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SURFACE WATER HYDROLOGY REPORT
McMicken Dam Restoration Study
Maricopa County, Arizona

SHB Job No. E82-114

Consulting Geotechnical Engineers

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Attention: Mr. Ed Raleigh

Re: Surface Water Hydrology Report
McMicken Dam Restoration Study
Maricopa County, Arizona

Gentlemen,

Transmitted herewith are six copies of the Surface Water Hydrology Report for the referenced project. The report is submitted for your review as well as the review of other interested agencies including the Arizona Department of Water Resources. The report was prepared by Allon C. Owen, P.E., of this firm with assistance from Lawrence A. Hansen, Ph.D., P.E., and under the overall direction of George H. Beckwith, P.E.

Should any questions arise concerning this report, please do not hesitate to contact us.

Respectfully submitted,
Sergent, Hauskins & Beckwith Engineers

By Robert R. Koons
Robert R. Koons, P.E.

Registered Professional Engineer (Civil)
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Date Signed 2-17-83
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SHB Job No. E82-114

1. INTRODUCTION

1.1 General Statement

This report is submitted pursuant to a hydrological investigation of the watershed of McMicken Dam which included consideration of each man-made drainage structure within the watershed. The project study area includes the north end of the White Tank Mountains, the area east of Morristown, most of the southern flanks of the Wickenburg Mountains, and part of the southwestern flanks of the Hieroglyphic Mountains. The location of the watershed is shown on the vicinity map (Figure 1). (Tables and figures are presented in Appendix A.)

Authority to proceed with this project was granted on October 6, 1982 by D.E. Sagramoso, P.E., Chief Engineer and General Manager of the Flood Control District of Maricopa County.

1.2 Purpose of Study

This investigation was undertaken with the intention of addressing the following details:

A. Determine the soil types and their properties for potential runoff, determine the type and amount of soil cover, and calculate the curve number for each designated subbasin.

B. Calculate the various PMP events which could occur in this watershed and determine which event poses the greatest precipitation threat to the

watershed, position the standard isohyetal pattern in that orientation over the area centroid which would produce the highest volume of precipitation, and calculate the precipitation that would occur on each subbasin from the most threatening PMP event.

C. Physically examine each culvert, trestle, dike or overchute in the watershed to obtain their total flow restriction to runoff. Calculate for each subbasin the total reservoir storage for all restrictions to runoff, considered as dams for this study, and calculate the total rate of flow possible from all outlet structures for each appropriate subbasin.

D. Utilize the Corps of Engineers computer program HEC-1 to calculate the routed runoff from the watershed into reservoir storage for McMicken Dam.

E. Determine if the most threatening PMP event could be safely passed by the existing outlet works of McMicken Dam.

1.3 Scope of Study

To accomplish the objectives outlined in Section 1.2, the following tasks were accomplished:

A. Reviewed hydrologic reports pertinent to the basin:

1. Corps of Engineers report on McMicken Dam dated 1953.
2. Central Arizona Project canal culvert designs.
3. Highway 74 culvert designs.
4. Grand Avenue culvert designs.

5. Railroad culvert designs.

B. Reviewed pertinent hydrologic reports on adjacent basins:

1. Phoenix City Streams, Arizona, Agua Fria River, U.S. Corps of Engineers, April 1981.

2. Gila River and Tributaries, Central Arizona Water Control Study, U.S. Corps of Engineers, December 1981.

C. Analyzed precipitation runoff data available from the basin and from adjacent basins, and determined loss rates and unit hydrograph characteristics.

D. Reviewed vegetation and soils reports and conducted a field inspection of all watersheds to determine watershed conditions.

E. Reviewed studies conducted by the Arizona Section, American Water Resources Association and the Hydrology Section Arizona-Nevada Academy of Science. Interviewed personnel associated with these organizations and obtained relevant information on the loss rates and other hydrologic characteristics of watersheds similar to the project site.

F. Reviewed work and interviewed personnel associated with the Hydrology Department of University of Arizona at Tucson.

G. Estimated loss rates and unit hydrograph characteristics for input to HEC-1 model based on findings of Tasks A through F.

H. Developed PMP amounts and distribution according to Hydrometerological Report No. 49. Planimetered watersheds, located centroids, measured channel lengths and slopes, and calculated curve numbers.

I. Reviewed hydraulics of the CAP canal, State Highway 74, Grand Avenue and the AT&SF Railroad.

J. Conducted field inspection of drainage structures to confirm and/or determine hydraulic characteristics.

K. Developed routing parameters for input to HEC-1 model. Reviewed with client for approval.

L. Determined hydraulic characteristics of storage and spillway capacity for HEC-1 model. Effects of subsidence on storage were considered.

M. Developed HEC-1 model of the McMicken Dam.

N. Input cards of the model will be provided to the Flood Control District.

2. PROJECT DESCRIPTION

2.1 Project Description & History

The following discussion and tables summarize pertinent information taken from many sources in the course of this investigation (see references at the end of report).

2.1.1 Original Hydrologic Investigation

The dam was constructed during 1955 and 1956. The original hydrological investigation was performed by the Corps of Engineers in 1953.

Drainage Basin Data

Drainage Area	236 square miles
Maximum Drainage Length	38 miles
Drainage Width	5 to 16 miles
Maximum Elevation	4100 feet
Channel Slopes	321 to 77 feet per mile

Sediment Accumulation Rate

Sediment Accumulation Rate	0.2 acre feet per square mile per year
50 Year Sediment Accumulation	2,500 acre feet

Runoff & Flood Information

Standard Project Flood (SPF) Peak Inflow	35,000 cfs
Four Day SPF Volume	32,800 acre feet
Maximum Outflow Through Controlled Outlet for SPF	4,450 cfs
Peak Elevation of Storage for SPF	1354 feet
Spillway Design Flood (SDF) Peak Inflow	52,000 cfs
SDF Peak Outflow	22,000 cfs
SDF Peak Outflow Elevation	1356 feet
Maximum Probable Flood (MPF) Peak Inflow	120,000 cfs
MPF Peak Outflow	95,000 cfs
MPF Peak Outflow Elevation	1360 feet
Time to Evacuate Storage With Water at Spillway Crest and No Additional Inflow	3 to 4½ days

Spillway Outlet Channel

Spillway Outlet Channel Slope	0.0020 to 0.00040
Spillway Width	2,000 feet
Spillway Channel Capacity	4,450 to 14,000 cfs

3. WATERSHED CHARACTERISTICS

3.1 Geology

The study area lies within the Southern Basin and Range Physiographic Province (Fenneman, 1946). This province is characterized by linear mountain ranges separated by broad alluvial basins containing deep unconsolidated deposits. McMicken Dam watershed is situated near the western fringe of such an alluvial basin, commonly referred to as the Phoenix Basin.

Trilby Wash and its associated drainages, which are in part intercepted by McMicken Dam, pass runoff to the Agua Fria River from an extensive watershed containing the southern flank of the Wickenburg and Hieroglyphic Mountains and the northern flank of the White Tank Mountains.

The bedrock of the White Tank Mountains is predominantly composed of Precambrian granitic rocks, gneiss and schist, and Tertiary-Cretaceous granitic rocks which obtain a maximum elevation of about 4100 feet above MSL (Wilson and others, 1969).

The drainage patterns change with topography and geology. The flow occurs in a few washes and channels in the rugged mountains and then spreads out into numerous wide, shallow washes in the valley.

3.2 Soils & Vegetation

The mountainous and hilly areas have a fair cover of brush and grasses, however, the soil is a shallow, gravelly sandy to stony sandy loam. The lower desert valley has 10 to 15 percent cover of desert brush and grasses with deep soil deposits of silty to clayey loam. Trees, shrubs and brush grow more thickly along the washes than over most of the watershed and some vegetation is growing in the channels. The channels are wide and shallow lined with sands, cobbles and gravels with some boulders. Caliche layers can be noted several feet below the ground surface in the wash banks.

3.3 Climate (COE, 1953)

The climate is typically desert in character, with short, mild winters and long, hot summers. The average annual precipitation, which ranges from less than 8 inches in the lower desert to 14 inches in the Wickenburg Mountains, is divided about equally between the summer and winter seasons.

Three types of storms occur in this region: (1) general Pacific storms with low intensity rainfall over wide areas, often continuing for several days during the winter months, (2) local storms of small areal extent and brief (up to 3 hours) duration, which include the sporadic showers and cloudbursts, due usually to insolational heating of tropical maritime air that frequently

invades the region from the Gulf of Mexico or the Gulf of California and the south Pacific, and (3) general summer rains that result either from convergence and orographic lift when tropical hurricanes influence the region, or from convergence, orographic lift, and frontal lift when frontal systems with associated tropical maritime and polar continental or maritime air pass through the region. Thunderstorms may or may not be associated with the general summer rains. Two or more thunderstorms may occur over an area with only a few hours' interval separating them. Multiple occurrences of intense, long-duration general summer rains within a critical length of time are not indicated in the regional records.

Little stream flow occurs other than that immediately following intense rains. Most floods have resulted from the general summer storms and thunderstorms, apparently owing principally to their high intensities. The greater areal extent and the higher volume of effective rainfall likely during a general summer storm make it potentially more critical than a thunderstorm for the project area. The winter storms apparently are not sufficiently intense to be as critical as the summer storms.

4. DISCUSSION OF ANALYSIS & RESULTS

4.1 Method of Analysis

The adequacy of the hydraulic capacity of the McMicken Dam was determined based on flood flows developed by the use of the Hydrologic Engineering Center (HEC-1) flood hydrograph package (COE, 1981). The HEC-1 model simulates the surface runoff response of a basin to precipitation by representing the basin as an interconnected system of hydrologic and hydraulic components.

4.2 Subbasins

As shown in Figure 1, the watershed upstream from McMicken Dam was divided into eight subbasins to facilitate modeling. A major basis of the subbasin divisions was the location of man-made obstructions to flow within the watershed; namely Arizona State Highway 74, U.S. Highway 60-89 and the Central Arizona Project Canal. Other considerations were areas of distinct drainage patterns, soils, vegetation, elevation and slopes.

4.3 Design Storm

The primary purpose of the project is to provide flood protection from a 100-year runoff event for downstream residential and military areas. A 100-year flood means that the mean rate of occurrence of the flood is once every 100 years.

Since failure of the dam at high flood stage would be catastrophic and include probable loss of life should residential areas develop close to the dam, the spillway was evaluated to determine whether it could pass the probable maximum flood (PMF). Such a flood would occur from a precipitation event which, judged by present knowledge, appears to be the limit of nature's capability.

The critical storm for this area is considered to be a 6-hour PMP intense storm in conjunction with the general summer storm similar to the occurrence in August, 1951 described by the Corp of Engineers (COE, 1953).

> "The remnants of a tropical hurricane that entered Mexico near Tampico on 22 August and continued in a west and northwest direction, produced heavy rainfall in southern and central Arizona, beginning late on 26 August and ending generally during the afternoon of the 29. The storm centered over the higher elevations in southern Yavapai County, around Crown King and had another high concentration near Sunflower in northeastern Maricopa County. Maximum intensities occurred near Phoenix from noon to 1800 hours on the 27th and at Poland Junction from midnight to 1000 hours on the 28th and from 2000 hours on the 28 to 1100 hours on the 29. Winds during this storm were not very strong. About 65 percent of the total-storm occurred in a 24-hour period. The total-storm isohyetal map and mass curves of precipitation for Phoenix and Poland Junction are shown in Plate 2 of the COA Report (1953). The average depth over the drainage area was approximately 7 inches. In the week prior to this storm, numerous thunderstorms occurred that conditioned at least parts of the region for high rates of runoff. The comparison of general

summer storms as shown in Table 2 indicates that the 24-hour and total-storm rainfall amounts during the August 1951 storm exceeded those of other general summer storms of record."

"A large part of the flood runoff was sheet flow from the White Tank Mountains and Trilby Wash areas. The failure of man-made structures such as canals and dikes, which intercepted and concentrated the waters, caused much flooding of lowland areas. No stream-gaging stations are in the area, but an estimate by the United States Soil Conservation Service based on high-water marks at the numerous breaks in the Beardsley Canal in the Trilby Wash area indicated a total nonsynchronized flow of about 34,000 cubic feet per second. The volume was estimated at 10,600 acre-feet. The peak discharge at Luke Air Force Base was estimated at 5,000 cubic feet per second by the United States Geological Survey. This occurrence is the largest observed flood from this drainage area."

4.4 Rainfall Loss Rates

The COE have completed several flood hydrology studies in the Phoenix area. Loss rates used in each study for the probable maximum flood varied. For the Gila River and tributaries, a total loss rate of 45 percent of precipitation was assumed, which amounted to an hourly loss rate of 0.05 to 0.10 inch per hour. In addition, a percolation loss rate of 0.2 cfs per wetted acre of channel was estimated. The COE made similar assumptions for the Agua Fria River and tributaries which included percolation losses of 0.2 cfs per wetted acre of channel and a uniform loss rate of 0.15 inch per hour. For both major studies, the standard design flood included an

initial loss of 0.58 inch with the exponential loss rate averaging approximately 0.32 inch per hour.

In the hydrology report for McMicken Dam (COE, 1953), the COE assumed uniform loss rates varying from 0.15 to 0.25 inch per hour over the watershed.

The United States Department of Agriculture (USDA) have ongoing intensive hydrologic studies of watersheds in the southwest. These watersheds have similar climatic soils and vegetation conditions to the McMicken watershed; however, they are generally much smaller in area. Wallace of USDA has reported that the watersheds studied do not yield runoff unless intensities are in excess of 0.75 inch per hour, even for wet watershed conditions (Wallace and others, 1976). Osborn and others (1973) note that differences in geomorphic characteristics of various watersheds do not have an appreciable effect on the peak flow for large runoff events because variations in rainfall have a dominant effect. Peak flows, therefore, generally correlate well with basin area for watersheds up to 100 square miles in area where air mass thunderstorms dominate.

The problem in directly applying loss rates from the studies discussed above is that most of the COE work has been for much larger watersheds and the USDA work has been for smaller watersheds than the McMicken watershed.

