       .07       .07
                      .07       .08       .08       .08       .08       .09       .09       .10      3.54       .55
                      .53       .51       .49       .47       .44       .42       .42       .40       .38       .36
                      .34       .31       .29       .27       .25       .23       .20       .18       .17       .15
                      .14       .14       .13       .12       .12       .11       .11       .11       .11       .10
                      .10       .10       .10       .10       .04       .04       .04       .04       .04       .04
                      .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
                      .04       .04       .04       .03       .03       .03       .03       .03       .03       .03
                      .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                      .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                      .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                      .02       .02       .02       .02       .02       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .01

 76 LS          SCS LOSS RATE
                     STRTL         .22  INITIAL ABSTRACTION
                    CRVNBR       90.00  CURVE NUMBER
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 77 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG        3.22  LAG

                                                   ***

                                                UNIT HYDROGRAPH
                                           50 END-OF-PERIOD ORDINATES
                69.       229.      434.      707.     1070.     1501.     1876.     2142.     2295.     2335.
              2319.      2201.     2044.     1865.     1645.     1380.     1138.      958.      814.      692.
               598.       514.      439.      370.      315.      269.      230.      196.      166.      141.
               120.       102.       87.       75.       64.       54.       46.       39.       33.       29.
                25.        22.       19.       16.       14.       11.        9.        6.        4.        2.

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

                    HYDROGRAPH AT STATION     CP1-9

  TOTAL RAINFALL =    17.80, TOTAL LOSS =     1.27, TOTAL EXCESS =    16.51

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
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(CFS)       (HR)                    6-HR        24-HR        72-HR      99.67-HR
16043.      40.67        (CFS)     13736.       6224.        2428.        1754.
                       (INCHES)     7.792      14.122       16.529       16.530
                        (AC-FT)     6811.      12344.       14449.       14449.

                     CUMULATIVE AREA =   16.39 SQ MI


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


            **************
            *            *
 78 KK      *   CP1-9A   *        COMBINE HYDROGRAPHS CP1-6R, 7R, 8R AND 9 (= CP1-9A)
            *            *
            **************

 79 HC          HYDROGRAPH COMBINATION
                      ICOMP            4  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                     HYDROGRAPH AT STATION   CP1-9A

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR        72-HR      99.67-HR
 43443.      40.67        (CFS)     29760.      12561.        4914.        3550.
                       (INCHES)     8.425      14.225       16.693       16.693
                        (AC-FT)     14757.      24914.       29237.       29238.

                     CUMULATIVE AREA =   32.84 SQ MI


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


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            *            *
 80 KK      *   FRS #1   *        COMBINE HYDROGRAPHS CP1-3A, CP1-5A, AND CP1-9A (= FRS #1)
            *            *
            **************

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

 82 HC          HYDROGRAPH COMBINATION
                      ICOMP            3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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HYDROGRAPH AT STATION FRS #1
SUM OF 3 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1	DEC	0000	1	0.	2	DEC	0100	76	3432.	3	DEC	0200	151	13882.	4	DEC	0300	226	1079.
1	DEC	0020	2	0.	2	DEC	0120	77	3557.	3	DEC	0220	152	13029.	4	DEC	0320	227	937.
1	DEC	0040	3	0.	2	DEC	0140	78	3684.	3	DEC	0240	153	12221.	4	DEC	0340	228	793.
1	DEC	0100	4	0.	2	DEC	0200	79	3808.	3	DEC	0300	154	11439.	4	DEC	0400	229	645.
1	DEC	0120	5	0.	2	DEC	0220	80	3930.	3	DEC	0320	155	10668.	4	DEC	0420	230	503.
1	DEC	0140	6	0.	2	DEC	0240	81	4052.	3	DEC	0340	156	9899.	4	DEC	0440	231	378.
1	DEC	0200	7	0.	2	DEC	0300	82	4177.	3	DEC	0400	157	9127.	4	DEC	0500	232	280.
1	DEC	0220	8	0.	2	DEC	0320	83	4304.	3	DEC	0420	158	8383.	4	DEC	0520	233	209.
1	DEC	0240	9	0.	2	DEC	0340	84	4434.	3	DEC	0440	159	7726.	4	DEC	0540	234	160.
1	DEC	0300	10	0.	2	DEC	0400	85	4570.	3	DEC	0500	160	7197.	4	DEC	0600	235	125.
1	DEC	0320	11	0.	2	DEC	0420	86	4707.	3	DEC	0520	161	6805.	4	DEC	0620	236	99.
1	DEC	0340	12	0.	2	DEC	0440	87	4842.	3	DEC	0540	162	6511.	4	DEC	0640	237	79.
1	DEC	0400	13	0.	2	DEC	0500	88	4971.	3	DEC	0600	163	6286.	4	DEC	0700	238	64.
1	DEC	0420	14	0.	2	DEC	0520	89	5095.	3	DEC	0620	164	6108.	4	DEC	0720	239	52.
1	DEC	0440	15	0.	2	DEC	0540	90	5223.	3	DEC	0640	165	5964.	4	DEC	0740	240	42.
1	DEC	0500	16	0.	2	DEC	0600	91	5362.	3	DEC	0700	166	5842.	4	DEC	0800	241	35.
1	DEC	0520	17	0.	2	DEC	0620	92	5519.	3	DEC	0720	167	5737.	4	DEC	0820	242	29.
1	DEC	0540	18	0.	2	DEC	0640	93	5691.	3	DEC	0740	168	5646.	4	DEC	0840	243	24.
1	DEC	0600	19	0.	2	DEC	0700	94	5875.	3	DEC	0800	169	5567.	4	DEC	0900	244	20.
1	DEC	0620	20	0.	2	DEC	0720	95	6066.	3	DEC	0820	170	5495.	4	DEC	0920	245	16.
1	DEC	0640	21	0.	2	DEC	0740	96	6262.	3	DEC	0840	171	5430.	4	DEC	0940	246	13.
1	DEC	0700	22	0.	2	DEC	0800	97	6464.	3	DEC	0900	172	5370.	4	DEC	1000	247	11.
1	DEC	0720	23	0.	2	DEC	0820	98	6674.	3	DEC	0920	173	5317.	4	DEC	1020	248	9.
1	DEC	0740	24	0.	2	DEC	0840	99	6893.	3	DEC	0940	174	5267.	4	DEC	1040	249	8.
1	DEC	0800	25	0.	2	DEC	0900	100	7121.	3	DEC	1000	175	5221.	4	DEC	1100	250	6.
1	DEC	0820	26	0.	2	DEC	0920	101	7357.	3	DEC	1020	176	5176.	4	DEC	1120	251	5.
1	DEC	0840	27	0.	2	DEC	0940	102	7601.	3	DEC	1040	177	5133.	4	DEC	1140	252	5.
1	DEC	0900	28	0.	2	DEC	1000	103	7849.	3	DEC	1100	178	5094.	4	DEC	1200	253	4.
1	DEC	0920	29	1.	2	DEC	1020	104	8100.	3	DEC	1120	179	5058.	4	DEC	1220	254	3.
1	DEC	0940	30	3.	2	DEC	1040	105	8353.	3	DEC	1140	180	5025.	4	DEC	1240	255	3.
1	DEC	1000	31	5.	2	DEC	1100	106	8612.	3	DEC	1200	181	4992.	4	DEC	1300	256	2.
1	DEC	1020	32	9.	2	DEC	1120	107	8884.	3	DEC	1220	182	4945.	4	DEC	1320	257	2.
1	DEC	1040	33	15.	2	DEC	1140	108	9176.	3	DEC	1240	183	4870.	4	DEC	1340	258	1.
1	DEC	1100	34	24.	2	DEC	1200	109	9494.	3	DEC	1300	184	4768.	4	DEC	1400	259	1.
1	DEC	1120	35	35.	2	DEC	1220	110	14387.	3	DEC	1320	185	4650.	4	DEC	1420	260	1.
1	DEC	1140	36	50.	2	DEC	1240	111	25261.	3	DEC	1340	186	4527.	4	DEC	1440	261	1.
1	DEC	1200	37	67.	2	DEC	1300	112	37581.	3	DEC	1400	187	4403.	4	DEC	1500	262	0.
1	DEC	1220	38	90.	2	DEC	1320	113	46602.	3	DEC	1420	188	4281.	4	DEC	1520	263	0.
1	DEC	1240	39	122.	2	DEC	1340	114	52286.	3	DEC	1440	189	4157.	4	DEC	1540	264	0.
1	DEC	1300	40	166.	2	DEC	1400	115	56331.	3	DEC	1500	190	4030.	4	DEC	1600	265	0.
1	DEC	1320	41	220.	2	DEC	1420	116	59569.	3	DEC	1520	191	3899.	4	DEC	1620	266	0.
1	DEC	1340	42	282.	2	DEC	1440	117	63264.	3	DEC	1540	192	3763.	4	DEC	1640	267	0.
1	DEC	1400	43	352.	2	DEC	1500	118	67499.	3	DEC	1600	193	3621.	4	DEC	1700	268	0.
1	DEC	1420	44	428.	2	DEC	1520	119	72081.	3	DEC	1620	194	3481.	4	DEC	1720	269	0.
1	DEC	1440	45	510.	2	DEC	1540	120	76954.	3	DEC	1640	195	3353.	4	DEC	1740	270	0.
1	DEC	1500	46	599.	2	DEC	1600	121	81690.	3	DEC	1700	196	3244.	4	DEC	1800	271	0.
1	DEC	1520	47	694.	2	DEC	1620	122	84550.	3	DEC	1720	197	3155.	4	DEC	1820	272	0.
1	DEC	1540	48	797.	2	DEC	1640	123	83378.	3	DEC	1740	198	3080.	4	DEC	1840	273	0.
1	DEC	1600	49	906.	2	DEC	1700	124	78859.	3	DEC	1800	199	3015.	4	DEC	1900	274	0.
1	DEC	1620	50	1021.	2	DEC	1720	125	72914.	3	DEC	1820	200	2955.	4	DEC	1920	275	0.
1	DEC	1640	51	1139.	2	DEC	1740	126	67520.	3	DEC	1840	201	2900.	4	DEC	1940	276	0.
1	DEC	1700	52	1256.	2	DEC	1800	127	64059.	3	DEC	1900	202	2850.	4	DEC	2000	277	0.

1	DEC	1740	54	1479.	*	2	DEC	1840	129	55741.	*	3	DEC	1940	204	2757.	*	4	DEC 2040 279 0.
1	DEC	1800	55	1587.	*	2	DEC	1900	130	52540.	*	3	DEC	2000	205	2712.	*	4	DEC 2100 280 0.
1	DEC	1820	56	1692.	*	2	DEC	1920	131	49443.	*	3	DEC	2020	206	2669.	*	4	DEC 2120 281 0.
1	DEC	1840	57	1795.	*	2	DEC	1940	132	46419.	*	3	DEC	2040	207	2627.	*	4	DEC 2140 282 0.
1	DEC	1900	58	1897.	*	2	DEC	2000	133	43466.	*	3	DEC	2100	208	2584.	*	4	DEC 2200 283 0.
1	DEC	1920	59	1996.	*	2	DEC	2020	134	40629.	*	3	DEC	2120	209	2542.	*	4	DEC 2220 284 0.
1	DEC	1940	60	2093.	*	2	DEC	2040	135	37915.	*	3	DEC	2140	210	2500.	*	4	DEC 2240 285 0.
1	DEC	2000	61	2187.	*	2	DEC	2100	136	35337.	*	3	DEC	2200	211	2461.	*	4	DEC 2300 286 0.
1	DEC	2020	62	2277.	*	2	DEC	2120	137	32906.	*	3	DEC	2220	212	2421.	*	4	DEC 2320 287 0.
1	DEC	2040	63	2365.	*	2	DEC	2140	138	30627.	*	3	DEC	2240	213	2382.	*	4	DEC 2340 288 0.
1	DEC	2100	64	2452.	*	2	DEC	2200	139	28511.	*	3	DEC	2300	214	2342.	*	5	DEC 0000 289 0.
1	DEC	2120	65	2537.	*	2	DEC	2220	140	26577.	*	3	DEC	2320	215	2302.	*	5	DEC 0020 290 0.
1	DEC	2140	66	2619.	*	2	DEC	2240	141	24833.	*	3	DEC	2340	216	2261.	*	5	DEC 0040 291 0.
1	DEC	2200	67	2700.	*	2	DEC	2300	142	23281.	*	4	DEC	0000	217	2222.	*	5	DEC 0100 292 0.
1	DEC	2220	68	2780.	*	2	DEC	2320	143	21932.	*	4	DEC	0020	218	2167.	*	5	DEC 0120 293 0.
1	DEC	2240	69	2857.	*	2	DEC	2340	144	20771.	*	4	DEC	0040	219	2075.	*	5	DEC 0140 294 0.
1	DEC	2300	70	2931.	*	3	DEC	0000	145	19775.	*	4	DEC	0100	220	1948.	*	5	DEC 0200 295 0.
1	DEC	2320	71	3002.	*	3	DEC	0020	146	18844.	*	4	DEC	0120	221	1802.	*	5	DEC 0220 296 0.
1	DEC	2340	72	3072.	*	3	DEC	0040	147	17868.	*	4	DEC	0140	222	1652.	*	5	DEC 0240 297 0.
2	DEC	0000	73	3141.	*	3	DEC	0100	148	16829.	*	4	DEC	0200	223	1504.	*	5	DEC 0300 298 0.
2	DEC	0020	74	3219.	*	3	DEC	0120	149	15789.	*	4	DEC	0220	224	1361.	*	5	DEC 0320 299 0.
2	DEC	0040	75	3316.	*	3	DEC	0140	150	14801.	*	4	DEC	0240	225	1220.	*	5	DEC 0340 300 0.
					*						*						*		

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
84550.	40.33	(CFS)	66426.	29084.	11397.	8234.
		(INCHES)	8.140	14.256	16.760	16.760
		(AC-FT)	32939.	57687.	67818.	67819.

CUMULATIVE AREA = 75.87 SQ MI

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              **************
              *            *
 83 KK        *   ROUTE    *      RESERVIOR ROUTING OF FRS #1 USING FRS #1 HYDROGRAPH
              *            *
              **************

                                  RESERVIOR ASSUMED EMPTY

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

                HYDROGRAPH ROUTING DATA

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

 91 SV             STORAGE        .0     200.0     750.0    2000.0    4500.0    6400.0    8700.0   10400.0   13200.0   16600.0
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                              20300.0   25000.0

 93 SE            ELEVATION   1060.00   1064.00   1068.00   1072.00   1076.00   1078.00   1079.80   1082.00   1084.00   1086.00
                              1088.00   1090.00

 90 SS            SPILLWAY
                       CREL     1079.80  SPILLWAY CREST ELEVATION
                      SPWID      800.00  SPILLWAY WIDTH
                       COQW        2.70  WEIR COEFFICIENT
                       EXPW        1.50  EXPONENT OF HEAD

 87 ST            TOP OF DAM
                      TOPEL     1088.00  ELEVATION AT TOP OF DAM
                     DAMWID     5880.00  DAM WIDTH
                       COQD        2.70  WEIR COEFFICIENT
                       EXPD        1.50  EXPONENT OF HEAD

    SW            DAM WIDTH   5880.00   5880.00  37680.00
    SE            ELEVATION   1088.00   1089.50   1089.50

                                                   ***

                                    COMPUTED OUTFLOW-ELEVATION DATA

                                     (EXCLUDING FLOW OVER DAM)

             OUTFLOW        .00       .00     12.07     96.58    325.75    772.08   1508.01   2605.98   4130.42   6177.21
           ELEVATION    1060.00   1079.80   1079.83   1079.93   1080.08   1080.30   1080.59   1080.93   1081.34   1081.81

             OUTFLOW    8795.19  12065.51  16058.50  20848.70  26506.93  33106.40  40719.53  49418.78  59276.56  70364.06
           ELEVATION    1082.35   1082.95   1083.61   1084.33   1085.12   1085.97   1086.88   1087.86   1088.90   1090.00

                                 COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                                       (INCLUDING FLOW OVER DAM)

             STORAGE        .00    200.00    750.00   2000.00   4500.00   6300.00   8200.00   8231.50   8325.98   8483.33
             OUTFLOW        .00       .00       .00       .00       .00       .00       .00     12.07     96.58    325.75
           ELEVATION    1060.00   1064.00   1068.00   1072.00   1076.00   1078.00   1079.80   1079.83   1079.93   1080.08

             STORAGE    8703.67   8987.00   9333.33   9742.64  10214.82  10400.00  10889.97  11727.54  12652.95  13200.00
             OUTFLOW     772.08   1508.01   2605.98   4130.42   6177.21   7048.12   8795.19  12065.51  16058.50  18591.74
           ELEVATION    1080.30   1080.59   1080.93   1081.34   1081.81   1082.00   1082.35   1082.95   1083.61   1084.00

             STORAGE   13766.74  15104.61  16549.57  16600.00  18234.11  20039.62  20300.00  22410.75  25000.00
             OUTFLOW   20848.70  26506.93  33106.40  33345.42  40719.53  49418.78  50719.00  74737.16 156462.60
           ELEVATION    1084.33   1085.12   1085.97   1086.00   1086.88   1087.86   1088.00   1088.90   1090.00
***************************************************************************************************************************

                                      HYDROGRAPH AT STATION     ROUTE

***************************************************************************************************************************
                                             *                                                   *
 DA MON HRMN ORD   OUTFLOW   STORAGE     STAGE * DA MON HRMN ORD    OUTFLOW   STORAGE    STAGE * DA MON HRMN ORD   OUTFLOW   STORAGE    STAGE
                                             *                                                   *
  1 DEC 0000   1        0.        .0    1060.0 *  2 DEC 0920 101         0.    5359.1   1077.0 *  3 DEC 1840 201      3786.    9653.8   1081.3
  1 DEC 0020   2        0.        .0    1060.0 *  2 DEC 0940 102         0.    5565.1   1077.2 *  3 DEC 1900 202      3694.    9630.1   1081.2
  1 DEC 0040   3        0.        .0    1060.0 *  2 DEC 1000 103         0.    5777.9   1077.4 *  3 DEC 1920 203      3607.    9607.5   1081.2
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1	DEC	0100	4	0.	.0	1060.0	*	2	DEC	1020	104	0.	5997.7	1077.7	*	3	DEC	1940	204	3524.	9586.0	1081.2
1	DEC	0120	5	0.	.0	1060.0	*	2	DEC	1040	105	0.	6224.2	1077.9	*	3	DEC	2000	205	3446.	9565.4	1081.2
1	DEC	0140	6	0.	.0	1060.0	*	2	DEC	1100	106	0.	6457.8	1078.1	*	3	DEC	2020	206	3372.	9545.7	1081.1
1	DEC	0200	7	0.	.0	1060.0	*	2	DEC	1120	107	0.	6698.8	1078.4	*	3	DEC	2040	207	3301.	9526.8	1081.1
1	DEC	0220	8	0.	.0	1060.0	*	2	DEC	1140	108	0.	6947.6	1078.6	*	3	DEC	2100	208	3233.	9508.6	1081.1
1	DEC	0240	9	0.	.0	1060.0	*	2	DEC	1200	109	0.	7204.8	1078.9	*	3	DEC	2120	209	3169.	9491.2	1081.1
1	DEC	0300	10	0.	.0	1060.0	*	2	DEC	1220	110	0.	7533.7	1079.2	*	3	DEC	2140	210	3107.	9474.2	1081.1
1	DEC	0320	11	0.	.0	1060.0	*	2	DEC	1240	111	0.	8079.8	1079.7	*	3	DEC	2200	211	3047.	9457.8	1081.1
1	DEC	0340	12	0.	.0	1060.0	*	2	DEC	1300	112	1344.	8929.0	1080.5	*	3	DEC	2220	212	2990.	9442.0	1081.0
1	DEC	0400	13	0.	.0	1060.0	*	2	DEC	1320	113	5209.	9998.3	1081.6	*	3	DEC	2240	213	2934.	9426.6	1081.0
1	DEC	0420	14	0.	.0	1060.0	*	2	DEC	1340	114	9787.	11153.5	1082.5	*	3	DEC	2300	214	2881.	9411.7	1081.0
1	DEC	0440	15	0.	.0	1060.0	*	2	DEC	1400	115	14561.	12315.9	1083.4	*	3	DEC	2320	215	2829.	9397.0	1081.0
1	DEC	0500	16	0.	.0	1060.0	*	2	DEC	1420	116	19532.	13438.6	1084.1	*	3	DEC	2340	216	2778.	9382.8	1081.0
1	DEC	0520	17	0.	.0	1060.0	*	2	DEC	1440	117	24026.	14531.0	1084.8	*	4	DEC	0000	217	2729.	9368.7	1081.0
1	DEC	0540	18	0.	.0	1060.0	*	2	DEC	1500	118	28740.	15605.8	1085.4	*	4	DEC	0020	218	2680.	9354.7	1081.0
1	DEC	0600	19	0.	.0	1060.0	*	2	DEC	1520	119	33674.	16675.2	1086.0	*	4	DEC	0040	219	2629.	9340.0	1080.9
1	DEC	0620	20	0.	.0	1060.0	*	2	DEC	1540	120	38417.	17735.2	1086.6	*	4	DEC	0100	220	2574.	9323.9	1080.9
1	DEC	0640	21	0.	.0	1060.0	*	2	DEC	1600	121	43371.	18796.9	1087.2	*	4	DEC	0120	221	2511.	9305.6	1080.9
1	DEC	0700	22	0.	.0	1060.0	*	2	DEC	1620	122	48360.	19826.0	1087.7	*	4	DEC	0140	222	2441.	9285.1	1080.9
1	DEC	0720	23	0.	.0	1060.0	*	2	DEC	1640	123	53855.	20730.9	1088.2	*	4	DEC	0200	223	2366.	9262.5	1080.9
1	DEC	0740	24	0.	.0	1060.0	*	2	DEC	1700	124	60684.	21378.6	1088.5	*	4	DEC	0220	224	2285.	9238.1	1080.8
1	DEC	0800	25	0.	.0	1060.0	*	2	DEC	1720	125	65094.	21730.3	1088.6	*	4	DEC	0240	225	2198.	9211.9	1080.8
1	DEC	0820	26	0.	.0	1060.0	*	2	DEC	1740	126	66653.	21847.4	1088.7	*	4	DEC	0300	226	2109.	9184.2	1080.8
1	DEC	0840	27	0.	.0	1060.0	*	2	DEC	1800	127	66236.	21816.4	1088.6	*	4	DEC	0320	227	2016.	9155.2	1080.8
1	DEC	0900	28	0.	.0	1060.0	*	2	DEC	1820	128	64696.	21699.9	1088.6	*	4	DEC	0340	228	1921.	9124.8	1080.7
1	DEC	0920	29	0.	.0	1060.0	*	2	DEC	1840	129	62587.	21534.7	1088.5	*	4	DEC	0400	229	1823.	9093.1	1080.7
1	DEC	0940	30	0.	.1	1060.0	*	2	DEC	1900	130	60229.	21340.2	1088.4	*	4	DEC	0420	230	1723.	9060.0	1080.7
1	DEC	1000	31	0.	.2	1060.0	*	2	DEC	1920	131	57736.	21120.1	1088.3	*	4	DEC	0440	231	1622.	9026.1	1080.6
1	DEC	1020	32	0.	.4	1060.0	*	2	DEC	1940	132	55290.	20883.8	1088.2	*	4	DEC	0500	232	1522.	8991.9	1080.6
1	DEC	1040	33	0.	.7	1060.0	*	2	DEC	2000	133	52987.	20630.5	1088.1	*	4	DEC	0520	233	1426.	8958.1	1080.6
1	DEC	1100	34	0.	1.3	1060.0	*	2	DEC	2020	134	51010.	20356.5	1088.0	*	4	DEC	0540	234	1334.	8925.1	1080.5
1	DEC	1120	35	0.	2.1	1060.0	*	2	DEC	2040	135	49508.	20057.5	1087.9	*	4	DEC	0600	235	1247.	8893.5	1080.5
1	DEC	1140	36	0.	3.2	1060.1	*	2	DEC	2100	136	47864.	19725.3	1087.7	*	4	DEC	0620	236	1167.	8863.3	1080.5
1	DEC	1200	37	0.	4.9	1060.1	*	2	DEC	2120	137	46130.	19370.5	1087.5	*	4	DEC	0640	237	1092.	8834.7	1080.4
1	DEC	1220	38	0.	7.0	1060.1	*	2	DEC	2140	138	44341.	18999.9	1087.3	*	4	DEC	0700	238	1023.	8807.4	1080.4
1	DEC	1240	39	0.	9.9	1060.2	*	2	DEC	2200	139	42524.	18618.5	1087.1	*	4	DEC	0720	239	959.	8781.8	1080.4
1	DEC	1300	40	0.	13.9	1060.3	*	2	DEC	2220	140	40707.	18231.4	1086.9	*	4	DEC	0740	240	899.	8757.5	1080.4
1	DEC	1320	41	0.	19.2	1060.4	*	2	DEC	2240	141	38912.	17843.4	1086.7	*	4	DEC	0800	241	844.	8734.6	1080.3
1	DEC	1340	42	0.	26.1	1060.5	*	2	DEC	2300	142	37160.	17458.8	1086.5	*	4	DEC	0820	242	793.	8712.8	1080.3
1	DEC	1400	43	0.	34.9	1060.7	*	2	DEC	2320	143	35469.	17081.9	1086.3	*	4	DEC	0840	243	746.	8692.3	1080.3
1	DEC	1420	44	0.	45.6	1060.9	*	2	DEC	2340	144	33852.	16715.9	1086.1	*	4	DEC	0900	244	702.	8672.9	1080.3
1	DEC	1440	45	0.	58.5	1061.2	*	3	DEC	0000	145	32235.	16364.7	1085.9	*	4	DEC	0920	245	662.	8654.6	1080.3
1	DEC	1500	46	0.	73.8	1061.5	*	3	DEC	0020	146	30678.	16030.2	1085.7	*	4	DEC	0940	246	625.	8637.3	1080.2
1	DEC	1520	47	0.	91.6	1061.8	*	3	DEC	0040	147	29216.	15710.8	1085.5	*	4	DEC	1000	247	590.	8620.9	1080.2
1	DEC	1540	48	0.	112.2	1062.2	*	3	DEC	0100	148	27831.	15403.4	1085.3	*	4	DEC	1020	248	558.	8605.4	1080.2
1	DEC	1600	49	0.	135.6	1062.7	*	3	DEC	0120	149	26508.	15104.8	1085.1	*	4	DEC	1040	249	527.	8590.6	1080.2
1	DEC	1620	50	0.	162.2	1063.2	*	3	DEC	0140	150	25239.	14813.9	1084.9	*	4	DEC	1100	250	499.	8576.7	1080.2
1	DEC	1640	51	0.	191.9	1063.8	*	3	DEC	0200	151	24025.	14530.8	1084.8	*	4	DEC	1120	251	473.	8563.5	1080.2
1	DEC	1700	52	0.	224.9	1064.2	*	3	DEC	0220	152	22866.	14256.1	1084.6	*	4	DEC	1140	252	449.	8551.0	1080.2
1	DEC	1720	53	0.	261.0	1064.4	*	3	DEC	0240	153	21760.	13989.6	1084.5	*	4	DEC	1200	253	426.	8539.0	1080.1
1	DEC	1740	54	0.	300.3	1064.7	*	3	DEC	0300	154	20704.	13731.0	1084.3	*	4	DEC	1220	254	405.	8527.6	1080.1
1	DEC	1800	55	0.	342.5	1065.0	*	3	DEC	0320	155	19694.	13479.5	1084.2	*	4	DEC	1240	255	385.	8516.8	1080.1
1	DEC	1820	56	0.	387.7	1065.4	*	3	DEC	0340	156	18725.	13234.0	1084.0	*	4	DEC	1300	256	367.	8506.5	1080.1
1	DEC	1840	57	0.	435.7	1065.7	*	3	DEC	0400	157	17634.	12996.3	1083.9	*	4	DEC	1320	257	349.	8496.8	1080.1
1	DEC	1900	58	0.	486.6	1066.1	*	3	DEC	0420	158	16573.	12766.3	1083.7	*	4	DEC	1340	258	333.	8487.4	1080.1
1	DEC	1920	59	0.	540.2	1066.5	*	3	DEC	0440	159	15575.	12545.3	1083.5	*	4	DEC	1400	259	317.	8478.4	1080.1
1	DEC	1940	60	0.	596.5	1066.9	*	3	DEC	0500	160	14642.	12334.6	1083.4	*	4	DEC	1420	260	303.	8469.9	1080.1
1	DEC	2000	61	0.	655.5	1067.3	*	3	DEC	0520	161	13783.	12136.5	1083.2	*	4	DEC	1440	261	289.	8461.7	1080.1
1	DEC	2020	62	0.	717.0	1067.8	*	3	DEC	0540	162	12997.	11951.6	1083.1	*	4	DEC	1500	262	276.	8453.9	1080.1
1	DEC	2040	63	0.	780.9	1068.1	*	3	DEC	0600	163	12282.	11780.2	1083.0	*	4	DEC	1520	263	264.	8446.5	1080.0

1	DEC	2100	64	0.	847.3	1068.3	*	3	DEC	0620	164	11634.	11621.9	1082.9	*	4	DEC	1540	264	253.	8439.4	1080.0
1	DEC	2120	65	0.	916.0	1068.5	*	3	DEC	0640	165	11048.	11476.1	1082.8	*	4	DEC	1600	265	242.	8432.5	1080.0
1	DEC	2140	66	0.	987.0	1068.8	*	3	DEC	0700	166	10518.	11342.2	1082.7	*	4	DEC	1620	266	232.	8426.0	1080.0
1	DEC	2200	67	0.	1060.3	1069.0	*	3	DEC	0720	167	10038.	11218.8	1082.6	*	4	DEC	1640	267	222.	8419.7	1080.0
1	DEC	2220	68	0.	1135.8	1069.2	*	3	DEC	0740	168	9603.	11105.3	1082.5	*	4	DEC	1700	268	213.	8413.8	1080.0
1	DEC	2240	69	0.	1213.4	1069.5	*	3	DEC	0800	169	9208.	11000.9	1082.4	*	4	DEC	1720	269	205.	8408.0	1080.0
1	DEC	2300	70	0.	1293.1	1069.7	*	3	DEC	0820	170	8850.	10904.8	1082.4	*	4	DEC	1740	270	197.	8402.5	1080.0
1	DEC	2320	71	0.	1374.8	1070.0	*	3	DEC	0840	171	8524.	10816.3	1082.3	*	4	DEC	1800	271	189.	8397.1	1080.0
1	DEC	2340	72	0.	1458.5	1070.3	*	3	DEC	0900	172	8227.	10734.6	1082.2	*	4	DEC	1820	272	182.	8392.0	1080.0
2	DEC	0000	73	0.	1544.1	1070.5	*	3	DEC	0920	173	7956.	10659.1	1082.2	*	4	DEC	1840	273	175.	8387.1	1080.0
2	DEC	0020	74	0.	1631.7	1070.8	*	3	DEC	0940	174	7708.	10589.4	1082.1	*	4	DEC	1900	274	168.	8382.4	1080.0
2	DEC	0040	75	0.	1721.7	1071.1	*	3	DEC	1000	175	7481.	10524.8	1082.1	*	4	DEC	1920	275	162.	8377.9	1080.0
2	DEC	0100	76	0.	1814.6	1071.4	*	3	DEC	1020	176	7272.	10464.9	1082.0	*	4	DEC	1940	276	156.	8373.5	1080.0
2	DEC	0120	77	0.	1910.9	1071.7	*	3	DEC	1040	177	7080.	10409.4	1082.0	*	4	DEC	2000	277	150.	8369.2	1080.0
2	DEC	0140	78	0.	2010.7	1072.0	*	3	DEC	1100	178	6849.	10358.4	1082.0	*	4	DEC	2020	278	145.	8365.2	1080.0
2	DEC	0200	79	0.	2113.9	1072.2	*	3	DEC	1120	179	6632.	10312.5	1081.9	*	4	DEC	2040	279	140.	8361.3	1080.0
2	DEC	0220	80	0.	2220.5	1072.4	*	3	DEC	1140	180	6439.	10271.3	1081.9	*	4	DEC	2100	280	135.	8357.5	1080.0
2	DEC	0240	81	0.	2330.4	1072.5	*	3	DEC	1200	181	6267.	10234.3	1081.8	*	4	DEC	2120	281	130.	8353.8	1080.0
2	DEC	0300	82	0.	2443.8	1072.7	*	3	DEC	1220	182	6112.	10200.7	1081.8	*	4	DEC	2140	282	126.	8350.3	1080.0
2	DEC	0320	83	0.	2560.6	1072.9	*	3	DEC	1240	183	5970.	10169.4	1081.8	*	4	DEC	2200	283	122.	8346.9	1079.9
2	DEC	0340	84	0.	2681.0	1073.1	*	3	DEC	1300	184	5835.	10139.6	1081.7	*	4	DEC	2220	284	117.	8343.6	1079.9
2	DEC	0400	85	0.	2805.1	1073.3	*	3	DEC	1320	185	5703.	10110.4	1081.7	*	4	DEC	2240	285	114.	8340.4	1079.9
2	DEC	0420	86	0.	2932.8	1073.5	*	3	DEC	1340	186	5574.	10081.5	1081.7	*	4	DEC	2300	286	110.	8337.3	1079.9
2	DEC	0440	87	0.	3064.4	1073.7	*	3	DEC	1400	187	5447.	10052.7	1081.7	*	4	DEC	2320	287	106.	8334.4	1079.9
2	DEC	0500	88	0.	3199.6	1073.9	*	3	DEC	1420	188	5321.	10024.0	1081.6	*	4	DEC	2340	288	103.	8331.5	1079.9
2	DEC	0520	89	0.	3338.2	1074.1	*	3	DEC	1440	189	5196.	9995.3	1081.6	*	5	DEC	0000	289	100.	8328.7	1079.9
2	DEC	0540	90	0.	3480.3	1074.4	*	3	DEC	1500	190	5072.	9966.6	1081.6	*	5	DEC	0020	290	97.	8326.0	1079.9
2	DEC	0600	91	0.	3626.1	1074.6	*	3	DEC	1520	191	4948.	9937.8	1081.5	*	5	DEC	0040	291	94.	8323.4	1079.9
2	DEC	0620	92	0.	3776.0	1074.8	*	3	DEC	1540	192	4825.	9908.8	1081.5	*	5	DEC	0100	292	91.	8320.9	1079.9
2	DEC	0640	93	0.	3930.4	1075.1	*	3	DEC	1600	193	4702.	9879.6	1081.5	*	5	DEC	0120	293	88.	8318.4	1079.9
2	DEC	0700	94	0.	4089.7	1075.3	*	3	DEC	1620	194	4577.	9849.7	1081.4	*	5	DEC	0140	294	85.	8316.0	1079.9
2	DEC	0720	95	0.	4254.2	1075.6	*	3	DEC	1640	195	4452.	9819.5	1081.4	*	5	DEC	0200	295	83.	8313.7	1079.9
2	DEC	0740	96	0.	4423.6	1075.9	*	3	DEC	1700	196	4329.	9789.6	1081.4	*	5	DEC	0220	296	80.	8311.5	1079.9
2	DEC	0800	97	0.	4598.9	1076.1	*	3	DEC	1720	197	4210.	9760.3	1081.4	*	5	DEC	0240	297	78.	8309.3	1079.9
2	DEC	0820	98	0.	4779.8	1076.3	*	3	DEC	1740	198	4095.	9731.9	1081.3	*	5	DEC	0300	298	76.	8307.2	1079.9
2	DEC	0840	99	0.	4966.7	1076.5	*	3	DEC	1800	199	3987.	9704.7	1081.3	*	5	DEC	0320	299	74.	8305.1	1079.9
2	DEC	0900	100	0.	5159.7	1076.7	*	3	DEC	1820	200	3884.	9678.7	1081.3	*	5	DEC	0340	300	72.	8303.2	1079.9
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PEAK OUTFLOW IS 66653. AT TIME 41.67 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
66653.	41.67	(CFS)	55345.	27384.	10006.	7229.
		(INCHES)	6.782	13.423	14.715	14.715
		(AC-FT)	27444.	54316.	59541.	59541.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	99.67-HR
21847.	41.67	20653.	14959.	10426.	7668.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	99.67-HR
1088.66	41.67	1088.12	1084.84	1081.42	1076.52

CUMULATIVE AREA = 75.87 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CP1-1	6110.	37.00	2879.	1074.	422.	2.70		
HYDROGRAPH AT	CP1-2	12105.	37.33	7151.	2731.	1069.	7.10		
HYDROGRAPH AT	CP1-3	23630.	38.67	18070.	7423.	2908.	19.32		
3 COMBINED AT	CP1-3A	35088.	38.00	27622.	11224.	4399.	29.20		
HYDROGRAPH AT	CP1-4	12307.	38.00	8256.	3235.	1271.	8.38		
ROUTED TO	CP1-4R	11969.	39.67	8182.	3235.	1271.	8.38		
HYDROGRAPH AT	CP1-5	8383.	37.67	5389.	2087.	814.	5.45		
2 COMBINED AT	CP1-5A	17249.	39.67	12736.	5320.	2085.	13.83		
HYDROGRAPH AT	CP1-6	8560.	37.67	5148.	1973.	772.	5.13		
ROUTED TO	CP1-6R	7924.	40.33	5061.	1973.	772.	5.13		
HYDROGRAPH AT	CP1-7	16731.	37.33	8883.	3335.	1305.	8.67		
ROUTED TO	CP1-7R	14678.	40.67	8677.	3335.	1305.	8.67		
HYDROGRAPH AT	CP1-8	6452.	36.67	2779.	1031.	408.	2.65		
ROUTED TO	CP1-8R	4990.	40.67	2705.	1031.	408.	2.65		
HYDROGRAPH AT	CP1-9	16043.	40.67	13736.	6224.	2428.	16.39		
4 COMBINED AT	CP1-9A	43443.	40.67	29760.	12561.	4914.	32.84		
3 COMBINED AT	FRS #1	84550.	40.33	66426.	29084.	11397.	75.87		
ROUTED TO	ROUTE	66653.	41.67	55345.	27384.	10006.	75.87	1088.66	41.67

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION ROUTE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1060.00	1079.80	1088.00
STORAGE	0.	8200.	20300.
OUTFLOW	0.	0.	50719.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1088.66	.66	21847.	66653.	4.00	41.67	.00

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

BUCKEYE FRS #2

100-YEAR STORM

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             FEBRUARY 1981             *
*           REVISED 01 JUN 88           *
*                                       *
*  RUN DATE  01/19/1990  TIME  08:28:36 *
*                                       *
*****************************************
```

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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
```

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

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

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

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

  1           ID        DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
  2           ID        OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
  3           ID        STRUCTURE #2 (AZ No. 7-44) **** 100-YEAR STORM **** (REVISED 1-10-90)
              *DIAGRAM
  4           IT        5  10DEC89    0000     300
  5           IO        3

  6           KK    CP2-1  DEVELOP HYDROGRAPH FOR CP2-1
  7           BA     1.95
  8           PH        1             0.7      1.3      2.3      2.7      2.8      3.2      3.7      4.2
  9           LS      0.0       83
 10           UD     0.32

 11           KK    CP2-2  DEVELOP HYDROGRAPH FOR CP2-2
 12           BA     2.46
 13           LS      0.0       82
 14           UD     0.56

 15           KK    CP2-3  DEVELOP HYDROGRAPH FOR CP2-3
 16           BA     1.39
 17           LS      0.0       82
 18           UD     0.33

 19           KK   FRS #2  COMBINE HYDROGRAPHS CP2-1, CP2-2, AND CP2-3 (= FRS #2)
 20           KO        1
 21           HC        3

 22           KK    ROUTE  RESERVIOR ROUTING OF FRS #2 USING FRS #2 HYDROGRAPH
 23           KM           RESERVIOR ASSUMED EMPTY
 24           KO        1
 25           RS        1     STOR      0.0
 26           ST   1117.0     9455     2.70      1.5
 27           SS   1111.2      350     2.70      1.5
 28           SV     0.00       38      113      225      375      625      780      900     1250     1650
 29           SV     1880     2125     2712
 30           SE     1100     1102     1104     1106     1108     1110   1111.2     1112     1114     1116
 31           SE     1117     1118     1120
 32           ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
LINE        (U) ROUTING          (--->) DIVERSION OR PUMP FLOW
 NO.        (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW
  6         CP2-1
                .
 11             .        CP2-2
                .           .
 15             .           .        CP2-3
                .           .           .
 19         FRS #2.......................
                U
                U
 22         ROUTE
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*************************************                    *************************************
*                                   *                    *                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                    *  U.S. ARMY CORPS OF ENGINEERS     *
*          FEBRUARY 1981            *                    *  THE HYDROLOGIC ENGINEERING CENTER *
*         REVISED 01 JUN 80         *                    *         609 SECOND STREET         *
*                                   *                    *       DAVIS, CALIFORNIA 95616     *
*  RUN DATE  01/19/1990  TIME  08:28:36 *                *          (916) 551-1748           *
*                                   *                    *                                   *
*************************************                    *************************************
```

DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
STRUCTURE #2 (AZ No. 7-44) **** 100-YEAR STORM **** (REVISED 1-10-90)

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

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     1DEC89  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     2DEC89  ENDING DATE
                     NDTIME       0055  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL      .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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


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

            **************
            *            *
  6 KK      *    CP2-1   *       DEVELOP HYDROGRAPH FOR CP2-1
            *            *
            **************

             SUBBASIN RUNOFF DATA

  7 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.95  SUBBASIN AREA
```

```
                PRECIPITATION DATA

  8 PH                                DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                  5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                   .70    1.30    2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00

                                                STORM AREA =     1.95

  9 LS            SCS LOSS RATE
                        STRTL          .41  INITIAL ABSTRACTION
                       CRVNBR        83.00  CURVE NUMBER
                        RTIMP          .00  PERCENT IMPERVIOUS AREA

 10 UD            SCS DIMENSIONLESS UNITGRAPH
                         TLAG          .32  LAG

                                                     ***

                                                UNIT HYDROGRAPH
                                          21 END-OF-PERIOD ORDINATES
                332.     1060.     2098.     2583.     2496.     2067.     1424.      948.      659.      458.
                313.      214.      144.      100.       70.       48.       33.       24.       17.       10.
                  4.

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

                        HYDROGRAPH AT STATION     CP2-1

    TOTAL RAINFALL =     4.19, TOTAL LOSS =     1.74, TOTAL EXCESS =     2.45

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR       24-HR       72-HR      24.92-HR
   2812.       12.42        (CFS)      444.        129.        124.        124.
                         (INCHES)    2.116       2.451       2.451       2.451
                          (AC-FT)      220.        255.        255.        255.

                        CUMULATIVE AREA =     1.95 SQ MI


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


                 **************
                 *            *
 11 KK           *    CP2-2   *        DEVELOP HYDROGRAPH FOR CP2-2
                 *            *
                 **************

                SUBBASIN RUNOFF DATA

 12 BA            SUBBASIN CHARACTERISTICS
                        TAREA        2.46  SUBBASIN AREA

                  PRECIPITATION DATA

  8 PH                                DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
```

```
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                  .70    1.30    2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00

                                                STORM AREA =     2.46

 13 LS          SCS LOSS RATE
                      STRTL        .44  INITIAL ABSTRACTION
                     CRVNBR      82.00  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 14 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        .56  LAG

                                                        ***

                                                   UNIT HYDROGRAPH
                                              36 END-OF-PERIOD ORDINATES
              112.     334.     661.    1131.    1595.    1073.    1968.    1945.    1772.    1564.
             1287.     983.     769.     613.     497.     399.     317.     253.     202.     161.
              128.     102.      81.      65.      52.      41.      33.      27.      21.      18.
               15.      11.       8.       6.       3.       0.

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

                     HYDROGRAPH AT STATION    CP2-2

   TOTAL RAINFALL =    4.19, TOTAL LOSS =    1.82, TOTAL EXCESS =    2.36

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR      24-HR      72-HR    24.92-HR
    2478.     12.67        (CFS)     539.       156.       150.       150.
                         (INCHES)   2.036      2.360      2.360      2.360
                          (AC-FT)    267.       310.       310.       310.

                     CUMULATIVE AREA =    2.46 SQ MI


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


            **************
            *            *
 15 KK      *    CP2-3   *       DEVELOP HYDROGRAPH FOR CP2-3
            *            *
            **************

            SUBBASIN RUNOFF DATA

 16 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.39  SUBBASIN AREA

                PRECIPITATION DATA

  8 PH                                DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                ..... HYDRO-35 ......  ............... TP-40 ...............  ........... TP-49 ...........
                5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                  .70    1.30    2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00
```

```
                                                STORM AREA =    1.39

17 LS          SCS LOSS RATE
                     STRTL          .44  INITIAL ABSTRACTION
                    CRVNBR        82.00  CURVE NUMBER
                     RTIMP          .00  PERCENT IMPERVIOUS AREA

18 UD          SCS DIMENSIONLESS UNITGRAPH
                     TLAG          .33  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                           22 END-OF-PERIOD ORDINATES
            220.     699.    1401.    1783.    1764.    1487.    1077.     712.     494.     351.
            241.     169.     116.      80.      56.      39.      27.      19.      14.       9.
              5.       1.

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

                    HYDROGRAPH AT STATION    CP2-3

   TOTAL RAINFALL =    4.19, TOTAL LOSS =    1.82, TOTAL EXCESS =    2.37

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     24.92-HR
  1922.      12.42        (CFS)     306.        88.         85.         85.
                        (INCHES)   2.048      2.368       2.368       2.368
                         (AC-FT)    152.       176.        176.        176.

                    CUMULATIVE AREA =    1.39 SQ MI

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

            **************
            *            *
19 KK       *   FRS #2   *      COMBINE HYDROGRAPHS CP2-1, CP2-2, AND CP2-3 (= FRS #2)
            *            *
            **************

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

21 HC          HYDROGRAPH COMBINATION
                     ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                                                HYDROGRAPH AT STATION   FRS #2
                                                     SUM OF   3 HYDROGRAPHS

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

DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW	*	DA	MON	HRMN	ORD	FLOW
1	DEC	0000	1	0.	*	1	DEC	0615	76	0.	*	1	DEC	1230	151	6840.	*	1	DEC	1845	226	184.
1	DEC	0005	2	0.	*	1	DEC	0620	77	0.	*	1	DEC	1235	152	6156.	*	1	DEC	1850	227	181.
1	DEC	0010	3	0.	*	1	DEC	0625	78	0.	*	1	DEC	1240	153	5545.	*	1	DEC	1855	228	178.
1	DEC	0015	4	0.	*	1	DEC	0630	79	0.	*	1	DEC	1245	154	4911.	*	1	DEC	1900	229	175.
1	DEC	0020	5	0.	*	1	DEC	0635	80	0.	*	1	DEC	1250	155	4291.	*	1	DEC	1905	230	173.
1	DEC	0025	6	0.	*	1	DEC	0640	81	0.	*	1	DEC	1255	156	3687.	*	1	DEC	1910	231	171.
1	DEC	0030	7	0.	*	1	DEC	0645	82	0.	*	1	DEC	1300	157	3138.	*	1	DEC	1915	232	168.
1	DEC	0035	8	0.	*	1	DEC	0650	83	0.	*	1	DEC	1305	158	2678.	*	1	DEC	1920	233	167.
1	DEC	0040	9	0.	*	1	DEC	0655	84	0.	*	1	DEC	1310	159	2290.	*	1	DEC	1925	234	165.
1	DEC	0045	10	0.	*	1	DEC	0700	85	0.	*	1	DEC	1315	160	1945.	*	1	DEC	1930	235	163.
1	DEC	0050	11	0.	*	1	DEC	0705	86	0.	*	1	DEC	1320	161	1635.	*	1	DEC	1935	236	161.
1	DEC	0055	12	0.	*	1	DEC	0710	87	0.	*	1	DEC	1325	162	1366.	*	1	DEC	1940	237	160.
1	DEC	0100	13	0.	*	1	DEC	0715	88	0.	*	1	DEC	1330	163	1142.	*	1	DEC	1945	238	158.
1	DEC	0105	14	0.	*	1	DEC	0720	89	0.	*	1	DEC	1335	164	965.	*	1	DEC	1950	239	157.
1	DEC	0110	15	0.	*	1	DEC	0725	90	0.	*	1	DEC	1340	165	830.	*	1	DEC	1955	240	155.
1	DEC	0115	16	0.	*	1	DEC	0730	91	0.	*	1	DEC	1345	166	736.	*	1	DEC	2000	241	154.
1	DEC	0120	17	0.	*	1	DEC	0735	92	0.	*	1	DEC	1350	167	671.	*	1	DEC	2005	242	152.
1	DEC	0125	18	0.	*	1	DEC	0740	93	0.	*	1	DEC	1355	168	629.	*	1	DEC	2010	243	151.
1	DEC	0130	19	0.	*	1	DEC	0745	94	0.	*	1	DEC	1400	169	600.	*	1	DEC	2015	244	150.
1	DEC	0135	20	0.	*	1	DEC	0750	95	0.	*	1	DEC	1405	170	575.	*	1	DEC	2020	245	148.
1	DEC	0140	21	0.	*	1	DEC	0755	96	0.	*	1	DEC	1410	171	552.	*	1	DEC	2025	246	147.
1	DEC	0145	22	0.	*	1	DEC	0800	97	0.	*	1	DEC	1415	172	532.	*	1	DEC	2030	247	146.
1	DEC	0150	23	0.	*	1	DEC	0805	98	0.	*	1	DEC	1420	173	514.	*	1	DEC	2035	248	144.
1	DEC	0155	24	0.	*	1	DEC	0810	99	0.	*	1	DEC	1425	174	496.	*	1	DEC	2040	249	143.
1	DEC	0200	25	0.	*	1	DEC	0815	100	0.	*	1	DEC	1430	175	479.	*	1	DEC	2045	250	142.
1	DEC	0205	26	0.	*	1	DEC	0820	101	0.	*	1	DEC	1435	176	463.	*	1	DEC	2050	251	141.
1	DEC	0210	27	0.	*	1	DEC	0825	102	0.	*	1	DEC	1440	177	447.	*	1	DEC	2055	252	140.
1	DEC	0215	28	0.	*	1	DEC	0830	103	1.	*	1	DEC	1445	178	432.	*	1	DEC	2100	253	139.
1	DEC	0220	29	0.	*	1	DEC	0835	104	2.	*	1	DEC	1450	179	418.	*	1	DEC	2105	254	138.
1	DEC	0225	30	0.	*	1	DEC	0840	105	2.	*	1	DEC	1455	180	405.	*	1	DEC	2110	255	137.
1	DEC	0230	31	0.	*	1	DEC	0845	106	4.	*	1	DEC	1500	181	392.	*	1	DEC	2115	256	136.
1	DEC	0235	32	0.	*	1	DEC	0850	107	5.	*	1	DEC	1505	182	381.	*	1	DEC	2120	257	135.
1	DEC	0240	33	0.	*	1	DEC	0855	108	7.	*	1	DEC	1510	183	373.	*	1	DEC	2125	258	133.
1	DEC	0245	34	0.	*	1	DEC	0900	109	9.	*	1	DEC	1515	184	366.	*	1	DEC	2130	259	132.
1	DEC	0250	35	0.	*	1	DEC	0905	110	11.	*	1	DEC	1520	185	360.	*	1	DEC	2135	260	132.
1	DEC	0255	36	0.	*	1	DEC	0910	111	13.	*	1	DEC	1525	186	355.	*	1	DEC	2140	261	131.
1	DEC	0300	37	0.	*	1	DEC	0915	112	16.	*	1	DEC	1530	187	351.	*	1	DEC	2145	262	130.
1	DEC	0305	38	0.	*	1	DEC	0920	113	19.	*	1	DEC	1535	188	346.	*	1	DEC	2150	263	129.
1	DEC	0310	39	0.	*	1	DEC	0925	114	21.	*	1	DEC	1540	189	341.	*	1	DEC	2155	264	128.
1	DEC	0315	40	0.	*	1	DEC	0930	115	25.	*	1	DEC	1545	190	335.	*	1	DEC	2200	265	127.
1	DEC	0320	41	0.	*	1	DEC	0935	116	28.	*	1	DEC	1550	191	330.	*	1	DEC	2205	266	126.
1	DEC	0325	42	0.	*	1	DEC	0940	117	31.	*	1	DEC	1555	192	325.	*	1	DEC	2210	267	125.
1	DEC	0330	43	0.	*	1	DEC	0945	118	35.	*	1	DEC	1600	193	320.	*	1	DEC	2215	268	124.
1	DEC	0335	44	0.	*	1	DEC	0950	119	39.	*	1	DEC	1605	194	314.	*	1	DEC	2220	269	123.
1	DEC	0340	45	0.	*	1	DEC	0955	120	43.	*	1	DEC	1610	195	309.	*	1	DEC	2225	270	123.
1	DEC	0345	46	0.	*	1	DEC	1000	121	48.	*	1	DEC	1615	196	304.	*	1	DEC	2230	271	122.
1	DEC	0350	47	0.	*	1	DEC	1005	122	53.	*	1	DEC	1620	197	299.	*	1	DEC	2235	272	121.
1	DEC	0355	48	0.	*	1	DEC	1010	123	58.	*	1	DEC	1625	198	294.	*	1	DEC	2240	273	120.
1	DEC	0400	49	0.	*	1	DEC	1015	124	64.	*	1	DEC	1630	199	290.	*	1	DEC	2245	274	119.
1	DEC	0405	50	0.	*	1	DEC	1020	125	70.	*	1	DEC	1635	200	285.	*	1	DEC	2250	275	119.
1	DEC	0410	51	0.	*	1	DEC	1025	126	76.	*	1	DEC	1640	201	281.	*	1	DEC	2255	276	118.
1	DEC	0415	52	0.	*	1	DEC	1030	127	83.	*	1	DEC	1645	202	276.	*	1	DEC	2300	277	117.
1	DEC	0420	53	0.	*	1	DEC	1035	128	90.	*	1	DEC	1650	203	272.	*	1	DEC	2305	278	116.
1	DEC	0425	54	0.	*	1	DEC	1040	129	94.	*	1	DEC	1655	204	268.	*	1	DEC	2310	279	116.
1	DEC	0430	55	0.	*	1	DEC	1045	130	96.	*	1	DEC	1700	205	264.	*	1	DEC	2315	280	115.
1	DEC	0435	56	0.	*	1	DEC	1050	131	94.	*	1	DEC	1705	206	260.	*	1	DEC	2320	281	114.
1	DEC	0440	57	0.	*	1	DEC	1055	132	93.	*	1	DEC	1710	207	257.	*	1	DEC	2325	282	113.

1	DEC	0445	58	0.	*	1	DEC	1100	133	91.	*	1	DEC	1715	208	253.	*	1	DEC	2330	283	113.
1	DEC	0450	59	0.	*	1	DEC	1105	134	95.	*	1	DEC	1720	209	250.	*	1	DEC	2335	284	112.
1	DEC	0455	60	0.	*	1	DEC	1110	135	106.	*	1	DEC	1725	210	246.	*	1	DEC	2340	285	111.
1	DEC	0500	61	0.	*	1	DEC	1115	136	129.	*	1	DEC	1730	211	243.	*	1	DEC	2345	286	111.
1	DEC	0505	62	0.	*	1	DEC	1120	137	163.	*	1	DEC	1735	212	240.	*	1	DEC	2350	287	110.
1	DEC	0510	63	0.	*	1	DEC	1125	138	204.	*	1	DEC	1740	213	237.	*	1	DEC	2355	288	109.
1	DEC	0515	64	0.	*	1	DEC	1130	139	252.	*	1	DEC	1745	214	234.	*	2	DEC	0000	289	109.
1	DEC	0520	65	0.	*	1	DEC	1135	140	312.	*	1	DEC	1750	215	231.	*	2	DEC	0005	290	107.
1	DEC	0525	66	0.	*	1	DEC	1140	141	395.	*	1	DEC	1755	216	228.	*	2	DEC	0010	291	101.
1	DEC	0530	67	0.	*	1	DEC	1145	142	517.	*	1	DEC	1800	217	226.	*	2	DEC	0015	292	91.
1	DEC	0535	68	0.	*	1	DEC	1150	143	694.	*	1	DEC	1805	218	223.	*	2	DEC	0020	293	78.
1	DEC	0540	69	0.	*	1	DEC	1155	144	953.	*	1	DEC	1810	219	219.	*	2	DEC	0025	294	64.
1	DEC	0545	70	0.	*	1	DEC	1200	145	1386.	*	1	DEC	1815	220	214.	*	2	DEC	0030	295	51.
1	DEC	0550	71	0.	*	1	DEC	1205	146	2242.	*	1	DEC	1820	221	208.	*	2	DEC	0035	296	40.
1	DEC	0555	72	0.	*	1	DEC	1210	147	3547.	*	1	DEC	1825	222	202.	*	2	DEC	0040	297	31.
1	DEC	0600	73	0.	*	1	DEC	1215	148	5072.	*	1	DEC	1830	223	197.	*	2	DEC	0045	298	24.
1	DEC	0605	74	0.	*	1	DEC	1220	149	6202.	*	1	DEC	1835	224	192.	*	2	DEC	0050	299	19.
1	DEC	0610	75	0.	*	1	DEC	1225	150	6714.	*	1	DEC	1840	225	188.	*	2	DEC	0055	300	14.

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
6714.	12.42	(CFS)	1288.	373.	359.	359.
		(INCHES)	2.065	2.393	2.393	2.393
		(AC-FT)	639.	740.	740.	740.

CUMULATIVE AREA = 5.80 SQ MI

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            *            *
22 KK       *   ROUTE    *      RESERVIOR ROUTING OF FRS #2 USING FRS #2 HYDROGRAPH.
            *            *
            **************
                                RESERVIOR ASSUMED EMPTY

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

               HYDROGRAPH ROUTING DATA

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

28 SV            STORAGE          .0      38.0     113.0     225.0     375.0     625.0     780.0     900.0    1250.0    1650.0
                                1880.0    2125.0    2712.0

30 SE          ELEVATION      1100.00   1102.00   1104.00   1106.00   1108.00   1110.00   1111.20   1112.00   1114.00   1116.00
                              1117.00   1118.00   1120.00
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27 SS SPILLWAY

CREL	1111.20	SPILLWAY CREST ELEVATION
SPWID	350.00	SPILLWAY WIDTH
COQW	2.70	WEIR COEFFICIENT
EXPW	1.50	EXPONENT OF HEAD

26 ST TOP OF DAM

TOPEL	1117.00	ELEVATION AT TOP OF DAM
DAMWID	9455.00	DAM WIDTH
COQD	2.70	WEIR COEFFICIENT
EXPD	1.50	EXPONENT OF HEAD

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COMPUTED OUTFLOW-ELEVATION DATA

(EXCLUDING FLOW OVER DAM)

OUTFLOW	.00	.00	4.24	33.84	114.25	270.72	528.82	913.68	1450.80	2165.77
ELEVATION	1100.00	1111.20	1111.23	1111.31	1111.44	1111.63	1111.88	1112.18	1112.53	1112.94
OUTFLOW	3083.55	4230.02	5629.99	7309.47	9293.16	11607.16	14276.09	17326.14	20781.82	24669.45
ELEVATION	1113.40	1113.92	1114.49	1115.11	1115.79	1116.52	1117.31	1118.15	1119.05	1120.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

(INCLUDING FLOW OVER DAM)

STORAGE	.00	38.00	113.00	225.00	375.00	625.00	780.00	784.00	796.30	816.67
OUTFLOW	.00	.00	.00	.00	.00	.00	.00	4.24	33.84	114.25
ELEVATION	1100.00	1102.00	1104.00	1106.00	1108.00	1110.00	1111.20	1111.23	1111.31	1111.44
STORAGE	845.18	881.86	900.00	931.10	992.88	1064.19	1144.98	1235.30	1250.00	1347.27
OUTFLOW	270.72	528.82	676.25	913.68	1450.80	2165.77	3083.55	4230.02	4427.72	5629.99
ELEVATION	1111.63	1111.88	1112.00	1112.18	1112.53	1112.94	1113.40	1113.92	1114.00	1114.49
STORAGE	1472.22	1608.01	1650.00	1770.39	1880.00	1956.20	2125.00	2169.93	2432.97	2712.00
OUTFLOW	7309.47	9293.16	9938.03	11607.16	13200.16	18704.41	42285.64	48935.25	95674.41	157319.40
ELEVATION	1115.11	1115.79	1116.00	1116.52	1117.00	1117.31	1118.00	1118.15	1119.05	1120.00

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HYDROGRAPH AT STATION ROUTE

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	DEC	0000	1	0.	.0	1100.0	*	1	DEC	0820	101	0.	.0	1100.0	*	1	DEC	1640	201	0.	635.5	1110.1
1	DEC	0005	2	0.	.0	1100.0	*	1	DEC	0825	102	0.	.0	1100.0	*	1	DEC	1645	202	0.	637.4	1110.1
1	DEC	0010	3	0.	.0	1100.0	*	1	DEC	0830	103	0.	.0	1100.0	*	1	DEC	1650	203	0.	639.3	1110.1
1	DEC	0015	4	0.	.0	1100.0	*	1	DEC	0835	104	0.	.0	1100.0	*	1	DEC	1655	204	0.	641.1	1110.1
1	DEC	0020	5	0.	.0	1100.0	*	1	DEC	0840	105	0.	.0	1100.0	*	1	DEC	1700	205	0.	643.0	1110.1
1	DEC	0025	6	0.	.0	1100.0	*	1	DEC	0845	106	0.	.1	1100.0	*	1	DEC	1705	206	0.	644.8	1110.2
1	DEC	0030	7	0.	.0	1100.0	*	1	DEC	0850	107	0.	.1	1100.0	*	1	DEC	1710	207	0.	646.6	1110.2
1	DEC	0035	8	0.	.0	1100.0	*	1	DEC	0855	108	0.	.1	1100.0	*	1	DEC	1715	208	0.	648.3	1110.2
1	DEC	0040	9	0.	.0	1100.0	*	1	DEC	0900	109	0.	.2	1100.0	*	1	DEC	1720	209	0.	650.1	1110.2

1	DEC	0045	10	0.	.0	1100.0	*	1	DEC	0905	110	0.	.2	1100.0	*	1	DEC	1725	210	0.	651.8	1110.2
1	DEC	0050	11	0.	.0	1100.0	*	1	DEC	0910	111	0.	.3	1100.0	*	1	DEC	1730	211	0.	653.4	1110.2
1	DEC	0055	12	0.	.0	1100.0	*	1	DEC	0915	112	0.	.4	1100.0	*	1	DEC	1735	212	0.	655.1	1110.2
1	DEC	0100	13	0.	.0	1100.0	*	1	DEC	0920	113	0.	.5	1100.0	*	1	DEC	1740	213	0.	656.8	1110.2
1	DEC	0105	14	0.	.0	1100.0	*	1	DEC	0925	114	0.	.7	1100.0	*	1	DEC	1745	214	0.	658.4	1110.3
1	DEC	0110	15	0.	.0	1100.0	*	1	DEC	0930	115	0.	.8	1100.0	*	1	DEC	1750	215	0.	660.0	1110.3
1	DEC	0115	16	0.	.0	1100.0	*	1	DEC	0935	116	0.	1.0	1100.1	*	1	DEC	1755	216	0.	661.6	1110.3
1	DEC	0120	17	0.	.0	1100.0	*	1	DEC	0940	117	0.	1.2	1100.1	*	1	DEC	1800	217	0.	663.1	1110.3
1	DEC	0125	18	0.	.0	1100.0	*	1	DEC	0945	118	0.	1.5	1100.1	*	1	DEC	1805	218	0.	664.7	1110.3
1	DEC	0130	19	0.	.0	1100.0	*	1	DEC	0950	119	0.	1.7	1100.1	*	1	DEC	1810	219	0.	666.2	1110.3
1	DEC	0135	20	0.	.0	1100.0	*	1	DEC	0955	120	0.	2.0	1100.1	*	1	DEC	1815	220	0.	667.7	1110.3
1	DEC	0140	21	0.	.0	1100.0	*	1	DEC	1000	121	0.	2.3	1100.1	*	1	DEC	1820	221	0.	669.1	1110.3
1	DEC	0145	22	0.	.0	1100.0	*	1	DEC	1005	122	0.	2.7	1100.1	*	1	DEC	1825	222	0.	670.6	1110.4
1	DEC	0150	23	0.	.0	1100.0	*	1	DEC	1010	123	0.	3.0	1100.2	*	1	DEC	1830	223	0.	671.9	1110.4
1	DEC	0155	24	0.	.0	1100.0	*	1	DEC	1015	124	0.	3.4	1100.2	*	1	DEC	1835	224	0.	673.3	1110.4
1	DEC	0200	25	0.	.0	1100.0	*	1	DEC	1020	125	0.	3.9	1100.2	*	1	DEC	1840	225	0.	674.6	1110.4
1	DEC	0205	26	0.	.0	1100.0	*	1	DEC	1025	126	0.	4.4	1100.2	*	1	DEC	1845	226	0.	675.9	1110.4
1	DEC	0210	27	0.	.0	1100.0	*	1	DEC	1030	127	0.	5.0	1100.3	*	1	DEC	1850	227	0.	677.1	1110.4
1	DEC	0215	28	0.	.0	1100.0	*	1	DEC	1035	128	0.	5.6	1100.3	*	1	DEC	1855	228	0.	678.3	1110.4
1	DEC	0220	29	0.	.0	1100.0	*	1	DEC	1040	129	0.	6.2	1100.3	*	1	DEC	1900	229	0.	679.6	1110.4
1	DEC	0225	30	0.	.0	1100.0	*	1	DEC	1045	130	0.	6.8	1100.4	*	1	DEC	1905	230	0.	680.8	1110.4
1	DEC	0230	31	0.	.0	1100.0	*	1	DEC	1050	131	0.	7.5	1100.4	*	1	DEC	1910	231	0.	681.9	1110.4
1	DEC	0235	32	0.	.0	1100.0	*	1	DEC	1055	132	0.	8.1	1100.4	*	1	DEC	1915	232	0.	683.1	1110.4
1	DEC	0240	33	0.	.0	1100.0	*	1	DEC	1100	133	0.	8.8	1100.5	*	1	DEC	1920	233	0.	684.3	1110.5
1	DEC	0245	34	0.	.0	1100.0	*	1	DEC	1105	134	0.	9.4	1100.5	*	1	DEC	1925	234	0.	685.4	1110.5
1	DEC	0250	35	0.	.0	1100.0	*	1	DEC	1110	135	0.	10.1	1100.5	*	1	DEC	1930	235	0.	686.5	1110.5
1	DEC	0255	36	0.	.0	1100.0	*	1	DEC	1115	136	0.	10.9	1100.6	*	1	DEC	1935	236	0.	687.6	1110.5
1	DEC	0300	37	0.	.0	1100.0	*	1	DEC	1120	137	0.	11.9	1100.6	*	1	DEC	1940	237	0.	688.8	1110.5
1	DEC	0305	38	0.	.0	1100.0	*	1	DEC	1125	138	0.	13.2	1100.7	*	1	DEC	1945	238	0.	689.8	1110.5
1	DEC	0310	39	0.	.0	1100.0	*	1	DEC	1130	139	0.	14.8	1100.8	*	1	DEC	1950	239	0.	690.9	1110.5
1	DEC	0315	40	0.	.0	1100.0	*	1	DEC	1135	140	0.	16.7	1100.9	*	1	DEC	1955	240	0.	692.0	1110.5
1	DEC	0320	41	0.	.0	1100.0	*	1	DEC	1140	141	0.	19.1	1101.0	*	1	DEC	2000	241	0.	693.1	1110.5
1	DEC	0325	42	0.	.0	1100.0	*	1	DEC	1145	142	0.	22.3	1101.2	*	1	DEC	2005	242	0.	694.1	1110.5
1	DEC	0330	43	0.	.0	1100.0	*	1	DEC	1150	143	0.	26.5	1101.4	*	1	DEC	2010	243	0.	695.2	1110.5
1	DEC	0335	44	0.	.0	1100.0	*	1	DEC	1155	144	0.	32.1	1101.7	*	1	DEC	2015	244	0.	696.2	1110.6
1	DEC	0340	45	0.	.0	1100.0	*	1	DEC	1200	145	0.	40.2	1102.1	*	1	DEC	2020	245	0.	697.2	1110.6
1	DEC	0345	46	0.	.0	1100.0	*	1	DEC	1205	146	0.	52.7	1102.4	*	1	DEC	2025	246	0.	698.2	1110.6
1	DEC	0350	47	0.	.0	1100.0	*	1	DEC	1210	147	0.	72.6	1102.9	*	1	DEC	2030	247	0.	699.2	1110.6
1	DEC	0355	48	0.	.0	1100.0	*	1	DEC	1215	148	0.	102.3	1103.7	*	1	DEC	2035	248	0.	700.2	1110.6
1	DEC	0400	49	0.	.0	1100.0	*	1	DEC	1220	149	0.	141.1	1104.5	*	1	DEC	2040	249	0.	701.2	1110.6
1	DEC	0405	50	0.	.0	1100.0	*	1	DEC	1225	150	0.	185.6	1105.3	*	1	DEC	2045	250	0.	702.2	1110.6
1	DEC	0410	51	0.	.0	1100.0	*	1	DEC	1230	151	0.	231.6	1106.1	*	1	DEC	2050	251	0.	703.2	1110.6
1	DEC	0415	52	0.	.0	1100.0	*	1	DEC	1235	152	0.	275.6	1106.7	*	1	DEC	2055	252	0.	704.1	1110.6
1	DEC	0420	53	0.	.0	1100.0	*	1	DEC	1240	153	0.	315.9	1107.2	*	1	DEC	2100	253	0.	705.1	1110.6
1	DEC	0425	54	0.	.0	1100.0	*	1	DEC	1245	154	0.	351.9	1107.7	*	1	DEC	2105	254	0.	706.0	1110.6
1	DEC	0430	55	0.	.0	1100.0	*	1	DEC	1250	155	0.	383.6	1108.1	*	1	DEC	2110	255	0.	707.0	1110.6
1	DEC	0435	56	0.	.0	1100.0	*	1	DEC	1255	156	0.	411.1	1108.3	*	1	DEC	2115	256	0.	707.9	1110.6
1	DEC	0440	57	0.	.0	1100.0	*	1	DEC	1300	157	0.	434.6	1108.5	*	1	DEC	2120	257	0.	708.9	1110.6
1	DEC	0445	58	0.	.0	1100.0	*	1	DEC	1305	158	0.	454.6	1108.6	*	1	DEC	2125	258	0.	709.8	1110.7
1	DEC	0450	59	0.	.0	1100.0	*	1	DEC	1310	159	0.	471.7	1108.8	*	1	DEC	2130	259	0.	710.7	1110.7
1	DEC	0455	60	0.	.0	1100.0	*	1	DEC	1315	160	0.	486.3	1108.9	*	1	DEC	2135	260	0.	711.6	1110.7
1	DEC	0500	61	0.	.0	1100.0	*	1	DEC	1320	161	0.	498.6	1109.0	*	1	DEC	2140	261	0.	712.5	1110.7
1	DEC	0505	62	0.	.0	1100.0	*	1	DEC	1325	162	0.	509.0	1109.1	*	1	DEC	2145	262	0.	713.4	1110.7
1	DEC	0510	63	0.	.0	1100.0	*	1	DEC	1330	163	0.	517.6	1109.1	*	1	DEC	2150	263	0.	714.3	1110.7
1	DEC	0515	64	0.	.0	1100.0	*	1	DEC	1335	164	0.	524.9	1109.2	*	1	DEC	2155	264	0.	715.2	1110.7
1	DEC	0520	65	0.	.0	1100.0	*	1	DEC	1340	165	0.	531.0	1109.2	*	1	DEC	2200	265	0.	716.1	1110.7
1	DEC	0525	66	0.	.0	1100.0	*	1	DEC	1345	166	0.	536.4	1109.3	*	1	DEC	2205	266	0.	716.9	1110.7
1	DEC	0530	67	0.	.0	1100.0	*	1	DEC	1350	167	0.	541.3	1109.3	*	1	DEC	2210	267	0.	717.8	1110.7
1	DEC	0535	68	0.	.0	1100.0	*	1	DEC	1355	168	0.	545.7	1109.4	*	1	DEC	2215	268	0.	718.6	1110.7
1	DEC	0540	69	0.	.0	1100.0	*	1	DEC	1400	169	0.	550.0	1109.4	*	1	DEC	2220	269	0.	719.5	1110.7

1	DEC	0545	70	0.	.0	1100.0	*	1	DEC	1405	170	0.	554.0	1109.4	*	1	DEC	2225	270	0.	720.3	1110.7
1	DEC	0550	71	0.	.0	1100.0	*	1	DEC	1410	171	0.	557.9	1109.5	*	1	DEC	2230	271	0.	721.2	1110.7
1	DEC	0555	72	0.	.0	1100.0	*	1	DEC	1415	172	0.	561.6	1109.5	*	1	DEC	2235	272	0.	722.0	1110.8
1	DEC	0600	73	0.	.0	1100.0	*	1	DEC	1420	173	0.	565.2	1109.5	*	1	DEC	2240	273	0.	722.9	1110.8
1	DEC	0605	74	0.	.0	1100.0	*	1	DEC	1425	174	0.	568.7	1109.5	*	1	DEC	2245	274	0.	723.7	1110.8
1	DEC	0610	75	0.	.0	1100.0	*	1	DEC	1430	175	0.	572.1	1109.6	*	1	DEC	2250	275	0.	724.5	1110.8
1	DEC	0615	76	0.	.0	1100.0	*	1	DEC	1435	176	0.	575.3	1109.6	*	1	DEC	2255	276	0.	725.3	1110.8
1	DEC	0620	77	0.	.0	1100.0	*	1	DEC	1440	177	0.	578.4	1109.6	*	1	DEC	2300	277	0.	726.1	1110.8
1	DEC	0625	78	0.	.0	1100.0	*	1	DEC	1445	178	0.	581.5	1109.7	*	1	DEC	2305	278	0.	726.9	1110.8
1	DEC	0630	79	0.	.0	1100.0	*	1	DEC	1450	179	0.	584.4	1109.7	*	1	DEC	2310	279	0.	727.7	1110.8
1	DEC	0635	80	0.	.0	1100.0	*	1	DEC	1455	180	0.	587.2	1109.7	*	1	DEC	2315	280	0.	728.5	1110.8
1	DEC	0640	81	0.	.0	1100.0	*	1	DEC	1500	181	0.	590.0	1109.7	*	1	DEC	2320	281	0.	729.3	1110.8
1	DEC	0645	82	0.	.0	1100.0	*	1	DEC	1505	182	0.	592.6	1109.7	*	1	DEC	2325	282	0.	730.1	1110.8
1	DEC	0650	83	0.	.0	1100.0	*	1	DEC	1510	183	0.	595.2	1109.8	*	1	DEC	2330	283	0.	730.9	1110.8
1	DEC	0655	84	0.	.0	1100.0	*	1	DEC	1515	184	0.	597.8	1109.8	*	1	DEC	2335	284	0.	731.6	1110.8
1	DEC	0700	85	0.	.0	1100.0	*	1	DEC	1520	185	0.	600.3	1109.8	*	1	DEC	2340	285	0.	732.4	1110.8
1	DEC	0705	86	0.	.0	1100.0	*	1	DEC	1525	186	0.	602.7	1109.8	*	1	DEC	2345	286	0.	733.2	1110.8
1	DEC	0710	87	0.	.0	1100.0	*	1	DEC	1530	187	0.	605.1	1109.8	*	1	DEC	2350	287	0.	733.9	1110.8
1	DEC	0715	88	0.	.0	1100.0	*	1	DEC	1535	188	0.	607.5	1109.9	*	1	DEC	2355	288	0.	734.7	1110.8
1	DEC	0720	89	0.	.0	1100.0	*	1	DEC	1540	189	0.	609.9	1109.9	*	2	DEC	0000	289	0.	735.4	1110.9
1	DEC	0725	90	0.	.0	1100.0	*	1	DEC	1545	190	0.	612.2	1109.9	*	2	DEC	0005	290	0.	736.2	1110.9
1	DEC	0730	91	0.	.0	1100.0	*	1	DEC	1550	191	0.	614.5	1109.9	*	2	DEC	0010	291	0.	736.9	1110.9
1	DEC	0735	92	0.	.0	1100.0	*	1	DEC	1555	192	0.	616.8	1109.9	*	2	DEC	0015	292	0.	737.6	1110.9
1	DEC	0740	93	0.	.0	1100.0	*	1	DEC	1600	193	0.	619.0	1110.0	*	2	DEC	0020	293	0.	738.1	1110.9
1	DEC	0745	94	0.	.0	1100.0	*	1	DEC	1605	194	0.	621.2	1110.0	*	2	DEC	0025	294	0.	738.6	1110.9
1	DEC	0750	95	0.	.0	1100.0	*	1	DEC	1610	195	0.	623.3	1110.0	*	2	DEC	0030	295	0.	739.0	1110.9
1	DEC	0755	96	0.	.0	1100.0	*	1	DEC	1615	196	0.	625.4	1110.0	*	2	DEC	0035	296	0.	739.3	1110.9
1	DEC	0800	97	0.	.0	1100.0	*	1	DEC	1620	197	0.	627.5	1110.0	*	2	DEC	0040	297	0.	739.6	1110.9
1	DEC	0805	98	0.	.0	1100.0	*	1	DEC	1625	198	0.	629.6	1110.0	*	2	DEC	0045	298	0.	739.8	1110.9
1	DEC	0810	99	0.	.0	1100.0	*	1	DEC	1630	199	0.	631.6	1110.1	*	2	DEC	0050	299	0.	739.9	1110.9
1	DEC	0815	100	0.	.0	1100.0	*	1	DEC	1635	200	0.	633.5	1110.1	*	2	DEC	0055	300	0.	740.0	1110.9
							*								*							

****

PEAK OUTFLOW IS 0. AT TIME .00 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
0.	.08	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
740.	24.92	714.	338.	326.	326.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
1110.89	24.92	1110.69	1105.39	1105.19	1105.19

CUMULATIVE AREA = 5.80 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CP2-1	2812.	12.42	444.	129.	124.	1.95		
HYDROGRAPH AT	CP2-2	2478.	12.67	539.	156.	150.	2.46		
HYDROGRAPH AT	CP2-3	1922.	12.42	306.	88.	85.	1.39		
3 COMBINED AT	FRS #2	6714.	12.42	1288.	373.	359.	5.80		
ROUTED TO	*ROUTE*	0.	.08	0.	0.	0.	5.80	1110.89	24.92

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION ROUTE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1100.00	1111.20	1117.00
STORAGE	0.	780.	1880.
OUTFLOW	0.	0.	13200.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1110.89	.00	740.	0.	.00	.00	.00

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

BUCKEYE FRS #2

6-HOUR PMP