In an effort to apply the extensive handbook information available on the SCS curve numbers, Hawkins (1980) developed various methods of converting curve numbers to loss rates. Table 1 presents the loss rates by subbasins using one of the methods developed by Hawkins. The other methods described by Hawkins follow closely the SCS infiltration equations and are not considered applicable to this study. The uniform loss rates in Table 1 of 0.10 and 0.15 inch per hour are very comparable to loss rates used by COE. Therefore, a uniform loss rate of 0.15 inch per hour was used in this analysis as in the Agua Fria River study.

In order to establish the initial loss amount and confirm the uniform loss rate, the computer model was calibrated to match a 100-year, runoff peak flow with the assumption that watershed conditions would be similar for both the 100-year flood and the probable maximum flood. The United States Bureau of Reclamation (USBR) designed the embankment and overchute structures along the CAP Canal to safely pass the 100-year flood event. They assumed a curve number of 78 for the watershed which included high infiltration rates for the channels and washes and took the precipitation amounts for a 6-hour thunderstorm from the National Oceanic and Atmospheric Administration (NOAA, 1967). The drainage basin above Reach 9, which includes subbasins 5 and 6, has an area of 79.6 square miles. The 100-year flood peak was estimated to be 12,150 cfs by the USBR.

The USGS conducted a multiple regression analysis of flood peak data from gauging stations in Arizona (Roeske, 1978). This study resulted in equations to estimate flood peaks for selected return intervals. The method tends to underestimate flood peaks for watersheds smaller than 10 square miles (Reich and others, 1979), but probably is the best method available for the watershed in this investigation. Using the USGS method, the 100-year flood peak for Reach 9 is estimated to be 24,200 cfs.

Using the USDA method of correlating flood peaks with basin area (Osborn and others, 1973), the 100-year flood peak for Reach 9 is estimated to be 22,300 cfs.

Given the good comparison of the USGS method and the USDA method, it is assumed that the USBR curve number of 78 may be low, even considering that the 100-year precipitations have been revised upward since 1967. Use of the higher curve numbers to estimate the uniform loss rates in this report is assumed to be appropriate and may be conservative.

The USGS method for the McMicken Dam watershed yields a 100-year flood peak of 56,200 cfs, based on the formula

$$Q_{100} = 553\ A^{0.610}\ E^{-1.3}\ P^{0.915}$$

where A = 236 square miles basin area
E = 1.75 (times 1,000 feet) average elevation
P = 9 inches average annual rainfall.

The HEC-1 model was calibrated to match this flood peak. The hourly distribution of the precipitation amount was made following the guidelines of Hydrometeorological Report 49 (HMR 49) (1977) for the 6-hour local PMP. An areal reduction of the 100-year precipitation amounts of 3.3 to 3.6 inches according to subbasin were made using the NOAA Atlas (1973). For the calibration of the model, only the initial rainfall amounts were varied for the subbasins, while the uniform loss rate remained 0.15 inch per hour. The result was that an initial loss of 0.95 inch yielded a flood peak of 60,000 cfs which is slightly higher than the USGS estimate. These loss amounts were then used for the PMF computer analysis. The channel loss rate was considered part of the initial loss rate and not included as a separate item in the analysis.

4.5 Precipitation

The 6-hour, local-storm PMP was developed following the elliptical method outlined in HMR 49. The precipitation distribution is shown in Table 2 and Figure 2 for the watershed. In exception to the method, the White Tank Mountains and Wickenburg Mountains were assumed to receive additional rainfall to compensate for the topographic effects of rainfall intensities over the watershed. The 72-hour general storm PMP was also developed according to HMR 49 and is shown in Table 3. Time distribution of the 72-hour rainfall amounts was arranged to minimize the PMF.

4.6 Routing

The watershed does not have a clearly defined channel into which runoff collects. Most hydrograph methods were developed for river flow type watersheds. For this watershed, however, much of the runoff occurs as sheet flow which collects into several wide, shallow washes. Because of these characteristics, the kinematic wave analysis was determined to be the best method of modeling. Mr. David Goldman of the Hydrologic Engineering Center (telephone communication, February 15, 1983) stated that he agreed that the kinematic wave analysis was suitable for the application on Trilby Wash. He stated the method becomes unstable for very steep and for very flat terrain. Instability is indicated by oscillations of the hydrograph. Since the hydrographs produced for the analysis appeared smooth, instability did not occur. The width of the washes were determined by considering the widths of the highway drainage structures, by measurements from topographic maps, and by some field measurements. The dimension of the main channels in the model are actually a composite of several smaller washes. The channel slopes were taken from USGS topographic maps.

The modified Puls method of routing was utilized to model the reservoir effect of the man-made flow obstructions on the principal washes. The obstructions were modeled as composite structures by summing the individual storage capacities and flow capacities of

the several culverts and bridges along the obstruction. Characteristics of the highway drainage structures are presented in Tables 4 through 6. The hydraulic capacities of embankments along the CAP were taken from the USBR design reports. Because attentuation effects turned out to be minor for the PMF, a more detailed treatment of these structures was not deemed essential.

The most significant effect on flow routing, resulting from the man-made embankments, occurs within Reach 9 of the CAP Canal. A 15-foot embankment has been placed along the north bank of the canal to funnel flood flows to several culverts and flumes passing over the canal. The design capacity for the drainage structures is a 100-year flood peak. An erodible plug with an embankment height 4 feet lower than the rest of structure has been placed on the east end of the embankment to allow flows in excess of the design flows to pass. The erodible section, shown in Figure 1, will therefore divert flows from subbasins 5 and 6 out of McMicken Dam drainage for the PMF. For this reason, flows from subbasins 5 and 6 were largely diverted in the PMF analysis.

Reach 8 of the CAP Canal, which divides subbasins 3 and 4, also has an erodible plug, but the flow will stay within the basin. What will occur to flood flows entering the canal is difficult to predict. For this study, it is assumed that the water will simply overflow the south bank and continue on to the detention basin.

4.7 Hydraulic Characteristics of McMicken Dam

The water surface elevation-storage capacity curve presented in the original design (COE, 1953) is considered correct. This assumes that the embankment height will be restored to elevation 1361 feet and that settlements along the embankments have not affected the storage area of the reservoir. Since increases in storage volume most likely did occur due to subsidence in reservoir, this additional volume is assumed to allow increases in silt storage rather than floodwater storage.

The emergency spillway dimensions presented in the original design were field checked and found to be accurate. The elevation discharge curves for the primary outlet and the emergency spillway prepared by COE (1953) were therefore used in model.

5. RESULTS & SUMMARY

A copy of the computer analysis of McMicken Dam empty at the beginning of the storm is shown in Appendix B. The results are shown below.

Runoff & Flood Information

Spillway Capacity at Stage 1,361 feet	126,000 cfs
PMF Inflow	155,800 cfs
PMF Outflow - Reservoir Begins Empty	123,800 cfs
PMF Maximum Stage - Reservoir Begins Empty	1,360.8 feet

At the outset of this study, the concern was that with recent revisions of PMP determinations presented in HMR 49, the spillway would not have the capacity to pass the PMF flood. However, modeling the watershed with current methods available in HEC-1 has shown that the PMF will be safely passed.

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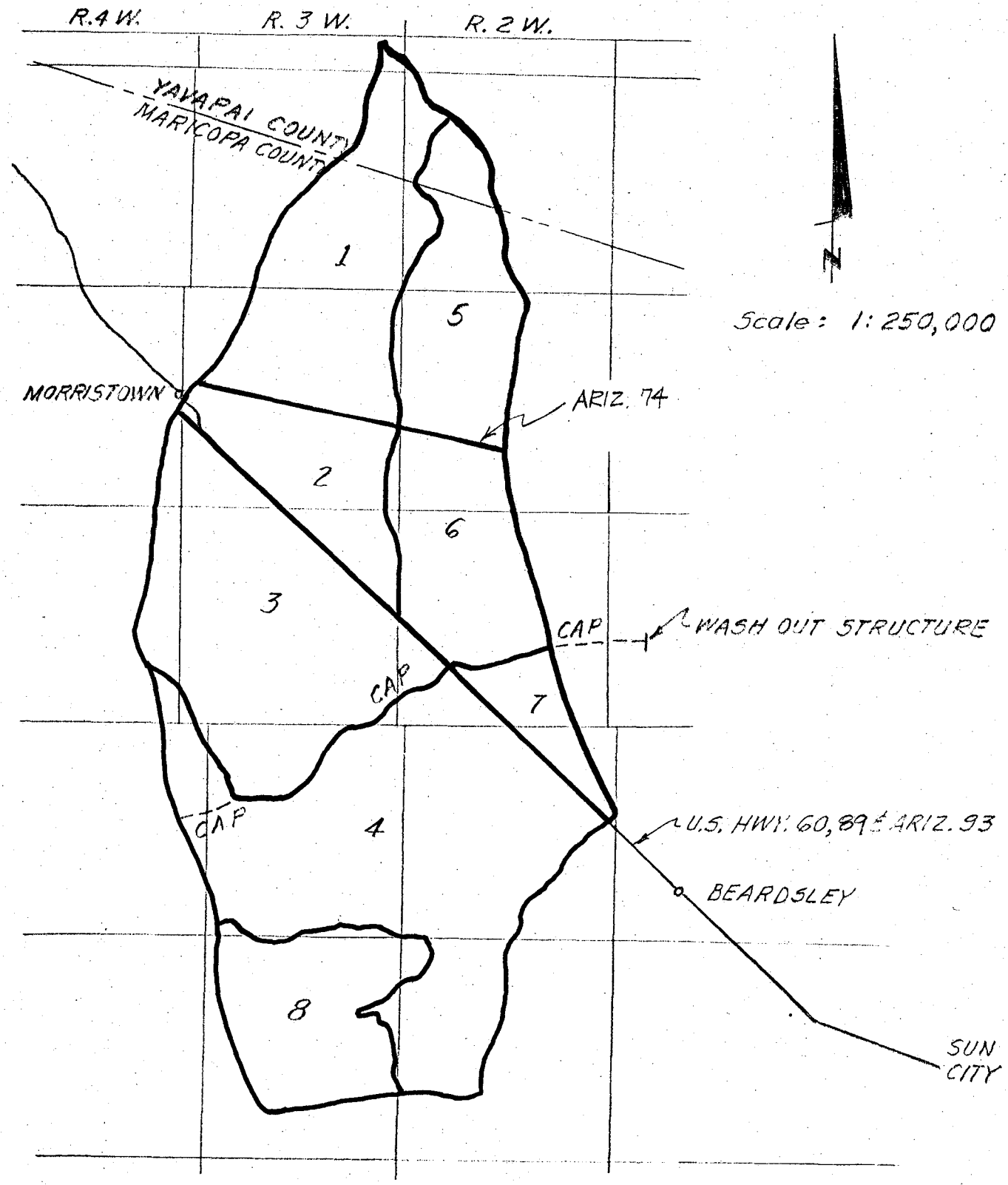

Figure 1

Vicinity Map

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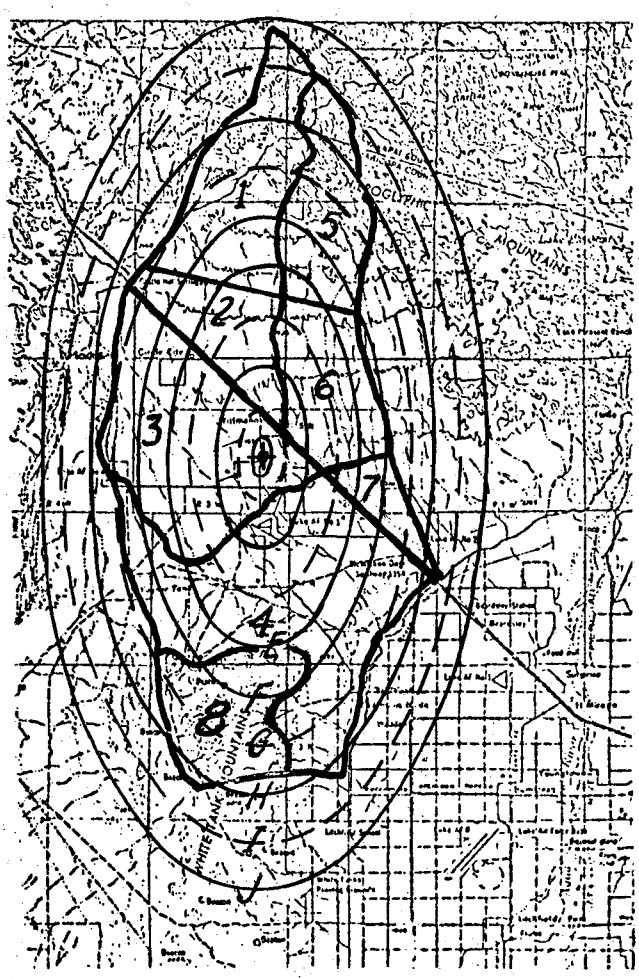

Figure 2

Watershed Precipitation Distribution

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Table 1

Loss Rates Determined by
Curve Numbers for Trilby Wash

Subbasin	Curve Number	Uniform Loss Rate in Inches per Hour
1	87	0.10
2	84	0.14
3	83	0.14
4	84	0.14
5	87	0.10
6	84	0.14
7	83	0.14
8	87	0.10

AMC II

$$f = 10 \times B \times \frac{(100 - 1)}{CN} \text{ where } B = 0.0665 \text{ for sage-grass}$$

Table 2

PMP Computation for Trilby Wash

Local-storm PMP computation, Colorado River and Great Basin, and California drainages. (Giving areal distribution of PMP).

Steps correspond to those in sec. 6.3B.

1. Place idealized isohyetal pattern [fig. 4.10] over drainage adjusted to 1:500,000 scale to obtain most critical placement.

2. Note the isohyets within drainage.

3. Average 1-hr 1-mi^2 (2.6-km^2) PMP for drainage [fig. 4.5]. 11.6 in.

4. a. Reduction for elevation. [No adjustment for elevations up to 5,000 feet (1,524 m), 5% decrease per 1,000 feet (305 m) above 5,000 feet (1,524 m)]. 100 %

   b. Multiply step 3 by step 4a. 11.6 in.

5. Average 6/1-hr ratio for drainage [fig. 4.7]. 1.24

6. Obtain isohetal labels for 15-min incremental and the highest PMP from table 4.5 corresponding 6/1-hr ratio of step 5.