```
*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*          FEBRUARY 1981            *
*          REVISED 01 JUN 88        *
*                                   *
* RUN DATE  01/19/1990  TIME  08:29:13 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*  THE HYDROLOGIC ENGINEERING CENTER *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 551-1748           *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X       XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

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

  1           ID        DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
  2           ID        OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
  3           ID        STRUCTURE #2 (AZ No. 7-44) **** 6-HOUR PMP **** (REVISED 1-10-90)
              *DIAGRAM
  4           IT       5  1DEC89    0000     300
  5           IO       3

  6           KK   CP2-1  DEVELOP HYDROGRAPH FOR CP2-1
  7           BA    1.95
  8           PB       0
  9           PI   0.030   0.030   0.031   0.032   0.032   0.033   0.034   0.034   0.035   0.036
 10           PI   0.036   0.037   0.045   0.045   0.045   0.045   0.046   0.046   0.047   0.049
 11           PI   0.052   0.056   0.060   0.064   0.118   0.120   0.121   0.125   0.129   0.134
 12           PI   0.136   0.155   0.162   0.177   0.197   0.226   3.100   1.800   1.300   0.800
 13           PI   0.700   0.600   0.310   0.300   0.290   0.280   0.265   0.255   0.112   0.104
 14           PI   0.097   0.091   0.086   0.082   0.077   0.075   0.071   0.070   0.069   0.066
 15           PI   0.045   0.045   0.044   0.043   0.043   0.042   0.041   0.041   0.040   0.039
 16           PI   0.039   0.038
 17           LS     0.0      93
 18           UD    0.32

 19           KK   CP2-2  DEVELOP HYDROGRAPH FOR CP2-2
 20           BA    2.46
 21           LS     0.0      92
 22           UD    0.56

 23           KK   CP2-3  DEVELOP HYDROGRAPH FOR CP2-3
 24           BA    1.39
 25           LS     0.0      92
 26           UD    0.33

 27           KK  FRS #2  COMBINE HYDROGRAPHS CP2-1, CP2-2, AND CP2-3 (= FRS #2)
 28           KO       1
 29           HC       3

 30           KK   ROUTE  RESERVIOR ROUTING OF FRS #2 USING FRS #2 HYDROGRAPH
 31           KM           RESERVIOR ASSUMED EMPTY
 32           KO       1
 33           RS       1    STOR     0.0
 34           ST  1117.0    9455    2.70     1.5
 35           SS  1111.2     350    2.70     1.5
 36           SU    0.00      38     113     225     375     625     780     900    1250    1650
 37           SU    1080    2125    2712
 38           SE    1100    1102    1104    1106    1108    1110  1111.2    1112    1114    1116
 39           SE    1117    1118    1120
 40           ZZ
```

```
                    SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE        (U) ROUTING            (--->) DIVERSION OR PUMP FLOW
  NO.        (.) CONNECTOR          (<---) RETURN OF DIVERTED OR PUMPED FLOW
   6          CP2-1
                 .
  19             .        CP2-2
                 .           .
  23             .           .        CP2-3
                 .           .           .
  27         FRS #2.......................
                 U
                 U
  30          ROUTE
(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
*************************************                    *************************************
*                                   *                    *                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                    *   U.S. ARMY CORPS OF ENGINEERS    *
*          FEBRUARY 1981            *                    *  THE HYDROLOGIC ENGINEERING CENTER *
*         REVISED 01 JUN 88         *                    *         609 SECOND STREET         *
*                                   *                    *      DAVIS, CALIFORNIA 95616      *
*  RUN DATE  01/19/1990  TIME  08:29:13 *                *          (916) 551-1748           *
*                                   *                    *                                   *
*************************************                    *************************************
```

DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
STRUCTURE #2 (AZ No. 7-44) **** 6-HOUR PMP **** (REVISED 1-10-90)

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

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     1DEC89  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE    2DEC89  ENDING DATE
                     NDTIME       0055  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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


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

            **************
            *            *
  6 KK      *    CP2-1   *       DEVELOP HYDROGRAPH FOR CP2-1
            *            *
            **************

            SUBBASIN RUNOFF DATA

  7 BA          SUBBASIN CHARACTERISTICS
                      TAREA       1.95  SUBBASIN AREA
```

```
                PRECIPITATION DATA

  8 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

  9 PI             INCREMENTAL PRECIPITATION PATTERN
                      .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                      .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                      .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                      .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                      .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                      .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                      .04       .04

 17 LS            SCS LOSS RATE
                      STRTL        .15  INITIAL ABSTRACTION
                     CRVNBR      93.00  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 18 UD            SCS DIMENSIONLESS UNITGRAPH
                      TLAG        .32  LAG

                                                   ***

                                                UNIT HYDROGRAPH
                                            21 END-OF-PERIOD ORDINATES
              332.     1060.     2098.     2583.     2496.     2067.     1424.      948.      659.      458.
              313.      214.      144.      100.       70.       48.       33.       24.       17.       10.
                4.

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

                     HYDROGRAPH AT STATION     CP2-1

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .87, TOTAL EXCESS =   13.43

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     24.92-HR
   17404.      3.50        (CFS)     2816.       704.       679.        679.
                         (INCHES)   13.424     13.435     13.435      13.435
                          (AC-FT)    1396.      1397.      1397.       1397.

                     CUMULATIVE AREA =    1.95 SQ MI

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

            **************
            *            *
 19 KK      *    CP2-2   *       DEVELOP HYDROGRAPH FOR CP2-2
            *            *
            **************

            SUBBASIN RUNOFF DATA

 20 BA            SUBBASIN CHARACTERISTICS
                      TAREA        2.46  SUBBASIN AREA
```

```
                PRECIPITATION DATA

  8 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

  9 PI             INCREMENTAL PRECIPITATION PATTERN
                       .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                       .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                       .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                       .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                       .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                       .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                       .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                       .04       .04

 21 LS            SCS LOSS RATE
                      STRTL        .17  INITIAL ABSTRACTION
                     CRVNBR      92.00  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 22 UD            SCS DIMENSIONLESS UNITGRAPH
                      TLAG        .56  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                           36 END-OF-PERIOD ORDINATES
              112.      334.      661.     1131.     1595.     1873.     1968.     1945.     1772.     1564.
             1287.      983.      769.      613.      497.      399.      317.      253.      202.      161.
              128.      102.       81.       65.       52.       41.       33.       27.       21.       18.
               15.       11.        8.        6.        3.        0.

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

                     HYDROGRAPH AT STATION     CP2-2

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .99, TOTAL EXCESS =   13.31

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR       24-HR       72-HR     24.92-HR
   16060.      3.75        (CFS)     3513.       880.       848.        848.
                         (INCHES)   13.277     13.307     13.307      13.307
                         (AC-FT)     1742.      1746.      1746.       1746.

                     CUMULATIVE AREA =     2.46 SQ MI

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

            **************
            *            *
 23 KK      *    CP2-3   *       DEVELOP HYDROGRAPH FOR CP2-3
            *            *
            **************

                SUBBASIN RUNOFF DATA
```

```
24 BA          SUBBASIN CHARACTERISTICS
                    TAREA        1.39  SUBBASIN AREA

               PRECIPITATION DATA

 8 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

 9 PI            INCREMENTAL PRECIPITATION PATTERN
                    .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                    .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                    .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                    .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                    .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                    .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                    .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                    .04       .04

25 LS          SCS LOSS RATE
                   STRTL        .17  INITIAL ABSTRACTION
                  CRVNBR      92.00  CURVE NUMBER
                   RTIMP        .00  PERCENT IMPERVIOUS AREA

26 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG        .33  LAG

                                                  ***

                                              UNIT HYDROGRAPH
                                          22 END-OF-PERIOD ORDINATES
            220.      699.     1401.     1783.     1764.     1487.     1077.      712.      494.      351.
            241.      169.      116.       80.       56.       39.       27.       19.       14.        9.
              5.        1.

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

                    HYDROGRAPH AT STATION    CP2-3

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .99, TOTAL EXCESS =   13.31

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     24.92-HR
  12196.      3.50        (CFS)    1988.        497.        479.        479.
                        (INCHES)  13.298      13.307      13.307      13.307
                         (AC-FT)    986.        986.        986.        986.

                    CUMULATIVE AREA =    1.39 SQ MI

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

            **************
            *            *
 27 KK      *   FRS #2   *      COMBINE HYDROGRAPHS CP2-1, CP2-2, AND CP2-3 (= FRS #2)
            *            *
            **************

 28 KO          OUTPUT CONTROL VARIABLES
```

IPRNT 1 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

29 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

***

HYDROGRAPH AT STATION FRS #2
SUM OF 3 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1	DEC	0000	1	0.	1	DEC	0615	76	1624.	1	DEC	1230	151	0.	1	DEC	1845	226	0.
1	DEC	0005	2	0.	1	DEC	0620	77	1375.	1	DEC	1235	152	0.	1	DEC	1850	227	0.
1	DEC	0010	3	0.	1	DEC	0625	78	1120.	1	DEC	1240	153	0.	1	DEC	1855	228	0.
1	DEC	0015	4	0.	1	DEC	0630	79	889.	1	DEC	1245	154	0.	1	DEC	1900	229	0.
1	DEC	0020	5	0.	1	DEC	0635	80	700.	1	DEC	1250	155	0.	1	DEC	1905	230	0.
1	DEC	0025	6	0.	1	DEC	0640	81	548.	1	DEC	1255	156	0.	1	DEC	1910	231	0.
1	DEC	0030	7	1.	1	DEC	0645	82	425.	1	DEC	1300	157	0.	1	DEC	1915	232	0.
1	DEC	0035	8	4.	1	DEC	0650	83	326.	1	DEC	1305	158	0.	1	DEC	1920	233	0.
1	DEC	0040	9	15.	1	DEC	0655	84	249.	1	DEC	1310	159	0.	1	DEC	1925	234	0.
1	DEC	0045	10	36.	1	DEC	0700	85	193.	1	DEC	1315	160	0.	1	DEC	1930	235	0.
1	DEC	0050	11	70.	1	DEC	0705	86	150.	1	DEC	1320	161	0.	1	DEC	1935	236	0.
1	DEC	0055	12	117.	1	DEC	0710	87	117.	1	DEC	1325	162	0.	1	DEC	1940	237	0.
1	DEC	0100	13	173.	1	DEC	0715	88	91.	1	DEC	1330	163	0.	1	DEC	1945	238	0.
1	DEC	0105	14	239.	1	DEC	0720	89	71.	1	DEC	1335	164	0.	1	DEC	1950	239	0.
1	DEC	0110	15	315.	1	DEC	0725	90	55.	1	DEC	1340	165	0.	1	DEC	1955	240	0.
1	DEC	0115	16	402.	1	DEC	0730	91	43.	1	DEC	1345	166	0.	1	DEC	2000	241	0.
1	DEC	0120	17	497.	1	DEC	0735	92	33.	1	DEC	1350	167	0.	1	DEC	2005	242	0.
1	DEC	0125	18	594.	1	DEC	0740	93	25.	1	DEC	1355	168	0.	1	DEC	2010	243	0.
1	DEC	0130	19	690.	1	DEC	0745	94	20.	1	DEC	1400	169	0.	1	DEC	2015	244	0.
1	DEC	0135	20	784.	1	DEC	0750	95	15.	1	DEC	1405	170	0.	1	DEC	2020	245	0.
1	DEC	0140	21	874.	1	DEC	0755	96	12.	1	DEC	1410	171	0.	1	DEC	2025	246	0.
1	DEC	0145	22	964.	1	DEC	0800	97	9.	1	DEC	1415	172	0.	1	DEC	2030	247	0.
1	DEC	0150	23	1058.	1	DEC	0805	98	7.	1	DEC	1420	173	0.	1	DEC	2035	248	0.
1	DEC	0155	24	1158.	1	DEC	0810	99	6.	1	DEC	1425	174	0.	1	DEC	2040	249	0.
1	DEC	0200	25	1269.	1	DEC	0815	100	4.	1	DEC	1430	175	0.	1	DEC	2045	250	0.
1	DEC	0205	26	1418.	1	DEC	0820	101	3.	1	DEC	1435	176	0.	1	DEC	2050	251	0.
1	DEC	0210	27	1636.	1	DEC	0825	102	2.	1	DEC	1440	177	0.	1	DEC	2055	252	0.
1	DEC	0215	28	1946.	1	DEC	0830	103	2.	1	DEC	1445	178	0.	1	DEC	2100	253	0.
1	DEC	0220	29	2320.	1	DEC	0835	104	1.	1	DEC	1450	179	0.	1	DEC	2105	254	0.
1	DEC	0225	30	2717.	1	DEC	0840	105	1.	1	DEC	1455	180	0.	1	DEC	2110	255	0.
1	DEC	0230	31	3110.	1	DEC	0845	106	0.	1	DEC	1500	181	0.	1	DEC	2115	256	0.
1	DEC	0235	32	3477.	1	DEC	0850	107	0.	1	DEC	1505	182	0.	1	DEC	2120	257	0.
1	DEC	0240	33	3829.	1	DEC	0855	108	0.	1	DEC	1510	183	0.	1	DEC	2125	258	0.
1	DEC	0245	34	4181.	1	DEC	0900	109	0.	1	DEC	1515	184	0.	1	DEC	2130	259	0.
1	DEC	0250	35	4555.	1	DEC	0905	110	0.	1	DEC	1520	185	0.	1	DEC	2135	260	0.
1	DEC	0255	36	4960.	1	DEC	0910	111	0.	1	DEC	1525	186	0.	1	DEC	2140	261	0.
1	DEC	0300	37	5417.	1	DEC	0915	112	0.	1	DEC	1530	187	0.	1	DEC	2145	262	0.
1	DEC	0305	38	7791.	1	DEC	0920	113	0.	1	DEC	1535	188	0.	1	DEC	2150	263	0.
1	DEC	0310	39	13389.	1	DEC	0925	114	0.	1	DEC	1540	189	0.	1	DEC	2155	264	0.
1	DEC	0315	40	22672.	1	DEC	0930	115	0.	1	DEC	1545	190	0.	1	DEC	2200	265	0.
1	DEC	0320	41	32067.	1	DEC	0935	116	0.	1	DEC	1550	191	0.	1	DEC	2205	266	0.
1	DEC	0325	42	38956.	1	DEC	0940	117	0.	1	DEC	1555	192	0.	1	DEC	2210	267	0.

1	DEC	0330	43	42243.	*	1	DEC	0945	118	0.	*	1	DEC	1600	193	0.	*	1	DEC	2215	268	0.	
1	DEC	0335	44	41939.	*	1	DEC	0950	119	0.	*	1	DEC	1605	194	0.	*	1	DEC	2220	269	0.	
1	DEC	0340	45	39618.	*	1	DEC	0955	120	0.	*	1	DEC	1610	195	0.	*	1	DEC	2225	270	0.	
1	DEC	0345	46	36310.	*	1	DEC	1000	121	0.	*	1	DEC	1615	196	0.	*	1	DEC	2230	271	0.	
1	DEC	0350	47	32734.	*	1	DEC	1005	122	0.	*	1	DEC	1620	197	0.	*	1	DEC	2235	272	0.	
1	DEC	0355	48	29059.	*	1	DEC	1010	123	0.	*	1	DEC	1625	198	0.	*	1	DEC	2240	273	0.	
1	DEC	0400	49	25532.	*	1	DEC	1015	124	0.	*	1	DEC	1630	199	0.	*	1	DEC	2245	274	0.	
1	DEC	0405	50	22443.	*	1	DEC	1020	125	0.	*	1	DEC	1635	200	0.	*	1	DEC	2250	275	0.	
1	DEC	0410	51	19720.	*	1	DEC	1025	126	0.	*	1	DEC	1640	201	0.	*	1	DEC	2255	276	0.	
1	DEC	0415	52	17194.	*	1	DEC	1030	127	0.	*	1	DEC	1645	202	0.	*	1	DEC	2300	277	0.	
1	DEC	0420	53	14835.	*	1	DEC	1035	128	0.	*	1	DEC	1650	203	0.	*	1	DEC	2305	278	0.	
1	DEC	0425	54	12710.	*	1	DEC	1040	129	0.	*	1	DEC	1655	204	0.	*	1	DEC	2310	279	0.	
1	DEC	0430	55	10918.	*	1	DEC	1045	130	0.	*	1	DEC	1700	205	0.	*	1	DEC	2315	280	0.	
1	DEC	0435	56	9437.	*	1	DEC	1050	131	0.	*	1	DEC	1705	206	0.	*	1	DEC	2320	281	0.	
1	DEC	0440	57	8213.	*	1	DEC	1055	132	0.	*	1	DEC	1710	207	0.	*	1	DEC	2325	282	0.	
1	DEC	0445	58	7189.	*	1	DEC	1100	133	0.	*	1	DEC	1715	208	0.	*	1	DEC	2330	283	0.	
1	DEC	0450	59	6333.	*	1	DEC	1105	134	0.	*	1	DEC	1720	209	0.	*	1	DEC	2335	284	0.	
1	DEC	0455	60	5647.	*	1	DEC	1110	135	0.	*	1	DEC	1725	210	0.	*	1	DEC	2340	285	0.	
1	DEC	0500	61	5106.	*	1	DEC	1115	136	0.	*	1	DEC	1730	211	0.	*	1	DEC	2345	286	0.	
1	DEC	0505	62	4657.	*	1	DEC	1120	137	0.	*	1	DEC	1735	212	0.	*	1	DEC	2350	287	0.	
1	DEC	0510	63	4260.	*	1	DEC	1125	138	0.	*	1	DEC	1740	213	0.	*	1	DEC	2355	288	0.	
1	DEC	0515	64	3886.	*	1	DEC	1130	139	0.	*	1	DEC	1745	214	0.	*	2	DEC	0000	289	0.	
1	DEC	0520	65	3541.	*	1	DEC	1135	140	0.	*	1	DEC	1750	215	0.	*	2	DEC	0005	290	0.	
1	DEC	0525	66	3231.	*	1	DEC	1140	141	0.	*	1	DEC	1755	216	0.	*	2	DEC	0010	291	0.	
1	DEC	0530	67	2966.	*	1	DEC	1145	142	0.	*	1	DEC	1800	217	0.	*	2	DEC	0015	292	0.	
1	DEC	0535	68	2748.	*	1	DEC	1150	143	0.	*	1	DEC	1805	218	0.	*	2	DEC	0020	293	0.	
1	DEC	0540	69	2566.	*	1	DEC	1155	144	0.	*	1	DEC	1810	219	0.	*	2	DEC	0025	294	0.	
1	DEC	0545	70	2413.	*	1	DEC	1200	145	0.	*	1	DEC	1815	220	0.	*	2	DEC	0030	295	0.	
1	DEC	0550	71	2283.	*	1	DEC	1205	146	0.	*	1	DEC	1820	221	0.	*	2	DEC	0035	296	0.	
1	DEC	0555	72	2173.	*	1	DEC	1210	147	0.	*	1	DEC	1825	222	0.	*	2	DEC	0040	297	0.	
1	DEC	0600	73	2077.	*	1	DEC	1215	148	0.	*	1	DEC	1830	223	0.	*	2	DEC	0045	298	0.	
1	DEC	0605	74	1975.	*	1	DEC	1220	149	0.	*	1	DEC	1835	224	0.	*	2	DEC	0050	299	0.	
1	DEC	0610	75	1833.	*	1	DEC	1225	150	0.	*	1	DEC	1840	225	0.	*	2	DEC	0055	300	0.	

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
42243.	3.50	(CFS)	8313.	2082.	2005.	2005.
		(INCHES)	13.326	13.350	13.350	13.350
		(AC-FT)	4122.	4130.	4130.	4130.

CUMULATIVE AREA = 5.80 SQ MI

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            *            *
30 KK       *   ROUTE    *      RESERVIOR ROUTING OF FRS #2 USING FRS #2 HYDROGRAPH
            *            *
            **************
                                RESERVIOR ASSUMED EMPTY

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

          HYDROGRAPH ROUTING DATA

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

36 SV         STORAGE         .0      38.0     113.0     225.0     375.0     625.0     780.0     900.0    1250.0    1650.0
                           1880.0    2125.0    2712.0

38 SE       ELEVATION     1100.00   1102.00   1104.00   1106.00   1108.00   1110.00   1111.20   1112.00   1114.00   1116.00
                          1117.00   1118.00   1120.00

35 SS        SPILLWAY
                 CREL     1111.20  SPILLWAY CREST ELEVATION
                SPWID      350.00  SPILLWAY WIDTH
                 COQW        2.70  WEIR COEFFICIENT
                 EXPW        1.50  EXPONENT OF HEAD

34 ST        TOP OF DAM
                TOPEL     1117.00  ELEVATION AT TOP OF DAM
                DAMWID    9455.00  DAM WIDTH
                 COQD        2.70  WEIR COEFFICIENT
                 EXPD        1.50  EXPONENT OF HEAD

                                                  ***

                                   COMPUTED OUTFLOW-ELEVATION DATA

                                   (EXCLUDING FLOW OVER DAM)

          OUTFLOW        .00       .00      4.24     33.84    114.25    270.72    528.82    913.68   1450.80   2165.77
        ELEVATION    1100.00   1111.20   1111.23   1111.31   1111.44   1111.63   1111.88   1112.18   1112.53   1112.94

          OUTFLOW    3083.55   4230.02   5629.99   7309.47   9293.16  11607.16  14276.09  17326.14  20781.82  24669.45
        ELEVATION    1113.40   1113.92   1114.49   1115.11   1115.79   1116.52   1117.31   1118.15   1119.05   1120.00

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                                   (INCLUDING FLOW OVER DAM)

          STORAGE        .00     38.00    113.00    225.00    375.00    625.00    780.00    784.08    796.30    816.67
          OUTFLOW        .00       .00       .00       .00       .00       .00       .00      4.24     33.84    114.25
        ELEVATION    1100.00   1102.00   1104.00   1106.00   1108.00   1110.00   1111.20   1111.23   1111.31   1111.44

          STORAGE     845.18    881.86    900.00    931.10    992.88   1064.19   1144.98   1235.30   1250.00   1347.27
          OUTFLOW     270.72    528.82    676.25    913.68   1450.80   2165.77   3083.55   4230.02   4427.72   5629.99
        ELEVATION    1111.63   1111.88   1112.00   1112.18   1112.53   1112.94   1113.40   1113.92   1114.00   1114.49

          STORAGE    1472.22   1608.01   1650.00   1770.39   1880.00   1956.20   2125.00   2169.93   2432.97   2712.00
          OUTFLOW    7309.47   9293.16   9938.03  11607.16  13200.16  18704.41  42285.64  48935.25  95674.41 157319.40
        ELEVATION    1115.11   1115.79   1116.00   1116.52   1117.00   1117.31   1118.00   1118.15   1119.05   1120.00

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HYDROGRAPH AT STATION ROUTE

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	DEC	0000	1	0.	.0	1100.0	1	DEC	0820	101	907.	930.2	1112.2	1	DEC	1640	201	30.	795.0	1111.3
1	DEC	0005	2	0.	.0	1100.0	1	DEC	0825	102	859.	924.2	1112.1	1	DEC	1645	202	29.	794.8	1111.3
1	DEC	0010	3	0.	.0	1100.0	1	DEC	0830	103	814.	918.4	1112.1	1	DEC	1650	203	29.	794.6	1111.3
1	DEC	0015	4	0.	.0	1100.0	1	DEC	0835	104	772.	913.0	1112.1	1	DEC	1655	204	28.	794.4	1111.3
1	DEC	0020	5	0.	.0	1100.0	1	DEC	0840	105	734.	907.8	1112.0	1	DEC	1700	205	27.	794.2	1111.3
1	DEC	0025	6	0.	.0	1100.0	1	DEC	0845	106	697.	902.9	1112.0	1	DEC	1705	206	27.	794.0	1111.3
1	DEC	0030	7	0.	.0	1100.0	1	DEC	0850	107	661.	898.2	1112.0	1	DEC	1710	207	26.	793.8	1111.3
1	DEC	0035	8	0.	.0	1100.0	1	DEC	0855	108	624.	893.8	1112.0	1	DEC	1715	208	26.	793.6	1111.3
1	DEC	0040	9	0.	.1	1100.0	1	DEC	0900	109	590.	889.6	1111.9	1	DEC	1720	209	25.	793.5	1111.3
1	DEC	0045	10	0.	.3	1100.0	1	DEC	0905	110	559.	885.6	1111.9	1	DEC	1725	210	25.	793.3	1111.3
1	DEC	0050	11	0.	.6	1100.0	1	DEC	0910	111	529.	881.9	1111.9	1	DEC	1730	211	24.	793.1	1111.3
1	DEC	0055	12	0.	1.3	1100.1	1	DEC	0915	112	502.	878.3	1111.9	1	DEC	1735	212	24.	793.0	1111.3
1	DEC	0100	13	0.	2.3	1100.1	1	DEC	0920	113	476.	875.0	1111.8	1	DEC	1740	213	24.	792.8	1111.3
1	DEC	0105	14	0.	3.7	1100.2	1	DEC	0925	114	452.	871.8	1111.8	1	DEC	1745	214	23.	792.6	1111.3
1	DEC	0110	15	0.	5.6	1100.3	1	DEC	0930	115	430.	868.7	1111.8	1	DEC	1750	215	23.	792.5	1111.3
1	DEC	0115	16	0.	8.1	1100.4	1	DEC	0935	116	409.	865.8	1111.8	1	DEC	1755	216	22.	792.3	1111.3
1	DEC	0120	17	0.	11.2	1100.6	1	DEC	0940	117	390.	863.1	1111.8	1	DEC	1800	217	22.	792.2	1111.3
1	DEC	0125	18	0.	14.9	1100.8	1	DEC	0945	118	371.	860.5	1111.7	1	DEC	1805	218	21.	792.0	1111.3
1	DEC	0130	19	0.	19.3	1101.0	1	DEC	0950	119	354.	858.0	1111.7	1	DEC	1810	219	21.	791.9	1111.3
1	DEC	0135	20	0.	24.4	1101.3	1	DEC	0955	120	338.	855.6	1111.7	1	DEC	1815	220	21.	791.7	1111.3
1	DEC	0140	21	0.	30.1	1101.6	1	DEC	1000	121	323.	853.3	1111.7	1	DEC	1820	221	20.	791.6	1111.3
1	DEC	0145	22	0.	36.4	1101.9	1	DEC	1005	122	309.	851.2	1111.7	1	DEC	1825	222	20.	791.4	1111.3
1	DEC	0150	23	0.	43.4	1102.1	1	DEC	1010	123	295.	849.1	1111.7	1	DEC	1830	223	20.	791.3	1111.3
1	DEC	0155	24	0.	51.0	1102.3	1	DEC	1015	124	283.	847.1	1111.6	1	DEC	1835	224	19.	791.2	1111.3
1	DEC	0200	25	0.	59.4	1102.6	1	DEC	1020	125	271.	845.2	1111.6	1	DEC	1840	225	19.	791.1	1111.3
1	DEC	0205	26	0.	68.6	1102.8	1	DEC	1025	126	259.	843.3	1111.6	1	DEC	1845	226	19.	790.9	1111.3
1	DEC	0210	27	0.	79.1	1103.1	1	DEC	1030	127	249.	841.6	1111.6	1	DEC	1850	227	18.	790.8	1111.3
1	DEC	0215	28	0.	91.5	1103.4	1	DEC	1035	128	238.	839.9	1111.6	1	DEC	1855	228	18.	790.7	1111.3
1	DEC	0220	29	0.	106.2	1103.8	1	DEC	1040	129	229.	838.3	1111.6	1	DEC	1900	229	18.	790.5	1111.3
1	DEC	0225	30	0.	123.5	1104.2	1	DEC	1045	130	220.	836.7	1111.6	1	DEC	1905	230	17.	790.4	1111.3
1	DEC	0230	31	0.	143.6	1104.5	1	DEC	1050	131	211.	835.3	1111.6	1	DEC	1910	231	17.	790.3	1111.3
1	DEC	0235	32	0.	166.3	1105.0	1	DEC	1055	132	203.	833.8	1111.6	1	DEC	1915	232	17.	790.2	1111.3
1	DEC	0240	33	0.	191.4	1105.4	1	DEC	1100	133	195.	832.5	1111.5	1	DEC	1920	233	16.	790.1	1111.3
1	DEC	0245	34	0.	219.0	1105.9	1	DEC	1105	134	188.	831.1	1111.5	1	DEC	1925	234	16.	790.0	1111.3
1	DEC	0250	35	0.	249.1	1106.3	1	DEC	1110	135	181.	829.9	1111.5	1	DEC	1930	235	16.	789.9	1111.3
1	DEC	0255	36	0.	281.9	1106.8	1	DEC	1115	136	175.	828.6	1111.5	1	DEC	1935	236	16.	789.8	1111.3
1	DEC	0300	37	0.	317.6	1107.2	1	DEC	1120	137	168.	827.5	1111.5	1	DEC	1940	237	15.	789.6	1111.3
1	DEC	0305	38	0.	363.1	1107.8	1	DEC	1125	138	162.	826.3	1111.5	1	DEC	1945	238	15.	789.5	1111.3
1	DEC	0310	39	0.	436.0	1108.5	1	DEC	1130	139	157.	825.2	1111.5	1	DEC	1950	239	15.	789.4	1111.3
1	DEC	0315	40	0.	560.2	1109.5	1	DEC	1135	140	151.	824.2	1111.5	1	DEC	1955	240	15.	789.3	1111.3
1	DEC	0320	41	0.	748.7	1111.0	1	DEC	1140	141	146.	823.2	1111.5	1	DEC	2000	241	14.	789.2	1111.3
1	DEC	0325	42	1409.	988.4	1112.5	1	DEC	1145	142	141.	822.2	1111.5	1	DEC	2005	242	14.	789.1	1111.3
1	DEC	0330	43	4417.	1249.2	1114.0	1	DEC	1150	143	136.	821.2	1111.5	1	DEC	2010	243	14.	789.0	1111.3
1	DEC	0335	44	7677.	1498.2	1115.2	1	DEC	1155	144	132.	820.3	1111.5	1	DEC	2015	244	14.	789.0	1111.3
1	DEC	0340	45	10825.	1714.8	1116.3	1	DEC	1200	145	127.	819.4	1111.5	1	DEC	2020	245	14.	788.9	1111.3
1	DEC	0345	46	13630.	1891.7	1117.0	1	DEC	1205	146	123.	818.5	1111.5	1	DEC	2025	246	13.	788.8	1111.3
1	DEC	0350	47	23749.	2000.7	1117.5	1	DEC	1210	147	119.	817.7	1111.5	1	DEC	2030	247	13.	788.7	1111.3
1	DEC	0355	48	28203.	2034.6	1117.6	1	DEC	1215	148	115.	816.9	1111.4	1	DEC	2035	248	13.	788.6	1111.3
1	DEC	0400	49	27666.	2030.7	1117.6	1	DEC	1220	149	112.	816.1	1111.4	1	DEC	2040	249	13.	788.5	1111.3
1	DEC	0405	50	25349.	2013.3	1117.5	1	DEC	1225	150	108.	815.4	1111.4	1	DEC	2045	250	13.	788.4	1111.3
1	DEC	0410	51	22779.	1992.8	1117.5	1	DEC	1230	151	105.	814.6	1111.4	1	DEC	2050	251	12.	788.3	1111.3
1	DEC	0415	52	20324.	1971.5	1117.4	1	DEC	1235	152	102.	813.9	1111.4	1	DEC	2055	252	12.	788.2	1111.3
1	DEC	0420	53	18055.	1949.7	1117.3	1	DEC	1240	153	98.	813.2	1111.4	1	DEC	2100	253	12.	788.1	1111.3
1	DEC	0425	54	16026.	1927.3	1117.2	1	DEC	1245	154	96.	812.6	1111.4	1	DEC	2105	254	12.	788.1	1111.3

1	DEC	0430	55	14331.	1904.2	1117.1	*	1	DEC	1250	155	93.	811.9	1111.4	*	1	DEC	2110	255	12.	788.0	1111.3
1	DEC	0435	56	13197.	1879.8	1117.0	*	1	DEC	1255	156	90.	811.3	1111.4	*	1	DEC	2115	256	11.	787.9	1111.3
1	DEC	0440	57	12774.	1851.1	1116.9	*	1	DEC	1300	157	87.	810.7	1111.4	*	1	DEC	2120	257	11.	787.8	1111.3
1	DEC	0445	58	12289.	1817.9	1116.7	*	1	DEC	1305	158	85.	810.1	1111.4	*	1	DEC	2125	258	11.	787.8	1111.3
1	DEC	0450	59	11767.	1781.6	1116.6	*	1	DEC	1310	159	83.	809.5	1111.4	*	1	DEC	2130	259	11.	787.7	1111.3
1	DEC	0455	60	11229.	1743.7	1116.4	*	1	DEC	1315	160	80.	809.0	1111.4	*	1	DEC	2135	260	11.	787.6	1111.3
1	DEC	0500	61	10693.	1705.3	1116.2	*	1	DEC	1320	161	78.	808.4	1111.4	*	1	DEC	2140	261	11.	787.5	1111.3
1	DEC	0505	62	10170.	1667.1	1116.1	*	1	DEC	1325	162	76.	807.9	1111.4	*	1	DEC	2145	262	11.	787.5	1111.2
1	DEC	0510	63	9624.	1629.6	1115.9	*	1	DEC	1330	163	74.	807.4	1111.4	*	1	DEC	2150	263	10.	787.4	1111.2
1	DEC	0515	64	9071.	1593.3	1115.7	*	1	DEC	1335	164	72.	806.9	1111.4	*	1	DEC	2155	264	10.	787.3	1111.2
1	DEC	0520	65	8548.	1558.2	1115.5	*	1	DEC	1340	165	70.	806.4	1111.4	*	1	DEC	2200	265	10.	787.3	1111.2
1	DEC	0525	66	8053.	1524.4	1115.4	*	1	DEC	1345	166	68.	805.9	1111.4	*	1	DEC	2205	266	10.	787.2	1111.2
1	DEC	0530	67	7588.	1491.9	1115.2	*	1	DEC	1350	167	66.	805.5	1111.4	*	1	DEC	2210	267	10.	787.1	1111.2
1	DEC	0535	68	7152.	1460.9	1115.1	*	1	DEC	1355	168	64.	805.0	1111.4	*	1	DEC	2215	268	10.	787.0	1111.2
1	DEC	0540	69	6745.	1431.4	1114.9	*	1	DEC	1400	169	63.	804.6	1111.4	*	1	DEC	2220	269	9.	787.0	1111.2
1	DEC	0545	70	6367.	1403.5	1114.8	*	1	DEC	1405	170	61.	804.1	1111.4	*	1	DEC	2225	270	9.	786.9	1111.2
1	DEC	0550	71	6017.	1377.1	1114.6	*	1	DEC	1410	171	59.	803.7	1111.4	*	1	DEC	2230	271	9.	786.8	1111.2
1	DEC	0555	72	5693.	1352.1	1114.5	*	1	DEC	1415	172	58.	803.3	1111.4	*	1	DEC	2235	272	9.	786.8	1111.2
1	DEC	0600	73	5392.	1328.6	1114.4	*	1	DEC	1420	173	56.	802.9	1111.4	*	1	DEC	2240	273	9.	786.7	1111.2
1	DEC	0605	74	5114.	1306.5	1114.3	*	1	DEC	1425	174	55.	802.5	1111.4	*	1	DEC	2245	274	9.	786.7	1111.2
1	DEC	0610	75	4853.	1285.3	1114.2	*	1	DEC	1430	175	54.	802.2	1111.3	*	1	DEC	2250	275	9.	786.6	1111.2
1	DEC	0615	76	4603.	1264.7	1114.1	*	1	DEC	1435	176	52.	801.8	1111.3	*	1	DEC	2255	276	9.	786.6	1111.2
1	DEC	0620	77	4349.	1244.2	1114.0	*	1	DEC	1440	177	51.	801.5	1111.3	*	1	DEC	2300	277	9.	786.5	1111.2
1	DEC	0625	78	4077.	1223.8	1113.9	*	1	DEC	1445	178	50.	801.1	1111.3	*	1	DEC	2305	278	8.	786.4	1111.2
1	DEC	0630	79	3813.	1203.5	1113.7	*	1	DEC	1450	179	49.	800.8	1111.3	*	1	DEC	2310	279	8.	786.4	1111.2
1	DEC	0635	80	3559.	1183.6	1113.6	*	1	DEC	1455	180	48.	800.4	1111.3	*	1	DEC	2315	280	8.	786.3	1111.2
1	DEC	0640	81	3318.	1164.2	1113.5	*	1	DEC	1500	181	46.	800.1	1111.3	*	1	DEC	2320	281	8.	786.3	1111.2
1	DEC	0645	82	3090.	1145.5	1113.4	*	1	DEC	1505	182	45.	799.8	1111.3	*	1	DEC	2325	282	8.	786.2	1111.2
1	DEC	0650	83	2877.	1127.6	1113.3	*	1	DEC	1510	183	44.	799.5	1111.3	*	1	DEC	2330	283	8.	786.2	1111.2
1	DEC	0655	84	2678.	1110.4	1113.2	*	1	DEC	1515	184	43.	799.2	1111.3	*	1	DEC	2335	284	8.	786.1	1111.2
1	DEC	0700	85	2493.	1094.1	1113.1	*	1	DEC	1520	185	42.	798.9	1111.3	*	1	DEC	2340	285	8.	786.1	1111.2
1	DEC	0705	86	2323.	1078.7	1113.0	*	1	DEC	1525	186	41.	798.6	1111.3	*	1	DEC	2345	286	8.	786.0	1111.2
1	DEC	0710	87	2166.	1064.2	1112.9	*	1	DEC	1530	187	40.	798.3	1111.3	*	1	DEC	2350	287	7.	786.0	1111.2
1	DEC	0715	88	2021.	1050.5	1112.9	*	1	DEC	1535	188	39.	798.1	1111.3	*	1	DEC	2355	288	7.	785.9	1111.2
1	DEC	0720	89	1888.	1037.6	1112.8	*	1	DEC	1540	189	39.	797.8	1111.3	*	2	DEC	0000	289	7.	785.8	1111.2
1	DEC	0725	90	1765.	1025.4	1112.7	*	1	DEC	1545	190	38.	797.5	1111.3	*	2	DEC	0005	290	7.	785.8	1111.2
1	DEC	0730	91	1652.	1014.0	1112.7	*	1	DEC	1550	191	37.	797.3	1111.3	*	2	DEC	0010	291	7.	785.7	1111.2
1	DEC	0735	92	1548.	1003.2	1112.6	*	1	DEC	1555	192	36.	797.0	1111.3	*	2	DEC	0015	292	7.	785.7	1111.2
1	DEC	0740	93	1453.	993.1	1112.5	*	1	DEC	1600	193	35.	796.8	1111.3	*	2	DEC	0020	293	7.	785.6	1111.2
1	DEC	0745	94	1364.	983.5	1112.5	*	1	DEC	1605	194	35.	796.5	1111.3	*	2	DEC	0025	294	7.	785.6	1111.2
1	DEC	0750	95	1283.	974.6	1112.4	*	1	DEC	1610	195	34.	796.3	1111.3	*	2	DEC	0030	295	7.	785.5	1111.2
1	DEC	0755	96	1208.	966.1	1112.4	*	1	DEC	1615	196	33.	796.1	1111.3	*	2	DEC	0035	296	7.	785.5	1111.2
1	DEC	0800	97	1138.	958.1	1112.3	*	1	DEC	1620	197	32.	795.8	1111.3	*	2	DEC	0040	297	7.	785.4	1111.2
1	DEC	0805	98	1073.	950.5	1112.3	*	1	DEC	1625	198	32.	795.6	1111.3	*	2	DEC	0045	298	6.	785.4	1111.2
1	DEC	0810	99	1014.	943.4	1112.2	*	1	DEC	1630	199	31.	795.4	1111.3	*	2	DEC	0050	299	6.	785.4	1111.2
1	DEC	0815	100	958.	936.6	1112.2	*	1	DEC	1635	200	30.	795.2	1111.3	*	2	DEC	0055	300	6.	785.3	1111.2
							*								*							

****

PEAK OUTFLOW IS 28203. AT TIME 3.92 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
28203.	3.92	(CFS)	6569.	1687.	1625.	1625.
		(INCHES)	10.530	10.820	10.820	10.820
		(AC-FT)	3257.	3347.	3347.	3347.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR

2035.	3.92	1316.	864.	832.	832.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
1117.63	3.92	1114.19	1111.28	1110.87	1110.87

CUMULATIVE AREA = 5.80 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CP2-1	17404.	3.50	2016.	704.	679.	1.95		
HYDROGRAPH AT	CP2-2	16060.	3.75	3513.	880.	848.	2.46		
HYDROGRAPH AT	CP2-3	12196.	3.50	1988.	497.	479.	1.39		
3 COMBINED AT	FRS #2	42243.	3.50	8313.	2082.	2005.	5.80		
ROUTED TO	ROUTE	28203.	3.92	6569.	1687.	1625.	5.80	1117.63	3.92

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION ROUTE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1100.00	1111.20	1117.00
STORAGE	0.	780.	1880.
OUTFLOW	0.	0.	13200.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1117.63	.63	2035.	28203.	.83	3.92	.00

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

BUCKEYE FRS #2

72-HOUR PMP

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*           REVISED 01 JUN 88           *
*                                       *
*  RUN DATE  01/19/1990  TIME  08:29:51 *
*                                       *
*****************************************
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*****************************************
*                                       *
*     U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*          (916) 551-1748               *
*                                       *
*****************************************
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```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

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

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 20 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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

  1           ID        DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
  2           ID        OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
  3           ID        STRUCTURE #2 (AZ No.7-44) **** 72-HOUR PMP **** (REVISED 1-10-90)
              *DIAGRAM
  4           IT       20  1DEC89     0000      300
  5           IO        3

  6           KK    CP2-1  DEVELOP HYDROGRAPH FOR CP2-1
  7           BA     1.95
  8           PB        0
  9           PI    0.003    0.003    0.003    0.004    0.004    0.004    0.005    0.005    0.005    0.005
 10           PI    0.006    0.006    0.006    0.006    0.007    0.007    0.007    0.008    0.008    0.008
 11           PI    0.008    0.009    0.009    0.009    0.009    0.010    0.010    0.010    0.010    0.011
 12           PI    0.011    0.011    0.012    0.012    0.012    0.012    0.022    0.023    0.023    0.024
 13           PI    0.024    0.024    0.025    0.025    0.025    0.026    0.026    0.026    0.027    0.027
 14           PI    0.027    0.027    0.028    0.028    0.028    0.029    0.029    0.029    0.029    0.029
 15           PI    0.030    0.030    0.030    0.030    0.031    0.031    0.031    0.031    0.031    0.032
 16           PI    0.032    0.032    0.041    0.041    0.041    0.041    0.041    0.041    0.042    0.042
 17           PI    0.042    0.042    0.043    0.044    0.045    0.046    0.048    0.050    0.053    0.056
 18           PI    0.059    0.059    0.060    0.061    0.062    0.063    0.065    0.066    0.068    0.070
 19           PI    0.072    0.075    0.077    0.080    0.084    0.088    0.092    0.097    3.540    0.555
 20           PI    0.533    0.511    0.486    0.467    0.445    0.423    0.423    0.401    0.379    0.357
 21           PI    0.335    0.313    0.289    0.271    0.247    0.225    0.203    0.182    0.166    0.153
 22           PI    0.143    0.135    0.128    0.122    0.118    0.114    0.111    0.108    0.106    0.105
 23           PI    0.103    0.102    0.101    0.100    0.042    0.041    0.041    0.040    0.040    0.039
 24           PI    0.039    0.039    0.038    0.038    0.038    0.037    0.037    0.037    0.037    0.036
 25           PI    0.036    0.036    0.036    0.035    0.035    0.035    0.035    0.034    0.034    0.034
 26           PI    0.034    0.034    0.033    0.033    0.033    0.033    0.033    0.033    0.032    0.032
 27           PI    0.022    0.022    0.022    0.021    0.021    0.021    0.020    0.020    0.020    0.020
 28           PI    0.019    0.019    0.019    0.019    0.018    0.018    0.018    0.017    0.017    0.017
 29           PI    0.017    0.016    0.016    0.016    0.016    0.015    0.015    0.015    0.015    0.014
 30           PI    0.014    0.014    0.013    0.013    0.013    0.013
 31           LS      0.0       93
 32           UD     0.32

 33           KK    CP2-2  DEVELOP HYDROGRAPH FOR CP2-2
 34           BA     2.46
 35           LS      0.0       92
 36           UD     0.56

 37           KK    CP2-3  DEVELOP HYDROGRAPH FOR CP2-3
 38           BA     1.39
 39           LS      0.0       92
 40           UD     0.33

 41           KK   FRS #2  COMBINE HYDROGRAPHS CP2-1, CP2-2, AND CP2-3 (= FRS #2)
 42           KO        1
 43           HC        3

 44           KK    ROUTE  RESERVIOR ROUTING OF FRS #2 USING FRS #2 HYDROGRAPH
 45           KM           RESERVIOR ASSUMED EMPTY
 46           KO        1
 47           RS        1     STOR      0.0
 48           ST   1117.0     9455     2.70      1.5
 49           SS   1111.2      350     2.70      1.5
```

LINE	ID.....1	2	3	4	5	6	7	8	9	10
50	SU	0.00	38	113	225	375	625	780	900	1250	1650
51	SU	1880	2125	2712							
52	SE	1100	1102	1104	1106	1108	1110	1111.2	1112	1114	1116
53	SE	1117	1118	1120							
54	ZZ										

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
LINE        (V) ROUTING          (--->) DIVERSION OR PUMP FLOW
 NO.        (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW
 6          CP2-1
              .
 33           .        CP2-2
              .           .
 37           .           .        CP2-3
              .           .           .
 41         FRS #2.......................
              U
              U
 44         ROUTE
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*          FEBRUARY 1981            *
*        REVISED 01 JUN 88          *
*                                   *
* RUN DATE  01/19/1990  TIME  08:29:51 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*   U.S. ARMY CORPS OF ENGINEERS    *
*  THE HYDROLOGIC ENGINEERING CENTER *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 551-1748           *
*                                   *
*************************************
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DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
STRUCTURE #2 (AZ No.7-44) **** 72-HOUR PMP **** (REVISED 1-10-90)

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

    IT          HYDROGRAPH TIME DATA
                       NMIN         20  MINUTES IN COMPUTATION INTERVAL
                      IDATE     1DEC89  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     5DEC89  ENDING DATE
                     NDTIME       0340  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL      .33 HOURS
                      TOTAL TIME BASE   99.67 HOURS

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

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

            **************
            *            *
  6 KK      *    CP2-1   *      DEVELOP HYDROGRAPH FOR CP2-1
            *            *
            **************

             SUBBASIN RUNOFF DATA

  7 BA          SUBBASIN CHARACTERISTICS
                      TAREA        1.95  SUBBASIN AREA
```

PRECIPITATION DATA

8 PB STORM 17.80 BASIN TOTAL PRECIPITATION

9 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.02	.02	.02	.02
.02	.02	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.05	.05	.05	.05	.06
.06	.06	.06	.06	.06	.06	.07	.07	.07	.07
.07	.08	.08	.08	.08	.09	.09	.10	3.54	.55
.53	.51	.49	.47	.44	.42	.42	.40	.38	.36
.34	.31	.29	.27	.25	.23	.20	.18	.17	.15
.14	.14	.13	.12	.12	.11	.11	.11	.11	.10
.10	.10	.10	.10	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01				

31 LS SCS LOSS RATE

STRTL .15 INITIAL ABSTRACTION

CRVNBR 93.00 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

32 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .32 LAG

***

UNIT HYDROGRAPH

7 END-OF-PERIOD ORDINATES

1513. 1529. 494. 164. 53. 18. 4.

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

HYDROGRAPH AT STATION CP2-1

TOTAL RAINFALL = 17.80, TOTAL LOSS = .87, TOTAL EXCESS = 16.92

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
6200.	36.67	(CFS)	2075.	753.	296.	214.
		(INCHES)	9.893	14.366	16.925	16.925
		(AC-FT)	1029.	1494.	1760.	1760.

CUMULATIVE AREA = 1.95 SQ MI

*** ***

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              **************
              *            *
33 KK         *    CP2-2   *        DEVELOP HYDROGRAPH FOR CP2-2
              *            *
              **************

                 SUBBASIN RUNOFF DATA

34 BA              SUBBASIN CHARACTERISTICS
                        TAREA          2.46  SUBBASIN AREA

                   PRECIPITATION DATA

 8 PB                   STORM         17.80  BASIN TOTAL PRECIPITATION

 9 PI                INCREMENTAL PRECIPITATION PATTERN
                        .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                        .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                        .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                        .01       .01       .01       .01       .01       .01       .02       .02       .02       .02
                        .02       .02       .03       .03       .03       .03       .03       .03       .03       .03
                        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                        .03       .03       .04       .04       .04       .04       .04       .04       .04       .04
                        .04       .04       .04       .04       .04       .05       .05       .05       .05       .06
                        .06       .06       .06       .06       .06       .06       .07       .07       .07       .07
                        .07       .08       .08       .08       .08       .09       .09       .10      3.54       .55
                        .53       .51       .49       .47       .44       .42       .42       .40       .38       .36
                        .34       .31       .29       .27       .25       .23       .20       .18       .17       .15
                        .14       .14       .13       .12       .12       .11       .11       .11       .11       .10
                        .10       .10       .10       .10       .04       .04       .04       .04       .04       .04
                        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
                        .04       .04       .04       .03       .03       .03       .03       .03       .03       .03
                        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
                        .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                        .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
                        .02       .02       .02       .02       .02       .01       .01       .01       .01       .01
                        .01       .01       .01       .01       .01       .01

35 LS              SCS LOSS RATE
                        STRTL          .17  INITIAL ABSTRACTION
                       CRVNBR        92.00  CURVE NUMBER
                        RTIMP          .00  PERCENT IMPERVIOUS AREA

36 UD              SCS DIMENSIONLESS UNITGRAPH
                        TLAG          .56  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                            10 END-OF-PERIOD ORDINATES
                 664.     1629.     1313.      606.      294.      138.       65.       31.       16.        7.

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

                        HYDROGRAPH AT STATION    CP2-2

   TOTAL RAINFALL =   17.80, TOTAL LOSS =    1.00, TOTAL EXCESS =   16.79
```

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
6210.	36.67	(CFS)	2563.	946.	370.	268.
		(INCHES)	9.680	14.307	16.794	16.794
		(AC-FT)	1271.	1877.	2203.	2203.

CUMULATIVE AREA = 2.46 SQ MI

*** ***

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              **************
              *            *
 37 KK        *   CP2-3    *      DEVELOP HYDROGRAPH FOR CP2-3
              *            *
              **************
```

SUBBASIN RUNOFF DATA

38 BA SUBBASIN CHARACTERISTICS

TAREA 1.39 SUBBASIN AREA

PRECIPITATION DATA

8 PB STORM 17.80 BASIN TOTAL PRECIPITATION

9 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.02	.02	.02	.02
.02	.02	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.05	.05	.05	.05	.06
.06	.06	.06	.06	.06	.06	.07	.07	.07	.07
.07	.08	.08	.08	.08	.09	.09	.10	3.54	.55
.53	.51	.49	.47	.44	.42	.42	.40	.38	.36
.34	.31	.29	.27	.25	.23	.20	.18	.17	.15
.14	.14	.13	.12	.12	.11	.11	.11	.11	.10
.10	.10	.10	.10	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01				

39 LS SCS LOSS RATE

STRTL .17 INITIAL ABSTRACTION

CRVNBR 92.00 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

40 UD SCS DIMENSIONLESS UNITGRAPH

```
                    TLAG          .33  LAG
                                                                  ***
                                                          UNIT HYDROGRAPH
                                                     7 END-OF-PERIOD ORDINATES
            1034.     1104.      367.      126.       42.       14.        4.
   ***                ***                ***                ***                ***

                    HYDROGRAPH AT STATION    CP2-3

   TOTAL RAINFALL =   17.80, TOTAL LOSS =    1.00, TOTAL EXCESS =   16.79

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                   6-HR       24-HR       72-HR     99.67-HR
   4428.        36.67        (CFS)     1473.       535.        209.        151.
                           (INCHES)    9.856      14.307      16.794      16.794
                            (AC-FT)     731.       1061.       1245.       1245.

                    CUMULATIVE AREA =    1.39 SQ MI


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


          **************
          *            *
 41 KK    *   FRS #2   *      COMBINE HYDROGRAPHS CP2-1, CP2-2, AND CP2-3 (= FRS #2)
          *            *
          **************

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

 43 HC          HYDROGRAPH COMBINATION
                     ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***
*****************************************************************************************************************************
                                                HYDROGRAPH AT STATION   FRS #2
                                                     SUM OF  3 HYDROGRAPHS
*****************************************************************************************************************************
                                  *                                *                                *                                *
   DA MON HRMN  ORD      FLOW     *  DA MON HRMN  ORD      FLOW    *  DA MON HRMN  ORD      FLOW    *  DA MON HRMN  ORD      FLOW
                                  *                                *                                *                                *
    1 DEC 0000    1        0.     *   2 DEC 0100   76      369.    *   3 DEC 0200  151      454.    *   4 DEC 0300  226        0.
    1 DEC 0020    2        0.     *   2 DEC 0120   77      378.    *   3 DEC 0220  152      445.    *   4 DEC 0320  227        0.
    1 DEC 0040    3        0.     *   2 DEC 0140   78      384.    *   3 DEC 0240  153      440.    *   4 DEC 0340  228        0.
    1 DEC 0100    4        0.     *   2 DEC 0200   79      388.    *   3 DEC 0300  154      435.    *   4 DEC 0400  229        0.
    1 DEC 0120    5        0.     *   2 DEC 0220   80      394.    *   3 DEC 0320  155      430.    *   4 DEC 0420  230        0.
    1 DEC 0140    6        0.     *   2 DEC 0240   81      401.    *   3 DEC 0340  156      427.    *   4 DEC 0440  231        0.
    1 DEC 0200    7        0.     *   2 DEC 0300   82      405.    *   3 DEC 0400  157      423.    *   4 DEC 0500  232        0.
```

1	DEC	0220	8	0.	*	2	DEC	0320	83	408.	*	3	DEC	0420	158	419.	*	4	DEC	0520	233	0.
1	DEC	0240	9	0.	*	2	DEC	0340	84	414.	*	3	DEC	0440	159	416.	*	4	DEC	0540	234	0.
1	DEC	0300	10	0.	*	2	DEC	0400	85	423.	*	3	DEC	0500	160	415.	*	4	DEC	0600	235	0.
1	DEC	0320	11	0.	*	2	DEC	0420	86	433.	*	3	DEC	0520	161	412.	*	4	DEC	0620	236	0.
1	DEC	0340	12	0.	*	2	DEC	0440	87	445.	*	3	DEC	0540	162	407.	*	4	DEC	0640	237	0.
1	DEC	0400	13	0.	*	2	DEC	0500	88	459.	*	3	DEC	0600	163	405.	*	4	DEC	0700	238	0.
1	DEC	0420	14	0.	*	2	DEC	0520	89	478.	*	3	DEC	0620	164	404.	*	4	DEC	0720	239	0.
1	DEC	0440	15	0.	*	2	DEC	0540	90	502.	*	3	DEC	0640	165	400.	*	4	DEC	0740	240	0.
1	DEC	0500	16	0.	*	2	DEC	0600	91	530.	*	3	DEC	0700	166	396.	*	4	DEC	0800	241	0.
1	DEC	0520	17	0.	*	2	DEC	0620	92	562.	*	3	DEC	0720	167	394.	*	4	DEC	0820	242	0.
1	DEC	0540	18	0.	*	2	DEC	0640	93	585.	*	3	DEC	0740	168	393.	*	4	DEC	0840	243	0.
1	DEC	0600	19	0.	*	2	DEC	0700	94	600.	*	3	DEC	0800	169	389.	*	4	DEC	0900	244	0.
1	DEC	0620	20	0.	*	2	DEC	0720	95	614.	*	3	DEC	0820	170	385.	*	4	DEC	0920	245	0.
1	DEC	0640	21	0.	*	2	DEC	0740	96	627.	*	3	DEC	0840	171	383.	*	4	DEC	0940	246	0.
1	DEC	0700	22	0.	*	2	DEC	0800	97	639.	*	3	DEC	0900	172	382.	*	4	DEC	1000	247	0.
1	DEC	0720	23	0.	*	2	DEC	0820	98	655.	*	3	DEC	0920	173	381.	*	4	DEC	1020	248	0.
1	DEC	0740	24	0.	*	2	DEC	0840	99	671.	*	3	DEC	0940	174	378.	*	4	DEC	1040	249	0.
1	DEC	0800	25	0.	*	2	DEC	0900	100	689.	*	3	DEC	1000	175	374.	*	4	DEC	1100	250	0.
1	DEC	0820	26	0.	*	2	DEC	0920	101	709.	*	3	DEC	1020	176	371.	*	4	DEC	1120	251	0.
1	DEC	0840	27	0.	*	2	DEC	0940	102	731.	*	3	DEC	1040	177	370.	*	4	DEC	1140	252	0.
1	DEC	0900	28	1.	*	2	DEC	1000	103	757.	*	3	DEC	1100	178	370.	*	4	DEC	1200	253	0.
1	DEC	0920	29	2.	*	2	DEC	1020	104	784.	*	3	DEC	1120	179	370.	*	4	DEC	1220	254	0.
1	DEC	0940	30	4.	*	2	DEC	1040	105	812.	*	3	DEC	1140	180	367.	*	4	DEC	1240	255	0.
1	DEC	1000	31	6.	*	2	DEC	1100	106	846.	*	3	DEC	1200	181	362.	*	4	DEC	1300	256	0.
1	DEC	1020	32	9.	*	2	DEC	1120	107	886.	*	3	DEC	1220	182	328.	*	4	DEC	1320	257	0.
1	DEC	1040	33	12.	*	2	DEC	1140	108	929.	*	3	DEC	1240	183	285.	*	4	DEC	1340	258	0.
1	DEC	1100	34	15.	*	2	DEC	1200	109	976.	*	3	DEC	1300	184	263.	*	4	DEC	1400	259	0.
1	DEC	1120	35	18.	*	2	DEC	1220	110	11831.	*	3	DEC	1320	185	250.	*	4	DEC	1420	260	0.
1	DEC	1140	36	21.	*	2	DEC	1240	111	16845.	*	3	DEC	1340	186	242.	*	4	DEC	1440	261	0.
1	DEC	1200	37	24.	*	2	DEC	1300	112	11694.	*	3	DEC	1400	187	238.	*	4	DEC	1500	262	0.
1	DEC	1220	38	36.	*	2	DEC	1320	113	8228.	*	3	DEC	1420	188	233.	*	4	DEC	1520	263	0.
1	DEC	1240	39	52.	*	2	DEC	1340	114	6718.	*	3	DEC	1440	189	228.	*	4	DEC	1540	264	0.
1	DEC	1300	40	65.	*	2	DEC	1400	115	5934.	*	3	DEC	1500	190	226.	*	4	DEC	1600	265	0.
1	DEC	1320	41	76.	*	2	DEC	1420	116	5453.	*	3	DEC	1520	191	225.	*	4	DEC	1620	266	0.
1	DEC	1340	42	87.	*	2	DEC	1440	117	5111.	*	3	DEC	1540	192	221.	*	4	DEC	1640	267	0.
1	DEC	1400	43	96.	*	2	DEC	1500	118	4903.	*	3	DEC	1600	193	217.	*	4	DEC	1700	268	0.
1	DEC	1420	44	105.	*	2	DEC	1520	119	4732.	*	3	DEC	1620	194	215.	*	4	DEC	1720	269	0.
1	DEC	1440	45	115.	*	2	DEC	1540	120	4517.	*	3	DEC	1640	195	214.	*	4	DEC	1740	270	0.
1	DEC	1500	46	123.	*	2	DEC	1600	121	4292.	*	3	DEC	1700	196	210.	*	4	DEC	1800	271	0.
1	DEC	1520	47	132.	*	2	DEC	1620	122	4056.	*	3	DEC	1720	197	206.	*	4	DEC	1820	272	0.
1	DEC	1540	48	140.	*	2	DEC	1640	123	3815.	*	3	DEC	1740	198	203.	*	4	DEC	1840	273	0.
1	DEC	1600	49	148.	*	2	DEC	1700	124	3565.	*	3	DEC	1800	199	199.	*	4	DEC	1900	274	0.
1	DEC	1620	50	156.	*	2	DEC	1720	125	3325.	*	3	DEC	1820	200	195.	*	4	DEC	1920	275	0.
1	DEC	1640	51	165.	*	2	DEC	1740	126	3086.	*	3	DEC	1840	201	192.	*	4	DEC	1940	276	0.
1	DEC	1700	52	171.	*	2	DEC	1800	127	2839.	*	3	DEC	1900	202	191.	*	4	DEC	2000	277	0.
1	DEC	1720	53	177.	*	2	DEC	1820	128	2591.	*	3	DEC	1920	203	188.	*	4	DEC	2020	278	0.
1	DEC	1740	54	185.	*	2	DEC	1840	129	2348.	*	3	DEC	1940	204	183.	*	4	DEC	2040	279	0.
1	DEC	1800	55	192.	*	2	DEC	1900	130	2125.	*	3	DEC	2000	205	181.	*	4	DEC	2100	280	0.
1	DEC	1820	56	198.	*	2	DEC	1920	131	1936.	*	3	DEC	2020	206	180.	*	4	DEC	2120	281	0.
1	DEC	1840	57	206.	*	2	DEC	1940	132	1780.	*	3	DEC	2040	207	176.	*	4	DEC	2140	282	0.
1	DEC	1900	58	213.	*	2	DEC	2000	133	1655.	*	3	DEC	2100	208	172.	*	4	DEC	2200	283	0.
1	DEC	1920	59	219.	*	2	DEC	2020	134	1553.	*	3	DEC	2120	209	170.	*	4	DEC	2220	284	0.
1	DEC	1940	60	224.	*	2	DEC	2040	135	1467.	*	3	DEC	2140	210	169.	*	4	DEC	2240	285	0.
1	DEC	2000	61	228.	*	2	DEC	2100	136	1398.	*	3	DEC	2200	211	165.	*	4	DEC	2300	286	0.
1	DEC	2020	62	234.	*	2	DEC	2120	137	1342.	*	3	DEC	2220	212	161.	*	4	DEC	2320	287	0.
1	DEC	2040	63	241.	*	2	DEC	2140	138	1296.	*	3	DEC	2240	213	159.	*	4	DEC	2340	288	0.
1	DEC	2100	64	245.	*	2	DEC	2200	139	1257.	*	3	DEC	2300	214	154.	*	5	DEC	0000	289	0.
1	DEC	2120	65	249.	*	2	DEC	2220	140	1224.	*	3	DEC	2320	215	150.	*	5	DEC	0020	290	0.
1	DEC	2140	66	255.	*	2	DEC	2240	141	1200.	*	3	DEC	2340	216	147.	*	5	DEC	0040	291	0.
1	DEC	2200	67	262.	*	2	DEC	2300	142	1180.	*	4	DEC	0000	217	146.	*	5	DEC	0100	292	0.

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 1 DEC 2220   68      266.   *   2 DEC 2320  143     1162.   *   4 DEC 0020  218      104.   *   5 DEC 0120  293        0.
 1 DEC 2240   69      270.   *   2 DEC 2340  144     1148.   *   4 DEC 0040  219       49.   *   5 DEC 0140  294        0.
 1 DEC 2300   70      273.   *   3 DEC 0000  145     1135.   *   4 DEC 0100  220       21.   *   5 DEC 0200  295        0.
 1 DEC 2320   71      278.   *   3 DEC 0020  146      941.   *   4 DEC 0120  221        9.   *   5 DEC 0220  296        0.
 1 DEC 2340   72      284.   *   3 DEC 0040  147      687.   *   4 DEC 0140  222        4.   *   5 DEC 0240  297        0.
 2 DEC 0000   73      288.   *   3 DEC 0100  148      556.   *   4 DEC 0200  223        2.   *   5 DEC 0300  298        0.
 2 DEC 0020   74      315.   *   3 DEC 0120  149      498.   *   4 DEC 0220  224        1.   *   5 DEC 0320  299        0.
 2 DEC 0040   75      349.   *   3 DEC 0140  150      470.   *   4 DEC 0240  225        0.   *   5 DEC 0340  300        0.
                             *                               *                                  *
*************************************************************************************************************************

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR        24-HR        72-HR      99.67-HR
  16845.     36.67        (CFS)     6112.        2234.         875.         632.
                        (INCHES)    9.797       14.326       16.838       16.838
                         (AC-FT)    3031.        4432.        5209.        5209.

                       CUMULATIVE AREA =    5.80 SQ MI


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

            **************
            *            *
 44 KK      *     ROUTE  *      RESERVIOR ROUTING OF FRS #2 USING FRS #2 HYDROGRAPH
            *            *
            **************
                                 RESERVIOR ASSUMED EMPTY

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

                HYDROGRAPH ROUTING DATA

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

 50 SV             STORAGE          .0      38.0     113.0     225.0     375.0     625.0     780.0     900.0    1250.0    1650.0
                                 1880.0    2125.0    2712.0

 52 SE            ELEVATION     1100.00   1102.00   1104.00   1106.00   1108.00   1110.00   1111.20   1112.00   1114.00   1116.00
                                1117.00   1118.00   1120.00

 49 SS            SPILLWAY
                         CREL   1111.20  SPILLWAY CREST ELEVATION
                        SPWID    350.00  SPILLWAY WIDTH
                         COQW      2.70  WEIR COEFFICIENT
                         EXPW      1.50  EXPONENT OF HEAD

 48 ST            TOP OF DAM
                        TOPEL   1117.00  ELEVATION AT TOP OF DAM
                       DAMWID   9455.00  DAM WIDTH
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COQD	2.70	WEIR COEFFICIENT
EXPD	1.50	EXPONENT OF HEAD

***

COMPUTED OUTFLOW-ELEVATION DATA

(EXCLUDING FLOW OVER DAM)

OUTFLOW	.00	.00	4.24	33.84	114.25	270.72	528.82	913.68	1450.80	2165.77
ELEVATION	1100.00	1111.20	1111.23	1111.31	1111.44	1111.63	1111.88	1112.18	1112.53	1112.94
OUTFLOW	3083.55	4230.02	5629.99	7309.47	9293.16	11607.16	14276.09	17326.14	20781.82	24669.45
ELEVATION	1113.40	1113.92	1114.49	1115.11	1115.79	1116.52	1117.31	1118.15	1119.05	1120.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

(INCLUDING FLOW OVER DAM)

STORAGE	.00	38.00	113.00	225.00	375.00	625.00	780.00	784.08	796.30	816.67
OUTFLOW	.00	.00	.00	.00	.00	.00	.00	4.24	33.84	114.25
ELEVATION	1100.00	1102.00	1104.00	1106.00	1108.00	1110.00	1111.20	1111.23	1111.31	1111.44
STORAGE	845.18	881.86	900.00	931.10	992.88	1064.19	1144.98	1235.30	1250.00	1347.27
OUTFLOW	270.72	528.82	676.25	913.68	1450.80	2165.77	3083.55	4230.02	4427.72	5629.99
ELEVATION	1111.63	1111.88	1112.00	1112.18	1112.53	1112.94	1113.40	1113.92	1114.00	1114.49
STORAGE	1472.22	1608.01	1650.00	1770.39	1880.00	1956.20	2125.00	2169.93	2432.97	2712.00
OUTFLOW	7309.47	9293.16	9938.03	11607.16	13200.16	18704.41	42285.64	48935.25	95674.41	157319.40
ELEVATION	1115.11	1115.79	1116.00	1116.52	1117.00	1117.31	1118.00	1118.15	1119.05	1120.00

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HYDROGRAPH AT STATION ROUTE

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	DEC	0000	1	0.	.0	1100.0	2	DEC	0920	101	0.	557.3	1109.5	3	DEC	1840	201	216.	836.1	1111.6
1	DEC	0020	2	0.	.0	1100.0	2	DEC	0940	102	0.	577.1	1109.6	3	DEC	1900	202	213.	835.5	1111.6
1	DEC	0040	3	0.	.0	1100.0	2	DEC	1000	103	0.	597.6	1109.8	3	DEC	1920	203	209.	834.9	1111.6
1	DEC	0100	4	0.	.0	1100.0	2	DEC	1020	104	0.	618.8	1110.0	3	DEC	1940	204	206.	834.3	1111.6
1	DEC	0120	5	0.	.0	1100.0	2	DEC	1040	105	0.	640.8	1110.1	3	DEC	2000	205	203.	833.7	1111.6
1	DEC	0140	6	0.	.0	1100.0	2	DEC	1100	106	0.	663.6	1110.3	3	DEC	2020	206	199.	833.2	1111.6
1	DEC	0200	7	0.	.0	1100.0	2	DEC	1120	107	0.	687.5	1110.5	3	DEC	2040	207	196.	832.6	1111.6
1	DEC	0220	8	0.	.0	1100.0	2	DEC	1140	108	0.	712.5	1110.7	3	DEC	2100	208	193.	832.1	1111.5
1	DEC	0240	9	0.	.0	1100.0	2	DEC	1200	109	0.	738.8	1110.9	3	DEC	2120	209	190.	831.5	1111.5
1	DEC	0300	10	0.	.0	1100.0	2	DEC	1220	110	715.	905.3	1112.0	3	DEC	2140	210	187.	831.0	1111.5
1	DEC	0320	11	0.	.0	1100.0	2	DEC	1240	111	4192.	1232.5	1113.9	3	DEC	2200	211	184.	830.5	1111.5
1	DEC	0340	12	0.	.0	1100.0	2	DEC	1300	112	7249.	1467.9	1115.1	3	DEC	2220	212	181.	829.9	1111.5
1	DEC	0400	13	0.	.0	1100.0	2	DEC	1320	113	8138.	1530.2	1115.4	3	DEC	2240	213	179.	829.4	1111.5
1	DEC	0420	14	0.	.0	1100.0	2	DEC	1340	114	7918.	1515.1	1115.3	3	DEC	2300	214	176.	828.8	1111.5
1	DEC	0440	15	0.	.0	1100.0	2	DEC	1400	115	7400.	1478.6	1115.1	3	DEC	2320	215	172.	828.2	1111.5
1	DEC	0500	16	0.	.0	1100.0	2	DEC	1420	116	6855.	1439.5	1114.9	3	DEC	2340	216	169.	827.6	1111.5
1	DEC	0520	17	0.	.0	1100.0	2	DEC	1440	117	6364.	1403.2	1114.8	4	DEC	0000	217	166.	827.1	1111.5
1	DEC	0540	18	0.	.0	1100.0	2	DEC	1500	118	5948.	1371.8	1114.6	4	DEC	0020	218	161.	826.0	1111.5
1	DEC	0600	19	0.	.0	1100.0	2	DEC	1520	119	5608.	1345.6	1114.5	4	DEC	0040	219	149.	823.9	1111.5

1	DEC	0620	20	0.	.0	1100.0	*	2	DEC	1540	120	5317.	1322.7	1114.4	*	4	DEC	0100	220	135.	820.9	1111.5
1	DEC	0640	21	0.	.0	1100.0	*	2	DEC	1600	121	5051.	1301.4	1114.3	*	4	DEC	0120	221	120.	817.8	1111.5
1	DEC	0700	22	0.	.0	1100.0	*	2	DEC	1620	122	4799.	1280.9	1114.2	*	4	DEC	0140	222	106.	814.9	1111.4
1	DEC	0720	23	0.	.0	1100.0	*	2	DEC	1640	123	4554.	1260.6	1114.1	*	4	DEC	0200	223	94.	812.2	1111.4
1	DEC	0740	24	0.	.0	1100.0	*	2	DEC	1700	124	4298.	1240.4	1113.9	*	4	DEC	0220	224	84.	809.8	1111.4
1	DEC	0800	25	0.	.0	1100.0	*	2	DEC	1720	125	4035.	1220.5	1113.8	*	4	DEC	0240	225	75.	807.6	1111.4
1	DEC	0820	26	0.	.0	1100.0	*	2	DEC	1740	126	3783.	1201.2	1113.7	*	4	DEC	0300	226	67.	805.7	1111.4
1	DEC	0840	27	0.	.0	1100.0	*	2	DEC	1800	127	3538.	1181.9	1113.6	*	4	DEC	0320	227	60.	803.9	1111.4
1	DEC	0900	28	0.	.0	1100.0	*	2	DEC	1820	128	3297.	1162.6	1113.5	*	4	DEC	0340	228	54.	802.4	1111.3
1	DEC	0920	29	0.	.1	1100.0	*	2	DEC	1840	129	3063.	1143.2	1113.4	*	4	DEC	0400	229	49.	800.9	1111.3
1	DEC	0940	30	0.	.1	1100.0	*	2	DEC	1900	130	2833.	1123.9	1113.3	*	4	DEC	0420	230	45.	799.6	1111.3
1	DEC	1000	31	0.	.3	1100.0	*	2	DEC	1920	131	2615.	1104.9	1113.2	*	4	DEC	0440	231	41.	798.5	1111.3
1	DEC	1020	32	0.	.5	1100.0	*	2	DEC	1940	132	2414.	1087.0	1113.1	*	4	DEC	0500	232	37.	797.4	1111.3
1	DEC	1040	33	0.	.8	1100.0	*	2	DEC	2000	133	2234.	1070.5	1113.0	*	4	DEC	0520	233	34.	796.4	1111.3
1	DEC	1100	34	0.	1.1	1100.1	*	2	DEC	2020	134	2074.	1055.6	1112.9	*	4	DEC	0540	234	31.	795.5	1111.3
1	DEC	1120	35	0.	1.6	1100.1	*	2	DEC	2040	135	1934.	1042.1	1112.8	*	4	DEC	0600	235	29.	794.7	1111.3
1	DEC	1140	36	0.	2.1	1100.1	*	2	DEC	2100	136	1812.	1030.1	1112.7	*	4	DEC	0620	236	27.	793.9	1111.3
1	DEC	1200	37	0.	2.8	1100.1	*	2	DEC	2120	137	1707.	1019.5	1112.7	*	4	DEC	0640	237	25.	793.2	1111.3
1	DEC	1220	38	0.	3.6	1100.2	*	2	DEC	2140	138	1616.	1010.2	1112.6	*	4	DEC	0700	238	23.	792.5	1111.3
1	DEC	1240	39	0.	4.8	1100.3	*	2	DEC	2200	139	1537.	1002.0	1112.6	*	4	DEC	0720	239	21.	791.9	1111.3
1	DEC	1300	40	0.	6.4	1100.3	*	2	DEC	2220	140	1470.	994.9	1112.5	*	4	DEC	0740	240	20.	791.4	1111.3
1	DEC	1320	41	0.	8.3	1100.4	*	2	DEC	2240	141	1412.	988.7	1112.5	*	4	DEC	0800	241	18.	790.9	1111.3
1	DEC	1340	42	0.	10.6	1100.6	*	2	DEC	2300	142	1362.	983.3	1112.5	*	4	DEC	0820	242	17.	790.4	1111.3
1	DEC	1400	43	0.	13.1	1100.7	*	2	DEC	2320	143	1320.	978.7	1112.4	*	4	DEC	0840	243	16.	789.9	1111.3
1	DEC	1420	44	0.	15.8	1100.8	*	2	DEC	2340	144	1284.	974.7	1112.4	*	4	DEC	0900	244	15.	789.5	1111.3
1	DEC	1440	45	0.	18.9	1101.0	*	3	DEC	0000	145	1253.	971.2	1112.4	*	4	DEC	0920	245	14.	789.1	1111.3
1	DEC	1500	46	0.	22.1	1101.2	*	3	DEC	0020	146	1207.	966.0	1112.4	*	4	DEC	0940	246	13.	788.7	1111.3
1	DEC	1520	47	0.	25.6	1101.3	*	3	DEC	0040	147	1123.	956.4	1112.3	*	4	DEC	1000	247	12.	788.4	1111.3
1	DEC	1540	48	0.	29.4	1101.5	*	3	DEC	0100	148	1019.	944.0	1112.3	*	4	DEC	1020	248	12.	788.0	1111.3
1	DEC	1600	49	0.	33.3	1101.8	*	3	DEC	0120	149	919.	931.8	1112.2	*	4	DEC	1040	249	11.	787.7	1111.3
1	DEC	1620	50	0.	37.5	1102.0	*	3	DEC	0140	150	834.	921.0	1112.1	*	4	DEC	1100	250	10.	787.4	1111.2
1	DEC	1640	51	0.	41.9	1102.1	*	3	DEC	0200	151	763.	911.7	1112.1	*	4	DEC	1120	251	10.	787.2	1111.2
1	DEC	1700	52	0.	46.6	1102.2	*	3	DEC	0220	152	705.	903.9	1112.0	*	4	DEC	1140	252	9.	786.9	1111.2
1	DEC	1720	53	0.	51.4	1102.4	*	3	DEC	0240	153	654.	897.4	1112.0	*	4	DEC	1200	253	9.	786.7	1111.2
1	DEC	1740	54	0.	56.4	1102.5	*	3	DEC	0300	154	610.	892.0	1111.9	*	4	DEC	1220	254	8.	786.4	1111.2
1	DEC	1800	55	0.	61.6	1102.6	*	3	DEC	0320	155	574.	887.6	1111.9	*	4	DEC	1240	255	8.	786.2	1111.2
1	DEC	1820	56	0.	66.9	1102.8	*	3	DEC	0340	156	546.	884.0	1111.9	*	4	DEC	1300	256	8.	786.0	1111.2
1	DEC	1840	57	0.	72.5	1102.9	*	3	DEC	0400	157	522.	881.0	1111.9	*	4	DEC	1320	257	7.	785.8	1111.2
1	DEC	1900	58	0.	78.3	1103.1	*	3	DEC	0420	158	503.	878.5	1111.9	*	4	DEC	1340	258	7.	785.6	1111.2
1	DEC	1920	59	0.	84.2	1103.2	*	3	DEC	0440	159	487.	876.4	1111.8	*	4	DEC	1400	259	7.	785.4	1111.2
1	DEC	1940	60	0.	90.3	1103.4	*	3	DEC	0500	160	473.	874.6	1111.8	*	4	DEC	1420	260	6.	785.3	1111.2
1	DEC	2000	61	0.	96.5	1103.6	*	3	DEC	0520	161	462.	873.1	1111.8	*	4	DEC	1440	261	6.	785.1	1111.2
1	DEC	2020	62	0.	102.9	1103.7	*	3	DEC	0540	162	452.	871.8	1111.8	*	4	DEC	1500	262	6.	785.0	1111.2
1	DEC	2040	63	0.	109.4	1103.9	*	3	DEC	0600	163	444.	870.6	1111.8	*	4	DEC	1520	263	5.	784.8	1111.2
1	DEC	2100	64	0.	116.1	1104.1	*	3	DEC	0620	164	436.	869.6	1111.8	*	4	DEC	1540	264	5.	784.7	1111.2
1	DEC	2120	65	0.	122.9	1104.2	*	3	DEC	0640	165	430.	868.8	1111.8	*	4	DEC	1600	265	5.	784.5	1111.2
1	DEC	2140	66	0.	129.9	1104.3	*	3	DEC	0700	166	424.	868.0	1111.8	*	4	DEC	1620	266	5.	784.4	1111.2
1	DEC	2200	67	0.	137.0	1104.4	*	3	DEC	0720	167	419.	867.2	1111.8	*	4	DEC	1640	267	5.	784.3	1111.2
1	DEC	2220	68	0.	144.3	1104.6	*	3	DEC	0740	168	414.	866.6	1111.8	*	4	DEC	1700	268	4.	784.2	1111.2
1	DEC	2240	69	0.	151.6	1104.7	*	3	DEC	0800	169	410.	866.0	1111.8	*	4	DEC	1720	269	4.	784.1	1111.2
1	DEC	2300	70	0.	159.1	1104.8	*	3	DEC	0820	170	406.	865.4	1111.8	*	4	DEC	1740	270	4.	784.0	1111.2
1	DEC	2320	71	0.	166.7	1105.0	*	3	DEC	0840	171	402.	864.8	1111.8	*	4	DEC	1800	271	4.	783.8	1111.2
1	DEC	2340	72	0.	174.4	1105.1	*	3	DEC	0900	172	399.	864.4	1111.8	*	4	DEC	1820	272	4.	783.8	1111.2
2	DEC	0000	73	0.	182.3	1105.2	*	3	DEC	0920	173	396.	864.0	1111.8	*	4	DEC	1840	273	4.	783.7	1111.2
2	DEC	0020	74	0.	190.6	1105.4	*	3	DEC	0940	174	393.	863.6	1111.8	*	4	DEC	1900	274	3.	783.6	1111.2
2	DEC	0040	75	0.	199.8	1105.5	*	3	DEC	1000	175	390.	863.2	1111.8	*	4	DEC	1920	275	3.	783.5	1111.2
2	DEC	0100	76	0.	209.7	1105.7	*	3	DEC	1020	176	387.	862.7	1111.8	*	4	DEC	1940	276	3.	783.4	1111.2
2	DEC	0120	77	0.	219.9	1105.9	*	3	DEC	1040	177	385.	862.4	1111.7	*	4	DEC	2000	277	3.	783.3	1111.2
2	DEC	0140	78	0.	230.4	1106.1	*	3	DEC	1100	178	382.	862.0	1111.7	*	4	DEC	2020	278	3.	783.2	1111.2
2	DEC	0200	79	0.	241.0	1106.2	*	3	DEC	1120	179	380.	861.8	1111.7	*	4	DEC	2040	279	3.	783.1	1111.2