PMP Increment	Isohyet A	B	C	D	E	F	G	H	I	J	
Highest 1-hr	100	82	58	44	32	23	16	13	12	11	
Highest 15-min.	74	56	32	21	14	8	7	6	5	4	
2nd "	15	15	15	12	9	6	4	3	3	3	
3rd "	6	6	6	6	5	5	3	2	2	2	in %
4th "	5	5	5	5	4	4	2	2	2	2	

7. Obtain isohyetal labels in % of 1-hr PMP for 2nd to 6th highest hourly incremental PMP values from table 4.6 using 6/1-hr ratio of step 5.

2nd Highest 1-hr PMP	12	12	12	11	10	8	7	5	5	5	
3rd "	5	5	5	5	5	5	4	4	4	4	
4th "	4	4	4	4	4	4	4	3	3	3	in %
5th "	2	2	2	2	2	2	2	2	2	2	
6th "	1	1	1	1	1	1	1	1	1	1	

8. Multiply steps 6 and 7 by step 4b to get incremental isohyetal labels of PMP.

Highest 15-min.	8.6	6.5	3.7	2.4	1.6	0.9	0.8	0.7	0.6	0.5	
2nd "	1.7	1.7	1.7	1.4	1.0	0.7	0.5	0.3	0.3	0.3	
3rd "	0.7	0.7	0.7	0.7	0.6	0.6	0.3	0.2	0.2	0.2	
4th "	0.6	0.6	0.6	0.6	0.5	0.5	0.2	0.2	0.2	0.2	
Highest 1-hr	11.6	9.5	6.7	5.1	3.7	2.7	1.9	1.5	1.4	1.3	in in.
2nd "	1.4	1.4	1.4	1.3	1.2	0.9	0.8	0.6	0.6	0.6	
3rd "	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	
4th "	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.3	0.3	
5th "	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
6th "	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	

9. Arrange values of step 8 in time sequence [tables 4.7 and 4.8].

Table 3

PMP Computation for Trilby Wash

General-storm PMP computations for the Colorado River and Great basin

Drainage Trilby Wash Area 236 mi^2

Latitude 33.8, Longitude 112.6 of basin center

Month September

Step		Duration (hrs) 6	12	18	24	48	72
A. Convergence PMP							
1. Drainage average value from one of figures 2.5 to 2.16	13.6 in.						
2. Reduction for barrier-elevation [fig. 2.18]	82%						
3. Barrier-elevation reduced PMP [step 1 X step 2]	11.2 in.						
4. Durational variation [figs. 2.25 to 2.27 and table 2.7].		74	89	95	100	112	117%
5. Convergence PMP for indicated durations [steps 3 X 4]		8.3	10.0	10.6	11.2	12.5	13.1 in.
6. Incremental 10 mi^2 (26 km^2) PMP [successive subtraction in step 5]		8.3	1.7	0.6	0.6	1.3	0.6 in.
7. Areal reduction [select from figs. 2.28 and 2.29]		73	90	94	98	100	100%
8. Areally reduced PMP [step 6 X step 7]		6.1	1.5	0.6	0.6	1.3	0.6 in.
9. Drainage average PMP [accumulated values of step 8]		6.1	7.6	8.2	8.8	10.1	10.7 in.
B. Orographic PMP							
1. Drainage average orographic index from figure 3.11a to d.	3.4 in.						
2. Areal reduction [figure 3.20]	90%						
3. Adjustment for month [one of figs. 3.12 to 3.17]	100%						
4. Areally and seasonally adjusted PMP [steps 1 X 2 X 3]	3.1 in.						
5. Durational variation [table 3.9]		35	62	83	100	142	161%
6. Orographic PMP for given durations [steps 4 X 5]		1.1	1.9	2.6	3.1	4.4	5.0 in.
C. Total PMP							
1. Add steps A9 and B6		7.2	9.5	10.8	11.9	14.5	15.0 in.

2. PMP for other durations from smooth curve fitted to plot of computed data.
3. Comparison with local-storm PMP (see sec. 6.3).

SHB Job No. E82-114

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Table 4

Selected Hydraulic Characteristics
of Highway Drainage Structures
in Trilby Wash Watershed

SUB-BASIN #1 STATE ROUTE 74

STATION	CULVERT LENGTH FT	CULVERT HEIGHT IN	CULVERT WIDTH IN	HYDRAULIC HEAD FT	DISCHARGE CFS	CHART
67+50	102	60	-	9	210	CMP 5-2
76+10	102	42	-	8	110	CMP 5-2
78+25	92	24	-	6	32	CMP 5-2
80+00	80	24	-	5	28	CMP 5-2
86+25	102	48	-	8	130	CMP 5-2
89+60	102	60	-	11	240	CMP 5-2
98+50	102	38	-	6	70	CMP 5-2
105+00	104	54	-	9	170	CMP 5-2
107+60	51	96	84	10	630	BC 1-2
111+20	106	24	-	5	28	CMP 5-2
112+75	102	60	-	10	195	CMP 5-2
117+20	92	42	-	6	70	CMP 5-2
121+45	106	24	-	7	35	CMP 5-2
123+15	110	36	-	8	80	CMP 5-2
125+10	102	48	-	9	140	CMP 5-2
126+45	68	96	120*4	10	3840	BC 1-2
130+80	120	30	-	7	52	CMP 5-2
135+00	106	42	-	5	70	CMP 5-2
144+30	69	96	1200	14	120	BC 1-2
154+40	100	36	-	5	55	CMP 5-2
159+30	92	42	-	4	60	CMP 5-2
162+30	102	54	-	9	170	CMP 5-2
168+00	92	30	-	5	40	CMP 5-2
169+40	102	30	-	7	50	CMP 5-2
170+70	110	36	-	8	80	CMP 5-2
178+05	102	54	-	11	200	CMP 5-2
180+50	104	30	-	7	52	CMP 5-2
183+75	102	60	-	13	280	CMP 5-2
185+50	100	24	-	7	35	CMP 5-2
189+95	120	30	-	7	50	CMP 5-2
193+85	57	96	120*6	11	5400	BC 1-2
198+63	59	96	120*3	11	2700	BC 1-2
201+30	54	96	120	11	900	BC 1-2
205+50	102	30	-	10	68	CMP 5-2
207+08	70	96	120*3	13	3150	BC 1-2
209+41						
212+15	102	30	-	12	75	CMP 5-2
214+00	102	30	-	9	60	CMP 5-2
217+15	102	24	-	6	32	CMP 5-2
219+50	72	84	72	12	540	BC 1-2
221+75	106	36	-	8	80	CMP 5-2
231+80	70	96	120	11	900	BC 1-2
233+90	74	60	72	10	480	BC 1-2
237+80	86	30	-	4	35	CMP 5-2
243+45	118	24	-	12	45	CMP 5-2
245+80	96	96	120	22	1600	BC 1-2
247+70	82	96	120	20	1470	BC 1-2
251+70	79	30	-	4	35	CMP 5-2
261+25	102	60	-	14	290	CMP 5-2
266+90	95	60	72	19	510	BC 1-2
271+30	82	24	-	4	24	CMP 5-2
274+75	80	24	-	4	24	CMP 5-2
279+65	84	60	72	15	510	BC 1-2
285+15	102	30	-	9	60	CMP 5-2
289+88	70.5	72	120*4	11	2240	BC 1-2
297+69	64	96	120*2	9	1400	BC 1-2
306+38	100	36	-	5	55	CMP 5-2
312+00	102	54	-	9	170	CMP 5-2
315+20	102	30	8	8	55	CMP 5-2
322+43	70.5	60	96*2	9	960	BC 1-2
324+40	103	30	-	7	52	CMP 5-2
330+00	106	36	-	8	80	CMP 5-2
331+60	60	36	-	7	70	CMP 5-2
333+98	72	60	120*3	10	1860	BC 1-2
339+75	106	36	-	6	65	CMP 5-2
341+37	112	30	-	7	52	CMP 5-2
344+00	146	48	-	9	140	CMP 5-2
347+60	102	48	-	8	130	CMP 5-2
350+70	100	24	-	5	28	CMP 5-2
351+70	108	30	-	6	45	CMP 5-2
360+00	75.5	48	120*3	6	1150	BC 1-2
363+00	100	30	-	5	40	CMP 5-2
367+95	102	60	-	12	260	CMP 5-2

Total Discharge, CFS	35159
Total Reservoir Volume, Acre-Feet	500
Median Hydraulic Head, Feet	8

Table 5

Selected Hydraulic Characteristics
of Highway Drainage Structures
in Trilby Wash Watershed

SUB-BASIN #2 HIGHWAY 60-89 ATSF RAILROAD

STATION -	CULVERT LENGTH FT	CULVERT HEIGHT IN	CULVERT WIDTH IN	HYDRAULIC HEAD FT	DISCHARGE CFS	CHART -
1301+40	41.3	72	120*2	7	900	BC 1-2
987+22.4	70	42	432*2	55	1872	BC 1-2
1009+00	41.5	60	36	7	150	OCP 4-2
1028+00	42	60	36	7	150	OCP 4-2
1046+19	34	60	120*6	6	2220	BC 1-2
1065+74	42.6	72	120*8	7	3760	BC 1-2
1094+73.5	42.6	72	120*2	7	940	BC 1-2
1110+76.5	37	60	36	7	145	OCP 4-2
1117+00	32.5	24	-	7	35	CMP 5-2
1121+0	32.5	24	-	7	35	CMP 5-2
1127+0	32.5	36	-	7	70	CMP 5-2
1116+29.5	54	36	-	4	40	CMP 5-2
1125+92.8	56	36	-	5	45	CMP 5-2
1138+48.5	38.5	48	36	7	130	OCP 2-2
1146+27	33	48	-	7	150	CP 2-2
1151+00	33.5	36	-	7	90	CP 2-2
1154+85.5	40	60	36	7	150	OCP 4-2
1170+93	50	24	-	3	16	CMP 5-2
1174+93	24.5	36	-	7	90	CP 2-2
1181+43	72	36	-	8	80	CMP 5-2
1186+30	-	121	1920	15	19200	BC 1-2
1196+73	52	36	-	4	45	CMP 5-2
1200+34	50	24	-	3	16	CMP 5-2
1204+00	25	24	-	7	43	CP 2-2
1210+50	52	36	-	4	40	CMP 5-2
1213+28	30	60	36	7	150	OCP 4-2
1221+20	48	24	-	3	16	CMP 5-2
1224+00	24	12	24	7	26	BC 1-2
1228+00	25	12	24	7	26	BC 1-2
1232+67	38	36	36*2	7	192	BC 1-2
1238+05	40.5	36	-	7	90	CP 2-2
1240+05	32.5	24	-	7	45	CP 2-2
1236+15	52	36	-	5	55	CMP 5-2
1243+12	50	30	-	4	33	CMP 5-2
1248+24	68	36	-	8	100	CMP 5-2
1251+54	36.5	60	36	7	150	OCP 4-2
1255+82	60	24	-	6	30	CMP 5-2
1263+07	49	48	72	7	240	BC 1-2
1276+12.5	57	42*2	-	7	120	CP 2-2
1281+72	65	48	72	11	330	BC 1-2
1291+50	212	30	-	12	70	CMP 5-2
1292+06	55	96	384*3	11	8640	BC 1-2
1295+00	206	24	-	12	50	CMP 5-2
1301+64	87	72	96*2	16	1600	BC 1-2
131+49	146	60	44	6	120	OCP 4-2
1323+61.6	96	60	72	16	510	BC 1-2
1327+50	92	30	-	7	52	CMP 5-2
1333+03.6	86	48	60	10	260	BC 1-2.
1341+15	98	24	-	7	35	CMP 5-2
1344+73	100	24	-	7	28	CMP 5-2
1349+08	80	24	-	4	24	CMP 5-2
1354+20	254	36	-	21	110	CMP 5-2
1355+89	216	24	-	7	35	CMP 5-2
1362+27.4	278	72	-	18	480	CMP 5-2
1365+554	217	96	120*4	17	5000	BC 1-2
1369+58	84	24	-	14	40	CMP 5-2
1374+95	80	24	-	6	30	CMP 5-2
1386+95.8	106.5	36	96	5	416	BC 1-2

Total Discharge, CFS	49515
Total Reservoir Volume, Acre-Feet	830
Median Hydraulic Head, Feet	7

SHB Job No. E82-114

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Table 6

Selected Hydraulic Characteristics
of Highway Drainage Structures
in Trilby Wash Watershed

SUB-BASIN #7 HIGHWAY 60-89 ATSF RAILROAD

STATION -	CULVERT LENGTH FT	CULVERT HEIGHT IN	CULVERT WIDTH IN	HYDRAULIC HEAD FT	DISCHARGE CFS	CHART -
920+65	41.5	48	120*3	5	810	BC 1-2
936+70	43	48	120*3	6	1020	BC 1-2
998+00	48	72	120*3	8	1500	BC 1-2
1032+85.5	22.5	24	36	7	100	BC 1-2
1055+85	-	48*2	-	7	300	CP 2-2
1070+81.5	47.5	60	120*3	6	1110	BC 1-2
1095+70	41.3	72	120*4	8	2000	BC 1-2
1141+24.5	41.5	48	120*3	5	840	BC 1-2
1154+50	52.3	36	-	3	35	CMP 5-2
1161+73	41.5	72	120*3	8	1500	BC 1-2
1169+20	-	36*2	-	7	140	CMP 5-2
1175+50	50	60	36	6	120	OCP 4-2

Total Discharge, CFS	9475
Total Reservoir Volume, Acre-Feet	30
Median Hydraulic Head, Feet	6-7

SHB Job No. E82-114

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9.......10
   1        ID          MCMICKEN DAM FLOOD HYDROGRAPH
   2        ID          KINEMATIC WAVE, UNIFORM LOSS RATE, MODIFIED PULS
   3        ID          72 HOUR PMP STORM WITH DIVERSION
*** FREE ***
            *DIAGRAM
   4        IT     30 20AUG83    1200     200
   5        IO      1      2
   6        IN    360 20AUG83    1200

   7        KK    SUB1  RUNOFF FROM SUBBASIN 1
   8        BA    32.9
   9        PB    15.0
  10        PI     1.1     2.3     7.2     1.3    0.65    0.65    0.65    0.65    0.13    0.13
  11        PI    0.13    0.13
  12        LU    0.95    0.15
  13        UK    1100    0.03    0.05     100
  14        RK    9000    0.03    .075     0.2    TRAP     30       2
  15        RK   64500    0.03    .075    32.9    TRAP    900       6      NO

  16        KK    DAM1  SR-74-A DAM
  17        RS       1    ELEV       0
  18        SV       0     500
  19        SE       0       8
  20        SQ       0   35000
  21        SE       0       8
  22        ST       9    1200       3     1.5

  23        KK    SUB2  RUNOFF FROM SUBBASIN 2
  24        BA    17.2
  25        PB    15.0
  26        PI     1.1     2.3     7.2     1.3    0.65    0.65    0.65    0.65    0.13    0.13
  27        PI    0.13    0.13
  28        LU    0.95    0.15
  29        UK    1500    0.02    0.05     100
  30        RK   26800   0.013    .075    17.2    TRAP    900       6      YES

  31        KK    H60A  HIGHWAY 60-89-A DAM
  32        RS       1    ELEV       0
  33        SV       0     830
  34        SE       0       7
  35        SQ       0   49515
  36        SE       0       7
  37        ST       7    1200       3     1.5

  38        KK    SUB3  RUNOFF FROM SUBBASIN 3
  39        BA      47
  40        PB    15.0
  41        PI     1.1     2.3     7.2     1.3    0.65    0.65    0.65    0.65    0.13    0.13
  42        PI    0.13    0.13
  43        LU    0.95    0.15
  44        UK    2000   0.015    0.05     100
  45        RK    9000   0.012    .075    0.75    TRAP      5       2
  46        RK   36200   0.006    .075      47    TRAP    900       6      YES
```

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

  47          KK    DAM2  CAP8 DAM
  48          RS       1    ELEV       0
  49          SV       0    6020
  50          SE       0      10
  51          SQ       0   20900
  52          SE       0      10
  53          ST       9   21300       3     1.5

  54          KK    SUB4  RUNOFF FROM SUBBASIN 4
  55          BA    61.2
  56          PB    15.0
  57          PI     1.1     2.3     7.2     1.3    0.65    0.65    0.65    0.65    0.13    0.13
  58          PI    0.13    0.13
  59          LU    0.95    0.15
  60          UK    3700   0.008    0.05     100
  61          RK    8000     0.2    .075     0.5    TRAP      30       2
  62          KK     TRB  TRILBY WASH NEAR MCMICKEN DAM
  63          KM           COMBINE STREAM FLOW FROM CAP8 DAM AND SUB4
  64          HC       2

  65          KK    SUB8  RUNOFF FROM SUBBASIN 8
  66          BA    24.9
  67          PB    15.0
  68          PI     1.1     2.3     7.2     1.3    0.65    0.65    0.65    0.65    0.13    0.13
  69          PI    0.13    0.13
  70          LU    0.95    0.15
  71          UK    2000   0.091    0.05     100
  72          RK   15000   0.091    .075     4.0    TRAP      30       2
  73          RK   18800   0.008    .075    24.9    TRAP      55       2      NO

  74          KK    SUB5  RUNOFF FROM SUBBASIN 5
  75          BA    27.7
  76          PB    15.0
  77          PI     1.1     2.3     7.2     1.3    0.65    0.65    0.65    0.65    0.13    0.13
  78          PI    0.13    0.13
  79          LU    0.95    0.15
  80          UK    1400    0.29    0.05     100
  81          RK   10500    0.05    .075    0.33    TRAP      30       2
  82          RK   57000    0.03    .075    27.7    TRAP     410       6      NO

  83          KK    SUB6  RUNOFF FROM SUBBASIN 6
  84          BA    19.1
  85          PB    15.0
  86          PI     1.1     2.3     7.2     1.3    0.65    0.65    0.65    0.65    0.13    0.13
  87          PI    0.13    0.13
  88          LU    0.95    0.15
  89          UK    2000   0.015    0.05     100
  90          RK   30900   0.013    .075    19.1    TRAP     450       6     YES
```

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

  91          KK    CAP9
  92          KM          DIVERT FLOW AT CAP9 DAM
  93          DT     DIV
  94          DI       0     500    1000    1760    1960    5000   10000   17800   20000   30000
  95          DI   40000
  96          DQ       0     500    1000    1760    1960    1960    1960    1960    1960    1960
  97          DQ    1960

  98          KK    SUB7  RUNOFF FROM SUBBASIN 7
  99          BA     5.4
 100          PB    15.0
 101          PI     1.1     2.3     7.2     1.3    0.65    0.65    0.65    0.65    0.13    0.13
 102          PI    0.13    0.13
 103          LU    0.95    0.15
 104          UK    5000   0.008    0.05     100
 105          RK   14500   0.008    .075     5.4    TRAP     410       6     YES

 106          KK     MDB  MCMICKEN DETENTION BASIN (INFLOW TO MCMICKEN DAM)
 107          KM          COMBINE STREAMFLOW OF SUB7,S8 AND S48
 108          HC       3

 109          KK      MD  MCMICKEN DAM
 110          RS       1    ELEV    1340
 111          SV       0    1100    9000   19000   32000   39000   49000
 112          SE    1340    1345    1350    1355    1360    1361    1365
 113          SS  1353.6    1980   3.087     1.5
 114          SL    1335     154   0.835     0.5
 115          ST    1361   49500    3.05     1.5
 116          ZZ
```

```
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE       (V) ROUTING          (--->) DIVERSION
  NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED FLOW

   7         SUB1
              V
              V
  16         DAM1
              V
              V
  23         SUB2 ***
              V
              V
  31         H60A
              V
              V
  38         SUB3 ***
              V
              V
  47         DAM2
              .
              .
  54          .        SUB4
              .          .
              .          .
  62         TRB.............
              .
              .
  65          .        SUB8
              .          .
              .          .
  74          .          .        SUB5
              .          .          V
              .          .          V
  83          .          .        SUB6 ***
              .          .          .
              .          .          .
  93          .          .          .-------->     DIV
  91          .          .        CAP9
              .          .          V
              .          .          V
  98          .          .        SUB7 ***
              .          .          .
              .          .          .
 106         MDB.......................
              V
              V
 109          MD
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            FEBRUARY 1981             *
*                                      *
*                                      *
*  RUN DATE 83/02/17.    TIME 17.04.46. *
*                                      *
****************************************
```

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

```
                                MCMICKEN DAM FLOOD HYDROGRAPH
                                KINEMATIC WAVE, UNIFORM LOSS RATE, MODIFIED PULS
                                72 HOUR PMP STORM WITH DIVERSION

  5 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          1  PRINT CONTROL
                      IPLOT          2  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                       DMSG        YES  PRINT DIAGNOSTIC MESSAGES

    IT          HYDROGRAPH TIME DATA
                       NMIN         30  MINUTES IN COMPUTATION INTERVAL
                      IDATE    20AUG83  STARTING DATE
                      ITIME       1200  STARTING TIME
                         NQ        200  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE    24AUG83  ENDING DATE
                     NDTIME       1530  ENDING TIME

                 COMPUTATION INTERVAL     .50 HOURS
                      TOTAL TIME BASE   99.50 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

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

            **************
            *            *
  7 KK      *    SUB1    *        RUNOFF FROM SUBBASIN 1
            *            *
            **************

  6 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN        360  TIME INTERVAL IN MINUTES
                     JXDATE    20AUG83  STARTING DATE
                     JXTIME       1200  STARTING TIME

               SUBBASIN RUNOFF DATA

  8 BA          SUBBASIN CHARACTERISTICS
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                    TAREA        32.90  SUBBASIN AREA

              PRECIPITATION DATA

 9 PR                STORM        15.00  BASIN TOTAL PRECIPITATION

10 PI            INCREMENTAL PRECIPITATION PATTERN
                    .09      .09      .09      .09      .09      .09      .09      .09      .09      .09
                    .09      .09      .19      .19      .19      .19      .19      .19      .19      .19
                    .19      .19      .19      .19      .60      .60      .60      .60      .60      .60
                    .60      .60      .60      .60      .60      .60      .11      .11      .11      .11
                    .11      .11      .11      .11      .11      .11      .11      .11      .05      .05
                    .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
                    .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
                    .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
                    .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
                    .05      .05      .05      .05      .05      .05      .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      .01      .01      .01      .01      .01      .01
                    .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
                    .01      .01      .01      .01

12 LU            UNIFORM LOSS RATE
                    STRTL         .95  INITIAL LOSS
                    CNSTL         .15  UNIFORM LOSS RATE
                    RTIMP        0.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
13 UK             OVERLAND-FLOW ELEMENT NO. 1
                       L        1100.  OVERLAND FLOW LENGTH
                       S       .0300  SLOPE
                       N        .050  ROUGHNESS COEFFICIENT
                      PA       100.0  PERCENT OF SUBBASIN
14 RK             COLLECTOR CHANNEL
                       L        9000.  CHANNEL LENGTH
                       S       .0300  SLOPE
                       N        .075  CHANNEL ROUGHNESS COEFFICIENT
                      CA         .20  CONTRIBUTING AREA
                   SHAPE        TRAP  CHANNEL SHAPE
                      WD       30.00  BOTTOM WIDTH OR DIAMETER
                       Z        2.00  SIDE SLOPE
15 RK             MAIN CHANNEL
                       L       64500.  CHANNEL LENGTH
                       S       .0300  SLOPE
                       N        .075  CHANNEL ROUGHNESS COEFFICIENT
                      CA       32.90  CONTRIBUTING AREA
                   SHAPE        TRAP  CHANNEL SHAPE
                      WD      900.00  BOTTOM WIDTH OR DIAMETER
                       Z        6.00  SIDE SLOPE
                  RUPSTQ          NO  ROUTE UPSTREAM HYDROGRAPH

                                                  ***

          COMPUTED KINEMATIC PARAMETERS
              ELEMENT     ALPHA        M       DT (MIN)    DX (FT)
                    1    5.1615    1.667        30.00      550.00
                    3     .4804    1.540        30.00     4500.00
                    4     .0407    1.650        30.00    32250.00

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                                        HYDROGRAPH AT STATION      SUB1
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DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
20	AUG	1200	1	0.00	0.00	0.00	0.	22	AUG	1400	101	.01	.01	0.00	50.
20	AUG	1230	2	.09	.09	0.00	0.	22	AUG	1430	102	.01	.01	0.00	48.
20	AUG	1300	3	.09	.09	0.00	0.	22	AUG	1500	103	.01	.01	0.00	46.
20	AUG	1330	4	.09	.09	0.00	0.	22	AUG	1530	104	.01	.01	0.00	45.
20	AUG	1400	5	.09	.09	0.00	0.	22	AUG	1600	105	.01	.01	0.00	43.
20	AUG	1430	6	.09	.09	0.00	0.	22	AUG	1630	106	.01	.01	0.00	42.
20	AUG	1500	7	.09	.09	0.00	0.	22	AUG	1700	107	.01	.01	0.00	40.
20	AUG	1530	8	.09	.09	0.00	0.	22	AUG	1730	108	.01	.01	0.00	39.
20	AUG	1600	9	.09	.09	0.00	0.	22	AUG	1800	109	.01	.01	0.00	37.
20	AUG	1630	10	.09	.09	0.00	0.	22	AUG	1830	110	.01	.01	0.00	36.
20	AUG	1700	11	.09	.09	0.00	0.	22	AUG	1900	111	.01	.01	0.00	35.
20	AUG	1730	12	.09	.08	.01	0.	22	AUG	1930	112	.01	.01	0.00	34.
20	AUG	1800	13	.09	.08	.02	0.	22	AUG	2000	113	.01	.01	0.00	32.
20	AUG	1830	14	.19	.08	.12	3.	22	AUG	2030	114	.01	.01	0.00	31.
20	AUG	1900	15	.19	.08	.12	61.	22	AUG	2100	115	.01	.01	0.00	30.
20	AUG	1930	16	.19	.08	.12	270.	22	AUG	2130	116	.01	.01	0.00	29.
20	AUG	2000	17	.19	.08	.12	625.	22	AUG	2200	117	.01	.01	0.00	29.
20	AUG	2030	18	.19	.08	.12	1078.	22	AUG	2230	118	.01	.01	0.00	28.
20	AUG	2100	19	.19	.08	.12	1594.	22	AUG	2300	119	.01	.01	0.00	27.
20	AUG	2130	20	.19	.08	.12	2130.	22	AUG	2330	120	.01	.01	0.00	26.
20	AUG	2200	21	.19	.08	.12	2647.	23	AUG	0000	121	.01	.01	0.00	25.
20	AUG	2230	22	.19	.08	.12	3113.	23	AUG	0030	122	.01	.01	0.00	24.
20	AUG	2300	23	.19	.08	.12	3511.	23	AUG	0100	123	.01	.01	0.00	24.
20	AUG	2330	24	.19	.08	.12	3835.	23	AUG	0130	124	.01	.01	0.00	23.
21	AUG	0000	25	.19	.08	.12	4090.	23	AUG	0200	125	.01	.01	0.00	22.
21	AUG	0030	26	.60	.08	.52	5806.	23	AUG	0230	126	.01	.01	0.00	22.
21	AUG	0100	27	.60	.08	.52	9409.	23	AUG	0300	127	.01	.01	0.00	21.
21	AUG	0130	28	.60	.08	.52	13423.	23	AUG	0330	128	.01	.01	0.00	21.
21	AUG	0200	29	.60	.08	.52	16793.	23	AUG	0400	129	.01	.01	0.00	20.
21	AUG	0230	30	.60	.08	.52	19071.	23	AUG	0430	130	.01	.01	0.00	19.
21	AUG	0300	31	.60	.08	.52	20381.	23	AUG	0500	131	.01	.01	0.00	19.
21	AUG	0330	32	.60	.08	.52	21061.	23	AUG	0530	132	.01	.01	0.00	18.
21	AUG	0400	33	.60	.08	.52	21394.	23	AUG	0600	133	.01	.01	0.00	18.
21	AUG	0430	34	.60	.08	.52	21554.	23	AUG	0630	134	.01	.01	0.00	17.
21	AUG	0500	35	.60	.08	.52	21629.	23	AUG	0700	135	.01	.01	0.00	17.
21	AUG	0530	36	.60	.08	.52	21664.	23	AUG	0730	136	.01	.01	0.00	17.
21	AUG	0600	37	.60	.08	.52	21680.	23	AUG	0800	137	.01	.01	0.00	16.
21	AUG	0630	38	.11	.08	.03	18490.	23	AUG	0830	138	.01	.01	0.00	16.
21	AUG	0700	39	.11	.08	.03	13698.	23	AUG	0900	139	.01	.01	0.00	15.
21	AUG	0730	40	.11	.08	.03	9696.	23	AUG	0930	140	.01	.01	0.00	15.
21	AUG	0800	41	.11	.08	.03	7183.	23	AUG	1000	141	.01	.01	0.00	15.
21	AUG	0830	42	.11	.08	.03	5571.	23	AUG	1030	142	.01	.01	0.00	14.
21	AUG	0900	43	.11	.08	.03	4492.	23	AUG	1100	143	.01	.01	0.00	14.
21	AUG	0930	44	.11	.08	.03	3741.	23	AUG	1130	144	.01	.01	0.00	14.
21	AUG	1000	45	.11	.08	.03	3201.	23	AUG	1200	145	.01	.01	0.00	13.
21	AUG	1030	46	.11	.08	.03	2803.	23	AUG	1230	146	0.00	0.00	0.00	13.
21	AUG	1100	47	.11	.08	.03	2502.	23	AUG	1300	147	0.00	0.00	0.00	13.
21	AUG	1130	48	.11	.08	.03	2271.	23	AUG	1330	148	0.00	0.00	0.00	12.
21	AUG	1200	49	.11	.08	.03	2091.	23	AUG	1400	149	0.00	0.00	0.00	12.
21	AUG	1230	50	.05	.05	0.00	1914.	23	AUG	1430	150	0.00	0.00	0.00	12.
21	AUG	1300	51	.05	.05	0.00	1728.	23	AUG	1500	151	0.00	0.00	0.00	12.
21	AUG	1330	52	.05	.05	0.00	1546.	23	AUG	1530	152	0.00	0.00	0.00	11.
21	AUG	1400	53	.05	.05	0.00	1378.	23	AUG	1600	153	0.00	0.00	0.00	11.
21	AUG	1430	54	.05	.05	0.00	1226.	23	AUG	1630	154	0.00	0.00	0.00	11.
21	AUG	1500	55	.05	.05	0.00	1092.	23	AUG	1700	155	0.00	0.00	0.00	11.
21	AUG	1530	56	.05	.05	0.00	975.	23	AUG	1730	156	0.00	0.00	0.00	10.
21	AUG	1600	57	.05	.05	0.00	872.	23	AUG	1800	157	0.00	0.00	0.00	10.
21	AUG	1630	58	.05	.05	0.00	782.	23	AUG	1830	158	0.00	0.00	0.00	10.