2	DEC	0220	80	0.	251.8	1106.4	*	3	DEC	1140	180	378.	861.5	1111.7	*	4	DEC	2100	280	3.	783.1	1111.2
2	DEC	0240	81	0.	262.8	1106.5	*	3	DEC	1200	181	376.	861.2	1111.7	*	4	DEC	2120	281	3.	783.0	1111.2
2	DEC	0300	82	0.	273.9	1106.7	*	3	DEC	1220	182	371.	860.4	1111.7	*	4	DEC	2140	282	3.	782.9	1111.2
2	DEC	0320	83	0.	285.1	1106.8	*	3	DEC	1240	183	360.	858.8	1111.7	*	4	DEC	2200	283	2.	782.9	1111.2
2	DEC	0340	84	0.	296.4	1107.0	*	3	DEC	1300	184	345.	856.6	1111.7	*	4	DEC	2220	284	2.	782.8	1111.2
2	DEC	0400	85	0.	307.9	1107.1	*	3	DEC	1320	185	330.	854.4	1111.7	*	4	DEC	2240	285	2.	782.7	1111.2
2	DEC	0420	86	0.	319.7	1107.3	*	3	DEC	1340	186	316.	852.2	1111.7	*	4	DEC	2300	286	2.	782.7	1111.2
2	DEC	0440	87	0.	331.8	1107.4	*	3	DEC	1400	187	303.	850.3	1111.7	*	4	DEC	2320	287	2.	782.6	1111.2
2	DEC	0500	88	0.	344.2	1107.6	*	3	DEC	1420	188	292.	848.6	1111.7	*	4	DEC	2340	288	2.	782.6	1111.2
2	DEC	0520	89	0.	357.1	1107.8	*	3	DEC	1440	189	282.	847.0	1111.6	*	5	DEC	0000	289	2.	782.5	1111.2
2	DEC	0540	90	0.	370.6	1107.9	*	3	DEC	1500	190	274.	845.6	1111.6	*	5	DEC	0020	290	2.	782.5	1111.2
2	DEC	0600	91	0.	384.8	1108.1	*	3	DEC	1520	191	266.	844.4	1111.6	*	5	DEC	0040	291	2.	782.4	1111.2
2	DEC	0620	92	0.	399.8	1108.2	*	3	DEC	1540	192	259.	843.3	1111.6	*	5	DEC	0100	292	2.	782.3	1111.2
2	DEC	0640	93	0.	415.6	1108.3	*	3	DEC	1600	193	253.	842.3	1111.6	*	5	DEC	0120	293	2.	782.3	1111.2
2	DEC	0700	94	0.	431.9	1108.5	*	3	DEC	1620	194	247.	841.3	1111.6	*	5	DEC	0140	294	2.	782.2	1111.2
2	DEC	0720	95	0.	448.7	1108.6	*	3	DEC	1640	195	242.	840.5	1111.6	*	5	DEC	0200	295	2.	782.2	1111.2
2	DEC	0740	96	0.	465.7	1108.7	*	3	DEC	1700	196	237.	839.7	1111.6	*	5	DEC	0220	296	2.	782.2	1111.2
2	DEC	0800	97	0.	483.2	1108.9	*	3	DEC	1720	197	233.	839.0	1111.6	*	5	DEC	0240	297	2.	782.1	1111.2
2	DEC	0820	98	0.	501.0	1109.0	*	3	DEC	1740	198	229.	838.2	1111.6	*	5	DEC	0300	298	2.	782.1	1111.2
2	DEC	0840	99	0.	519.3	1109.2	*	3	DEC	1800	199	225.	837.5	1111.6	*	5	DEC	0320	299	2.	782.1	1111.2
2	DEC	0900	100	0.	538.0	1109.3	*	3	DEC	1820	200	220.	836.8	1111.6	*	5	DEC	0340	300	1.	782.0	1111.2
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PEAK OUTFLOW IS 8138. AT TIME 37.33 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
8138.	37.33	(CFS)	5432.	2088.	745.	538.
		(INCHES)	8.708	13.388	14.326	14.326
		(AC-FT)	2694.	4141.	4431.	4431.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	99.67-HR
1530.	37.33	1328.	1031.	843.	627.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	99.67-HR
1115.40	37.33	1114.38	1112.72	1111.53	1108.87

CUMULATIVE AREA = 5.80 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CP2-1	6208.	36.67	2075.	753.	296.	1.95		
HYDROGRAPH AT	CP2-2	6210.	36.67	2563.	946.	370.	2.46		
HYDROGRAPH AT	CP2-3	4428.	36.67	1473.	535.	209.	1.39		
3 COMBINED AT	FRS #2	16845.	36.67	6112.	2234.	875.	5.80		
ROUTED TO	ROUTE	8138.	37.33	5432.	2088.	745.	5.80	1115.40	37.33

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION ROUTE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1100.00	1111.20	1117.00
STORAGE	0.	780.	1880.
OUTFLOW	0.	0.	13200.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1115.40	.00	1530.	8138.	.00	37.33	.00

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

BUCKEYE FRS #3

100-YEAR STORM

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*                                       *
*   FLOOD HYDROGRAPH PACKAGE (HEC-1)    *
*          FEBRUARY 1981                *
*         REVISED 01 JUN 88             *
*                                       *
*  RUN DATE  01/19/1990  TIME  08:30:46 *
*                                       *
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*                                       *
*     U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*          (916) 551-1748               *
*                                       *
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

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

  1           ID        DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
  2           ID        OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
  3           ID        STRUCTURE #3 (AZ No. 7-45) **** 100-YEAR STORM **** (REVISED 1-10-90)
              *DIAGRAM
  4           IT       5  1DEC89    0000     300
  5           IO       3

  6           KK   CP3-1  DEVELOP HYDROGRAPH FOR CP3-1
  7           BA    1.42
  8           PH       1              0.7      1.3      2.3      2.7      2.8      3.2      3.7      4.2
  9           LS     0.0       86
 10           UD    0.17

 11           KK  CP3-1R  LAG CP3-1 HYDROGRAPH 15 MIN. TO TRAVEL TO CP3-2 (1 MILE)
 12           RT       0              3

 13           KK   CP3-2  DEVELOP HYDROGRAPH FOR CP3-2
 14           BA    2.38
 15           LS     0.0       87
 16           UD    0.23

 17           KK  CP3-2A  COMBINE HYDROGRAPH CP3-1R AND CP3-2 (= CP3-2A)
 18           HC       2

 19           KK  CP3-2R  MUSKINGUM ROUTING OF CP3-2A HYDROGRAPH 2.5 MILES TO CP3-3 (= CP3-2R)
 20           RM       8    0.75     0.40

 21           KK   CP3-3  DEVELOP HYDROGRAPH FOR CP3-3
 22           BA    2.61
 23           LS     0.0       84
 24           UD    0.48

 25           KK  CP3-3A  COMBINE HYDROGRAPH CP3-2R WITH CP3-3 (= CP3-3A)
 26           HC       2

 27           KK   CP3-4  DEVELOP HYDROGRAPH FOR CP3-4
 28           BA    2.29
 29           LS     0.0       83
 30           UD    0.83

 31           KK  FRS #3  COMBINE HYDROGRAPH CP3-3A WITH CP3-4 (= FRS #3)
 32           KO       1
 33           HC       2

 34           KK   ROUTE  RESERVIOR ROUTING OF FRS #3 USING FRS #3 HYDROGRAPH
 35           KM           RESERVIOR ASSUMED EMPTY
 36           KO       1
 37           RS       1    STOR      0.0
 38           SI    1170   16851     2.70      1.5
 39           SS  1163.2     400     2.50      1.5
 40           SV    0.00       2       20       90      190      350      630      910     1220     1350
 41           SV    1900    2490     3020     3600     4160
 42           SE    1149    1150     1152     1154     1156     1158     1160     1162   1163.2     1164
 43           SE    1166    1168     1170     1172     1174
 44           ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
LINE        (V) ROUTING          (--->) DIVERSION OR PUMP FLOW
 NO.        (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  6          CP3-1
                 V
                 V
 11         CP3-1R
                 .
                 .
 13              .        CP3-2
                 .          .
                 .          .
 17         CP3-2A............
                 V
                 V
 19         CP3-2R
                 .
                 .
 21              .        CP3-3
                 .          .
                 .          .
 25         CP3-3A............
                 .
                 .
 27              .        CP3-4
                 .          .
                 .          .
 31         FRS #3............
                 V
                 V
 34          ROUTE
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*****************************************                    *****************************************
*                                       *                    *                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *    U.S. ARMY CORPS OF ENGINEERS       *
*             FEBRUARY 1981             *                    *  THE HYDROLOGIC ENGINEERING CENTER    *
*            REVISED 01 JUN 88          *                    *          609 SECOND STREET            *
*                                       *                    *       DAVIS, CALIFORNIA 95616         *
*  RUN DATE  01/19/1990  TIME  08:30:46 *                    *           (916) 551-1748              *
*                                       *                    *                                       *
*****************************************                    *****************************************


                                DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
                                OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
                                STRUCTURE #3 (AZ No. 7-45) **** 100-YEAR STORM **** (REVISED 1-10-90)

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

    IT          HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE      10EC89  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2DEC89  ENDING DATE
                     NDTIME        0055  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL      .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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


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


            **************
            *            *
  6 KK      *    CP3-1   *       DEVELOP HYDROGRAPH FOR CP3-1
            *            *
            **************

              SUBBASIN RUNOFF DATA

  7 BA          SUBBASIN CHARACTERISTICS
                      TAREA        1.42  SUBBASIN AREA
```

```
                PRECIPITATION DATA

  8 PH                                  DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                  ..... HYDRO-35 .....   ............... TP-40 ...............   ........... TP-49 ...........
                  5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                   .70    1.30    2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00

                                                  STORM AREA =     1.42

  9 LS            SCS LOSS RATE
                        STRTL          .33  INITIAL ABSTRACTION
                        CRVNBR       86.00  CURVE NUMBER
                        RTIMP          .00  PERCENT IMPERVIOUS AREA

 10 UD            SCS DIMENSIONLESS UNITGRAPH
                        TLAG          .17  LAG

                                                        ***

                                                   UNIT HYDROGRAPH
                                              12 END-OF-PERIOD ORDINATES
                 905.     2983.     3065.     1922.     963.     516.     272.     143.     76.     40.
                  23.       9.

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

                        HYDROGRAPH AT STATION    CP3-1

    TOTAL RAINFALL =    4.19, TOTAL LOSS =    1.47, TOTAL EXCESS =    2.72

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                    6-HR      24-HR      72-HR     24.92-HR
   3058.      12.25        (CFS)      357.       104.       100.        100.
                         (INCHES)    2.330      2.721      2.721       2.721
                          (AC-FT)     177.       206.       206.        206.

                        CUMULATIVE AREA =    1.42 SQ MI

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

            **************
            *            *
 11 KK      *   CP3-1R   *       LAG CP3-1 HYDROGRAPH 15 MIN. TO TRAVEL TO CP3-2 (1 MILE)
            *            *
            **************

               HYDROGRAPH ROUTING DATA

 12 RT            TATUM OR STRADDLE-STAGGER ROUTING
                      NSTPS            0   NUMBER OF TATUM STEPS
                      NSTDL            0   NUMBER OF ORDINATES TO BE AVERAGED
                      LAG              3   NUMBER OF INTERVALS TO LAG HYDROGRAPH

                                                        ***

     ***            ***            ***            ***            ***
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                    HYDROGRAPH AT STATION   CP3-1R

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR      24.92-HR
  3058.      12.50        (CFS)     357.        104.        100.         100.
                        (INCHES)   2.338       2.721       2.721        2.721
                         (AC-FT)    177.        206.        206.         206.

                        CUMULATIVE AREA =    1.42 SQ MI


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

          **************
          *            *
 13 KK    *    CP3-2   *      DEVELOP HYDROGRAPH FOR CP3-2
          *            *
          **************

            SUBBASIN RUNOFF DATA

 14 BA        SUBBASIN CHARACTERISTICS
                   TAREA        2.38  SUBBASIN AREA

              PRECIPITATION DATA

 8 PH                                 DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 ......  ............... TP-40 ...............  ........... TP-49 ...........
              5-MIN  15-MIN  60-MIN    2-HR    3-HR    6-HR   12-HR   24-HR   2-DAY   4-DAY   7-DAY  10-DAY
                .70    1.30    2.30    2.70    2.80    3.20    3.70    4.20     .00     .00     .00     .00

                                                STORM AREA =    2.38

 15 LS        SCS LOSS RATE
                   STRTL         .30  INITIAL ABSTRACTION
                   CRVNBR      87.00  CURVE NUMBER
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 16 UD        SCS DIMENSIONLESS UNITGRAPH
                   TLAG          .23  LAG

                                                    ***

                                                UNIT HYDROGRAPH
                                            16 END-OF-PERIOD ORDINATES
              838.     2884.     4197.     3855.     2706.     1547.      957.      576.      351.      211.
              129.       79.       48.       32.       17.        4.

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

                    HYDROGRAPH AT STATION    CP3-2

   TOTAL RAINFALL =    4.19, TOTAL LOSS =    1.38, TOTAL EXCESS =    2.81

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR      24.92-HR
```

```
4589.     12.25        (CFS)      615.       180.       173.       173.
                     (INCHES)    2.403      2.808      2.808      2.808
                      (AC-FT)     305.       356.       356.       356.

                CUMULATIVE AREA =    2.38 SQ MI

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

          **************
          *            *
17 KK     *   CP3-2A   *      COMBINE HYDROGRAPH CP3-1R AND CP3-2 (= CP3-2A)
          *            *
          **************

10 HC          HYDROGRAPH COMBINATION
                    ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE

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

                HYDROGRAPH AT STATION   CP3-2A

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR      72-HR     24.92-HR
  6721.      12.42        (CFS)     972.       284.       273.       273.
                      (INCHES)    2.377      2.776      2.776      2.776
                       (AC-FT)     482.       563.       563.       563.

                CUMULATIVE AREA =    3.80 SQ MI

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

          **************
          *            *
19 KK     *   CP3-2R   *      MUSKINGUM ROUTING OF CP3-2A HYDROGRAPH 2.5 MILES TO CP3-3 (= CP3-2R)
          *            *
          **************

          HYDROGRAPH ROUTING DATA

20 RM          MUSKINGUM ROUTING
                    NSTPS            0 NUMBER OF SUBREACHES
                    AMSKK          .75 MUSKINGUM K
                        X          .40 MUSKINGUM X

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

                HYDROGRAPH AT STATION   CP3-2R
```

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
5973.	13.17	(CFS)	971.	283.	273.	273.
		(INCHES)	2.376	2.769	2.769	2.769
		(AC-FT)	481.	561.	561.	561.

CUMULATIVE AREA = 3.80 SQ MI

*** ***

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              **************
              *            *
21 KK         *   CP3-3    *      DEVELOP HYDROGRAPH FOR CP3-3
              *            *
              **************
```

SUBBASIN RUNOFF DATA

22 BA SUBBASIN CHARACTERISTICS

TAREA 2.61 SUBBASIN AREA

PRECIPITATION DATA

8 PH DEPTHS FOR 1-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
.70	1.30	2.30	2.70	2.80	3.20	3.70	4.20	.00	.00	.00	.00

STORM AREA = 2.61

23 LS SCS LOSS RATE

STRTL .30 INITIAL ABSTRACTION

CRVNBR 84.00 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

24 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .48 LAG

***

UNIT HYDROGRAPH
31 END-OF-PERIOD ORDINATES

174.	516.	1056.	1746.	2245.	2407.	2367.	2116.	1794.	1361.
1015.	777.	609.	474.	358.	280.	217.	166.	127.	98.
76.	59.	45.	35.	27.	22.	18.	13.	9.	5.
1.									

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

HYDROGRAPH AT STATION CP3-3

TOTAL RAINFALL = 4.19, TOTAL LOSS = 1.65, TOTAL EXCESS = 2.54

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
3098.	12.50	(CFS)	612.	178.	171.	171.

```
                    (INCHES)      2.100        2.534        2.534        2.534
                     (AC-FT)       303.         353.         353.         353.

                    CUMULATIVE AREA =     2.61 SQ MI


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

            **************
            *            *
  25 KK     *   CP3-3A   *      COMBINE HYDROGRAPH CP3-2R WITH CP3-3 (= CP3-3A)
            *            *
            **************

  26 HC          HYDROGRAPH COMBINATION
                    ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

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

                    HYDROGRAPH AT STATION   CP3-3A

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR       24-HR       72-HR     24.92-HR
   7374.      13.08       (CFS)     1580.        461.        444.        444.
                       (INCHES)    2.291       2.673       2.673       2.673
                        (AC-FT)     783.        914.        914.        914.

                    CUMULATIVE AREA =     6.41 SQ MI


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

            **************
            *            *
  27 KK     *   CP3-4    *      DEVELOP HYDROGRAPH FOR CP3-4
            *            *
            **************

             SUBBASIN RUNOFF DATA

  28 BA          SUBBASIN CHARACTERISTICS
                    TAREA         2.29  SUBBASIN AREA

                 PRECIPITATION DATA

   8 PH                                DEPTHS FOR   1-PERCENT HYPOTHETICAL STORM
                 ..... HYDRO-35 .....  ............... TP-40 ...............  ........... TP-49 ...........
                 5-MIN  15-MIN  60-MIN    2-HR     3-HR     6-HR    12-HR    24-HR    2-DAY    4-DAY    7-DAY   10-DAY
                  .70    1.30    2.30    2.70     2.80     3.20     3.70     4.20      .00      .00      .00      .00

                                                STORM AREA =     2.29
```

```
29 LS          SCS LOSS RATE
                    STRTL          .41  INITIAL ABSTRACTION
                   CRVNBR        83.00  CURVE NUMBER
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

30 UD          SCS DIMENSIONLESS UNITGRAPH
                    TLAG          .83  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                          52 END-OF-PERIOD ORDINATES
              36.     119.     226.     367.     552.     775.     979.    1132.    1228.    1265.
            1264.    1222.    1144.    1054.     948.     819.     679.     566.     483.     412.
             352.     308.     264.     227.     191.     165.     141.     121.     103.      88.
              75.      64.      55.      47.      41.      35.      30.      25.      22.      18.
              16.      14.      12.      11.       9.       8.       6.       5.       4.       3.
               2.       0.

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

                    HYDROGRAPH AT STATION    CP3-4

  TOTAL RAINFALL =    4.19, TOTAL LOSS =    1.74, TOTAL EXCESS =    2.45

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR      24-HR      72-HR    24.92-HR
   1840.     12.92          (CFS)    517.       150.       145.       145.
                         (INCHES)   2.099      2.441      2.441      2.441
                          (AC-FT)    256.       298.       298.       298.

                    CUMULATIVE AREA =    2.29 SQ MI


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


            **************
            *            *
31 KK       *    FRS #3  *       COMBINE HYDROGRAPH CP3-3A WITH CP3-4 (= FRS #3)
            *            *
            **************

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

33 HC          HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

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

                    HYDROGRAPH AT STATION    FRS #3
                         SUM OF   2 HYDROGRAPHS
```

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1	DEC	0000	1	0.	1	DEC	0615	76	0.	1	DEC	1230	151	4962.	1	DEC	1845	226	324.
1	DEC	0005	2	0.	1	DEC	0620	77	0.	1	DEC	1235	152	5489.	1	DEC	1850	227	318.
1	DEC	0010	3	0.	1	DEC	0625	78	0.	1	DEC	1240	153	5964.	1	DEC	1855	228	311.
1	DEC	0015	4	0.	1	DEC	0630	79	0.	1	DEC	1245	154	6555.	1	DEC	1900	229	304.
1	DEC	0020	5	0.	1	DEC	0635	80	0.	1	DEC	1250	155	7311.	1	DEC	1905	230	297.
1	DEC	0025	6	0.	1	DEC	0640	81	0.	1	DEC	1255	156	8138.	1	DEC	1910	231	290.
1	DEC	0030	7	0.	1	DEC	0645	82	0.	1	DEC	1300	157	8819.	1	DEC	1915	232	283.
1	DEC	0035	8	0.	1	DEC	0650	83	0.	1	DEC	1305	158	9147.	1	DEC	1920	233	278.
1	DEC	0040	9	0.	1	DEC	0655	84	0.	1	DEC	1310	159	8924.	1	DEC	1925	234	273.
1	DEC	0045	10	0.	1	DEC	0700	85	0.	1	DEC	1315	160	8149.	1	DEC	1930	235	269.
1	DEC	0050	11	0.	1	DEC	0705	86	0.	1	DEC	1320	161	7039.	1	DEC	1935	236	266.
1	DEC	0055	12	0.	1	DEC	0710	87	0.	1	DEC	1325	162	5861.	1	DEC	1940	237	263.
1	DEC	0100	13	0.	1	DEC	0715	88	0.	1	DEC	1330	163	4798.	1	DEC	1945	238	260.
1	DEC	0105	14	0.	1	DEC	0720	89	0.	1	DEC	1335	164	3917.	1	DEC	1950	239	257.
1	DEC	0110	15	0.	1	DEC	0725	90	0.	1	DEC	1340	165	3218.	1	DEC	1955	240	254.
1	DEC	0115	16	0.	1	DEC	0730	91	0.	1	DEC	1345	166	2677.	1	DEC	2000	241	251.
1	DEC	0120	17	0.	1	DEC	0735	92	0.	1	DEC	1350	167	2260.	1	DEC	2005	242	249.
1	DEC	0125	18	0.	1	DEC	0740	93	0.	1	DEC	1355	168	1928.	1	DEC	2010	243	246.
1	DEC	0130	19	0.	1	DEC	0745	94	1.	1	DEC	1400	169	1655.	1	DEC	2015	244	244.
1	DEC	0135	20	0.	1	DEC	0750	95	1.	1	DEC	1405	170	1426.	1	DEC	2020	245	242.
1	DEC	0140	21	0.	1	DEC	0755	96	2.	1	DEC	1410	171	1238.	1	DEC	2025	246	239.
1	DEC	0145	22	0.	1	DEC	0800	97	3.	1	DEC	1415	172	1089.	1	DEC	2030	247	237.
1	DEC	0150	23	0.	1	DEC	0805	98	4.	1	DEC	1420	173	981.	1	DEC	2035	248	235.
1	DEC	0155	24	0.	1	DEC	0810	99	5.	1	DEC	1425	174	908.	1	DEC	2040	249	233.
1	DEC	0200	25	0.	1	DEC	0815	100	7.	1	DEC	1430	175	863.	1	DEC	2045	250	231.
1	DEC	0205	26	0.	1	DEC	0820	101	9.	1	DEC	1435	176	836.	1	DEC	2050	251	229.
1	DEC	0210	27	0.	1	DEC	0825	102	11.	1	DEC	1440	177	820.	1	DEC	2055	252	227.
1	DEC	0215	28	0.	1	DEC	0830	103	13.	1	DEC	1445	178	806.	1	DEC	2100	253	225.
1	DEC	0220	29	0.	1	DEC	0835	104	16.	1	DEC	1450	179	789.	1	DEC	2105	254	223.
1	DEC	0225	30	0.	1	DEC	0840	105	19.	1	DEC	1455	180	769.	1	DEC	2110	255	221.
1	DEC	0230	31	0.	1	DEC	0845	106	22.	1	DEC	1500	181	746.	1	DEC	2115	256	219.
1	DEC	0235	32	0.	1	DEC	0850	107	25.	1	DEC	1505	182	723.	1	DEC	2120	257	218.
1	DEC	0240	33	0.	1	DEC	0855	108	29.	1	DEC	1510	183	700.	1	DEC	2125	258	216.
1	DEC	0245	34	0.	1	DEC	0900	109	33.	1	DEC	1515	184	678.	1	DEC	2130	259	214.
1	DEC	0250	35	0.	1	DEC	0905	110	37.	1	DEC	1520	185	658.	1	DEC	2135	260	213.
1	DEC	0255	36	0.	1	DEC	0910	111	41.	1	DEC	1525	186	640.	1	DEC	2140	261	211.
1	DEC	0300	37	0.	1	DEC	0915	112	46.	1	DEC	1530	187	623.	1	DEC	2145	262	209.
1	DEC	0305	38	0.	1	DEC	0920	113	50.	1	DEC	1535	188	607.	1	DEC	2150	263	208.
1	DEC	0310	39	0.	1	DEC	0925	114	55.	1	DEC	1540	189	593.	1	DEC	2155	264	206.
1	DEC	0315	40	0.	1	DEC	0930	115	60.	1	DEC	1545	190	579.	1	DEC	2200	265	205.
1	DEC	0320	41	0.	1	DEC	0935	116	65.	1	DEC	1550	191	567.	1	DEC	2205	266	203.
1	DEC	0325	42	0.	1	DEC	0940	117	71.	1	DEC	1555	192	555.	1	DEC	2210	267	202.
1	DEC	0330	43	0.	1	DEC	0945	118	76.	1	DEC	1600	193	545.	1	DEC	2215	268	200.
1	DEC	0335	44	0.	1	DEC	0950	119	82.	1	DEC	1605	194	536.	1	DEC	2220	269	199.
1	DEC	0340	45	0.	1	DEC	0955	120	88.	1	DEC	1610	195	528.	1	DEC	2225	270	197.
1	DEC	0345	46	0.	1	DEC	1000	121	94.	1	DEC	1615	196	519.	1	DEC	2230	271	196.
1	DEC	0350	47	0.	1	DEC	1005	122	101.	1	DEC	1620	197	510.	1	DEC	2235	272	195.
1	DEC	0355	48	0.	1	DEC	1010	123	108.	1	DEC	1625	198	502.	1	DEC	2240	273	193.
1	DEC	0400	49	0.	1	DEC	1015	124	115.	1	DEC	1630	199	493.	1	DEC	2245	274	192.
1	DEC	0405	50	0.	1	DEC	1020	125	123.	1	DEC	1635	200	484.	1	DEC	2250	275	191.
1	DEC	0410	51	0.	1	DEC	1025	126	131.	1	DEC	1640	201	476.	1	DEC	2255	276	189.
1	DEC	0415	52	0.	1	DEC	1030	127	141.	1	DEC	1645	202	468.	1	DEC	2300	277	188.
1	DEC	0420	53	0.	1	DEC	1035	128	150.	1	DEC	1650	203	460.	1	DEC	2305	278	187.
1	DEC	0425	54	0.	1	DEC	1040	129	159.	1	DEC	1655	204	453.	1	DEC	2310	279	186.
1	DEC	0430	55	0.	1	DEC	1045	130	168.	1	DEC	1700	205	446.	1	DEC	2315	280	184.
1	DEC	0435	56	0.	1	DEC	1050	131	176.	1	DEC	1705	206	438.	1	DEC	2320	281	183.

1	DEC	0440	57	0.	*	1	DEC	1055	132	183.	*	1	DEC	1710	207	432.	*	1	DEC	2325	282	182.
1	DEC	0445	58	0.	*	1	DEC	1100	133	189.	*	1	DEC	1715	208	425.	*	1	DEC	2330	283	181.
1	DEC	0450	59	0.	*	1	DEC	1105	134	197.	*	1	DEC	1720	209	419.	*	1	DEC	2335	284	180.
1	DEC	0455	60	0.	*	1	DEC	1110	135	207.	*	1	DEC	1725	210	413.	*	1	DEC	2340	285	179.
1	DEC	0500	61	0.	*	1	DEC	1115	136	221.	*	1	DEC	1730	211	407.	*	1	DEC	2345	286	177.
1	DEC	0505	62	0.	*	1	DEC	1120	137	239.	*	1	DEC	1735	212	401.	*	1	DEC	2350	287	176.
1	DEC	0510	63	0.	*	1	DEC	1125	138	260.	*	1	DEC	1740	213	396.	*	1	DEC	2355	288	175.
1	DEC	0515	64	0.	*	1	DEC	1130	139	284.	*	1	DEC	1745	214	390.	*	2	DEC	0000	289	174.
1	DEC	0520	65	0.	*	1	DEC	1135	140	315.	*	1	DEC	1750	215	385.	*	2	DEC	0005	290	173.
1	DEC	0525	66	0.	*	1	DEC	1140	141	357.	*	1	DEC	1755	216	380.	*	2	DEC	0010	291	170.
1	DEC	0530	67	0.	*	1	DEC	1145	142	420.	*	1	DEC	1800	217	375.	*	2	DEC	0015	292	166.
1	DEC	0535	68	0.	*	1	DEC	1150	143	519.	*	1	DEC	1805	218	370.	*	2	DEC	0020	293	160.
1	DEC	0540	69	0.	*	1	DEC	1155	144	668.	*	1	DEC	1810	219	365.	*	2	DEC	0025	294	152.
1	DEC	0545	70	0.	*	1	DEC	1200	145	902.	*	1	DEC	1815	220	360.	*	2	DEC	0030	295	144.
1	DEC	0550	71	0.	*	1	DEC	1205	146	1307.	*	1	DEC	1820	221	354.	*	2	DEC	0035	296	135.
1	DEC	0555	72	0.	*	1	DEC	1210	147	1896.	*	1	DEC	1825	222	348.	*	2	DEC	0040	297	126.
1	DEC	0600	73	0.	*	1	DEC	1215	148	2656.	*	1	DEC	1830	223	342.	*	2	DEC	0045	298	117.
1	DEC	0605	74	0.	*	1	DEC	1220	149	3517.	*	1	DEC	1835	224	336.	*	2	DEC	0050	299	106.
1	DEC	0610	75	0.	*	1	DEC	1225	150	4312.	*	1	DEC	1840	225	330.	*	2	DEC	0055	300	94.
					*						*						*					

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
9147.	13.08	(CFS)	2096.	611.	589.	589.
		(INCHES)	2.240	2.612	2.612	2.612
		(AC-FT)	1040.	1212.	1212.	1212.

CUMULATIVE AREA = 8.70 SQ MI

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              *            *
34 KK         *   ROUTE    *      RESERVIOR ROUTING OF FRS #3 USING FRS #3 HYDROGRAPH
              *            *
              **************
                                   RESERVIOR ASSUMED EMPTY

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

                   HYDROGRAPH ROUTING DATA

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

40 SV              STORAGE          .0       2.0      20.0      90.0     190.0     350.0     630.0     910.0    1220.0    1350.0
                                 1900.0    2490.0    3020.0    3600.0    4160.0

42 SE              ELEVATION     1149.00   1150.00   1152.00   1154.00   1156.00   1158.00   1160.00   1162.00   1163.20   1164.00
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1166.00 1168.00 1170.00 1172.00 1174.00

39 SS SPILLWAY

CREL	1163.20	SPILLWAY CREST ELEVATION
SPWID	400.00	SPILLWAY WIDTH
COQW	2.50	WEIR COEFFICIENT
EXPW	1.50	EXPONENT OF HEAD

38 ST TOP OF DAM

TOPEL	1170.00	ELEVATION AT TOP OF DAM
DAMWID	16851.00	DAM WIDTH
COQD	2.70	WEIR COEFFICIENT
EXPD	1.50	EXPONENT OF HEAD

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COMPUTED OUTFLOW-ELEVATION DATA

(EXCLUDING FLOW OVER DAM)

OUTFLOW	.00	.00	6.08	48.67	164.36	389.48	760.78	1314.45	2087.37	3115.86
ELEVATION	1149.00	1163.20	1163.23	1163.33	1163.50	1163.73	1164.03	1164.40	1164.83	1165.33
OUTFLOW	4436.73	6085.92	8100.18	10516.43	13370.40	16699.42	20539.60	24927.43	29899.98	35492.66
ELEVATION	1165.90	1166.53	1167.23	1168.00	1168.83	1169.73	1170.70	1171.73	1172.83	1174.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

(INCLUDING FLOW OVER DAM)

STORAGE	.00	2.00	20.00	90.00	190.00	350.00	630.00	910.00	1220.00	1225.42
OUTFLOW	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.08
ELEVATION	1149.00	1150.00	1152.00	1154.00	1156.00	1158.00	1160.00	1162.00	1163.20	1163.23
STORAGE	1241.66	1268.76	1306.66	1350.00	1359.16	1459.97	1579.14	1716.64	1872.51	1900.00
OUTFLOW	48.67	164.36	389.48	715.61	760.78	1314.45	2087.37	3115.86	4436.73	4685.42
ELEVATION	1163.33	1163.50	1163.73	1164.00	1164.03	1164.40	1164.83	1165.33	1165.90	1166.00
STORAGE	2057.33	2263.82	2490.00	2710.81	2949.32	3020.00	3222.99	3522.65	3600.00	3833.34
OUTFLOW	6085.92	8100.18	10516.43	13370.40	16699.42	17732.42	47183.08	128749.80	154792.20	246892.80
ELEVATION	1166.53	1167.23	1168.00	1168.83	1169.73	1170.00	1170.70	1171.73	1172.00	1172.83
STORAGE	4160.00									
OUTFLOW	399474.30									
ELEVATION	1174.00									

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HYDROGRAPH AT STATION ROUTE

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	DEC	0000	1	0.	.0	1149.0	*	1	DEC	0820	101	0.	.2	1149.1	*	1	DEC	1640	201	0.	1035.1	1162.5
1	DEC	0005	2	0.	.0	1149.0	*	1	DEC	0825	102	0.	.3	1149.1	*	1	DEC	1645	202	0.	1038.4	1162.5
1	DEC	0010	3	0.	.0	1149.0	*	1	DEC	0830	103	0.	.3	1149.2	*	1	DEC	1650	203	0.	1041.6	1162.5
1	DEC	0015	4	0.	.0	1149.0	*	1	DEC	0835	104	0.	.4	1149.2	*	1	DEC	1655	204	0.	1044.7	1162.5
1	DEC	0020	5	0.	.0	1149.0	*	1	DEC	0840	105	0.	.6	1149.3	*	1	DEC	1700	205	0.	1047.8	1162.5

1	DEC	0025	6	0.	.0	1149.0	*	1	DEC	0845	106	0.	.7	1149.4	*	1	DEC	1705	206	0.	1050.9	1162.5
1	DEC	0030	7	0.	.0	1149.0	*	1	DEC	0850	107	0.	.9	1149.4	*	1	DEC	1710	207	0.	1053.9	1162.6
1	DEC	0035	8	0.	.0	1149.0	*	1	DEC	0855	108	0.	1.1	1149.5	*	1	DEC	1715	208	0.	1056.8	1162.6
1	DEC	0040	9	0.	.0	1149.0	*	1	DEC	0900	109	0.	1.3	1149.6	*	1	DEC	1720	209	0.	1059.7	1162.6
1	DEC	0045	10	0.	.0	1149.0	*	1	DEC	0905	110	0.	1.5	1149.8	*	1	DEC	1725	210	0.	1062.6	1162.6
1	DEC	0050	11	0.	.0	1149.0	*	1	DEC	0910	111	0.	1.8	1149.9	*	1	DEC	1730	211	0.	1065.4	1162.6
1	DEC	0055	12	0.	.0	1149.0	*	1	DEC	0915	112	0.	2.1	1150.0	*	1	DEC	1735	212	0.	1068.2	1162.6
1	DEC	0100	13	0.	.0	1149.0	*	1	DEC	0920	113	0.	2.4	1150.0	*	1	DEC	1740	213	0.	1070.9	1162.6
1	DEC	0105	14	0.	.0	1149.0	*	1	DEC	0925	114	0.	2.8	1150.1	*	1	DEC	1745	214	0.	1073.6	1162.6
1	DEC	0110	15	0.	.0	1149.0	*	1	DEC	0930	115	0.	3.2	1150.1	*	1	DEC	1750	215	0.	1076.3	1162.6
1	DEC	0115	16	0.	.0	1149.0	*	1	DEC	0935	116	0.	3.6	1150.2	*	1	DEC	1755	216	0.	1078.9	1162.7
1	DEC	0120	17	0.	.0	1149.0	*	1	DEC	0940	117	0.	4.1	1150.2	*	1	DEC	1800	217	0.	1081.5	1162.7
1	DEC	0125	18	0.	.0	1149.0	*	1	DEC	0945	118	0.	4.6	1150.3	*	1	DEC	1805	218	0.	1084.1	1162.7
1	DEC	0130	19	0.	.0	1149.0	*	1	DEC	0950	119	0.	5.1	1150.3	*	1	DEC	1810	219	0.	1086.6	1162.7
1	DEC	0135	20	0.	.0	1149.0	*	1	DEC	0955	120	0.	5.7	1150.4	*	1	DEC	1815	220	0.	1089.1	1162.7
1	DEC	0140	21	0.	.0	1149.0	*	1	DEC	1000	121	0.	6.3	1150.5	*	1	DEC	1820	221	0.	1091.6	1162.7
1	DEC	0145	22	0.	.0	1149.0	*	1	DEC	1005	122	0.	7.0	1150.6	*	1	DEC	1825	222	0.	1094.0	1162.7
1	DEC	0150	23	0.	.0	1149.0	*	1	DEC	1010	123	0.	7.7	1150.6	*	1	DEC	1830	223	0.	1096.3	1162.7
1	DEC	0155	24	0.	.0	1149.0	*	1	DEC	1015	124	0.	8.5	1150.7	*	1	DEC	1835	224	0.	1098.7	1162.7
1	DEC	0200	25	0.	.0	1149.0	*	1	DEC	1020	125	0.	9.3	1150.8	*	1	DEC	1840	225	0.	1101.0	1162.7
1	DEC	0205	26	0.	.0	1149.0	*	1	DEC	1025	126	0.	10.2	1150.9	*	1	DEC	1845	226	0.	1103.2	1162.7
1	DEC	0210	27	0.	.0	1149.0	*	1	DEC	1030	127	0.	11.1	1151.0	*	1	DEC	1850	227	0.	1105.4	1162.8
1	DEC	0215	28	0.	.0	1149.0	*	1	DEC	1035	128	0.	12.1	1151.1	*	1	DEC	1855	228	0.	1107.6	1162.8
1	DEC	0220	29	0.	.0	1149.0	*	1	DEC	1040	129	0.	13.2	1151.2	*	1	DEC	1900	229	0.	1109.7	1162.8
1	DEC	0225	30	0.	.0	1149.0	*	1	DEC	1045	130	0.	14.3	1151.4	*	1	DEC	1905	230	0.	1111.8	1162.8
1	DEC	0230	31	0.	.0	1149.0	*	1	DEC	1050	131	0.	15.5	1151.5	*	1	DEC	1910	231	0.	1113.8	1162.8
1	DEC	0235	32	0.	.0	1149.0	*	1	DEC	1055	132	0.	16.7	1151.6	*	1	DEC	1915	232	0.	1115.8	1162.8
1	DEC	0240	33	0.	.0	1149.0	*	1	DEC	1100	133	0.	18.0	1151.8	*	1	DEC	1920	233	0.	1117.7	1162.8
1	DEC	0245	34	0.	.0	1149.0	*	1	DEC	1105	134	0.	19.3	1151.9	*	1	DEC	1925	234	0.	1119.6	1162.8
1	DEC	0250	35	0.	.0	1149.0	*	1	DEC	1110	135	0.	20.7	1152.0	*	1	DEC	1930	235	0.	1121.5	1162.8
1	DEC	0255	36	0.	.0	1149.0	*	1	DEC	1115	136	0.	22.2	1152.1	*	1	DEC	1935	236	0.	1123.3	1162.8
1	DEC	0300	37	0.	.0	1149.0	*	1	DEC	1120	137	0.	23.8	1152.1	*	1	DEC	1940	237	0.	1125.1	1162.8
1	DEC	0305	38	0.	.0	1149.0	*	1	DEC	1125	138	0.	25.5	1152.2	*	1	DEC	1945	238	0.	1126.9	1162.8
1	DEC	0310	39	0.	.0	1149.0	*	1	DEC	1130	139	0.	27.4	1152.2	*	1	DEC	1950	239	0.	1128.7	1162.8
1	DEC	0315	40	0.	.0	1149.0	*	1	DEC	1135	140	0.	29.4	1152.3	*	1	DEC	1955	240	0.	1130.5	1162.9
1	DEC	0320	41	0.	.0	1149.0	*	1	DEC	1140	141	0.	31.7	1152.3	*	1	DEC	2000	241	0.	1132.2	1162.9
1	DEC	0325	42	0.	.0	1149.0	*	1	DEC	1145	142	0.	34.4	1152.4	*	1	DEC	2005	242	0.	1133.9	1162.9
1	DEC	0330	43	0.	.0	1149.0	*	1	DEC	1150	143	0.	37.7	1152.5	*	1	DEC	2010	243	0.	1135.6	1162.9
1	DEC	0335	44	0.	.0	1149.0	*	1	DEC	1155	144	0.	41.7	1152.6	*	1	DEC	2015	244	0.	1137.3	1162.9
1	DEC	0340	45	0.	.0	1149.0	*	1	DEC	1200	145	0.	47.2	1152.8	*	1	DEC	2020	245	0.	1139.0	1162.9
1	DEC	0345	46	0.	.0	1149.0	*	1	DEC	1205	146	0.	54.8	1153.0	*	1	DEC	2025	246	0.	1140.7	1162.9
1	DEC	0350	47	0.	.0	1149.0	*	1	DEC	1210	147	0.	65.8	1153.3	*	1	DEC	2030	247	0.	1142.3	1162.9
1	DEC	0355	48	0.	.0	1149.0	*	1	DEC	1215	148	0.	81.5	1153.8	*	1	DEC	2035	248	0.	1144.0	1162.9
1	DEC	0400	49	0.	.0	1149.0	*	1	DEC	1220	149	0.	102.7	1154.3	*	1	DEC	2040	249	0.	1145.6	1162.9
1	DEC	0405	50	0.	.0	1149.0	*	1	DEC	1225	150	0.	129.7	1154.8	*	1	DEC	2045	250	0.	1147.2	1162.9
1	DEC	0410	51	0.	.0	1149.0	*	1	DEC	1230	151	0.	161.6	1155.4	*	1	DEC	2050	251	0.	1148.8	1162.9
1	DEC	0415	52	0.	.0	1149.0	*	1	DEC	1235	152	0.	197.6	1156.1	*	1	DEC	2055	252	0.	1150.3	1162.9
1	DEC	0420	53	0.	.0	1149.0	*	1	DEC	1240	153	0.	237.0	1156.6	*	1	DEC	2100	253	0.	1151.9	1162.9
1	DEC	0425	54	0.	.0	1149.0	*	1	DEC	1245	154	0.	280.1	1157.1	*	1	DEC	2105	254	0.	1153.4	1162.9
1	DEC	0430	55	0.	.0	1149.0	*	1	DEC	1250	155	0.	327.9	1157.7	*	1	DEC	2110	255	0.	1155.0	1162.9
1	DEC	0435	56	0.	.0	1149.0	*	1	DEC	1255	156	0.	381.0	1158.2	*	1	DEC	2115	256	0.	1156.5	1163.0
1	DEC	0440	57	0.	.0	1149.0	*	1	DEC	1300	157	0.	439.4	1158.6	*	1	DEC	2120	257	0.	1158.0	1163.0
1	DEC	0445	58	0.	.0	1149.0	*	1	DEC	1305	158	0.	501.3	1159.1	*	1	DEC	2125	258	0.	1159.5	1163.0
1	DEC	0450	59	0.	.0	1149.0	*	1	DEC	1310	159	0.	563.5	1159.5	*	1	DEC	2130	259	0.	1161.0	1163.0
1	DEC	0455	60	0.	.0	1149.0	*	1	DEC	1315	160	0.	622.3	1159.9	*	1	DEC	2135	260	0.	1162.4	1163.0
1	DEC	0500	61	0.	.0	1149.0	*	1	DEC	1320	161	0.	674.6	1160.3	*	1	DEC	2140	261	0.	1163.9	1163.0
1	DEC	0505	62	0.	.0	1149.0	*	1	DEC	1325	162	0.	719.0	1160.6	*	1	DEC	2145	262	0.	1165.3	1163.0
1	DEC	0510	63	0.	.0	1149.0	*	1	DEC	1330	163	0.	755.7	1160.9	*	1	DEC	2150	263	0.	1166.8	1163.0
1	DEC	0515	64	0.	.0	1149.0	*	1	DEC	1335	164	0.	785.7	1161.1	*	1	DEC	2155	264	0.	1168.2	1163.0
1	DEC	0520	65	0.	.0	1149.0	*	1	DEC	1340	165	0.	810.3	1161.3	*	1	DEC	2200	265	0.	1169.6	1163.0

1	DEC	0525	66	0.	.0	1149.0	*	1	DEC	1345	166	0.	830.6	1161.4	*	1	DEC	2205	266	0.	1171.1	1163.0
1	DEC	0530	67	0.	.0	1149.0	*	1	DEC	1350	167	0.	847.6	1161.6	*	1	DEC	2210	267	0.	1172.4	1163.0
1	DEC	0535	68	0.	.0	1149.0	*	1	DEC	1355	168	0.	862.0	1161.7	*	1	DEC	2215	268	0.	1173.8	1163.0
1	DEC	0540	69	0.	.0	1149.0	*	1	DEC	1400	169	0.	874.3	1161.7	*	1	DEC	2220	269	0.	1175.2	1163.0
1	DEC	0545	70	0.	.0	1149.0	*	1	DEC	1405	170	0.	884.9	1161.8	*	1	DEC	2225	270	0.	1176.6	1163.0
1	DEC	0550	71	0.	.0	1149.0	*	1	DEC	1410	171	0.	894.0	1161.9	*	1	DEC	2230	271	0.	1177.9	1163.0
1	DEC	0555	72	0.	.0	1149.0	*	1	DEC	1415	172	0.	902.0	1161.9	*	1	DEC	2235	272	0.	1179.3	1163.0
1	DEC	0600	73	0.	.0	1149.0	*	1	DEC	1420	173	0.	909.1	1162.0	*	1	DEC	2240	273	0.	1180.6	1163.0
1	DEC	0605	74	0.	.0	1149.0	*	1	DEC	1425	174	0.	915.6	1162.0	*	1	DEC	2245	274	0.	1181.9	1163.1
1	DEC	0610	75	0.	.0	1149.0	*	1	DEC	1430	175	0.	921.7	1162.0	*	1	DEC	2250	275	0.	1183.3	1163.1
1	DEC	0615	76	0.	.0	1149.0	*	1	DEC	1435	176	0.	927.6	1162.1	*	1	DEC	2255	276	0.	1184.6	1163.1
1	DEC	0620	77	0.	.0	1149.0	*	1	DEC	1440	177	0.	933.3	1162.1	*	1	DEC	2300	277	0.	1185.8	1163.1
1	DEC	0625	78	0.	.0	1149.0	*	1	DEC	1445	178	0.	938.9	1162.1	*	1	DEC	2305	278	0.	1187.1	1163.1
1	DEC	0630	79	0.	.0	1149.0	*	1	DEC	1450	179	0.	944.4	1162.1	*	1	DEC	2310	279	0.	1188.4	1163.1
1	DEC	0635	80	0.	.0	1149.0	*	1	DEC	1455	180	0.	949.7	1162.2	*	1	DEC	2315	280	0.	1189.7	1163.1
1	DEC	0640	81	0.	.0	1149.0	*	1	DEC	1500	181	0.	954.9	1162.2	*	1	DEC	2320	281	0.	1191.0	1163.1
1	DEC	0645	82	0.	.0	1149.0	*	1	DEC	1505	182	0.	960.0	1162.2	*	1	DEC	2325	282	0.	1192.2	1163.1
1	DEC	0650	83	0.	.0	1149.0	*	1	DEC	1510	183	0.	964.9	1162.2	*	1	DEC	2330	283	0.	1193.5	1163.1
1	DEC	0655	84	0.	.0	1149.0	*	1	DEC	1515	184	0.	969.6	1162.2	*	1	DEC	2335	284	0.	1194.7	1163.1
1	DEC	0700	85	0.	.0	1149.0	*	1	DEC	1520	185	0.	974.2	1162.2	*	1	DEC	2340	285	0.	1195.9	1163.1
1	DEC	0705	86	0.	.0	1149.0	*	1	DEC	1525	186	0.	978.7	1162.3	*	1	DEC	2345	286	0.	1197.2	1163.1
1	DEC	0710	87	0.	.0	1149.0	*	1	DEC	1530	187	0.	983.0	1162.3	*	1	DEC	2350	287	0.	1198.4	1163.1
1	DEC	0715	88	0.	.0	1149.0	*	1	DEC	1535	188	0.	987.3	1162.3	*	1	DEC	2355	288	0.	1199.6	1163.1
1	DEC	0720	89	0.	.0	1149.0	*	1	DEC	1540	189	0.	991.4	1162.3	*	2	DEC	0000	289	0.	1200.8	1163.1
1	DEC	0725	90	0.	.0	1149.0	*	1	DEC	1545	190	0.	995.4	1162.3	*	2	DEC	0005	290	0.	1202.0	1163.1
1	DEC	0730	91	0.	.0	1149.0	*	1	DEC	1550	191	0.	999.4	1162.3	*	2	DEC	0010	291	0.	1203.2	1163.1
1	DEC	0735	92	0.	.0	1149.0	*	1	DEC	1555	192	0.	1003.3	1162.4	*	2	DEC	0015	292	0.	1204.3	1163.1
1	DEC	0740	93	0.	.0	1149.0	*	1	DEC	1600	193	0.	1007.0	1162.4	*	2	DEC	0020	293	0.	1205.5	1163.1
1	DEC	0745	94	0.	.0	1149.0	*	1	DEC	1605	194	0.	1010.8	1162.4	*	2	DEC	0025	294	0.	1206.5	1163.1
1	DEC	0750	95	0.	.0	1149.0	*	1	DEC	1610	195	0.	1014.4	1162.4	*	2	DEC	0030	295	0.	1207.5	1163.2
1	DEC	0755	96	0.	.0	1149.0	*	1	DEC	1615	196	0.	1018.0	1162.4	*	2	DEC	0035	296	0.	1208.5	1163.2
1	DEC	0800	97	0.	.0	1149.0	*	1	DEC	1620	197	0.	1021.5	1162.4	*	2	DEC	0040	297	0.	1209.4	1163.2
1	DEC	0805	98	0.	.1	1149.0	*	1	DEC	1625	198	0.	1025.0	1162.4	*	2	DEC	0045	298	0.	1210.3	1163.2
1	DEC	0810	99	0.	.1	1149.1	*	1	DEC	1630	199	0.	1028.4	1162.5	*	2	DEC	0050	299	0.	1211.0	1163.2
1	DEC	0815	100	0.	.1	1149.1	*	1	DEC	1635	200	0.	1031.8	1162.5	*	2	DEC	0055	300	0.	1211.7	1163.2
							*								*							

****

PEAK OUTFLOW IS 0. AT TIME .00 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
0.	.08	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
1212.	24.92	1166.	539.	520.	520.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
1163.17	24.92	1162.99	1156.28	1156.01	1156.01

CUMULATIVE AREA = 0.70 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CP3-1	3050.	12.25	357.	104.	100.	1.42		
ROUTED TO	CP3-1R	3050.	12.50	357.	104.	100.	1.42		
HYDROGRAPH AT	CP3-2	4589.	12.25	615.	180.	173.	2.38		
2 COMBINED AT	CP3-2A	6721.	12.42	972.	284.	273.	3.80		
ROUTED TO	CP3-2R	5973.	13.17	971.	283.	273.	3.80		
HYDROGRAPH AT	CP3-3	3090.	12.50	612.	178.	171.	2.61		
2 COMBINED AT	CP3-3A	7374.	13.08	1580.	461.	444.	6.41		
HYDROGRAPH AT	CP3-4	1040.	12.92	517.	150.	145.	2.29		
2 COMBINED AT	FRS #3	9147.	13.08	2096.	611.	589.	8.70		
ROUTED TO	ROUTE	0.	.08	0.	0.	0.	8.70	1163.17	24.92

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION ROUTE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1149.00	1163.20	1170.00
STORAGE	0.	1220.	3020.
OUTFLOW	0.	0.	17732.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1163.17	.00	1212.	0.	.00	.00	.00

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

BUCKEYE FRS #3

6-HOUR PMP

```
*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*          FEBRUARY 1981            *
*         REVISED 01 JUN 88         *
*                                   *
*  RUN DATE  01/19/1990  TIME  08:31:09 *
*                                   *
*************************************
```

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*************************************
*                                   *
*     U.S. ARMY CORPS OF ENGINEERS  *
*  THE HYDROLOGIC ENGINEERING CENTER *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 551-1748           *
*                                   *
*************************************
```

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

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

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

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

  1           ID        DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
  2           ID        OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
  3           ID        STRUCTURE #3 (AZ No. 7-45) **** 6-HOUR PMP **** (REVISED 1-10-90)
              *DIAGRAM
  4           IT        5  1DEC89    0000     300
  5           IO        3

  6           KK   CP3-1  DEVELOP HYDROGRAPH FOR CP3-1
  7           BA     1.42
  8           PB        0
  9           PI    0.030   0.030   0.031   0.032   0.032   0.033   0.034   0.034   0.035   0.036
 10           PI    0.036   0.037   0.045   0.045   0.045   0.045   0.046   0.046   0.047   0.049
 11           PI    0.052   0.056   0.060   0.064   0.118   0.120   0.121   0.125   0.129   0.134
 12           PI    0.136   0.155   0.162   0.177   0.197   0.226   3.100   1.000   1.300   0.800
 13           PI    0.700   0.600   0.310   0.300   0.290   0.280   0.265   0.255   0.112   0.104
 14           PI    0.097   0.091   0.086   0.082   0.077   0.075   0.071   0.070   0.069   0.066
 15           PI    0.045   0.045   0.044   0.043   0.043   0.042   0.041   0.041   0.040   0.039
 16           PI    0.039   0.038
 17           LS      0.0      94
 18           UD     0.17

 19           KK  CP3-1R  LAG CP3-1 HYDROGRAPH 15 MIN. TO TRAVEL TO CP3-2 (1 MILE)
 20           RT        0                3

 21           KK   CP3-2  DEVELOP HYDROGRAPH FOR CP3-2
 22           BA     2.38
 23           LS      0.0      95
 24           UD     0.23

 25           KK  CP3-2A  COMBINE HYDROGRAPH CP3-1R AND CP3-2 (= CP3-2A)
 26           HC        2

 27           KK  CP3-2R  MUSKINGUM ROUTING OF CP3-2A HYDROGRAPH 2.5 MILES TO CP3-3 (= CP3-2R)
 28           RM        8    0.75    0.40

 29           KK   CP3-3  DEVELOP HYDROGRAPH FOR CP3-3
 30           BA     2.61
 31           LS      0.0      93
 32           UD     0.48

 33           KK  CP3-3A  COMBINE HYDROGRAPH CP3-2R WITH CP3-3 (= CP3-3A)
 34           HC        2

 35           KK   CP3-4  DEVELOP HYDROGRAPH FOR CP3-4
 36           BA     2.29
 37           LS      0.0      93
 38           UD     0.83

 39           KK  FRS #3  COMBINE HYDROGRAPH CP3-3A WITH CP3-4 (= FRS #3)
 40           KO        1
 41           HC        2
```

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

  42          KK   ROUTE  RESERVIOR ROUTING OF FRS #3 USING FRS #3 HYDROGRAPH
  43          KM          RESERVIOR ASSUMED EMPTY
  44          KO       1
  45          RS       1    STOR     0.0
  46          SI    1170   16851    2.70     1.5
  47          SS  1163.2     400    2.50     1.5
  48          SV    0.00       2      20      90     190     350     630     910    1220    1350
  49          SV    1900    2490    3020    3600    4160
  50          SE    1149    1150    1152    1154    1156    1158    1160    1162  1163.2    1164
  51          SE    1166    1168    1170    1172    1174
  52          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (U) ROUTING          (--->) DIVERSION OR PUMP FLOW
  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   6        CP3-1
                U
                U
  19       CP3-1R
                .
                .
  21            .        CP3-2
                .          .
                .          .
  25       CP3-2A............
                U
                U
  27       CP3-2R
                .
                .
  29            .        CP3-3
                .          .
                .          .
  33       CP3-3A............
                .
                .
  35            .        CP3-4
                .          .
                .          .
  39       FRS #3............
                U
                U
  42        ROUTE
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*************************************                    ****************************************
*                                   *                    *                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*                    *   U.S. ARMY CORPS OF ENGINEERS       *
*          FEBRUARY 1981            *                    * THE HYDROLOGIC ENGINEERING CENTER    *
*         REVISED 01 JUN 80         *                    *        609 SECOND STREET             *
*                                   *                    *      DAVIS, CALIFORNIA 95616         *
* RUN DATE  01/19/1990  TIME  08:31:09 *                  *          (916) 551-1748              *
*                                   *                    *                                      *
*************************************                    ****************************************
```

DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
STRUCTURE #3 (AZ No. 7-45) **** 6-HOUR PMP **** (REVISED 1-10-90)

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

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     1DEC89  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     2DEC89  ENDING DATE
                     NDTIME       0055  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL      .08 HOURS
                      TOTAL TIME BASE   24.92 HOURS

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


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

            **************
            *            *
  6 KK      *    CP3-1   *       DEVELOP HYDROGRAPH FOR CP3-1
            *            *
            **************

               SUBBASIN RUNOFF DATA

  7 BA          SUBBASIN CHARACTERISTICS
                      TAREA        1.42  SUBBASIN AREA
```

PRECIPITATION DATA

```
  8 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

  9 PI            INCREMENTAL PRECIPITATION PATTERN
                      .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                      .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                      .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                      .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                      .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                      .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                      .04       .04

 17 LS            SCS LOSS RATE
                     STRTL        .13  INITIAL ABSTRACTION
                    CRVNBR      94.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

 18 UD            SCS DIMENSIONLESS UNITGRAPH
                      TLAG        .17  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            12 END-OF-PERIOD ORDINATES
              985.     2983.     3065.     1922.      963.      516.      272.      143.       76.       40.
               23.       9.

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

                      HYDROGRAPH AT STATION    CP3-1

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .74, TOTAL EXCESS =   13.56

 PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                  6-HR       24-HR       72-HR     24.92-HR
   16687.       3.25          (CFS)   2071.       518.        499.        499.
                            (INCHES) 13.558     13.562      13.562      13.562
                            (AC-FT)   1027.      1027.       1027.       1027.

                      CUMULATIVE AREA =    1.42 SQ MI

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

            **************
            *            *
 19 KK      *   CP3-1R   *      LAG CP3-1 HYDROGRAPH 15 MIN. TO TRAVEL TO CP3-2 (1 MILE)
            *            *
            **************

              HYDROGRAPH ROUTING DATA

 20 RT            TATUM OR STRADDLE-STAGGER ROUTING
                    NSTPS            0   NUMBER OF TATUM STEPS
                    NSTDL            0   NUMBER OF ORDINATES TO BE AVERAGED
```

LAG 3 NUMBER OF INTERVALS TO LAG HYDROGRAPH

***

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

HYDROGRAPH AT STATION CP3-1R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
16687.	3.50	(CFS)	2071.	518.	499.	499.
		(INCHES)	13.550	13.562	13.562	13.562
		(AC-FT)	1027.	1027.	1027.	1027.

CUMULATIVE AREA = 1.42 SQ MI

*** ***

```
              **************
              *            *
21 KK         *   CP3-2    *      DEVELOP HYDROGRAPH FOR CP3-2
              *            *
              **************
```

SUBBASIN RUNOFF DATA

22 BA SUBBASIN CHARACTERISTICS

TAREA 2.30 SUBBASIN AREA

PRECIPITATION DATA

8 PB STORM 14.30 BASIN TOTAL PRECIPITATION

9 PI INCREMENTAL PRECIPITATION PATTERN

.03	.03	.03	.03	.03	.03	.03	.03	.03	.04
.04	.04	.05	.05	.05	.05	.05	.05	.05	.05
.05	.06	.06	.06	.12	.12	.12	.13	.13	.13
.14	.16	.16	.18	.20	.23	3.10	1.80	1.30	.80
.70	.60	.31	.30	.29	.28	.27	.26	.11	.10
.10	.09	.09	.08	.08	.07	.07	.07	.07	.07
.05	.05	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04								