21 AUG 1700	59	.05	.05	0.00	704.	*	23 AUG 1900	159	0.00	0.00	0.00	10.			
21 AUG 1730	60	.05	.05	0.00	635.	*	23 AUG 1930	160	0.00	0.00	0.00	10.			3
21 AUG 1800	61	.05	.05	0.00	575.	*	23 AUG 2000	161	0.00	0.00	0.00	9.			4
21 AUG 1830	62	.05	.05	0.00	522.	*	23 AUG 2030	162	0.00	0.00	0.00	9.			5
21 AUG 1900	63	.05	.05	0.00	476.	*	23 AUG 2100	163	0.00	0.00	0.00	9.			6
21 AUG 1930	64	.05	.05	0.00	435.	*	23 AUG 2130	164	0.00	0.00	0.00	9.			7
21 AUG 2000	65	.05	.05	0.00	398.	*	23 AUG 2200	165	0.00	0.00	0.00	9.			8
21 AUG 2030	66	.05	.05	0.00	366.	*	23 AUG 2230	166	0.00	0.00	0.00	8.			9
21 AUG 2100	67	.05	.05	0.00	336.	*	23 AUG 2300	167	0.00	0.00	0.00	8.			10
21 AUG 2130	68	.05	.05	0.00	310.	*	23 AUG 2330	168	0.00	0.00	0.00	8.			11
21 AUG 2200	69	.05	.05	0.00	287.	*	24 AUG 0000	169	0.00	0.00	0.00	8.			12
21 AUG 2230	70	.05	.05	0.00	266.	*	24 AUG 0030	170	0.00	0.00	0.00	8.			
21 AUG 2300	71	.05	.05	0.00	247.	*	24 AUG 0100	171	0.00	0.00	0.00	8.			
21 AUG 2330	72	.05	.05	0.00	230.	*	24 AUG 0130	172	0.00	0.00	0.00	8.			
22 AUG 0000	73	.05	.05	0.00	214.	*	24 AUG 0200	173	0.00	0.00	0.00	7.			
22 AUG 0030	74	.05	.05	0.00	200.	*	24 AUG 0230	174	0.00	0.00	0.00	7.			
22 AUG 0100	75	.05	.05	0.00	187.	*	24 AUG 0300	175	0.00	0.00	0.00	7.			
22 AUG 0130	76	.05	.05	0.00	176.	*	24 AUG 0330	176	0.00	0.00	0.00	7.			
22 AUG 0200	77	.05	.05	0.00	165.	*	24 AUG 0400	177	0.00	0.00	0.00	7.			
22 AUG 0230	78	.05	.05	0.00	155.	*	24 AUG 0430	178	0.00	0.00	0.00	7.			
22 AUG 0300	79	.05	.05	0.00	146.	*	24 AUG 0500	179	0.00	0.00	0.00	7.			
22 AUG 0330	80	.05	.05	0.00	137.	*	24 AUG 0530	180	0.00	0.00	0.00	7.			
22 AUG 0400	81	.05	.05	0.00	130.	*	24 AUG 0600	181	0.00	0.00	0.00	6.			
22 AUG 0430	82	.05	.05	0.00	123.	*	24 AUG 0630	182	0.00	0.00	0.00	6.			
22 AUG 0500	83	.05	.05	0.00	116.	*	24 AUG 0700	183	0.00	0.00	0.00	6.			
22 AUG 0530	84	.05	.05	0.00	110.	*	24 AUG 0730	184	0.00	0.00	0.00	6.			
22 AUG 0600	85	.05	.05	0.00	104.	*	24 AUG 0800	185	0.00	0.00	0.00	6.			
22 AUG 0630	86	.05	.05	0.00	99.	*	24 AUG 0830	186	0.00	0.00	0.00	6.			
22 AUG 0700	87	.05	.05	0.00	94.	*	24 AUG 0900	187	0.00	0.00	0.00	6.			
22 AUG 0730	88	.05	.05	0.00	89.	*	24 AUG 0930	188	0.00	0.00	0.00	6.			
22 AUG 0800	89	.05	.05	0.00	85.	*	24 AUG 1000	189	0.00	0.00	0.00	6.			
22 AUG 0830	90	.05	.05	0.00	81.	*	24 AUG 1030	190	0.00	0.00	0.00	5.			
22 AUG 0900	91	.05	.05	0.00	77.	*	24 AUG 1100	191	0.00	0.00	0.00	5.			
22 AUG 0930	92	.05	.05	0.00	74.	*	24 AUG 1130	192	0.00	0.00	0.00	5.			
22 AUG 1000	93	.05	.05	0.00	70.	*	24 AUG 1200	193	0.00	0.00	0.00	5.			
22 AUG 1030	94	.05	.05	0.00	67.	*	24 AUG 1230	194	0.00	0.00	0.00	5.			
22 AUG 1100	95	.05	.05	0.00	64.	*	24 AUG 1300	195	0.00	0.00	0.00	5.			
22 AUG 1130	96	.05	.05	0.00	62.	*	24 AUG 1330	196	0.00	0.00	0.00	5.			
22 AUG 1200	97	.05	.05	0.00	59.	*	24 AUG 1400	197	0.00	0.00	0.00	5.			
22 AUG 1230	98	.01	.01	0.00	57.	*	24 AUG 1430	198	0.00	0.00	0.00	5.			
22 AUG 1300	99	.01	.01	0.00	54.	*	24 AUG 1500	199	0.00	0.00	0.00	5.			
22 AUG 1330	100	.01	.01	0.00	52.	*	24 AUG 1530	200	0.00	0.00	0.00	5.			
						*		SUM	15.00	6.89	8.11				
						*									

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.50-HR
21680.	18.00	(CFS)	19081.	6813.	2321.	1681.
		(INCHES)	5.392	7.701	7.871	7.878
		(AC-FT)	9462.	13513.	13812.	13823.

CUMULATIVE AREA = 32.90 SQ MI

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              *            *
 16 KK        *    DAM1    *        SR-74-A DAM
              *            *
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                HYDROGRAPH ROUTING DATA

 17 RS            STORAGE ROUTING
                       NSTPS          1  NUMBER OF SUBREACHES
                        ITYP       ELEV  TYPE OF INITIAL CONDITION
                       RSVRIC       0.00  INITIAL CONDITION
                            X       0.00 WORKING R AND D COEFFICIENT

 18 SV              STORAGE        0.0      500.0

 19 SE            ELEVATION       0.00       8.00

 20 SQ            DISCHARGE         0.     35000.

 21 SE            ELEVATION       0.00       8.00

 22 ST            TOP OF DAM
                       TOPEL       9.00  ELEVATION AT TOP OF DAM
                      DAMWID    1200.00  DAM WIDTH
                        COQD       3.00  WEIR COEFFICIENT
                        EXPD       1.50  EXPONENT OF HEAD

                                                  ***

                                        COMPUTED STORAGE-OUTFLOW CURVE
              STORAGE        0.00    500.00

              OUTFLOW        0.00  35000.00
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HYDROGRAPH AT STATION DAM1

	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
	20	AUG	1200	1	0.	0.0	0.0	21	AUG	2130	68	319.	4.6	.1	23	AUG	0700	135	17.	.2	.0
	20	AUG	1230	2	0.	0.0	0.0	21	AUG	2200	69	295.	4.2	.1	23	AUG	0730	136	17.	.2	.0
	20	AUG	1300	3	0.	0.0	0.0	21	AUG	2230	70	273.	3.9	.1	23	AUG	0800	137	16.	.2	.0
12	20	AUG	1330	4	0.	0.0	0.0	21	AUG	2300	71	254.	3.6	.1	23	AUG	0830	138	16.	.2	.0
11	20	AUG	1400	5	0.	0.0	0.0	21	AUG	2330	72	236.	3.4	.1	23	AUG	0900	139	15.	.2	.0
10	20	AUG	1430	6	0.	0.0	0.0	22	AUG	0000	73	220.	3.1	.1	23	AUG	0930	140	15.	.2	.0
9	20	AUG	1500	7	0.	0.0	0.0	22	AUG	0030	74	205.	2.9	.0	23	AUG	1000	141	15.	.2	.0
8	20	AUG	1530	8	0.	0.0	0.0	22	AUG	0100	75	192.	2.7	.0	23	AUG	1030	142	14.	.2	.0
7	20	AUG	1600	9	0.	0.0	0.0	22	AUG	0130	76	180.	2.6	.0	23	AUG	1100	143	14.	.2	.0
6	20	AUG	1630	10	0.	0.0	0.0	22	AUG	0200	77	168.	2.4	.0	23	AUG	1130	144	14.	.2	.0
5	20	AUG	1700	11	0.	0.0	0.0	22	AUG	0230	78	158.	2.3	.0	23	AUG	1200	145	13.	.2	.0
4	20	AUG	1730	12	0.	.0	.0	22	AUG	0300	79	149.	2.1	.0	23	AUG	1230	146	13.	.2	.0
3	20	AUG	1800	13	0.	.0	.0	22	AUG	0330	80	140.	2.0	.0	23	AUG	1300	147	13.	.2	.0

20	AUG	1830	14	2.	.0	.0	*	22	AUG	0400	81	132.	1.9	.0	*	23	AUG	1330	148	12.	.2	.0
20	AUG	1900	15	38.	.5	.0	*	22	AUG	0430	82	125.	1.8	.0	*	23	AUG	1400	149	12.	.2	.0
20	AUG	1930	16	189.	2.7	.0	*	22	AUG	0500	83	118.	1.7	.0	*	23	AUG	1430	150	12.	.2	.0
20	AUG	2000	17	495.	7.1	.1	*	22	AUG	0530	84	112.	1.6	.0	*	23	AUG	1500	151	12.	.2	.0
20	AUG	2030	18	917.	13.1	.2	*	22	AUG	0600	85	106.	1.5	.0	*	23	AUG	1530	152	11.	.2	.0
20	AUG	2100	19	1413.	20.2	.3	*	22	AUG	0630	86	101.	1.4	.0	*	23	AUG	1600	153	11.	.2	.0
20	AUG	2130	20	1944.	27.8	.4	*	22	AUG	0700	87	96.	1.4	.0	*	23	AUG	1630	154	11.	.2	.0
20	AUG	2200	21	2470.	35.3	.6	*	22	AUG	0730	88	91.	1.3	.0	*	23	AUG	1700	155	11.	.2	.0
20	AUG	2230	22	2955.	42.2	.7	*	22	AUG	0800	89	87.	1.2	.0	*	23	AUG	1730	156	10.	.1	.0
20	AUG	2300	23	3377.	48.2	.8	*	22	AUG	0830	90	82.	1.2	.0	*	23	AUG	1800	157	10.	.1	.0
20	AUG	2330	24	3727.	53.2	.9	*	22	AUG	0900	91	79.	1.1	.0	*	23	AUG	1830	158	10.	.1	.0
21	AUG	0000	25	4005.	57.2	.9	*	22	AUG	0930	92	75.	1.1	.0	*	23	AUG	1900	159	10.	.1	.0
21	AUG	0030	26	5120.	73.1	1.2	*	22	AUG	1000	93	72.	1.0	.0	*	23	AUG	1930	160	10.	.1	.0
21	AUG	0100	27	8061.	115.2	1.8	*	22	AUG	1030	94	68.	1.0	.0	*	23	AUG	2000	161	9.	.1	.0
21	AUG	0130	28	12028.	171.8	2.7	*	22	AUG	1100	95	65.	.9	.0	*	23	AUG	2030	162	9.	.1	.0
21	AUG	0200	29	15670.	223.9	3.6	*	22	AUG	1130	96	63.	.9	.0	*	23	AUG	2100	163	9.	.1	.0
21	AUG	0230	30	18345.	262.1	4.2	*	22	AUG	1200	97	60.	.9	.0	*	23	AUG	2130	164	9.	.1	.0
21	AUG	0300	31	19978.	285.4	4.6	*	22	AUG	1230	98	58.	.8	.0	*	23	AUG	2200	165	9.	.1	.0
21	AUG	0330	32	20856.	297.9	4.8	*	22	AUG	1300	99	55.	.8	.0	*	23	AUG	2230	166	9.	.1	.0
21	AUG	0400	33	21295.	304.2	4.9	*	22	AUG	1330	100	53.	.8	.0	*	23	AUG	2300	167	8.	.1	.0
21	AUG	0430	34	21507.	307.2	4.9	*	22	AUG	1400	101	51.	.7	.0	*	23	AUG	2330	168	8.	.1	.0
21	AUG	0500	35	21607.	308.7	4.9	*	22	AUG	1430	102	49.	.7	.0	*	24	AUG	0000	169	8.	.1	.0
21	AUG	0530	36	21654.	309.3	4.9	*	22	AUG	1500	103	47.	.7	.0	*	24	AUG	0030	170	8.	.1	.0
21	AUG	0600	37	21675.	309.6	5.0	*	22	AUG	1530	104	45.	.6	.0	*	24	AUG	0100	171	8.	.1	.0
21	AUG	0630	38	19795.	282.8	4.5	*	22	AUG	1600	105	44.	.6	.0	*	24	AUG	0130	172	8.	.1	.0
21	AUG	0700	39	15418.	220.3	3.5	*	22	AUG	1630	106	42.	.6	.0	*	24	AUG	0200	173	7.	.1	.0
21	AUG	0730	40	11018.	157.4	2.5	*	22	AUG	1700	107	41.	.6	.0	*	24	AUG	0230	174	7.	.1	.0
21	AUG	0800	41	7969.	113.8	1.8	*	22	AUG	1730	108	39.	.6	.0	*	24	AUG	0300	175	7.	.1	.0
21	AUG	0830	42	6087.	87.0	1.4	*	22	AUG	1800	109	38.	.5	.0	*	24	AUG	0330	176	7.	.1	.0
21	AUG	0900	43	4839.	69.1	1.1	*	22	AUG	1830	110	36.	.5	.0	*	24	AUG	0400	177	7.	.1	.0
21	AUG	0930	44	3984.	56.9	.9	*	22	AUG	1900	111	35.	.5	.0	*	24	AUG	0430	178	7.	.1	.0
21	AUG	1000	45	3377.	48.2	.8	*	22	AUG	1930	112	34.	.5	.0	*	24	AUG	0500	179	7.	.1	.0
21	AUG	1030	46	2933.	41.9	.7	*	22	AUG	2000	113	33.	.5	.0	*	24	AUG	0530	180	7.	.1	.0
21	AUG	1100	47	2601.	37.2	.6	*	22	AUG	2030	114	32.	.5	.0	*	24	AUG	0600	181	6.	.1	.0
21	AUG	1130	48	2348.	33.5	.5	*	22	AUG	2100	115	31.	.4	.0	*	24	AUG	0630	182	6.	.1	.0
21	AUG	1200	49	2151.	30.7	.5	*	22	AUG	2130	116	30.	.4	.0	*	24	AUG	0700	183	6.	.1	.0
21	AUG	1230	50	1976.	28.2	.5	*	22	AUG	2200	117	29.	.4	.0	*	24	AUG	0730	184	6.	.1	.0
21	AUG	1300	51	1792.	25.6	.4	*	22	AUG	2230	118	28.	.4	.0	*	24	AUG	0800	185	6.	.1	.0
21	AUG	1330	52	1608.	23.0	.4	*	22	AUG	2300	119	27.	.4	.0	*	24	AUG	0830	186	6.	.1	.0
21	AUG	1400	53	1435.	20.5	.3	*	22	AUG	2330	120	26.	.4	.0	*	24	AUG	0900	187	6.	.1	.0
21	AUG	1430	54	1278.	18.3	.3	*	23	AUG	0000	121	25.	.4	.0	*	24	AUG	0930	188	6.	.1	.0
21	AUG	1500	55	1138.	16.3	.3	*	23	AUG	0030	122	25.	.4	.0	*	24	AUG	1000	189	6.	.1	.0
21	AUG	1530	56	1015.	14.5	.2	*	23	AUG	0100	123	24.	.3	.0	*	24	AUG	1030	190	6.	.1	.0
21	AUG	1600	57	907.	13.0	.2	*	23	AUG	0130	124	23.	.3	.0	*	24	AUG	1100	191	5.	.1	.0
21	AUG	1630	58	813.	11.6	.2	*	23	AUG	0200	125	23.	.3	.0	*	24	AUG	1130	192	5.	.1	.0
21	AUG	1700	59	731.	10.4	.2	*	23	AUG	0230	126	22.	.3	.0	*	24	AUG	1200	193	5.	.1	.0
21	AUG	1730	60	659.	9.4	.2	*	23	AUG	0300	127	21.	.3	.0	*	24	AUG	1230	194	5.	.1	.0
21	AUG	1800	61	596.	8.5	.1	*	23	AUG	0330	128	21.	.3	.0	*	24	AUG	1300	195	5.	.1	.0
21	AUG	1830	62	540.	7.7	.1	*	23	AUG	0400	129	20.	.3	.0	*	24	AUG	1330	196	5.	.1	.0
21	AUG	1900	63	492.	7.0	.1	*	23	AUG	0430	130	20.	.3	.0	*	24	AUG	1400	197	5.	.1	.0
21	AUG	1930	64	449.	6.4	.1	*	23	AUG	0500	131	19.	.3	.0	*	24	AUG	1430	198	5.	.1	.0
21	AUG	2000	65	410.	5.9	.1	*	23	AUG	0530	132	19.	.3	.0	*	24	AUG	1500	199	5.	.1	.0
21	AUG	2030	66	377.	5.4	.1	*	23	AUG	0600	133	18.	.3	.0	*	24	AUG	1530	200	5.	.1	.0
21	AUG	2100	67	346.	4.9	.1	*	23	AUG	0630	134	18.	.3	.0	*							

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PEAK OUTFLOW IS 21675. AT TIME 18.00 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.50-HR
21675.	18.00	(CFS)	19110.	6813.	2321.	1681.

	(INCHES)	5.401	7.701	7.871	7.878
	(AC-FT)	9476.	13513.	13811.	13823.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	99.50-HR
310.	18.00	273.	97.	33.	24.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	99.50-HR
4.95	18.00	4.37	1.56	.53	.38

CUMULATIVE AREA = 32.90 SQ MI

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            **************
            *            *
 23 KK      *    SUB2    *      RUNOFF FROM SUBBASIN 2
            *            *
            **************

  6 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN        360  TIME INTERVAL IN MINUTES
                    JXDATE    20AUG83  STARTING DATE
                    JXTIME       1200  STARTING TIME

              SUBBASIN RUNOFF DATA

 24 BA          SUBBASIN CHARACTERISTICS
                     TAREA      17.20  SUBBASIN AREA

                PRECIPITATION DATA

 25 PB                STORM      15.00  BASIN TOTAL PRECIPITATION

 26 PI            INCREMENTAL PRECIPITATION PATTERN
                    .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
                    .09       .09       .19       .19       .19       .19       .19       .19       .19       .19
                    .19       .19       .19       .19       .60       .60       .60       .60       .60       .60
                    .60       .60       .60       .60       .60       .60       .11       .11       .11       .11
                    .11       .11       .11       .11       .11       .11       .11       .11       .05       .05
                    .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                    .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                    .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                    .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                    .05       .05       .05       .05       .05       .05       .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       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01

 28 LU          UNIFORM LOSS RATE
                      STRTL       .95  INITIAL LOSS
                      CNSTL       .15  UNIFORM LOSS RATE
                      RTIMP      0.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 29 UK            OVERLAND-FLOW ELEMENT NO. 1
                          L     1500.  OVERLAND FLOW LENGTH
                          S    .0200  SLOPE
                          N     .050  ROUGHNESS COEFFICIENT
                         PA    100.0  PERCENT OF SUBBASIN
 30 RK            MAIN CHANNEL
                          L    26800.  CHANNEL LENGTH
                          S    .0130  SLOPE
                          N     .075  CHANNEL ROUGHNESS COEFFICIENT
                         CA    17.20  CONTRIBUTING AREA
                      SHAPE     TRAP  CHANNEL SHAPE
                         WD   900.00  BOTTOM WIDTH OR DIAMETER
                          Z     6.00  SIDE SLOPE
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RUPSTQ YES ROUTE UPSTREAM HYDROGRAPH

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COMPUTED KINEMATIC PARAMETERS

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)
1	4.2144	1.667	30.00	750.00
3	.0268	1.650	30.00	13400.00

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HYDROGRAPH AT STATION SUB2

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DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
20	AUG	1200	1	0.00	0.00	0.00	0.	*	22	AUG	1400	101	.01	.01	0.00	95.
20	AUG	1230	2	.09	.09	0.00	0.	*	22	AUG	1430	102	.01	.01	0.00	91.
20	AUG	1300	3	.09	.09	0.00	0.	*	22	AUG	1500	103	.01	.01	0.00	88.
20	AUG	1330	4	.09	.09	0.00	0.	*	22	AUG	1530	104	.01	.01	0.00	85.
20	AUG	1400	5	.09	.09	0.00	0.	*	22	AUG	1600	105	.01	.01	0.00	81.
20	AUG	1430	6	.09	.09	0.00	0.	*	22	AUG	1630	106	.01	.01	0.00	79.
20	AUG	1500	7	.09	.09	0.00	0.	*	22	AUG	1700	107	.01	.01	0.00	76.
20	AUG	1530	8	.09	.09	0.00	0.	*	22	AUG	1730	108	.01	.01	0.00	73.
20	AUG	1600	9	.09	.09	0.00	0.	*	22	AUG	1800	109	.01	.01	0.00	71.
20	AUG	1630	10	.09	.09	0.00	0.	*	22	AUG	1830	110	.01	.01	0.00	68.
20	AUG	1700	11	.09	.09	0.00	0.	*	22	AUG	1900	111	.01	.01	0.00	66.
20	AUG	1730	12	.09	.08	.01	0.	*	22	AUG	1930	112	.01	.01	0.00	64.
20	AUG	1800	13	.09	.08	.02	0.	*	22	AUG	2000	113	.01	.01	0.00	62.
20	AUG	1830	14	.19	.08	.12	23.	*	22	AUG	2030	114	.01	.01	0.00	60.
20	AUG	1900	15	.19	.08	.12	166.	*	22	AUG	2100	115	.01	.01	0.00	58.
20	AUG	1930	16	.19	.08	.12	468.	*	22	AUG	2130	116	.01	.01	0.00	56.
20	AUG	2000	17	.19	.08	.12	883.	*	22	AUG	2200	117	.01	.01	0.00	54.
20	AUG	2030	18	.19	.08	.12	1397.	*	22	AUG	2230	118	.01	.01	0.00	53.
20	AUG	2100	19	.19	.08	.12	2003.	*	22	AUG	2300	119	.01	.01	0.00	51.
20	AUG	2130	20	.19	.08	.12	2686.	*	22	AUG	2330	120	.01	.01	0.00	49.
20	AUG	2200	21	.19	.08	.12	3419.	*	23	AUG	0000	121	.01	.01	0.00	48.
20	AUG	2230	22	.19	.08	.12	4158.	*	23	AUG	0030	122	.01	.01	0.00	47.
20	AUG	2300	23	.19	.08	.12	4850.	*	23	AUG	0100	123	.01	.01	0.00	45.
20	AUG	2330	24	.19	.08	.12	5453.	*	23	AUG	0130	124	.01	.01	0.00	44.
21	AUG	0000	25	.19	.08	.12	5948.	*	23	AUG	0200	125	.01	.01	0.00	43.
21	AUG	0030	26	.60	.08	.52	8845.	*	23	AUG	0230	126	.01	.01	0.00	42.
21	AUG	0100	27	.60	.08	.52	14218.	*	23	AUG	0300	127	.01	.01	0.00	40.
21	AUG	0130	28	.60	.08	.52	15930.	*	23	AUG	0330	128	.01	.01	0.00	39.
21	AUG	0200	29	.60	.08	.52	19843.	*	23	AUG	0400	129	.01	.01	0.00	38.
21	AUG	0230	30	.60	.08	.52	24540.	*	23	AUG	0430	130	.01	.01	0.00	37.
21	AUG	0300	31	.60	.08	.52	28241.	*	23	AUG	0500	131	.01	.01	0.00	36.
21	AUG	0330	32	.60	.08	.52	30642.	*	23	AUG	0530	132	.01	.01	0.00	35.
21	AUG	0400	33	.60	.08	.52	31993.	*	23	AUG	0600	133	.01	.01	0.00	34.
21	AUG	0430	34	.60	.08	.52	32688.	*	23	AUG	0630	134	.01	.01	0.00	33.
21	AUG	0500	35	.60	.08	.52	33027.	*	23	AUG	0700	135	.01	.01	0.00	33.
21	AUG	0530	36	.60	.08	.52	33189.	*	23	AUG	0730	136	.01	.01	0.00	32.
21	AUG	0600	37	.60	.08	.52	33265.	*	23	AUG	0800	137	.01	.01	0.00	31.
21	AUG	0630	38	.11	.08	.03	28936.	*	23	AUG	0830	138	.01	.01	0.00	30.
21	AUG	0700	39	.11	.08	.03	23241.	*	23	AUG	0900	139	.01	.01	0.00	29.
21	AUG	0730	40	.11	.08	.03	19381.	*	23	AUG	0930	140	.01	.01	0.00	29.
21	AUG	0800	41	.11	.08	.03	15810.	*	23	AUG	1000	141	.01	.01	0.00	28.
21	AUG	0830	42	.11	.08	.03	11838.	*	23	AUG	1030	142	.01	.01	0.00	27.
21	AUG	0900	43	.11	.08	.03	7692.	*	23	AUG	1100	143	.01	.01	0.00	27.
21	AUG	0930	44	.11	.08	.03	6291.	*	23	AUG	1130	144	.01	.01	0.00	26.
21	AUG	1000	45	.11	.08	.03	5365.	*	23	AUG	1200	145	.01	.01	0.00	26.
21	AUG	1030	46	.11	.08	.03	4689.	*	23	AUG	1230	146	0.00	0.00	0.00	25.