23 LS SCS LOSS RATE

STRTL .11 INITIAL ABSTRACTION

CRVNBR 95.00 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

24 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .23 LAG

***

UNIT HYDROGRAPH
16 END-OF-PERIOD ORDINATES

830.	2884.	4197.	3855.	2706.	1547.	957.	576.	351.	211.

```
            129.        79.        40.        32.        17.        4.
     ***        ***        ***        ***        ***

                    HYDROGRAPH AT STATION    CP3-2

    TOTAL RAINFALL =   14.30, TOTAL LOSS =     .61, TOTAL EXCESS =   13.69

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                   6-HR       24-HR       72-HR     24.92-HR
   24963.      3.33        (CFS)      3502.       876.        844.        844.
                         (INCHES)    13.679      13.687      13.687      13.687
                          (AC-FT)    1736.       1737.       1737.       1737.

                    CUMULATIVE AREA =    2.38 SQ MI

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

            **************
            *            *
  25 KK     *   CP3-2A   *      COMBINE HYDROGRAPH CP3-1R AND CP3-2 (= CP3-2A)
            *            *
            **************

  26 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***
     ***        ***        ***        ***        ***

                    HYDROGRAPH AT STATION    CP3-2A

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                   6-HR       24-HR       72-HR     24.92-HR
   37574.      3.50        (CFS)      5572.      1394.       1342.       1342.
                         (INCHES)    13.632      13.640      13.640      13.640
                          (AC-FT)    2763.       2764.       2764.       2764.

                    CUMULATIVE AREA =    3.80 SQ MI

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

            **************
            *            *
  27 KK     *   CP3-2R   *      MUSKINGUM ROUTING OF CP3-2A HYDROGRAPH 2.5 MILES TO CP3-3 (= CP3-2R)
            *            *
            **************

            HYDROGRAPH ROUTING DATA

  28 RM        MUSKINGUM ROUTING
```

```
                    NSTPS          8 NUMBER OF SUBREACHES
                    AMSKK        .75 MUSKINGUM K
                        X        .40 MUSKINGUM X

                                                        ***

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

                      HYDROGRAPH AT STATION   CP3-2R

PEAK FLOW      TIME                          MAXIMUM AVERAGE FLOW
  (CFS)        (HR)                  6-HR        24-HR       72-HR      24.92-HR
  33461.       4.25        (CFS)     5570.       1394.       1342.        1342.
                         (INCHES)   13.629      13.640      13.640       13.640
                          (AC-FT)    2762.       2764.       2764.        2764.

                      CUMULATIVE AREA =    3.80 SQ MI

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

            **************
            *            *
 29 KK      *    CP3-3   *       DEVELOP HYDROGRAPH FOR CP3-3
            *            *
            **************

            SUBBASIN RUNOFF DATA

 30 BA          SUBBASIN CHARACTERISTICS
                     TAREA        2.61  SUBBASIN AREA

                PRECIPITATION DATA

  8 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

  9 PI            INCREMENTAL PRECIPITATION PATTERN
                     .03        .03        .03        .03        .03        .03        .03        .03        .03        .04
                     .04        .04        .05        .05        .05        .05        .05        .05        .05        .05
                     .05        .06        .06        .06        .12        .12        .12        .13        .13        .13
                     .14        .16        .16        .18        .20        .23       3.10       1.80       1.30        .80
                     .70        .60        .31        .30        .29        .28        .27        .26        .11        .10
                     .10        .09        .09        .08        .08        .07        .07        .07        .07        .07
                     .05        .05        .04        .04        .04        .04        .04        .04        .04        .04
                     .04        .04

 31 LS          SCS LOSS RATE
                     STRTL        .15  INITIAL ABSTRACTION
                    CRVNBR      93.00  CURVE NUMBER
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

 32 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        .48  LAG

                                                        ***

                                                   UNIT HYDROGRAPH
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31 END-OF-PERIOD ORDINATES

174.	516.	1056.	1746.	2245.	2407.	2367.	2116.	1794.	1361.
1015.	777.	609.	474.	358.	280.	217.	166.	127.	98.
76.	59.	45.	35.	27.	22.	18.	13.	9.	5.
1.									

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

HYDROGRAPH AT STATION CP3-3

TOTAL RAINFALL = 14.30, TOTAL LOSS = .87, TOTAL EXCESS = 13.43

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
18772.	3.67	(CFS)	3764.	943.	908.	908.
		(INCHES)	13.410	13.435	13.435	13.435
		(AC-FT)	1867.	1870.	1870.	1870.

CUMULATIVE AREA = 2.61 SQ MI

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            **************
            *            *
33 KK       *   CP3-3A   *      COMBINE HYDROGRAPH CP3-2R WITH CP3-3 (= CP3-3A)
            *            *
            **************
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34 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

***

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

HYDROGRAPH AT STATION CP3-3A

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
42802.	4.17	(CFS)	9330.	2337.	2251.	2251.
		(INCHES)	13.532	13.557	13.557	13.557
		(AC-FT)	4626.	4635.	4635.	4635.

CUMULATIVE AREA = 6.41 SQ MI

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            **************
            *            *
35 KK       *    CP3-4   *      DEVELOP HYDROGRAPH FOR CP3-4
            *            *
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                SUBBASIN RUNOFF DATA

 36 BA          SUBBASIN CHARACTERISTICS
                      TAREA        2.29  SUBBASIN AREA

                PRECIPITATION DATA

  8 PB                STORM       14.30  BASIN TOTAL PRECIPITATION

  9 PI            INCREMENTAL PRECIPITATION PATTERN
                      .03       .03       .03       .03       .03       .03       .03       .03       .03       .04
                      .04       .04       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .06       .06       .06       .12       .12       .12       .13       .13       .13
                      .14       .16       .16       .18       .20       .23      3.10      1.80      1.30       .80
                      .70       .60       .31       .30       .29       .28       .27       .26       .11       .10
                      .10       .09       .09       .08       .08       .07       .07       .07       .07       .07
                      .05       .05       .04       .04       .04       .04       .04       .04       .04       .04
                      .04       .04

 37 LS          SCS LOSS RATE
                      STRTL        .15  INITIAL ABSTRACTION
                     CRVNBR      93.00  CURVE NUMBER
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 38 UD          SCS DIMENSIONLESS UNITGRAPH
                      TLAG        .83  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                           52 END-OF-PERIOD ORDINATES
                 36.      119.      226.      367.      552.      775.      979.     1132.     1228.     1265.
               1264.     1222.     1144.     1054.      948.      819.      679.      566.      483.      412.
                352.      308.      264.      227.      191.      165.      141.      121.      103.       88.
                 75.       64.       55.       47.       41.       35.       30.       25.       22.       18.
                 16.       14.       12.       11.        9.        8.        6.        5.        4.        3.
                  2.        0.

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

                     HYDROGRAPH AT STATION    CP3-4

   TOTAL RAINFALL =   14.30, TOTAL LOSS =     .87, TOTAL EXCESS =   13.43

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR      72-HR     24.92-HR
  11694.      4.08        (CFS)     3290.       827.       797.        797.
                        (INCHES)   13.359     13.435     13.435      13.435
                         (AC-FT)    1632.      1641.      1641.       1641.

                     CUMULATIVE AREA =    2.29 SQ MI

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

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39 KK        *      *
             *  FRS #3  *      COMBINE HYDROGRAPH CP3-3A WITH CP3-4 (= FRS #3)
             *      *
             **********

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

41 HC        HYDROGRAPH COMBINATION
                   ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                  ***
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HYDROGRAPH AT STATION FRS #3
SUM OF 2 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1	DEC	0000	1	0.	1	DEC	0615	76	3519.	1	DEC	1230	151	0.	1	DEC	1845	226	0.
1	DEC	0005	2	0.	1	DEC	0620	77	3252.	1	DEC	1235	152	0.	1	DEC	1850	227	0.
1	DEC	0010	3	0.	1	DEC	0625	78	2997.	1	DEC	1240	153	0.	1	DEC	1855	228	0.
1	DEC	0015	4	0.	1	DEC	0630	79	2758.	1	DEC	1245	154	0.	1	DEC	1900	229	0.
1	DEC	0020	5	0.	1	DEC	0635	80	2534.	1	DEC	1250	155	0.	1	DEC	1905	230	0.
1	DEC	0025	6	0.	1	DEC	0640	81	2326.	1	DEC	1255	156	0.	1	DEC	1910	231	0.
1	DEC	0030	7	0.	1	DEC	0645	82	2121.	1	DEC	1300	157	0.	1	DEC	1915	232	0.
1	DEC	0035	8	2.	1	DEC	0650	83	1903.	1	DEC	1305	158	0.	1	DEC	1920	233	0.
1	DEC	0040	9	7.	1	DEC	0655	84	1661.	1	DEC	1310	159	0.	1	DEC	1925	234	0.
1	DEC	0045	10	16.	1	DEC	0700	85	1398.	1	DEC	1315	160	0.	1	DEC	1930	235	0.
1	DEC	0050	11	31.	1	DEC	0705	86	1123.	1	DEC	1320	161	0.	1	DEC	1935	236	0.
1	DEC	0055	12	54.	1	DEC	0710	87	860.	1	DEC	1325	162	0.	1	DEC	1940	237	0.
1	DEC	0100	13	85.	1	DEC	0715	88	636.	1	DEC	1330	163	0.	1	DEC	1945	238	0.
1	DEC	0105	14	127.	1	DEC	0720	89	462.	1	DEC	1335	164	0.	1	DEC	1950	239	0.
1	DEC	0110	15	182.	1	DEC	0725	90	339.	1	DEC	1340	165	0.	1	DEC	1955	240	0.
1	DEC	0115	16	253.	1	DEC	0730	91	253.	1	DEC	1345	166	0.	1	DEC	2000	241	0.
1	DEC	0120	17	341.	1	DEC	0735	92	194.	1	DEC	1350	167	0.	1	DEC	2005	242	0.
1	DEC	0125	18	445.	1	DEC	0740	93	153.	1	DEC	1355	168	0.	1	DEC	2010	243	0.
1	DEC	0130	19	564.	1	DEC	0745	94	122.	1	DEC	1400	169	0.	1	DEC	2015	244	0.
1	DEC	0135	20	693.	1	DEC	0750	95	99.	1	DEC	1405	170	0.	1	DEC	2020	245	0.
1	DEC	0140	21	830.	1	DEC	0755	96	80.	1	DEC	1410	171	0.	1	DEC	2025	246	0.
1	DEC	0145	22	971.	1	DEC	0800	97	66.	1	DEC	1415	172	0.	1	DEC	2030	247	0.
1	DEC	0150	23	1118.	1	DEC	0805	98	55.	1	DEC	1420	173	0.	1	DEC	2035	248	0.
1	DEC	0155	24	1270.	1	DEC	0810	99	46.	1	DEC	1425	174	0.	1	DEC	2040	249	0.
1	DEC	0200	25	1428.	1	DEC	0815	100	38.	1	DEC	1430	175	0.	1	DEC	2045	250	0.
1	DEC	0205	26	1600.	1	DEC	0820	101	32.	1	DEC	1435	176	0.	1	DEC	2050	251	0.
1	DEC	0210	27	1793.	1	DEC	0825	102	27.	1	DEC	1440	177	0.	1	DEC	2055	252	0.
1	DEC	0215	28	2014.	1	DEC	0830	103	22.	1	DEC	1445	178	0.	1	DEC	2100	253	0.
1	DEC	0220	29	2271.	1	DEC	0835	104	19.	1	DEC	1450	179	0.	1	DEC	2105	254	0.
1	DEC	0225	30	2559.	1	DEC	0840	105	16.	1	DEC	1455	180	0.	1	DEC	2110	255	0.
1	DEC	0230	31	2871.	1	DEC	0845	106	13.	1	DEC	1500	181	0.	1	DEC	2115	256	0.
1	DEC	0235	32	3202.	1	DEC	0850	107	11.	1	DEC	1505	182	0.	1	DEC	2120	257	0.
1	DEC	0240	33	3554.	1	DEC	0855	108	9.	1	DEC	1510	183	0.	1	DEC	2125	258	0.
1	DEC	0245	34	3940.	1	DEC	0900	109	8.	1	DEC	1515	184	0.	1	DEC	2130	259	0.
1	DEC	0250	35	4382.	1	DEC	0905	110	6.	1	DEC	1520	185	0.	1	DEC	2135	260	0.
1	DEC	0255	36	4897.	1	DEC	0910	111	5.	1	DEC	1525	186	0.	1	DEC	2140	261	0.

1	DEC	0300	37	5488.	*	1	DEC	0915	112	4.	*	1	DEC	1530	187	0.	*	1	DEC	2145	262	0.
1	DEC	0305	38	6732.	*	1	DEC	0920	113	4.	*	1	DEC	1535	188	0.	*	1	DEC	2150	263	0.
1	DEC	0310	39	8945.	*	1	DEC	0925	114	3.	*	1	DEC	1540	189	0.	*	1	DEC	2155	264	0.
1	DEC	0315	40	12341.	*	1	DEC	0930	115	2.	*	1	DEC	1545	190	0.	*	1	DEC	2200	265	0.
1	DEC	0320	41	16927.	*	1	DEC	0935	116	2.	*	1	DEC	1550	191	0.	*	1	DEC	2205	266	0.
1	DEC	0325	42	21818.	*	1	DEC	0940	117	1.	*	1	DEC	1555	192	0.	*	1	DEC	2210	267	0.
1	DEC	0330	43	26126.	*	1	DEC	0945	118	1.	*	1	DEC	1600	193	0.	*	1	DEC	2215	268	0.
1	DEC	0335	44	29532.	*	1	DEC	0950	119	1.	*	1	DEC	1605	194	0.	*	1	DEC	2220	269	0.
1	DEC	0340	45	31968.	*	1	DEC	0955	120	1.	*	1	DEC	1610	195	0.	*	1	DEC	2225	270	0.
1	DEC	0345	46	34422.	*	1	DEC	1000	121	0.	*	1	DEC	1615	196	0.	*	1	DEC	2230	271	0.
1	DEC	0350	47	37734.	*	1	DEC	1005	122	0.	*	1	DEC	1620	197	0.	*	1	DEC	2235	272	0.
1	DEC	0355	48	42276.	*	1	DEC	1010	123	0.	*	1	DEC	1625	198	0.	*	1	DEC	2240	273	0.
1	DEC	0400	49	47348.	*	1	DEC	1015	124	0.	*	1	DEC	1630	199	0.	*	1	DEC	2245	274	0.
1	DEC	0405	50	51897.	*	1	DEC	1020	125	0.	*	1	DEC	1635	200	0.	*	1	DEC	2250	275	0.
1	DEC	0410	51	54275.	*	1	DEC	1025	126	0.	*	1	DEC	1640	201	0.	*	1	DEC	2255	276	0.
1	DEC	0415	52	53328.	*	1	DEC	1030	127	0.	*	1	DEC	1645	202	0.	*	1	DEC	2300	277	0.
1	DEC	0420	53	49326.	*	1	DEC	1035	128	0.	*	1	DEC	1650	203	0.	*	1	DEC	2305	278	0.
1	DEC	0425	54	43524.	*	1	DEC	1040	129	0.	*	1	DEC	1655	204	0.	*	1	DEC	2310	279	0.
1	DEC	0430	55	37324.	*	1	DEC	1045	130	0.	*	1	DEC	1700	205	0.	*	1	DEC	2315	280	0.
1	DEC	0435	56	31595.	*	1	DEC	1050	131	0.	*	1	DEC	1705	206	0.	*	1	DEC	2320	281	0.
1	DEC	0440	57	26724.	*	1	DEC	1055	132	0.	*	1	DEC	1710	207	0.	*	1	DEC	2325	282	0.
1	DEC	0445	58	22784.	*	1	DEC	1100	133	0.	*	1	DEC	1715	208	0.	*	1	DEC	2330	283	0.
1	DEC	0450	59	19650.	*	1	DEC	1105	134	0.	*	1	DEC	1720	209	0.	*	1	DEC	2335	284	0.
1	DEC	0455	60	17066.	*	1	DEC	1110	135	0.	*	1	DEC	1725	210	0.	*	1	DEC	2340	285	0.
1	DEC	0500	61	14852.	*	1	DEC	1115	136	0.	*	1	DEC	1730	211	0.	*	1	DEC	2345	286	0.
1	DEC	0505	62	12884.	*	1	DEC	1120	137	0.	*	1	DEC	1735	212	0.	*	1	DEC	2350	287	0.
1	DEC	0510	63	11180.	*	1	DEC	1125	138	0.	*	1	DEC	1740	213	0.	*	1	DEC	2355	288	0.
1	DEC	0515	64	9747.	*	1	DEC	1130	139	0.	*	1	DEC	1745	214	0.	*	2	DEC	0000	289	0.
1	DEC	0520	65	8586.	*	1	DEC	1135	140	0.	*	1	DEC	1750	215	0.	*	2	DEC	0005	290	0.
1	DEC	0525	66	7659.	*	1	DEC	1140	141	0.	*	1	DEC	1755	216	0.	*	2	DEC	0010	291	0.
1	DEC	0530	67	6919.	*	1	DEC	1145	142	0.	*	1	DEC	1800	217	0.	*	2	DEC	0015	292	0.
1	DEC	0535	68	6314.	*	1	DEC	1150	143	0.	*	1	DEC	1805	218	0.	*	2	DEC	0020	293	0.
1	DEC	0540	69	5818.	*	1	DEC	1155	144	0.	*	1	DEC	1810	219	0.	*	2	DEC	0025	294	0.
1	DEC	0545	70	5401.	*	1	DEC	1200	145	0.	*	1	DEC	1815	220	0.	*	2	DEC	0030	295	0.
1	DEC	0550	71	5034.	*	1	DEC	1205	146	0.	*	1	DEC	1820	221	0.	*	2	DEC	0035	296	0.
1	DEC	0555	72	4698.	*	1	DEC	1210	147	0.	*	1	DEC	1825	222	0.	*	2	DEC	0040	297	0.
1	DEC	0600	73	4384.	*	1	DEC	1215	148	0.	*	1	DEC	1830	223	0.	*	2	DEC	0045	298	0.
1	DEC	0605	74	4084.	*	1	DEC	1220	149	0.	*	1	DEC	1835	224	0.	*	2	DEC	0050	299	0.
1	DEC	0610	75	3794.	*	1	DEC	1225	150	0.	*	1	DEC	1840	225	0.	*	2	DEC	0055	300	0.
					*						*						*						

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
54275.	4.17	(CFS)	12617.	3164.	3047.	3047.
		(INCHES)	13.483	13.525	13.525	13.525
		(AC-FT)	6256.	6275.	6275.	6275.

CUMULATIVE AREA = 0.70 SQ MI

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            **************
            *            *
42 KK       *   ROUTE    *      RESERVIOR ROUTING OF FRS #3 USING FRS #3 HYDROGRAPH
            *            *
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                    RESERVIOR ASSUMED EMPTY

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

           HYDROGRAPH ROUTING DATA

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

48 SV          STORAGE        .0       2.0      20.0      90.0     190.0     350.0     630.0     910.0    1220.0    1350.0
                            1900.0    2490.0    3020.0    3600.0    4160.0

50 SE          ELEVATION   1149.00   1150.00   1152.00   1154.00   1156.00   1158.00   1160.00   1162.00   1163.20   1164.00
                           1166.00   1168.00   1170.00   1172.00   1174.00

47 SS        SPILLWAY
                  CREL     1163.20  SPILLWAY CREST ELEVATION
                 SPWID      400.00  SPILLWAY WIDTH
                  COQW        2.50  WEIR COEFFICIENT
                  EXPW        1.50  EXPONENT OF HEAD

46 ST        TOP OF DAM
                 TOPEL     1170.00  ELEVATION AT TOP OF DAM
                DAMWID    16851.00  DAM WIDTH
                  COQD        2.70  WEIR COEFFICIENT
                  EXPD        1.50  EXPONENT OF HEAD

                                                  ***

                                   COMPUTED OUTFLOW-ELEVATION DATA

                                   (EXCLUDING FLOW OVER DAM)

        OUTFLOW        .00       .00      6.08     48.67    164.36    389.48    760.78   1314.45   2087.37   3115.86
      ELEVATION    1149.00   1163.20   1163.23   1163.33   1163.50   1163.73   1164.03   1164.40   1164.83   1165.33

        OUTFLOW    4436.73   6085.92   8100.18  10516.43  13370.40  16699.42  20539.60  24927.43  29899.98  35492.66
      ELEVATION    1165.90   1166.53   1167.23   1168.00   1168.83   1169.73   1170.70   1171.73   1172.83   1174.00

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                                   (INCLUDING FLOW OVER DAM)

        STORAGE        .00      2.00     20.00     90.00    190.00    350.00    630.00    910.00   1220.00   1225.42
        OUTFLOW        .00       .00       .00       .00       .00       .00       .00       .00       .00      6.08
      ELEVATION    1149.00   1150.00   1152.00   1154.00   1156.00   1158.00   1160.00   1162.00   1163.20   1163.23

        STORAGE    1241.66   1268.76   1306.66   1350.00   1359.16   1459.97   1579.14   1716.64   1872.51   1900.00
        OUTFLOW      48.67    164.36    389.48    715.61    760.78   1314.45   2087.37   3115.86   4436.73   4685.42
      ELEVATION    1163.33   1163.50   1163.73   1164.00   1164.03   1164.40   1164.83   1165.33   1165.90   1166.00

        STORAGE    2057.33   2263.82   2490.00   2710.81   2949.32   3020.00   3222.99   3522.65   3600.00   3833.34
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OUTFLOW	6085.92	8100.18	10516.43	13370.40	16699.42	17732.42	47183.08	120749.80	154792.20	246892.80
ELEVATION	1166.53	1167.23	1168.00	1168.83	1169.73	1170.00	1170.70	1171.73	1172.00	1172.83

STORAGE 4160.00
OUTFLOW 399474.30
ELEVATION 1174.00

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HYDROGRAPH AT STATION ROUTE

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DA MON HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA MON HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA MON HRMN	ORD	OUTFLOW	STORAGE	STAGE
1 DEC 0000	1	0.	.0	1149.0	1 DEC 0820	101	2554.	1643.8	1165.1	1 DEC 1640	201	58.	1244.4	1163.4
1 DEC 0005	2	0.	.0	1149.0	1 DEC 0825	102	2428.	1626.8	1165.0	1 DEC 1645	202	57.	1244.0	1163.3
1 DEC 0010	3	0.	.0	1149.0	1 DEC 0830	103	2311.	1610.7	1164.9	1 DEC 1650	203	56.	1243.6	1163.3
1 DEC 0015	4	0.	.0	1149.0	1 DEC 0835	104	2201.	1595.3	1164.9	1 DEC 1655	204	54.	1243.3	1163.3
1 DEC 0020	5	0.	.0	1149.0	1 DEC 0840	105	2097.	1580.6	1164.8	1 DEC 1700	205	53.	1242.9	1163.3
1 DEC 0025	6	0.	.0	1149.0	1 DEC 0845	106	2000.	1566.6	1164.8	1 DEC 1705	206	52.	1242.5	1163.3
1 DEC 0030	7	0.	.0	1149.0	1 DEC 0850	107	1909.	1553.2	1164.7	1 DEC 1710	207	50.	1242.2	1163.3
1 DEC 0035	8	0.	.0	1149.0	1 DEC 0855	108	1823.	1540.4	1164.7	1 DEC 1715	208	49.	1241.8	1163.3
1 DEC 0040	9	0.	.0	1149.0	1 DEC 0900	109	1742.	1528.2	1164.6	1 DEC 1720	209	48.	1241.5	1163.3
1 DEC 0045	10	0.	.1	1149.1	1 DEC 0905	110	1666.	1516.5	1164.6	1 DEC 1725	210	47.	1241.2	1163.3
1 DEC 0050	11	0.	.3	1149.1	1 DEC 0910	111	1595.	1505.3	1164.6	1 DEC 1730	211	46.	1240.8	1163.3
1 DEC 0055	12	0.	.6	1149.3	1 DEC 0915	112	1527.	1494.6	1164.5	1 DEC 1735	212	45.	1240.5	1163.3
1 DEC 0100	13	0.	1.1	1149.5	1 DEC 0920	113	1463.	1484.3	1164.5	1 DEC 1740	213	44.	1240.2	1163.3
1 DEC 0105	14	0.	1.8	1149.9	1 DEC 0925	114	1402.	1474.5	1164.5	1 DEC 1745	214	43.	1239.9	1163.3
1 DEC 0110	15	0.	2.8	1150.1	1 DEC 0930	115	1345.	1465.1	1164.4	1 DEC 1750	215	42.	1239.6	1163.3
1 DEC 0115	16	0.	4.3	1150.3	1 DEC 0935	116	1291.	1456.0	1164.4	1 DEC 1755	216	41.	1239.4	1163.3
1 DEC 0120	17	0.	6.4	1150.5	1 DEC 0940	117	1240.	1447.3	1164.4	1 DEC 1800	217	40.	1239.1	1163.3
1 DEC 0125	18	0.	9.1	1150.8	1 DEC 0945	118	1191.	1439.0	1164.3	1 DEC 1805	218	39.	1238.8	1163.3
1 DEC 0130	19	0.	12.6	1151.2	1 DEC 0950	119	1145.	1430.9	1164.3	1 DEC 1810	219	38.	1238.5	1163.3
1 DEC 0135	20	0.	16.9	1151.7	1 DEC 0955	120	1101.	1423.2	1164.3	1 DEC 1815	220	38.	1238.3	1163.3
1 DEC 0140	21	0.	22.1	1152.1	1 DEC 1000	121	1059.	1415.8	1164.2	1 DEC 1820	221	37.	1238.0	1163.3
1 DEC 0145	22	0.	28.3	1152.2	1 DEC 1005	122	1020.	1408.6	1164.2	1 DEC 1825	222	36.	1237.8	1163.3
1 DEC 0150	23	0.	35.5	1152.4	1 DEC 1010	123	982.	1401.7	1164.2	1 DEC 1830	223	35.	1237.5	1163.3
1 DEC 0155	24	0.	43.8	1152.7	1 DEC 1015	124	946.	1395.1	1164.2	1 DEC 1835	224	35.	1237.3	1163.3
1 DEC 0200	25	0.	53.0	1152.9	1 DEC 1020	125	912.	1388.7	1164.1	1 DEC 1840	225	34.	1237.0	1163.3
1 DEC 0205	26	0.	63.5	1153.2	1 DEC 1025	126	880.	1382.5	1164.1	1 DEC 1845	226	33.	1236.8	1163.3
1 DEC 0210	27	0.	75.2	1153.6	1 DEC 1030	127	849.	1376.6	1164.1	1 DEC 1850	227	33.	1236.6	1163.3
1 DEC 0215	28	0.	88.2	1153.9	1 DEC 1035	128	820.	1370.8	1164.1	1 DEC 1855	228	32.	1236.4	1163.3
1 DEC 0220	29	0.	103.0	1154.3	1 DEC 1040	129	791.	1365.3	1164.1	1 DEC 1900	229	31.	1236.1	1163.3
1 DEC 0225	30	0.	119.6	1154.6	1 DEC 1045	130	764.	1359.9	1164.0	1 DEC 1905	230	31.	1235.9	1163.3
1 DEC 0230	31	0.	138.3	1155.0	1 DEC 1050	131	739.	1354.7	1164.0	1 DEC 1910	231	30.	1235.7	1163.3
1 DEC 0235	32	0.	159.2	1155.4	1 DEC 1055	132	713.	1349.7	1164.0	1 DEC 1915	232	29.	1235.5	1163.3
1 DEC 0240	33	0.	182.5	1155.8	1 DEC 1100	133	674.	1345.0	1164.0	1 DEC 1920	233	29.	1235.3	1163.3
1 DEC 0245	34	0.	208.3	1156.2	1 DEC 1105	134	638.	1340.4	1163.9	1 DEC 1925	234	28.	1235.1	1163.3
1 DEC 0250	35	0.	237.0	1156.6	1 DEC 1110	135	604.	1336.2	1163.9	1 DEC 1930	235	28.	1234.9	1163.3
1 DEC 0255	36	0.	268.9	1157.0	1 DEC 1115	136	573.	1332.1	1163.9	1 DEC 1935	236	27.	1234.7	1163.3
1 DEC 0300	37	0.	304.7	1157.4	1 DEC 1120	137	544.	1328.3	1163.9	1 DEC 1940	237	27.	1234.5	1163.3
1 DEC 0305	38	0.	346.8	1158.0	1 DEC 1125	138	517.	1324.6	1163.8	1 DEC 1945	238	26.	1234.4	1163.3
1 DEC 0310	39	0.	400.7	1158.4	1 DEC 1130	139	491.	1321.1	1163.8	1 DEC 1950	239	26.	1234.2	1163.3
1 DEC 0315	40	0.	474.0	1158.9	1 DEC 1135	140	467.	1317.8	1163.8	1 DEC 1955	240	25.	1234.0	1163.3
1 DEC 0320	41	0.	574.8	1159.6	1 DEC 1140	141	445.	1314.7	1163.8	1 DEC 2000	241	25.	1233.8	1163.3
1 DEC 0325	42	0.	708.2	1160.6	1 DEC 1145	142	424.	1311.7	1163.8	1 DEC 2005	242	24.	1233.6	1163.3
1 DEC 0330	43	0.	873.3	1161.7	1 DEC 1150	143	404.	1308.9	1163.7	1 DEC 2010	243	24.	1233.5	1163.3
1 DEC 0335	44	0.	1065.0	1162.6	1 DEC 1155	144	386.	1306.1	1163.7	1 DEC 2015	244	23.	1233.3	1163.3
1 DEC 0340	45	203.	1276.1	1163.5	1 DEC 1200	145	369.	1303.5	1163.7	1 DEC 2020	245	23.	1233.2	1163.3

1	DEC	0345	46	1551.	1498.5	1164.5	*	1	DEC	1205	146	352.	1301.1	1163.7	*	1	DEC	2025	246	23.	1233.0	1163.3
1	DEC	0350	47	3229.	1730.8	1165.4	*	1	DEC	1210	147	337.	1298.7	1163.7	*	1	DEC	2030	247	22.	1232.9	1163.3
1	DEC	0355	48	5352.	1976.6	1166.3	*	1	DEC	1215	148	323.	1296.4	1163.7	*	1	DEC	2035	248	22.	1232.7	1163.3
1	DEC	0400	49	7858.	2240.0	1167.2	*	1	DEC	1220	149	309.	1294.2	1163.7	*	1	DEC	2040	249	21.	1232.5	1163.3
1	DEC	0405	50	10855.	2517.1	1168.1	*	1	DEC	1225	150	296.	1292.2	1163.6	*	1	DEC	2045	250	21.	1232.4	1163.3
1	DEC	0410	51	14526.	2795.7	1169.2	*	1	DEC	1230	151	284.	1290.2	1163.6	*	1	DEC	2050	251	21.	1232.3	1163.3
1	DEC	0415	52	19548.	3048.8	1170.1	*	1	DEC	1235	152	272.	1288.2	1163.6	*	1	DEC	2055	252	20.	1232.1	1163.3
1	DEC	0420	53	41129.	3193.2	1170.6	*	1	DEC	1240	153	261.	1286.4	1163.6	*	1	DEC	2100	253	20.	1232.0	1163.3
1	DEC	0425	54	45452.	3214.7	1170.7	*	1	DEC	1245	154	251.	1284.6	1163.6	*	1	DEC	2105	254	20.	1231.8	1163.3
1	DEC	0430	55	41330.	3194.3	1170.6	*	1	DEC	1250	155	241.	1282.9	1163.6	*	1	DEC	2110	255	19.	1231.7	1163.3
1	DEC	0435	56	35925.	3165.6	1170.5	*	1	DEC	1255	156	232.	1281.3	1163.6	*	1	DEC	2115	256	19.	1231.6	1163.3
1	DEC	0440	57	30900.	3136.4	1170.4	*	1	DEC	1300	157	223.	1279.7	1163.6	*	1	DEC	2120	257	19.	1231.4	1163.3
1	DEC	0445	58	26656.	3108.8	1170.3	*	1	DEC	1305	158	215.	1278.2	1163.6	*	1	DEC	2125	258	18.	1231.3	1163.3
1	DEC	0450	59	23228.	3083.3	1170.2	*	1	DEC	1310	159	207.	1276.8	1163.5	*	1	DEC	2130	259	18.	1231.2	1163.3
1	DEC	0455	60	20520.	3059.2	1170.1	*	1	DEC	1315	160	199.	1275.4	1163.5	*	1	DEC	2135	260	18.	1231.1	1163.3
1	DEC	0500	61	18471.	3035.0	1170.1	*	1	DEC	1320	161	192.	1274.1	1163.5	*	1	DEC	2140	261	17.	1230.9	1163.3
1	DEC	0505	62	17534.	3006.5	1169.9	*	1	DEC	1325	162	185.	1272.8	1163.5	*	1	DEC	2145	262	17.	1230.8	1163.3
1	DEC	0510	63	17006.	2970.5	1169.8	*	1	DEC	1330	163	178.	1271.5	1163.5	*	1	DEC	2150	263	17.	1230.7	1163.3
1	DEC	0515	64	16385.	2927.5	1169.7	*	1	DEC	1335	164	172.	1270.3	1163.5	*	1	DEC	2155	264	17.	1230.6	1163.3
1	DEC	0520	65	15709.	2880.2	1169.5	*	1	DEC	1340	165	166.	1269.1	1163.5	*	1	DEC	2200	265	16.	1230.5	1163.3
1	DEC	0525	66	15008.	2830.4	1169.3	*	1	DEC	1345	166	161.	1268.0	1163.5	*	1	DEC	2205	266	16.	1230.4	1163.3
1	DEC	0530	67	14306.	2779.7	1169.1	*	1	DEC	1350	167	155.	1266.9	1163.5	*	1	DEC	2210	267	16.	1230.2	1163.3
1	DEC	0535	68	13618.	2729.2	1168.9	*	1	DEC	1355	168	150.	1265.9	1163.5	*	1	DEC	2215	268	16.	1230.1	1163.3
1	DEC	0540	69	12952.	2679.5	1168.7	*	1	DEC	1400	169	145.	1264.8	1163.5	*	1	DEC	2220	269	15.	1230.0	1163.3
1	DEC	0545	70	12315.	2631.2	1168.5	*	1	DEC	1405	170	140.	1263.9	1163.5	*	1	DEC	2225	270	15.	1229.9	1163.3
1	DEC	0550	71	11709.	2584.5	1168.4	*	1	DEC	1410	171	136.	1262.9	1163.5	*	1	DEC	2230	271	15.	1229.8	1163.3
1	DEC	0555	72	11135.	2539.4	1168.2	*	1	DEC	1415	172	131.	1262.0	1163.5	*	1	DEC	2235	272	15.	1229.7	1163.3
1	DEC	0600	73	10590.	2495.9	1168.0	*	1	DEC	1420	173	127.	1261.1	1163.5	*	1	DEC	2240	273	14.	1229.6	1163.3
1	DEC	0605	74	10116.	2453.8	1167.9	*	1	DEC	1425	174	123.	1260.2	1163.4	*	1	DEC	2245	274	14.	1229.5	1163.3
1	DEC	0610	75	9668.	2412.8	1167.7	*	1	DEC	1430	175	119.	1259.4	1163.4	*	1	DEC	2250	275	14.	1229.4	1163.3
1	DEC	0615	76	9239.	2372.9	1167.6	*	1	DEC	1435	176	116.	1258.6	1163.4	*	1	DEC	2255	276	14.	1229.3	1163.3
1	DEC	0620	77	8827.	2334.0	1167.5	*	1	DEC	1440	177	112.	1257.8	1163.4	*	1	DEC	2300	277	14.	1229.2	1163.3
1	DEC	0625	78	8432.	2296.1	1167.3	*	1	DEC	1445	178	109.	1257.1	1163.4	*	1	DEC	2305	278	13.	1229.1	1163.3
1	DEC	0630	79	8053.	2259.2	1167.2	*	1	DEC	1450	179	106.	1256.3	1163.4	*	1	DEC	2310	279	13.	1229.0	1163.3
1	DEC	0635	80	7690.	2223.3	1167.1	*	1	DEC	1455	180	103.	1255.6	1163.4	*	1	DEC	2315	280	13.	1228.9	1163.3
1	DEC	0640	81	7341.	2188.3	1167.0	*	1	DEC	1500	181	100.	1254.9	1163.4	*	1	DEC	2320	281	13.	1228.9	1163.3
1	DEC	0645	82	7007.	2154.2	1166.9	*	1	DEC	1505	182	97.	1254.2	1163.4	*	1	DEC	2325	282	13.	1228.8	1163.3
1	DEC	0650	83	6686.	2121.0	1166.7	*	1	DEC	1510	183	94.	1253.6	1163.4	*	1	DEC	2330	283	12.	1228.7	1163.3
1	DEC	0655	84	6376.	2088.3	1166.6	*	1	DEC	1515	184	91.	1252.9	1163.4	*	1	DEC	2335	284	12.	1228.6	1163.3
1	DEC	0700	85	6074.	2056.0	1166.5	*	1	DEC	1520	185	89.	1252.3	1163.4	*	1	DEC	2340	285	12.	1228.5	1163.3
1	DEC	0705	86	5778.	2023.9	1166.4	*	1	DEC	1525	186	86.	1251.7	1163.4	*	1	DEC	2345	286	12.	1228.5	1163.3
1	DEC	0710	87	5489.	1992.0	1166.3	*	1	DEC	1530	187	84.	1251.1	1163.4	*	1	DEC	2350	287	12.	1228.4	1163.3
1	DEC	0715	88	5208.	1960.3	1166.2	*	1	DEC	1535	188	82.	1250.6	1163.4	*	1	DEC	2355	288	12.	1228.3	1163.3
1	DEC	0720	89	4935.	1929.1	1166.1	*	1	DEC	1540	189	79.	1250.0	1163.4	*	2	DEC	0000	289	11.	1228.2	1163.3
1	DEC	0725	90	4674.	1898.8	1166.0	*	1	DEC	1545	190	77.	1249.5	1163.4	*	2	DEC	0005	290	11.	1228.2	1163.3
1	DEC	0730	91	4410.	1869.6	1165.9	*	1	DEC	1550	191	75.	1249.0	1163.4	*	2	DEC	0010	291	11.	1228.1	1163.2
1	DEC	0735	92	4163.	1841.6	1165.8	*	1	DEC	1555	192	73.	1248.4	1163.4	*	2	DEC	0015	292	11.	1228.0	1163.2
1	DEC	0740	93	3931.	1814.9	1165.7	*	1	DEC	1600	193	71.	1247.9	1163.4	*	2	DEC	0020	293	11.	1227.9	1163.2
1	DEC	0745	94	3714.	1789.5	1165.6	*	1	DEC	1605	194	70.	1247.5	1163.4	*	2	DEC	0025	294	11.	1227.8	1163.2
1	DEC	0750	95	3512.	1765.4	1165.5	*	1	DEC	1610	195	68.	1247.0	1163.4	*	2	DEC	0030	295	10.	1227.8	1163.2
1	DEC	0755	96	3324.	1742.5	1165.4	*	1	DEC	1615	196	66.	1246.5	1163.4	*	2	DEC	0035	296	10.	1227.7	1163.2
1	DEC	0800	97	3148.	1720.7	1165.3	*	1	DEC	1620	197	64.	1246.1	1163.4	*	2	DEC	0040	297	10.	1227.6	1163.2
1	DEC	0805	98	2984.	1700.0	1165.3	*	1	DEC	1625	198	63.	1245.6	1163.4	*	2	DEC	0045	298	10.	1227.5	1163.2
1	DEC	0810	99	2831.	1680.3	1165.2	*	1	DEC	1630	199	61.	1245.2	1163.4	*	2	DEC	0050	299	10.	1227.5	1163.2
1	DEC	0815	100	2688.	1661.6	1165.1	*	1	DEC	1635	200	60.	1244.8	1163.4	*	2	DEC	0055	300	10.	1227.4	1163.2

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PEAK OUTFLOW IS 45452. AT TIME 4.42 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	24.92-HR
45452.	4.42	(CFS)	9743.	2546.	2452.	2452.
		(INCHES)	10.412	10.883	10.883	10.883
		(AC-FT)	4831.	5050.	5050.	5050.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	24.92-HR
3215.	4.42	2187.	1374.	1324.	1324.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	24.92-HR
1170.67	4.42	1166.99	1163.34	1162.81	1162.81

CUMULATIVE AREA = 8.70 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CP3-1	16687.	3.25	2071.	518.	499.	1.42		
ROUTED TO	CP3-1R	16687.	3.50	2071.	518.	499.	1.42		
HYDROGRAPH AT	CP3-2	24963.	3.33	3502.	876.	844.	2.38		
2 COMBINED AT	CP3-2A	37574.	3.50	5572.	1394.	1342.	3.80		
ROUTED TO	CP3-2R	33461.	4.25	5570.	1394.	1342.	3.80		
HYDROGRAPH AT	CP3-3	18772.	3.67	3764.	943.	908.	2.61		
2 COMBINED AT	CP3-3A	42802.	4.17	9330.	2337.	2251.	6.41		
HYDROGRAPH AT	CP3-4	11694.	4.08	3290.	827.	797.	2.29		
2 COMBINED AT	FRS #3	54275.	4.17	12617.	3164.	3047.	8.70		
ROUTED TO	ROUTE	45452.	4.42	9743.	2546.	2452.	8.70	1170.67	4.42

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION ROUTE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1149.00	1163.20	1170.00
STORAGE	0.	1220.	3020.
OUTFLOW	0.	0.	17732.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1170.67	.67	3215.	45452.	.83	4.42	.00

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

BUCKEYE FRS #3

72-HOUR PMP

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981              *
*          REVISED 01 JUN 88            *
*                                       *
*  RUN DATE  01/19/1990  TIME  08:31:57 *
*                                       *
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*                                       *
*     U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X       XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX        XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

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

  1           ID        DAMES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
  2           ID        OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
  3           ID        STRUCTURE #3 (AZ No. 7-45) **** 72-HOUR PMP **** (REVISED 01-10-90)
              *DIAGRAM
  4           IT       20  1DEC89     0000      300
  5           IO        3

  6           KK    CP3-1  DEVELOP HYDROGRAPH FOR CP3-1
  7           BA     1.42
  8           PB        0
  9           PI    0.003    0.003    0.003    0.004    0.004    0.004    0.005    0.005    0.005    0.005
 10           PI    0.006    0.006    0.006    0.006    0.007    0.007    0.007    0.008    0.008    0.008
 11           PI    0.008    0.009    0.009    0.009    0.009    0.010    0.010    0.010    0.010    0.011
 12           PI    0.011    0.011    0.012    0.012    0.012    0.012    0.022    0.023    0.023    0.024
 13           PI    0.024    0.024    0.025    0.025    0.025    0.026    0.026    0.026    0.027    0.027
 14           PI    0.027    0.027    0.028    0.028    0.028    0.029    0.029    0.029    0.029    0.029
 15           PI    0.030    0.030    0.030    0.030    0.031    0.031    0.031    0.031    0.031    0.032
 16           PI    0.032    0.032    0.041    0.041    0.041    0.041    0.041    0.041    0.042    0.042
 17           PI    0.042    0.042    0.043    0.044    0.045    0.046    0.048    0.050    0.053    0.056
 18           PI    0.059    0.059    0.060    0.061    0.062    0.063    0.065    0.066    0.068    0.070
 19           PI    0.072    0.075    0.077    0.080    0.084    0.088    0.092    0.097    3.540    0.555
 20           PI    0.533    0.511    0.486    0.467    0.445    0.423    0.423    0.401    0.379    0.357
 21           PI    0.335    0.313    0.289    0.271    0.247    0.225    0.203    0.182    0.166    0.153
 22           PI    0.143    0.135    0.128    0.122    0.116    0.114    0.111    0.108    0.106    0.105
 23           PI    0.103    0.102    0.101    0.100    0.042    0.041    0.041    0.040    0.040    0.039
 24           PI    0.039    0.039    0.038    0.038    0.038    0.037    0.037    0.037    0.037    0.036
 25           PI    0.036    0.036    0.036    0.035    0.035    0.035    0.035    0.034    0.034    0.034
 26           PI    0.034    0.034    0.033    0.033    0.033    0.033    0.033    0.033    0.032    0.032
 27           PI    0.022    0.022    0.022    0.021    0.021    0.021    0.020    0.020    0.020    0.020
 28           PI    0.019    0.019    0.019    0.019    0.018    0.018    0.018    0.017    0.017    0.017
 29           PI    0.017    0.016    0.016    0.016    0.016    0.015    0.015    0.015    0.015    0.014
 30           PI    0.014    0.014    0.013    0.013    0.013    0.013
 31           LS      0.0       94
 32           UD     0.17

 33           KK   CP3-1R  LAG CP3-1 HYDROGRAPH 20 MIN. TO TRAVEL TO CP3-2 (1 MILE)
 34           RT        0                 1

 35           KK    CP3-2  DEVELOP HYDROGRAPH FOR CP3-2
 36           BA     2.38
 37           LS      0.0       95
 38           UD     0.23

 39           KK   CP3-2A  COMBINE HYDROGRAPH CP3-1R AND CP3-2 (= CP3-2A)
 40           HC        2

 41           KK   CP3-2R  MUSKINGUM ROUTING OF CP3-2A HYDROGRAPH 2.5 MILES TO CP3-3 (= CP3-2R)
 42           RM        2    0.75     0.40

 43           KK    CP3-3  DEVELOP HYDROGRAPH FOR CP3-3
 44           BA     2.61
 45           LS      0.0       93
 46           UD     0.48
```

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

  47          KK  CP3-3A  COMBINE HYDROGRAPH CP3-2R WITH CP3-3 (= CP3-3A)
  48          HC       2

  49          KK   CP3-4  DEVELOP HYDROGRAPH FOR CP3-4
  50          BA    2.29
  51          LS     0.0       93
  52          UD    0.83

  53          KK  FRS #3  COMBINE HYDROGRAPH CP3-3A WITH CP3-4 (= FRS #3)
  54          KO       1
  55          HC       2

  56          KK   ROUTE  RESERVIOR ROUTING OF FRS #3 USING FRS #3 HYDROGRAPH
  57          KM           RESERVIOR ASSUMED EMPTY
  58          KO       1
  59          RS       1    STOR     0.0
  60          ST    1170   16851    2.70     1.5
  61          SS  1163.2     400    2.50     1.5
  62          SV    0.00       2      20      90     190     350     630     910    1220    1350
  63          SV    1900    2490    3020    3600    4160
  64          SE    1149    1150    1152    1154    1156    1158    1160    1162  1163.2    1164
  65          SE    1166    1168    1170    1172    1174
  66          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (U) ROUTING          (--->) DIVERSION OR PUMP FLOW
  NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

   6        CP3-1
                U
                U
  33       CP3-1R
                .
                .
  35            .        CP3-2
                .            .
                .            .
  39       CP3-2A............
                U
                U
  41       CP3-2R
                .
                .
  43            .        CP3-3
                .            .
                .            .
  47       CP3-3A............
                .
                .
  49            .        CP3-4
                .            .
                .            .
  53       FRS #3............
                U
                U
  56        ROUTE
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*************************************
*                                   *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            FEBRUARY 1981          *
*          REVISED 01 JUN 88        *
*                                   *
*  RUN DATE  01/19/1990  TIME  08:31:57 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*     U.S. ARMY CORPS OF ENGINEERS  *
*  THE HYDROLOGIC ENGINEERING CENTER *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 551-1748          *
*                                   *
*************************************
```

```
                    DANES & MOORE JOB NUMBER 15448-003-022, FOR THE FLOOD CONTROL DISTRICT
                    OF MARICOPA COUNTY, HYDROLOGIC MODELING OF BUCKEYE FLOODWATER RETARDING
                    STRUCTURE #3 (AZ No. 7-45) **** 72-HOUR PMP **** (REVISED 01-10-90)

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

   II         HYDROGRAPH TIME DATA
                     NMIN         20  MINUTES IN COMPUTATION INTERVAL
                    IDATE     1DEC89  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     5DEC89  ENDING DATE
                   NDTIME       0340  ENDING TIME
                    ICENT         19  CENTURY MARK

              COMPUTATION INTERVAL      .33 HOURS
                   TOTAL TIME BASE    99.67 HOURS

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


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

          **************
          *            *
  6 KK    *    CP3-1   *      DEVELOP HYDROGRAPH FOR CP3-1
          *            *
          **************

            SUBBASIN RUNOFF DATA

  7 BA        SUBBASIN CHARACTERISTICS
                   TAREA        1.42  SUBBASIN AREA
```

PRECIPITATION DATA

8 PB STORM 17.80 BASIN TOTAL PRECIPITATION

9 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.02	.02	.02	.02
.02	.02	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.05	.05	.05	.05	.06
.06	.06	.06	.06	.06	.06	.07	.07	.07	.07
.07	.08	.08	.08	.08	.09	.09	.10	3.54	.55
.53	.51	.49	.47	.44	.42	.42	.40	.38	.36
.34	.31	.29	.27	.25	.23	.20	.18	.17	.15
.14	.14	.13	.12	.12	.11	.11	.11	.11	.10
.10	.10	.10	.10	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01				

31 LS SCS LOSS RATE

STRTL .13 INITIAL ABSTRACTION

CRVNBR 94.00 CURVE NUMBER

RTIMP .00 PERCENT IMPERVIOUS AREA

32 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .17 LAG

***

UNIT HYDROGRAPH
5 END-OF-PERIOD ORDINATES

2020. 586. 110. 24. 1.

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

HYDROGRAPH AT STATION CP3-1

TOTAL RAINFALL = 17.80, TOTAL LOSS = .74, TOTAL EXCESS = 17.05

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
7110.	36.33	(CFS)	1529.	551.	217.	157.
		(INCHES)	10.010	14.420	17.053	17.053
		(AC-FT)	758.	1092.	1292.	1292.

CUMULATIVE AREA = 1.42 SQ MI

*** ***

```
              **************
              *            *
33 KK         *   CP3-1R   *      LAG CP3-1 HYDROGRAPH 20 MIN. TO TRAVEL TO CP3-2 (1 MILE)
              *            *
              **************

                HYDROGRAPH ROUTING DATA

34 RT             TATUM OR STRADDLE-STAGGER ROUTING
                      NSTPS            0   NUMBER OF TATUM STEPS
                      NSTDL            0   NUMBER OF ORDINATES TO BE AVERAGED
                      LAG              1   NUMBER OF INTERVALS TO LAG HYDROGRAPH
                                                                  ***
     ***            ***            ***            ***            ***

                        HYDROGRAPH AT STATION   CP3-1R

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR      99.67-HR
  7118.      36.67        (CFS)     1529.       551.        217.        157.
                        (INCHES)   10.010      14.420      17.053      17.053
                         (AC-FT)    758.       1092.       1292.       1292.

                        CUMULATIVE AREA =     1.42 SQ MI

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

              **************
              *            *
35 KK         *   CP3-2    *      DEVELOP HYDROGRAPH FOR CP3-2
              *            *
              **************

                SUBBASIN RUNOFF DATA

36 BA             SUBBASIN CHARACTERISTICS
                      TAREA        2.30  SUBBASIN AREA

                  PRECIPITATION DATA

 0 PB                 STORM       17.80  BASIN TOTAL PRECIPITATION

 9 PI             INCREMENTAL PRECIPITATION PATTERN
                      .00        .00        .00        .00        .00        .00        .00        .00        .00        .00
                      .01        .01        .01        .01        .01        .01        .01        .01        .01        .01
                      .01        .01        .01        .01        .01        .01        .01        .01        .01        .01
                      .01        .01        .01        .01        .01        .01        .02        .02        .02        .02
                      .02        .02        .03        .03        .03        .03        .03        .03        .03        .03
                      .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
                      .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
                      .03        .03        .04        .04        .04        .04        .04        .04        .04        .04
                      .04        .04        .04        .04        .04        .05        .05        .05        .05        .06
```

.06	.06	.06	.06	.06	.06	.07	.07	.07	.07
.07	.08	.08	.08	.08	.09	.09	.10	3.54	.55
.53	.51	.49	.47	.44	.42	.42	.40	.38	.36
.34	.31	.29	.27	.25	.23	.20	.18	.17	.15
.14	.14	.13	.12	.12	.11	.11	.11	.11	.10
.10	.10	.10	.10	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01				

37 LS SCS LOSS RATE

STRTL	.11	INITIAL ABSTRACTION
CRVNBR	95.00	CURVE NUMBER
RTIMP	.00	PERCENT IMPERVIOUS AREA

38 UD SCS DIMENSIONLESS UNITGRAPH

TLAG	.23	LAG

***

UNIT HYDROGRAPH
5 END-OF-PERIOD ORDINATES

2755.	1384.	355.	90.	25.
***	***	***	***	***

HYDROGRAPH AT STATION CP3-2

TOTAL RAINFALL = 17.80, TOTAL LOSS = .62, TOTAL EXCESS = 17.18

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
9828.	36.33	(CFS)	2560.	926.	366.	265.
		(INCHES)	10.001	14.468	17.181	17.181
		(AC-FT)	1269.	1836.	2181.	2181.

CUMULATIVE AREA = 2.38 SQ MI

*** ***

```
**************
*            *
*   CP3-2A   *
*            *
**************
```

39 KK COMBINE HYDROGRAPH CP3-1R AND CP3-2 (= CP3-2A)

40 HC HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE

***

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

```
                    HYDROGRAPH AT STATION   CP3-2A

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                    6-HR       24-HR       72-HR     99.67-HR
   13534.      36.67        (CFS)      4066.      1476.        584.        422.
                         (INCHES)     9.947     14.450      17.133      17.133
                          (AC-FT)     2016.      2928.       3472.       3472.

                    CUMULATIVE AREA =    3.80 SQ MI


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

          **************
          *            *
 41 KK    *   CP3-2R   *      MUSKINGUM ROUTING OF CP3-2A HYDROGRAPH 2.5 MILES TO CP3-3 (= CP3-2R)
          *            *
          **************

            HYDROGRAPH ROUTING DATA

 42 RM        MUSKINGUM ROUTING
                     NSTPS          2 NUMBER OF SUBREACHES
                     AMSKK        .75 MUSKINGUM K
                         X        .40 MUSKINGUM X

                                                                  ***

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

                    HYDROGRAPH AT STATION   CP3-2R

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                    6-HR       24-HR       72-HR     99.67-HR
   11642.      37.33        (CFS)      4027.      1476.        584.        422.
                         (INCHES)     9.854     14.449      17.133      17.133
                          (AC-FT)     1997.      2928.       3472.       3472.