21 AUG 1100	47	.11	.08	.03	4175.	*	23 AUG 1300	147	0.00	0.00	0.00	24.			
21 AUG 1130	48	.11	.08	.03	3776.	*	23 AUG 1330	148	0.00	0.00	0.00	24.			3
21 AUG 1200	49	.11	.08	.03	3462.	*	23 AUG 1400	149	0.00	0.00	0.00	23.			4
21 AUG 1230	50	.05	.05	0.00	3128.	*	23 AUG 1430	150	0.00	0.00	0.00	23.			5
21 AUG 1300	51	.05	.05	0.00	2795.	*	23 AUG 1500	151	0.00	0.00	0.00	22.			6
21 AUG 1330	52	.05	.05	0.00	2494.	*	23 AUG 1530	152	0.00	0.00	0.00	22.			7
21 AUG 1400	53	.05	.05	0.00	2229.	*	23 AUG 1600	153	0.00	0.00	0.00	21.			8
21 AUG 1430	54	.05	.05	0.00	1997.	*	23 AUG 1630	154	0.00	0.00	0.00	21.			9
21 AUG 1500	55	.05	.05	0.00	1793.	*	23 AUG 1700	155	0.00	0.00	0.00	20.			10
21 AUG 1530	56	.05	.05	0.00	1615.	*	23 AUG 1730	156	0.00	0.00	0.00	20.			11
21 AUG 1600	57	.05	.05	0.00	1458.	*	23 AUG 1800	157	0.00	0.00	0.00	20.			12
21 AUG 1630	58	.05	.05	0.00	1319.	*	23 AUG 1830	158	0.00	0.00	0.00	19.			
21 AUG 1700	59	.05	.05	0.00	1197.	*	23 AUG 1900	159	0.00	0.00	0.00	19.			
21 AUG 1730	60	.05	.05	0.00	1088.	*	23 AUG 1930	160	0.00	0.00	0.00	18.			
21 AUG 1800	61	.05	.05	0.00	992.	*	23 AUG 2000	161	0.00	0.00	0.00	18.			
21 AUG 1830	62	.05	.05	0.00	907.	*	23 AUG 2030	162	0.00	0.00	0.00	18.			
21 AUG 1900	63	.05	.05	0.00	831.	*	23 AUG 2100	163	0.00	0.00	0.00	17.			
21 AUG 1930	64	.05	.05	0.00	763.	*	23 AUG 2130	164	0.00	0.00	0.00	17.			
21 AUG 2000	65	.05	.05	0.00	702.	*	23 AUG 2200	165	0.00	0.00	0.00	17.			
21 AUG 2030	66	.05	.05	0.00	648.	*	23 AUG 2230	166	0.00	0.00	0.00	16.			
21 AUG 2100	67	.05	.05	0.00	599.	*	23 AUG 2300	167	0.00	0.00	0.00	16.			
21 AUG 2130	68	.05	.05	0.00	555.	*	23 AUG 2330	168	0.00	0.00	0.00	16.			
21 AUG 2200	69	.05	.05	0.00	515.	*	24 AUG 0000	169	0.00	0.00	0.00	15.			
21 AUG 2230	70	.05	.05	0.00	479.	*	24 AUG 0030	170	0.00	0.00	0.00	15.			
21 AUG 2300	71	.05	.05	0.00	446.	*	24 AUG 0100	171	0.00	0.00	0.00	15.			
21 AUG 2330	72	.05	.05	0.00	416.	*	24 AUG 0130	172	0.00	0.00	0.00	15.			
22 AUG 0000	73	.05	.05	0.00	389.	*	24 AUG 0200	173	0.00	0.00	0.00	14.			
22 AUG 0030	74	.05	.05	0.00	364.	*	24 AUG 0230	174	0.00	0.00	0.00	14.			
22 AUG 0100	75	.05	.05	0.00	342.	*	24 AUG 0300	175	0.00	0.00	0.00	14.			
22 AUG 0130	76	.05	.05	0.00	321.	*	24 AUG 0330	176	0.00	0.00	0.00	13.			
22 AUG 0200	77	.05	.05	0.00	302.	*	24 AUG 0400	177	0.00	0.00	0.00	13.			
14113 22 AUG 0230	78	.05	.05	0.00	284.	*	24 AUG 0430	178	0.00	0.00	0.00	13.			
22 AUG 0300	79	.05	.05	0.00	268.	*	24 AUG 0500	179	0.00	0.00	0.00	13.			
22 AUG 0330	80	.05	.05	0.00	253.	*	24 AUG 0530	180	0.00	0.00	0.00	13.			
22 AUG 0400	81	.05	.05	0.00	239.	*	24 AUG 0600	181	0.00	0.00	0.00	12.			
22 AUG 0430	82	.05	.05	0.00	227.	*	24 AUG 0630	182	0.00	0.00	0.00	12.			
22 AUG 0500	83	.05	.05	0.00	215.	*	24 AUG 0700	183	0.00	0.00	0.00	12.			
22 AUG 0530	84	.05	.05	0.00	204.	*	24 AUG 0730	184	0.00	0.00	0.00	12.			
22 AUG 0600	85	.05	.05	0.00	193.	*	24 AUG 0800	185	0.00	0.00	0.00	12.			
22 AUG 0630	86	.05	.05	0.00	184.	*	24 AUG 0830	186	0.00	0.00	0.00	11.			
22 AUG 0700	87	.05	.05	0.00	175.	*	24 AUG 0900	187	0.00	0.00	0.00	11.			
22 AUG 0730	88	.05	.05	0.00	167.	*	24 AUG 0930	188	0.00	0.00	0.00	11.			
22 AUG 0800	89	.05	.05	0.00	159.	*	24 AUG 1000	189	0.00	0.00	0.00	11.			
22 AUG 0830	90	.05	.05	0.00	151.	*	24 AUG 1030	190	0.00	0.00	0.00	11.			
22 AUG 0900	91	.05	.05	0.00	145.	*	24 AUG 1100	191	0.00	0.00	0.00	10.			
22 AUG 0930	92	.05	.05	0.00	138.	*	24 AUG 1130	192	0.00	0.00	0.00	10.			
22 AUG 1000	93	.05	.05	0.00	132.	*	24 AUG 1200	193	0.00	0.00	0.00	10.			
22 AUG 1030	94	.05	.05	0.00	126.	*	24 AUG 1230	194	0.00	0.00	0.00	10.			
22 AUG 1100	95	.05	.05	0.00	121.	*	24 AUG 1300	195	0.00	0.00	0.00	10.			
22 AUG 1130	96	.05	.05	0.00	116.	*	24 AUG 1330	196	0.00	0.00	0.00	10.			
22 AUG 1200	97	.05	.05	0.00	111.	*	24 AUG 1400	197	0.00	0.00	0.00	9.			
22 AUG 1230	98	.01	.01	0.00	107.	*	24 AUG 1430	198	0.00	0.00	0.00	9.			
22 AUG 1300	99	.01	.01	0.00	103.	*	24 AUG 1500	199	0.00	0.00	0.00	9.			
12 22 AUG 1330	100	.01	.01	0.00	99.	*	24 AUG 1530	200	0.00	0.00	0.00	9.			
11						*		SUM	15.00	6.89	8.11				
10						*									

9 **********

8

7 PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
6 (CFS)	(HR)		6-HR	24-HR	72-HR	99.50-HR
5 33265.	18.00	(CFS)	28105.	10342.	3539.	2564.
4		(INCHES)	5.216	7.677	7.882	7.891
3		(AC-FT)	13936.	20512.	21060.	21083.

CUMULATIVE AREA = 50.10 SQ MI

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              **************
              *            *
31 KK         *     H60A   *        HIGHWAY 60-89-A DAM
              *            *
              **************

          HYDROGRAPH ROUTING DATA

32 RS          STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       ELEV  TYPE OF INITIAL CONDITION
                   RSVRIC       0.00  INITIAL CONDITION
                        X       0.00  WORKING R AND D COEFFICIENT

33 SV            STORAGE        0.0     830.0

34 SE          ELEVATION       0.00      7.00

35 SQ          DISCHARGE        0.     49515.

36 SE          ELEVATION       0.00      7.00

37 ST          TOP OF DAM
                    TOPEL       7.00  ELEVATION AT TOP OF DAM
                   DAMWID    1200.00  DAM WIDTH
                     COQD       3.00  WEIR COEFFICIENT
                     EXPD       1.50  EXPONENT OF HEAD
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COMPUTED STORAGE-OUTFLOW CURVE

STORAGE	0.00	830.00
OUTFLOW	0.00	49515.00

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HYDROGRAPH AT STATION H60A

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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
20	AUG	1200	1	0.	0.0	0.0	21	AUG	2130	68	572.	9.6	.1	23	AUG	0700	135	33.	.6	.0
20	AUG	1230	2	0.	0.0	0.0	21	AUG	2200	69	531.	8.9	.1	23	AUG	0730	136	32.	.5	.0
20	AUG	1300	3	0.	0.0	0.0	21	AUG	2230	70	493.	8.3	.1	23	AUG	0800	137	31.	.5	.0
20	AUG	1330	4	0.	0.0	0.0	21	AUG	2300	71	459.	7.7	.1	23	AUG	0830	138	31.	.5	.0
20	AUG	1400	5	0.	0.0	0.0	21	AUG	2330	72	428.	7.2	.1	23	AUG	0900	139	30.	.5	.0
20	AUG	1430	6	0.	0.0	0.0	22	AUG	0000	73	400.	6.7	.1	23	AUG	0930	140	29.	.5	.0
20	AUG	1500	7	0.	0.0	0.0	22	AUG	0030	74	374.	6.3	.1	23	AUG	1000	141	28.	.5	.0
20	AUG	1530	8	0.	0.0	0.0	22	AUG	0100	75	351.	5.9	.0	23	AUG	1030	142	28.	.5	.0
20	AUG	1600	9	0.	0.0	0.0	22	AUG	0130	76	329.	5.5	.0	23	AUG	1100	143	27.	.5	.0
20	AUG	1630	10	0.	0.0	0.0	22	AUG	0200	77	310.	5.2	.0	23	AUG	1130	144	26.	.4	.0
20	AUG	1700	11	0.	0.0	0.0	22	AUG	0230	78	291.	4.9	.0	23	AUG	1200	145	26.	.4	.0
20	AUG	1730	12	0.	.0	.0	22	AUG	0300	79	275.	4.6	.0	23	AUG	1230	146	25.	.4	.0
20	AUG	1800	13	0.	.0	.0	22	AUG	0330	80	259.	4.3	.0	23	AUG	1300	147	25.	.4	.0