                    CUMULATIVE AREA =    3.80 SQ MI


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

          **************
          *            *
 43 KK    *   CP3-3    *      DEVELOP HYDROGRAPH FOR CP3-3
          *            *
          **************

            SUBBASIN RUNOFF DATA

 44 BA        SUBBASIN CHARACTERISTICS
                     TAREA          2.61  SUBBASIN AREA
```

PRECIPITATION DATA

8 PB STORM 17.80 BASIN TOTAL PRECIPITATION

9 PI INCREMENTAL PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.02	.02	.02	.02
.02	.02	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.05	.05	.05	.05	.06
.06	.06	.06	.06	.06	.06	.07	.07	.07	.07
.07	.08	.08	.08	.08	.09	.09	.10	3.54	.55
.53	.51	.49	.47	.44	.42	.42	.40	.38	.36
.34	.31	.29	.27	.25	.23	.20	.18	.17	.15
.14	.14	.13	.12	.12	.11	.11	.11	.11	.10
.10	.10	.10	.10	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01				

45 LS SCS LOSS RATE

STRTL .15 INITIAL ABSTRACTION
CRVNBR 93.00 CURVE NUMBER
RTIMP .00 PERCENT IMPERVIOUS AREA

46 UD SCS DIMENSIONLESS UNITGRAPH

TLAG .48 LAG

***

UNIT HYDROGRAPH
9 END-OF-PERIOD ORDINATES

981. 1959. 1227. 506. 219. 94. 41. 19. 7.

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

HYDROGRAPH AT STATION CP3-3

TOTAL RAINFALL = 17.80, TOTAL LOSS = .87, TOTAL EXCESS = 16.92

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
7533.	36.67	(CFS)	2745.	1008.	396.	286.
		(INCHES)	9.779	14.366	16.925	16.925
		(AC-FT)	1361.	2000.	2356.	2356.

CUMULATIVE AREA = 2.61 SQ MI

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

            **************
            *            *
 47 KK      *   CP3-3A   *      COMBINE HYDROGRAPH CP3-2R WITH CP3-3 (= CP3-3A)
            *            *
            **************

 48 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***
    ***            ***            ***            ***            ***

                     HYDROGRAPH AT STATION   CP3-3A

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR      99.67-HR
  15640.     37.33        (CFS)    6674.       2485.        979.         708.
                        (INCHES)   9.680      14.415      17.048       17.048
                         (AC-FT)   3309.       4920.       5028.        5028.

                     CUMULATIVE AREA =    6.41 SQ MI

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

            **************
            *            *
 49 KK      *   CP3-4    *      DEVELOP HYDROGRAPH FOR CP3-4
            *            *
            **************

            SUBBASIN RUNOFF DATA

 50 BA          SUBBASIN CHARACTERISTICS
                     TAREA        2.29  SUBBASIN AREA

                PRECIPITATION DATA

  8 PB                STORM       17.80  BASIN TOTAL PRECIPITATION

  9 PI            INCREMENTAL PRECIPITATION PATTERN
                     .00        .00        .00        .00        .00        .00        .00        .00        .00        .00
                     .01        .01        .01        .01        .01        .01        .01        .01        .01        .01
                     .01        .01        .01        .01        .01        .01        .01        .01        .01        .01
                     .01        .01        .01        .01        .01        .01        .02        .02        .02        .02
                     .02        .02        .03        .03        .03        .03        .03        .03        .03        .03
                     .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
                     .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
                     .03        .03        .04        .04        .04        .04        .04        .04        .04        .04
                     .04        .04        .04        .04        .04        .05        .05        .05        .05        .06
                     .06        .06        .06        .06        .06        .06        .07        .07        .07        .07
                     .07        .08        .08        .08        .08        .09        .09        .10       3.54        .55
                     .53        .51        .49        .47        .44        .42        .42        .40        .38        .36
```

```
                .34      .31      .29      .27      .25      .23      .20      .18      .17      .15
                .14      .14      .13      .12      .12      .11      .11      .11      .11      .10
                .10      .10      .10      .10      .04      .04      .04      .04      .04      .04
                .04      .04      .04      .04      .04      .04      .04      .04      .04      .04
                .04      .04      .04      .03      .03      .03      .03      .03      .03      .03
                .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
                .02      .02      .02      .02      .02      .02      .02      .02      .02      .02
                .02      .02      .02      .02      .02      .02      .02      .02      .02      .02
                .02      .02      .02      .02      .02      .01      .01      .01      .01      .01
                .01      .01      .01      .01      .01      .01

51 LS        SCS LOSS RATE
                STRTL        .15  INITIAL ABSTRACTION
               CRVNBR      93.00  CURVE NUMBER
                RTIMP        .00  PERCENT IMPERVIOUS AREA

52 UD        SCS DIMENSIONLESS UNITGRAPH
                TLAG        .83  LAG

                                                  ***

                                                UNIT HYDROGRAPH
                                            14 END-OF-PERIOD ORDINATES
            250.     857.    1113.     924.     543.     309.     183.     106.      60.      36.
             21.      12.       8.       4.

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

                     HYDROGRAPH AT STATION    CP3-4

   TOTAL RAINFALL =   17.80, TOTAL LOSS =     .87, TOTAL EXCESS =   16.92

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR      24-HR      72-HR    99.67-HR
   4666.     37.00        (CFS)    2363.       885.       347.       251.
                        (INCHES)   9.593     14.365     16.925     16.925
                         (AC-FT)   1172.      1754.      2067.      2067.

                     CUMULATIVE AREA =    2.29 SQ MI


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

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            *            *
53 KK       *   FRS #3   *      COMBINE HYDROGRAPH CP3-3A WITH CP3-4 (= FRS #3)
            *            *
            **************

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

55 HC        HYDROGRAPH COMBINATION
                ICOMP        2  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION FRS #3
SUM OF 2 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1	DEC	0000	1	0.	2	DEC	0100	76	532.	3	DEC	0200	151	722.	4	DEC	0300	226	1.
1	DEC	0020	2	0.	2	DEC	0120	77	570.	3	DEC	0220	152	691.	4	DEC	0320	227	1.
1	DEC	0040	3	0.	2	DEC	0140	78	591.	3	DEC	0240	153	675.	4	DEC	0340	228	0.
1	DEC	0100	4	0.	2	DEC	0200	79	602.	3	DEC	0300	154	664.	4	DEC	0400	229	0.
1	DEC	0120	5	0.	2	DEC	0220	80	609.	3	DEC	0320	155	656.	4	DEC	0420	230	0.
1	DEC	0140	6	0.	2	DEC	0240	81	616.	3	DEC	0340	156	649.	4	DEC	0440	231	0.
1	DEC	0200	7	0.	2	DEC	0300	82	624.	3	DEC	0400	157	643.	4	DEC	0500	232	0.
1	DEC	0220	8	0.	2	DEC	0320	83	631.	3	DEC	0420	158	637.	4	DEC	0520	233	0.
1	DEC	0240	9	0.	2	DEC	0340	84	637.	3	DEC	0440	159	631.	4	DEC	0540	234	0.
1	DEC	0300	10	0.	2	DEC	0400	85	644.	3	DEC	0500	160	626.	4	DEC	0600	235	0.
1	DEC	0320	11	0.	2	DEC	0420	86	655.	3	DEC	0520	161	623.	4	DEC	0620	236	0.
1	DEC	0340	12	0.	2	DEC	0440	87	670.	3	DEC	0540	162	619.	4	DEC	0640	237	0.
1	DEC	0400	13	0.	2	DEC	0500	88	687.	3	DEC	0600	163	614.	4	DEC	0700	238	0.
1	DEC	0420	14	0.	2	DEC	0520	89	708.	3	DEC	0620	164	609.	4	DEC	0720	239	0.
1	DEC	0440	15	0.	2	DEC	0540	90	735.	3	DEC	0640	165	606.	4	DEC	0740	240	0.
1	DEC	0500	16	0.	2	DEC	0600	91	769.	3	DEC	0700	166	602.	4	DEC	0800	241	0.
1	DEC	0520	17	0.	2	DEC	0620	92	809.	3	DEC	0720	167	597.	4	DEC	0820	242	0.
1	DEC	0540	18	0.	2	DEC	0640	93	851.	3	DEC	0740	168	593.	4	DEC	0840	243	0.
1	DEC	0600	19	0.	2	DEC	0700	94	889.	3	DEC	0800	169	589.	4	DEC	0900	244	0.
1	DEC	0620	20	0.	2	DEC	0720	95	917.	3	DEC	0820	170	585.	4	DEC	0920	245	0.
1	DEC	0640	21	0.	2	DEC	0740	96	939.	3	DEC	0840	171	580.	4	DEC	0940	246	0.
1	DEC	0700	22	0.	2	DEC	0800	97	958.	3	DEC	0900	172	576.	4	DEC	1000	247	0.
1	DEC	0720	23	0.	2	DEC	0820	98	978.	3	DEC	0920	173	573.	4	DEC	1020	248	0.
1	DEC	0740	24	1.	2	DEC	0840	99	999.	3	DEC	0940	174	571.	4	DEC	1040	249	0.
1	DEC	0800	25	2.	2	DEC	0900	100	1023.	3	DEC	1000	175	568.	4	DEC	1100	250	0.
1	DEC	0820	26	3.	2	DEC	0920	101	1049.	3	DEC	1020	176	563.	4	DEC	1120	251	0.
1	DEC	0840	27	5.	2	DEC	0940	102	1078.	3	DEC	1040	177	559.	4	DEC	1140	252	0.
1	DEC	0900	28	7.	2	DEC	1000	103	1111.	3	DEC	1100	178	557.	4	DEC	1200	253	0.
1	DEC	0920	29	11.	2	DEC	1020	104	1147.	3	DEC	1120	179	556.	4	DEC	1220	254	0.
1	DEC	0940	30	15.	2	DEC	1040	105	1187.	3	DEC	1140	180	554.	4	DEC	1240	255	0.
1	DEC	1000	31	19.	2	DEC	1100	106	1231.	3	DEC	1200	181	551.	4	DEC	1300	256	0.
1	DEC	1020	32	24.	2	DEC	1120	107	1280.	3	DEC	1220	182	534.	4	DEC	1320	257	0.
1	DEC	1040	33	29.	2	DEC	1140	108	1336.	3	DEC	1240	183	500.	4	DEC	1340	258	0.
1	DEC	1100	34	34.	2	DEC	1200	109	1400.	3	DEC	1300	184	453.	4	DEC	1400	259	0.
1	DEC	1120	35	39.	2	DEC	1220	110	5667.	3	DEC	1320	185	408.	4	DEC	1420	260	0.
1	DEC	1140	36	45.	2	DEC	1240	111	12275.	3	DEC	1340	186	382.	4	DEC	1440	261	0.
1	DEC	1200	37	51.	2	DEC	1300	112	18519.	3	DEC	1400	187	368.	4	DEC	1500	262	0.
1	DEC	1220	38	59.	2	DEC	1320	113	20157.	3	DEC	1420	188	359.	4	DEC	1520	263	0.
1	DEC	1240	39	74.	2	DEC	1340	114	14730.	3	DEC	1440	189	352.	4	DEC	1540	264	0.
1	DEC	1300	40	98.	2	DEC	1400	115	11038.	3	DEC	1500	190	346.	4	DEC	1600	265	0.
1	DEC	1320	41	125.	2	DEC	1420	116	9305.	3	DEC	1520	191	341.	4	DEC	1620	266	0.
1	DEC	1340	42	146.	2	DEC	1440	117	8399.	3	DEC	1540	192	337.	4	DEC	1640	267	0.
1	DEC	1400	43	164.	2	DEC	1500	118	7859.	3	DEC	1600	193	333.	4	DEC	1700	268	0.
1	DEC	1420	44	179.	2	DEC	1520	119	7474.	3	DEC	1620	194	328.	4	DEC	1720	269	0.
1	DEC	1440	45	194.	2	DEC	1540	120	7171.	3	DEC	1640	195	324.	4	DEC	1740	270	0.
1	DEC	1500	46	207.	2	DEC	1600	121	6880.	3	DEC	1700	196	320.	4	DEC	1800	271	0.
1	DEC	1520	47	221.	2	DEC	1620	122	6552.	3	DEC	1720	197	316.	4	DEC	1820	272	0.
1	DEC	1540	48	233.	2	DEC	1640	123	6195.	3	DEC	1740	198	311.	4	DEC	1840	273	0.
1	DEC	1600	49	246.	2	DEC	1700	124	5822.	3	DEC	1800	199	305.	4	DEC	1900	274	0.

1	DEC	1620	50	258.	*	2	DEC	1720	125	5456.	*	3	DEC	1820	200	300.	*	4	DEC	1920	275	0.					
1	DEC	1640	51	270.	*	2	DEC	1740	126	5089.	*	3	DEC	1840	201	295.	*	4	DEC	1940	276	0.					
1	DEC	1700	52	281.	*	2	DEC	1800	127	4724.	*	3	DEC	1900	202	290.	*	4	DEC	2000	277	0.					
1	DEC	1720	53	292.	*	2	DEC	1820	128	4360.	*	3	DEC	1920	203	286.	*	4	DEC	2020	278	0.					
1	DEC	1740	54	302.	*	2	DEC	1840	129	3990.	*	3	DEC	1940	204	282.	*	4	DEC	2040	279	0.					
1	DEC	1800	55	311.	*	2	DEC	1900	130	3630.	*	3	DEC	2000	205	278.	*	4	DEC	2100	280	0.					
1	DEC	1820	56	321.	*	2	DEC	1920	131	3293.	*	3	DEC	2020	206	273.	*	4	DEC	2120	281	0.					
1	DEC	1840	57	331.	*	2	DEC	1940	132	2996.	*	3	DEC	2040	207	270.	*	4	DEC	2140	282	0.					
1	DEC	1900	58	341.	*	2	DEC	2000	133	2748.	*	3	DEC	2100	208	266.	*	4	DEC	2200	283	0.					
1	DEC	1920	59	351.	*	2	DEC	2020	134	2546.	*	3	DEC	2120	209	261.	*	4	DEC	2220	284	0.					
1	DEC	1940	60	360.	*	2	DEC	2040	135	2380.	*	3	DEC	2140	210	256.	*	4	DEC	2240	285	0.					
1	DEC	2000	61	367.	*	2	DEC	2100	136	2245.	*	3	DEC	2200	211	253.	*	4	DEC	2300	286	0.					
1	DEC	2020	62	374.	*	2	DEC	2120	137	2134.	*	3	DEC	2220	212	249.	*	4	DEC	2320	287	0.					
1	DEC	2040	63	381.	*	2	DEC	2140	138	2043.	*	3	DEC	2240	213	244.	*	4	DEC	2340	288	0.					
1	DEC	2100	64	389.	*	2	DEC	2200	139	1969.	*	3	DEC	2300	214	238.	*	5	DEC	0000	289	0.					
1	DEC	2120	65	397.	*	2	DEC	2220	140	1906.	*	3	DEC	2320	215	233.	*	5	DEC	0020	290	0.					
1	DEC	2140	66	404.	*	2	DEC	2240	141	1855.	*	3	DEC	2340	216	228.	*	5	DEC	0040	291	0.					
1	DEC	2200	67	411.	*	2	DEC	2300	142	1814.	*	4	DEC	0000	217	223.	*	5	DEC	0100	292	0.					
1	DEC	2220	68	418.	*	2	DEC	2320	143	1781.	*	4	DEC	0020	218	204.	*	5	DEC	0120	293	0.					
1	DEC	2240	69	426.	*	2	DEC	2340	144	1754.	*	4	DEC	0040	219	164.	*	5	DEC	0140	294	0.					
1	DEC	2300	70	431.	*	3	DEC	0000	145	1730.	*	4	DEC	0100	220	106.	*	5	DEC	0200	295	0.					
1	DEC	2320	71	436.	*	3	DEC	0020	146	1639.	*	4	DEC	0120	221	50.	*	5	DEC	0220	296	0.					
1	DEC	2340	72	442.	*	3	DEC	0040	147	1450.	*	4	DEC	0140	222	21.	*	5	DEC	0240	297	0.					
2	DEC	0000	73	449.	*	3	DEC	0100	148	1181.	*	4	DEC	0200	223	9.	*	5	DEC	0300	298	0.					
2	DEC	0020	74	465.	*	3	DEC	0120	149	920.	*	4	DEC	0220	224	4.	*	5	DEC	0320	299	0.					
2	DEC	0040	75	493.	*	3	DEC	0140	150	783.	*	4	DEC	0240	225	2.	*	5	DEC	0340	300	0.					
					*						*						*										

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
20157.	37.33	(CFS)	9037.	3369.	1327.	959.
		(INCHES)	9.657	14.402	17.016	17.016
		(AC-FT)	4481.	6682.	7895.	7895.

CUMULATIVE AREA = 8.70 SQ MI

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            *            *
56 KK       *   ROUTE    *      RESERVIOR ROUTING OF FRS #3 USING FRS #3 HYDROGRAPH
            *            *
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                                 RESERVIOR ASSUMED EMPTY

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

               HYDROGRAPH ROUTING DATA

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

62 SV          STORAGE            .0       2.0      20.0      90.0     190.0     350.0     630.0     910.0    1220.0    1350.0
                                1900.0    2490.0    3020.0    3600.0    4160.0

64 SE          ELEVATION       1149.00   1150.00   1152.00   1154.00   1156.00   1158.00   1160.00   1162.00   1163.20   1164.00
                               1166.00   1168.00   1170.00   1172.00   1174.00

61 SS          SPILLWAY
                     CREL       1163.20  SPILLWAY CREST ELEVATION
                    SPWID        400.00  SPILLWAY WIDTH
                     COOW          2.50  WEIR COEFFICIENT
                     EXPW          1.50  EXPONENT OF HEAD

60 ST          TOP OF DAM
                    TOPEL       1170.00  ELEVATION AT TOP OF DAM
                   DAMWID      16851.00  DAM WIDTH
                     COOD          2.70  WEIR COEFFICIENT
                     EXPD          1.50  EXPONENT OF HEAD

                                                  ***

                                   COMPUTED OUTFLOW-ELEVATION DATA

                                  (EXCLUDING FLOW OVER DAM)

          OUTFLOW        .00       .00      6.08     48.67    164.36    389.48    760.78   1314.45   2087.37   3115.86
        ELEVATION    1149.00   1163.20   1163.23   1163.33   1163.50   1163.73   1164.03   1164.40   1164.83   1165.33

          OUTFLOW    4436.73   6085.92   8100.18  10516.43  13370.40  16699.42  20539.60  24927.43  29899.98  35492.66
        ELEVATION    1165.90   1166.53   1167.23   1168.00   1168.83   1169.73   1170.70   1171.73   1172.83   1174.00

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

                                  (INCLUDING FLOW OVER DAM)

          STORAGE        .00      2.00     20.00     90.00    190.00    350.00    630.00    910.00   1220.00   1225.42
          OUTFLOW        .00       .00       .00       .00       .00       .00       .00       .00       .00      6.08
        ELEVATION    1149.00   1150.00   1152.00   1154.00   1156.00   1158.00   1160.00   1162.00   1163.20   1163.23

          STORAGE    1241.66   1268.76   1306.66   1350.00   1359.16   1459.97   1579.14   1716.64   1872.51   1900.00
          OUTFLOW      48.67    164.36    389.48    715.61    760.78   1314.45   2087.37   3115.86   4436.73   4685.42
        ELEVATION    1163.33   1163.50   1163.73   1164.00   1164.03   1164.40   1164.83   1165.33   1165.90   1166.00

          STORAGE    2057.33   2263.82   2490.00   2710.81   2949.32   3020.00   3222.99   3522.65   3600.00   3833.34
          OUTFLOW    6085.92   8100.18  10516.43  13370.40  16699.42  17732.42  47183.08 120749.80 154792.20 246892.80
        ELEVATION    1166.53   1167.23   1168.00   1168.83   1169.73   1170.00   1170.70   1171.73   1172.00   1172.83

          STORAGE    4160.00
          OUTFLOW  399474.30
        ELEVATION    1174.00

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                                   HYDROGRAPH AT STATION     ROUTE

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	DEC	0000	1	0.	.0	1149.0	2	DEC	0920	101	0.	856.6	1161.6	3	DEC	1840	201	328.	1297.3	1163.7
1	DEC	0020	2	0.	.0	1149.0	2	DEC	0940	102	0.	885.9	1161.8	3	DEC	1900	202	323.	1296.4	1163.7
1	DEC	0040	3	0.	.0	1149.0	2	DEC	1000	103	0.	916.0	1162.0	3	DEC	1920	203	317.	1295.6	1163.7
1	DEC	0100	4	0.	.0	1149.0	2	DEC	1020	104	0.	947.1	1162.1	3	DEC	1940	204	312.	1294.7	1163.7
1	DEC	0120	5	0.	.0	1149.0	2	DEC	1040	105	0.	979.3	1162.3	3	DEC	2000	205	307.	1293.9	1163.7
1	DEC	0140	6	0.	.0	1149.0	2	DEC	1100	106	0.	1012.6	1162.4	3	DEC	2020	206	302.	1293.1	1163.6
1	DEC	0200	7	0.	.0	1149.0	2	DEC	1120	107	0.	1047.1	1162.5	3	DEC	2040	207	297.	1292.3	1163.6
1	DEC	0220	8	0.	.0	1149.0	2	DEC	1140	108	0.	1083.1	1162.7	3	DEC	2100	208	292.	1291.6	1163.6
1	DEC	0240	9	0.	.0	1149.0	2	DEC	1200	109	0.	1120.8	1162.8	3	DEC	2120	209	288.	1290.9	1163.6
1	DEC	0300	10	0.	.0	1149.0	2	DEC	1220	110	0.	1218.3	1163.2	3	DEC	2140	210	283.	1290.1	1163.6
1	DEC	0320	11	0.	.0	1149.0	2	DEC	1240	111	1245.	1448.3	1164.4	3	DEC	2200	211	279.	1289.4	1163.6
1	DEC	0340	12	0.	.0	1149.0	2	DEC	1300	112	3825.	1802.5	1165.6	3	DEC	2220	212	275.	1288.6	1163.6
1	DEC	0400	13	0.	.0	1149.0	2	DEC	1320	113	7281.	2182.2	1167.0	3	DEC	2240	213	270.	1287.9	1163.6
1	DEC	0420	14	0.	.0	1149.0	2	DEC	1340	114	9830.	2427.7	1167.8	3	DEC	2300	214	266.	1287.2	1163.6
1	DEC	0440	15	0.	.0	1149.0	2	DEC	1400	115	10650.	2500.8	1168.0	3	DEC	2320	215	261.	1286.4	1163.6
1	DEC	0500	16	0.	.0	1149.0	2	DEC	1420	116	10511.	2489.5	1168.0	3	DEC	2340	216	257.	1285.6	1163.6
1	DEC	0520	17	0.	.0	1149.0	2	DEC	1440	117	10072.	2449.8	1167.9	4	DEC	0000	217	252.	1284.8	1163.6
1	DEC	0540	18	0.	.0	1149.0	2	DEC	1500	118	9565.	2403.3	1167.7	4	DEC	0020	218	246.	1283.8	1163.6
1	DEC	0600	19	0.	.0	1149.0	2	DEC	1520	119	9078.	2357.7	1167.6	4	DEC	0040	219	237.	1282.3	1163.6
1	DEC	0620	20	0.	.0	1149.0	2	DEC	1540	120	8631.	2315.3	1167.4	4	DEC	0100	220	223.	1279.7	1163.6
1	DEC	0640	21	0.	.0	1149.0	2	DEC	1600	121	8233.	2276.7	1167.3	4	DEC	0120	221	202.	1276.0	1163.5
1	DEC	0700	22	0.	.0	1149.0	2	DEC	1620	122	7861.	2240.3	1167.2	4	DEC	0140	222	179.	1271.7	1163.5
1	DEC	0720	23	0.	.0	1149.0	2	DEC	1640	123	7502.	2204.5	1167.0	4	DEC	0200	223	158.	1267.4	1163.5
1	DEC	0740	24	0.	.0	1149.0	2	DEC	1700	124	7146.	2168.4	1166.9	4	DEC	0220	224	139.	1263.5	1163.5
1	DEC	0800	25	0.	.0	1149.0	2	DEC	1720	125	6792.	2132.0	1166.8	4	DEC	0240	225	122.	1260.0	1163.4
1	DEC	0820	26	0.	.1	1149.1	2	DEC	1740	126	6441.	2095.2	1166.7	4	DEC	0300	226	108.	1256.9	1163.4
1	DEC	0840	27	0.	.2	1149.1	2	DEC	1800	127	6092.	2057.9	1166.5	4	DEC	0320	227	96.	1254.1	1163.4
1	DEC	0900	28	0.	.4	1149.2	2	DEC	1820	128	5745.	2020.2	1166.4	4	DEC	0340	228	86.	1251.6	1163.4
1	DEC	0920	29	0.	.6	1149.3	2	DEC	1840	129	5400.	1982.0	1166.3	4	DEC	0400	229	77.	1249.4	1163.4
1	DEC	0940	30	0.	1.0	1149.5	2	DEC	1900	130	5057.	1943.1	1166.1	4	DEC	0420	230	69.	1247.4	1163.4
1	DEC	1000	31	0.	1.4	1149.7	2	DEC	1920	131	4720.	1904.1	1166.0	4	DEC	0440	231	62.	1245.5	1163.4
1	DEC	1020	32	0.	2.0	1150.0	2	DEC	1940	132	4374.	1865.5	1165.9	4	DEC	0500	232	56.	1243.9	1163.3
1	DEC	1040	33	0.	2.8	1150.1	2	DEC	2000	133	4049.	1828.6	1165.7	4	DEC	0520	233	51.	1242.4	1163.3
1	DEC	1100	34	0.	3.6	1150.2	2	DEC	2020	134	3752.	1794.0	1165.6	4	DEC	0540	234	47.	1241.1	1163.3
1	DEC	1120	35	0.	4.6	1150.3	2	DEC	2040	135	3485.	1762.2	1165.5	4	DEC	0600	235	43.	1239.9	1163.3
1	DEC	1140	36	0.	5.8	1150.4	2	DEC	2100	136	3250.	1733.3	1165.4	4	DEC	0620	236	39.	1238.7	1163.3
1	DEC	1200	37	0.	7.1	1150.6	2	DEC	2120	137	3041.	1707.2	1165.3	4	DEC	0640	237	36.	1237.7	1163.3
1	DEC	1220	38	0.	8.6	1150.7	2	DEC	2140	138	2857.	1683.6	1165.2	4	DEC	0700	238	33.	1236.7	1163.3
1	DEC	1240	39	0.	10.5	1150.9	2	DEC	2200	139	2695.	1662.6	1165.1	4	DEC	0720	239	31.	1235.9	1163.3
1	DEC	1300	40	0.	12.8	1151.2	2	DEC	2220	140	2554.	1643.8	1165.1	4	DEC	0740	240	28.	1235.1	1163.3
1	DEC	1320	41	0.	15.9	1151.5	2	DEC	2240	141	2430.	1627.1	1165.0	4	DEC	0800	241	26.	1234.3	1163.3
1	DEC	1340	42	0.	19.6	1152.0	2	DEC	2300	142	2323.	1612.3	1165.0	4	DEC	0820	242	24.	1233.6	1163.3
1	DEC	1400	43	0.	23.9	1152.1	2	DEC	2320	143	2229.	1599.2	1164.9	4	DEC	0840	243	23.	1233.0	1163.3
1	DEC	1420	44	0.	28.6	1152.2	2	DEC	2340	144	2147.	1587.7	1164.9	4	DEC	0900	244	21.	1232.4	1163.3
1	DEC	1440	45	0.	33.7	1152.4	3	DEC	0000	145	2077.	1577.6	1164.8	4	DEC	0920	245	20.	1231.8	1163.3
1	DEC	1500	46	0.	39.3	1152.6	3	DEC	0020	146	2009.	1567.8	1164.8	4	DEC	0940	246	18.	1231.3	1163.3
1	DEC	1520	47	0.	45.2	1152.7	3	DEC	0040	147	1930.	1556.2	1164.7	4	DEC	1000	247	17.	1230.8	1163.3
1	DEC	1540	48	0.	51.4	1152.9	3	DEC	0100	148	1826.	1540.8	1164.7	4	DEC	1020	248	16.	1230.4	1163.3
1	DEC	1600	49	0.	58.0	1153.1	3	DEC	0120	149	1697.	1521.3	1164.6	4	DEC	1040	249	15.	1229.9	1163.3
1	DEC	1620	50	0.	65.0	1153.3	3	DEC	0140	150	1560.	1499.9	1164.5	4	DEC	1100	250	14.	1229.5	1163.3
1	DEC	1640	51	0.	72.2	1153.5	3	DEC	0200	151	1432.	1479.4	1164.5	4	DEC	1120	251	13.	1229.2	1163.3
1	DEC	1700	52	0.	79.8	1153.7	3	DEC	0220	152	1320.	1460.9	1164.4	4	DEC	1140	252	13.	1228.8	1163.3
1	DEC	1720	53	0.	87.7	1153.9	3	DEC	0240	153	1224.	1444.7	1164.3	4	DEC	1200	253	12.	1228.5	1163.3
1	DEC	1740	54	0.	95.9	1154.1	3	DEC	0300	154	1143.	1430.6	1164.3	4	DEC	1220	254	11.	1228.2	1163.3
1	DEC	1800	55	0.	104.3	1154.3	3	DEC	0320	155	1073.	1418.2	1164.2	4	DEC	1240	255	11.	1227.9	1163.2
1	DEC	1820	56	0.	113.0	1154.5	3	DEC	0340	156	1014.	1407.5	1164.2	4	DEC	1300	256	10.	1227.6	1163.2
1	DEC	1840	57	0.	122.0	1154.6	3	DEC	0400	157	963.	1398.2	1164.2	4	DEC	1320	257	10.	1227.3	1163.2
1	DEC	1900	58	0.	131.3	1154.8	3	DEC	0420	158	919.	1389.9	1164.1	4	DEC	1340	258	9.	1227.1	1163.2

1	DEC	1920	59	0.	140.8	1155.0	*	3	DEC	0440	159	881.	1382.7	1164.1	*	4	DEC	1400	259	9.	1226.8	1163.2
1	DEC	1940	60	0.	150.6	1155.2	*	3	DEC	0500	160	848.	1376.3	1164.1	*	4	DEC	1420	260	8.	1226.6	1163.2
1	DEC	2000	61	0.	160.6	1155.4	*	3	DEC	0520	161	818.	1370.6	1164.1	*	4	DEC	1440	261	8.	1226.4	1163.2
1	DEC	2020	62	0.	170.8	1155.6	*	3	DEC	0540	162	793.	1365.6	1164.1	*	4	DEC	1500	262	7.	1226.2	1163.2
1	DEC	2040	63	0.	181.2	1155.8	*	3	DEC	0600	163	770.	1361.1	1164.0	*	4	DEC	1520	263	7.	1226.0	1163.2
1	DEC	2100	64	0.	191.8	1156.0	*	3	DEC	0620	164	750.	1357.0	1164.0	*	4	DEC	1540	264	7.	1225.8	1163.2
1	DEC	2120	65	0.	202.6	1156.2	*	3	DEC	0640	165	732.	1353.4	1164.0	*	4	DEC	1600	265	6.	1225.6	1163.2
1	DEC	2140	66	0.	213.6	1156.3	*	3	DEC	0700	166	716.	1350.1	1164.0	*	4	DEC	1620	266	6.	1225.5	1163.2
1	DEC	2200	67	0.	224.8	1156.4	*	3	DEC	0720	167	693.	1347.2	1164.0	*	4	DEC	1640	267	6.	1225.3	1163.2
1	DEC	2220	68	0.	236.3	1156.6	*	3	DEC	0740	168	673.	1344.8	1164.0	*	4	DEC	1700	268	6.	1225.1	1163.2
1	DEC	2240	69	0.	247.9	1156.7	*	3	DEC	0800	169	657.	1342.7	1164.0	*	4	DEC	1720	269	5.	1225.0	1163.2
1	DEC	2300	70	0.	259.7	1156.9	*	3	DEC	0820	170	643.	1341.0	1163.9	*	4	DEC	1740	270	5.	1224.9	1163.2
1	DEC	2320	71	0.	271.6	1157.0	*	3	DEC	0840	171	631.	1339.5	1163.9	*	4	DEC	1800	271	5.	1224.7	1163.2
1	DEC	2340	72	0.	283.7	1157.2	*	3	DEC	0900	172	621.	1338.2	1163.9	*	4	DEC	1820	272	5.	1224.6	1163.2
2	DEC	0000	73	0.	296.0	1157.3	*	3	DEC	0920	173	612.	1337.1	1163.9	*	4	DEC	1840	273	5.	1224.5	1163.2
2	DEC	0020	74	0.	308.6	1157.5	*	3	DEC	0940	174	604.	1336.1	1163.9	*	4	DEC	1900	274	4.	1224.3	1163.2
2	DEC	0040	75	0.	321.8	1157.6	*	3	DEC	1000	175	597.	1335.2	1163.9	*	4	DEC	1920	275	4.	1224.2	1163.2
2	DEC	0100	76	0.	335.9	1157.8	*	3	DEC	1020	176	591.	1334.4	1163.9	*	4	DEC	1940	276	4.	1224.1	1163.2
2	DEC	0120	77	0.	351.1	1158.0	*	3	DEC	1040	177	585.	1333.7	1163.9	*	4	DEC	2000	277	4.	1224.0	1163.2
2	DEC	0140	78	0.	367.1	1158.1	*	3	DEC	1100	178	580.	1333.0	1163.9	*	4	DEC	2020	278	4.	1223.9	1163.2
2	DEC	0200	79	0.	383.5	1158.2	*	3	DEC	1120	179	575.	1332.4	1163.9	*	4	DEC	2040	279	4.	1223.8	1163.2
2	DEC	0220	80	0.	400.2	1158.4	*	3	DEC	1140	180	571.	1331.9	1163.9	*	4	DEC	2100	280	3.	1223.7	1163.2
2	DEC	0240	81	0.	417.0	1158.5	*	3	DEC	1200	181	568.	1331.4	1163.9	*	4	DEC	2120	281	3.	1223.6	1163.2
2	DEC	0300	82	0.	434.1	1158.6	*	3	DEC	1220	182	563.	1330.8	1163.9	*	4	DEC	2140	282	3.	1223.5	1163.2
2	DEC	0320	83	0.	451.4	1158.7	*	3	DEC	1240	183	554.	1329.6	1163.9	*	4	DEC	2200	283	3.	1223.5	1163.2
2	DEC	0340	84	0.	468.9	1158.8	*	3	DEC	1300	184	540.	1327.7	1163.9	*	4	DEC	2220	284	3.	1223.4	1163.2
2	DEC	0400	85	0.	486.5	1159.0	*	3	DEC	1320	185	519.	1324.9	1163.8	*	4	DEC	2240	285	3.	1223.3	1163.2
2	DEC	0420	86	0.	504.4	1159.1	*	3	DEC	1340	186	496.	1321.8	1163.8	*	4	DEC	2300	286	3.	1223.2	1163.2
2	DEC	0440	87	0.	522.7	1159.2	*	3	DEC	1400	187	474.	1318.8	1163.8	*	4	DEC	2320	287	3.	1223.1	1163.2
2	DEC	0500	88	0.	541.4	1159.4	*	3	DEC	1420	188	454.	1316.0	1163.8	*	4	DEC	2340	288	3.	1223.1	1163.2
2	DEC	0520	89	0.	560.6	1159.5	*	3	DEC	1440	189	437.	1313.5	1163.8	*	5	DEC	0000	289	3.	1223.0	1163.2
2	DEC	0540	90	0.	580.5	1159.6	*	3	DEC	1500	190	421.	1311.3	1163.8	*	5	DEC	0020	290	2.	1223.0	1163.2
2	DEC	0600	91	0.	601.2	1159.8	*	3	DEC	1520	191	408.	1309.4	1163.8	*	5	DEC	0040	291	2.	1222.9	1163.2
2	DEC	0620	92	0.	622.9	1159.9	*	3	DEC	1540	192	396.	1307.7	1163.7	*	5	DEC	0100	292	2.	1222.8	1163.2
2	DEC	0640	93	0.	645.8	1160.1	*	3	DEC	1600	193	386.	1306.1	1163.7	*	5	DEC	0120	293	2.	1222.8	1163.2
2	DEC	0700	94	0.	669.8	1160.3	*	3	DEC	1620	194	376.	1304.7	1163.7	*	5	DEC	0140	294	2.	1222.7	1163.2
2	DEC	0720	95	0.	694.7	1160.5	*	3	DEC	1640	195	368.	1303.4	1163.7	*	5	DEC	0200	295	2.	1222.7	1163.2
2	DEC	0740	96	0.	720.2	1160.6	*	3	DEC	1700	196	360.	1302.3	1163.7	*	5	DEC	0220	296	2.	1222.6	1163.2
2	DEC	0800	97	0.	746.3	1160.8	*	3	DEC	1720	197	353.	1301.2	1163.7	*	5	DEC	0240	297	2.	1222.5	1163.2
2	DEC	0820	98	0.	773.0	1161.0	*	3	DEC	1740	198	347.	1300.2	1163.7	*	5	DEC	0300	298	2.	1222.5	1163.2
2	DEC	0840	99	0.	800.2	1161.2	*	3	DEC	1800	199	340.	1299.2	1163.7	*	5	DEC	0320	299	2.	1222.4	1163.2
2	DEC	0900	100	0.	828.1	1161.4	*	3	DEC	1820	200	334.	1298.3	1163.7	*	5	DEC	0340	300	2.	1222.4	1163.2

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PEAK OUTFLOW IS 10650. AT TIME 38.00 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.67-HR
10650.	38.00	(CFS)	7848.	3151.	1122.	811.
		(INCHES)	8.387	13.468	14.393	14.392
		(AC-FT)	3892.	6249.	6678.	6678.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	99.67-HR
2501.	38.00	2232.	1673.	1335.	993.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	99.67-HR

1168.04	38.00	1167.12	1165.15	1163.68	1160.80

CUMULATIVE AREA = 0.70 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CP3-1	7118.	36.33	1529.	551.	217.	1.42		
ROUTED TO	CP3-1R	7118.	36.67	1529.	551.	217.	1.42		
HYDROGRAPH AT	CP3-2	9828.	36.33	2560.	926.	366.	2.38		
2 COMBINED AT	CP3-2A	13534.	36.67	4066.	1476.	584.	3.80		
ROUTED TO	CP3-2R	11642.	37.33	4027.	1476.	584.	3.80		
HYDROGRAPH AT	CP3-3	7533.	36.67	2745.	1008.	396.	2.61		
2 COMBINED AT	CP3-3A	15640.	37.33	6674.	2485.	979.	6.41		
HYDROGRAPH AT	CP3-4	4666.	37.00	2363.	885.	347.	2.29		
2 COMBINED AT	FRS #3	20157.	37.33	9037.	3369.	1327.	8.70		
ROUTED TO	ROUTE	10650.	38.00	7848.	3151.	1122.	8.70	1168.04	38.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION .ROUTE

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1149.00	1163.20	1170.00
STORAGE	0.	1220.	3020.
OUTFLOW	0.	0.	17732.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	1168.04	.00	2501.	10650.	.00	38.00	.00

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