20	AUG	1830	14	13.	.2	.0	*	22	AUG	0400	81	245.	4.1	.0	*	23	AUG	1330	148	24.	.4	.0
20	AUG	1900	15	103.	1.7	.0	*	22	AUG	0430	82	232.	3.9	.0	*	23	AUG	1400	149	23.	.4	.0
20	AUG	1930	16	339.	5.7	.0	*	22	AUG	0500	83	219.	3.7	.0	*	23	AUG	1430	150	23.	.4	.0
20	AUG	2000	17	710.	11.9	.1	*	22	AUG	0530	84	208.	3.5	.0	*	23	AUG	1500	151	22.	.4	.0
20	AUG	2030	18	1185.	19.9	.2	*	22	AUG	0600	85	197.	3.3	.0	*	23	AUG	1530	152	22.	.4	.0
20	AUG	2100	19	1754.	29.4	.2	*	22	AUG	0630	86	188.	3.1	.0	*	23	AUG	1600	153	21.	.4	.0
20	AUG	2130	20	2406.	40.3	.3	*	22	AUG	0700	87	178.	3.0	.0	*	23	AUG	1630	154	21.	.4	.0
20	AUG	2200	21	3120.	52.3	.4	*	22	AUG	0730	88	170.	2.8	.0	*	23	AUG	1700	155	21.	.3	.0
20	AUG	2230	22	3859.	64.7	.5	*	22	AUG	0800	89	162.	2.7	.0	*	23	AUG	1730	156	20.	.3	.0
20	AUG	2300	23	4572.	76.6	.6	*	22	AUG	0830	90	154.	2.6	.0	*	23	AUG	1800	157	20.	.3	.0
20	AUG	2330	24	5212.	87.4	.7	*	22	AUG	0900	91	147.	2.5	.0	*	23	AUG	1830	158	19.	.3	.0
21	AUG	0000	25	5751.	96.4	.8	*	22	AUG	0930	92	141.	2.4	.0	*	23	AUG	1900	159	19.	.3	.0
21	AUG	0030	26	7568.	126.9	1.1	*	22	AUG	1000	93	135.	2.3	.0	*	23	AUG	1930	160	19.	.3	.0
21	AUG	0100	27	11944.	200.2	1.7	*	22	AUG	1030	94	129.	2.2	.0	*	23	AUG	2000	161	18.	.3	.0
21	AUG	0130	28	15400.	258.1	2.2	*	22	AUG	1100	95	123.	2.1	.0	*	23	AUG	2030	162	18.	.3	.0
21	AUG	0200	29	18146.	304.2	2.6	*	22	AUG	1130	96	118.	2.0	.0	*	23	AUG	2100	163	17.	.3	.0
21	AUG	0230	30	22613.	379.1	3.2	*	22	AUG	1200	97	113.	1.9	.0	*	23	AUG	2130	164	17.	.3	.0
21	AUG	0300	31	26784.	449.0	3.8	*	22	AUG	1230	98	109.	1.8	.0	*	23	AUG	2200	165	17.	.3	.0
21	AUG	0330	32	29718.	498.2	4.2	*	22	AUG	1300	99	104.	1.7	.0	*	23	AUG	2230	166	16.	.3	.0
21	AUG	0400	33	31484.	527.8	4.5	*	22	AUG	1330	100	100.	1.7	.0	*	23	AUG	2300	167	16.	.3	.0
21	AUG	0430	34	32430.	543.6	4.6	*	22	AUG	1400	101	96.	1.6	.0	*	23	AUG	2330	168	16.	.3	.0
21	AUG	0500	35	32902.	551.5	4.7	*	22	AUG	1430	102	93.	1.6	.0	*	24	AUG	0000	169	16.	.3	.0
21	AUG	0530	36	33130.	555.3	4.7	*	22	AUG	1500	103	89.	1.5	.0	*	24	AUG	0030	170	15.	.3	.0
21	AUG	0600	37	33237.	557.1	4.7	*	22	AUG	1530	104	86.	1.4	.0	*	24	AUG	0100	171	15.	.3	.0
21	AUG	0630	38	30878.	517.6	4.4	*	22	AUG	1600	105	83.	1.4	.0	*	24	AUG	0130	172	15.	.2	.0
21	AUG	0700	39	25590.	428.9	3.6	*	22	AUG	1630	106	80.	1.3	.0	*	24	AUG	0200	173	14.	.2	.0
21	AUG	0730	40	20865.	349.8	2.9	*	22	AUG	1700	107	77.	1.3	.0	*	24	AUG	0230	174	14.	.2	.0
21	AUG	0800	41	17255.	289.2	2.4	*	22	AUG	1730	108	74.	1.2	.0	*	24	AUG	0300	175	14.	.2	.0
21	AUG	0830	42	13467.	225.7	1.9	*	22	AUG	1800	109	72.	1.2	.0	*	24	AUG	0330	176	14.	.2	.0
21	AUG	0900	43	9380.	157.2	1.3	*	22	AUG	1830	110	69.	1.2	.0	*	24	AUG	0400	177	13.	.2	.0
21	AUG	0930	44	6743.	113.0	1.0	*	22	AUG	1900	111	67.	1.1	.0	*	24	AUG	0430	178	13.	.2	.0
21	AUG	1000	45	5733.	96.1	.8	*	22	AUG	1930	112	65.	1.1	.0	*	24	AUG	0500	179	13.	.2	.0
21	AUG	1030	46	4953.	83.0	.7	*	22	AUG	2000	113	63.	1.0	.0	*	24	AUG	0530	180	13.	.2	.0
21	AUG	1100	47	4378.	73.4	.6	*	22	AUG	2030	114	60.	1.0	.0	*	24	AUG	0600	181	12.	.2	.0
21	AUG	1130	48	3934.	65.9	.6	*	22	AUG	2100	115	59.	1.0	.0	*	24	AUG	0630	182	12.	.2	.0
21	AUG	1200	49	3586.	60.1	.5	*	22	AUG	2130	116	57.	1.0	.0	*	24	AUG	0700	183	12.	.2	.0
21	AUG	1230	50	3264.	54.7	.5	*	22	AUG	2200	117	55.	.9	.0	*	24	AUG	0730	184	12.	.2	.0
21	AUG	1300	51	2930.	49.1	.4	*	22	AUG	2230	118	53.	.9	.0	*	24	AUG	0800	185	12.	.2	.0
21	AUG	1330	52	2615.	43.8	.4	*	22	AUG	2300	119	52.	.9	.0	*	24	AUG	0830	186	11.	.2	.0
21	AUG	1400	53	2335.	39.1	.3	*	22	AUG	2330	120	50.	.8	.0	*	24	AUG	0900	187	11.	.2	.0
21	AUG	1430	54	2089.	35.0	.3	*	23	AUG	0000	121	49.	.8	.0	*	24	AUG	0930	188	11.	.2	.0
21	AUG	1500	55	1875.	31.4	.3	*	23	AUG	0030	122	47.	.8	.0	*	24	AUG	1000	189	11.	.2	.0
21	AUG	1530	56	1686.	28.3	.2	*	23	AUG	0100	123	46.	.8	.0	*	24	AUG	1030	190	11.	.2	.0
21	AUG	1600	57	1521.	25.5	.2	*	23	AUG	0130	124	44.	.7	.0	*	24	AUG	1100	191	10.	.2	.0
21	AUG	1630	58	1375.	23.0	.2	*	23	AUG	0200	125	43.	.7	.0	*	24	AUG	1130	192	10.	.2	.0
21	AUG	1700	59	1246.	20.9	.2	*	23	AUG	0230	126	42.	.7	.0	*	24	AUG	1200	193	10.	.2	.0
21	AUG	1730	60	1132.	19.0	.2	*	23	AUG	0300	127	41.	.7	.0	*	24	AUG	1230	194	10.	.2	.0
21	AUG	1800	61	1031.	17.3	.1	*	23	AUG	0330	128	40.	.7	.0	*	24	AUG	1300	195	10.	.2	.0
21	AUG	1830	62	941.	15.8	.1	*	23	AUG	0400	129	39.	.6	.0	*	24	AUG	1330	196	10.	.2	.0
21	AUG	1900	63	861.	14.4	.1	*	23	AUG	0430	130	38.	.6	.0	*	24	AUG	1400	197	10.	.2	.0
21	AUG	1930	64	790.	13.2	.1	*	23	AUG	0500	131	37.	.6	.0	*	24	AUG	1430	198	9.	.2	.0
21	AUG	2000	65	727.	12.2	.1	*	23	AUG	0530	132	36.	.6	.0	*	24	AUG	1500	199	9.	.2	.0
21	AUG	2030	66	670.	11.2	.1	*	23	AUG	0600	133	35.	.6	.0	*	24	AUG	1530	200	9.	.2	.0
21	AUG	2100	67	618.	10.4	.1	*	23	AUG	0630	134	34.	.6	.0	*							

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PEAK OUTFLOW IS 33237. AT TIME 18.00 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.50-HR
33237.	18.00	(CFS)	28111.	10341.	3539.	2564.

(INCHES)	5.217	7.677	7.882	7.890	
(AC-FT)	13939.	20512.	21060.	21083.	

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	99.50-HR
557.	18.00	471.	173.	59.	43.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	99.50-HR
4.70	18.00	3.97	1.46	.50	.36

CUMULATIVE AREA = 50.10 SQ MI

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            *             *
 38 KK      *    SUB3     *      RUNOFF FROM SUBBASIN 3
            *             *
            ***************

  6 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN        360  TIME INTERVAL IN MINUTES
                    JXDATE    20AUG83  STARTING DATE
                    JXTIME       1200  STARTING TIME

              SUBBASIN RUNOFF DATA

 39 BA          SUBBASIN CHARACTERISTICS
                     TAREA      47.00  SUBBASIN AREA

                PRECIPITATION DATA

 40 PB               STORM      15.00  BASIN TOTAL PRECIPITATION

 41 PI            INCREMENTAL PRECIPITATION PATTERN
                     .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
                     .09       .09       .19       .19       .19       .19       .19       .19       .19       .19
                     .19       .19       .19       .19       .60       .60       .60       .60       .60       .60
                     .60       .60       .60       .60       .60       .60       .11       .11       .11       .11
                     .11       .11       .11       .11       .11       .11       .11       .11       .05       .05
                     .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                     .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                     .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                     .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                     .05       .05       .05       .05       .05       .05       .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       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01

 43 LU          UNIFORM LOSS RATE
                     STRTL        .95  INITIAL LOSS
                     CNSTL        .15  UNIFORM LOSS RATE
                     RTIMP       0.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 44 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L      2000.  OVERLAND FLOW LENGTH
                         S      .0150  SLOPE
                         N       .050  ROUGHNESS COEFFICIENT
                        PA      100.0  PERCENT OF SUBBASIN
 45 RK            COLLECTOR CHANNEL
                         L      9000.  CHANNEL LENGTH
                         S      .0120  SLOPE
                         N       .075  CHANNEL ROUGHNESS COEFFICIENT
                        CA        .75  CONTRIBUTING AREA
                     SHAPE       TRAP  CHANNEL SHAPE
                        WD       5.00  BOTTOM WIDTH OR DIAMETER
                         Z       2.00  SIDE SLOPE
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46 RK MAIN CHANNEL

L	36200.	CHANNEL LENGTH
S	.0060	SLOPE
N	.075	CHANNEL ROUGHNESS COEFFICIENT
CA	47.00	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	900.00	BOTTOM WIDTH OR DIAMETER
Z	6.00	SIDE SLOPE
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

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COMPUTED KINEMATIC PARAMETERS

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)
1	3.6497	1.667	30.00	1000.00
3	.7873	1.391	30.00	4500.00
4	.0182	1.650	30.00	18100.00

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HYDROGRAPH AT STATION SUB3

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DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
20	AUG	1200	1	0.00	0.00	0.00	0.	*	22	AUG	1400	101	.01	.01	0.00	222.
20	AUG	1230	2	.09	.09	0.00	0.	*	22	AUG	1430	102	.01	.01	0.00	214.
20	AUG	1300	3	.09	.09	0.00	0.	*	22	AUG	1500	103	.01	.01	0.00	206.
20	AUG	1330	4	.09	.09	0.00	0.	*	22	AUG	1530	104	.01	.01	0.00	199.
20	AUG	1400	5	.09	.09	0.00	0.	*	22	AUG	1600	105	.01	.01	0.00	192.
20	AUG	1430	6	.09	.09	0.00	0.	*	22	AUG	1630	106	.01	.01	0.00	185.
20	AUG	1500	7	.09	.09	0.00	0.	*	22	AUG	1700	107	.01	.01	0.00	178.
20	AUG	1530	8	.09	.09	0.00	0.	*	22	AUG	1730	108	.01	.01	0.00	172.
20	AUG	1600	9	.09	.09	0.00	0.	*	22	AUG	1800	109	.01	.01	0.00	166.
20	AUG	1630	10	.09	.09	0.00	0.	*	22	AUG	1830	110	.01	.01	0.00	161.
20	AUG	1700	11	.09	.09	0.00	0.	*	22	AUG	1900	111	.01	.01	0.00	156.
20	AUG	1730	12	.09	.08	.01	0.	*	22	AUG	1930	112	.01	.01	0.00	151.
20	AUG	1800	13	.09	.08	.02	0.	*	22	AUG	2000	113	.01	.01	0.00	146.
20	AUG	1830	14	.19	.08	.12	4.	*	22	AUG	2030	114	.01	.01	0.00	141.
20	AUG	1900	15	.19	.08	.12	71.	*	22	AUG	2100	115	.01	.01	0.00	137.
20	AUG	1930	16	.19	.08	.12	378.	*	22	AUG	2130	116	.01	.01	0.00	132.
20	AUG	2000	17	.19	.08	.12	997.	*	22	AUG	2200	117	.01	.01	0.00	128.
20	AUG	2030	18	.19	.08	.12	1892.	*	22	AUG	2230	118	.01	.01	0.00	124.
20	AUG	2100	19	.19	.08	.12	3010.	*	22	AUG	2300	119	.01	.01	0.00	121.
20	AUG	2130	20	.19	.08	.12	4276.	*	22	AUG	2330	120	.01	.01	0.00	117.
20	AUG	2200	21	.19	.08	.12	5603.	*	23	AUG	0000	121	.01	.01	0.00	114.
20	AUG	2230	22	.19	.08	.12	6914.	*	23	AUG	0030	122	.01	.01	0.00	110.
20	AUG	2300	23	.19	.08	.12	8158.	*	23	AUG	0100	123	.01	.01	0.00	107.
20	AUG	2330	24	.19	.08	.12	9307.	*	23	AUG	0130	124	.01	.01	0.00	104.
21	AUG	0000	25	.19	.08	.12	10337.	*	23	AUG	0200	125	.01	.01	0.00	101.
21	AUG	0030	26	.60	.08	.52	14211.	*	23	AUG	0230	126	.01	.01	0.00	99.
21	AUG	0100	27	.60	.08	.52	23263.	*	23	AUG	0300	127	.01	.01	0.00	96.
21	AUG	0130	28	.60	.08	.52	35389.	*	23	AUG	0330	128	.01	.01	0.00	93.
21	AUG	0200	29	.60	.08	.52	44630.	*	23	AUG	0400	129	.01	.01	0.00	91.
21	AUG	0230	30	.60	.08	.52	49253.	*	23	AUG	0430	130	.01	.01	0.00	88.
21	AUG	0300	31	.60	.08	.52	53944.	*	23	AUG	0500	131	.01	.01	0.00	86.
21	AUG	0330	32	.60	.08	.52	52903.	*	23	AUG	0530	132	.01	.01	0.00	84.
21	AUG	0400	33	.60	.08	.52	57851.	*	23	AUG	0600	133	.01	.01	0.00	82.
21	AUG	0430	34	.60	.08	.52	61189.	*	23	AUG	0630	134	.01	.01	0.00	80.
21	AUG	0500	35	.60	.08	.52	63139.	*	23	AUG	0700	135	.01	.01	0.00	78.
21	AUG	0530	36	.60	.08	.52	64165.	*	23	AUG	0730	136	.01	.01	0.00	76.
21	AUG	0600	37	.60	.08	.52	64672.	*	23	AUG	0800	137	.01	.01	0.00	74.

21 AUG 0630	38	.11	.08	.03	59172.	*	23 AUG 0830	138	.01	.01	0.00	72.			
21 AUG 0700	39	.11	.08	.03	47561.	*	23 AUG 0900	139	.01	.01	0.00	70.			3
21 AUG 0730	40	.11	.08	.03	36403.	*	23 AUG 0930	140	.01	.01	0.00	69.			4
21 AUG 0800	41	.11	.08	.03	26379.	*	23 AUG 1000	141	.01	.01	0.00	67.			5
21 AUG 0830	42	.11	.08	.03	21868.	*	23 AUG 1030	142	.01	.01	0.00	65.			6
21 AUG 0900	43	.11	.08	.03	18380.	*	23 AUG 1100	143	.01	.01	0.00	64.			7
21 AUG 0930	44	.11	.08	.03	15090.	*	23 AUG 1130	144	.01	.01	0.00	62.			8
21 AUG 1000	45	.11	.08	.03	12410.	*	23 AUG 1200	145	.01	.01	0.00	61.			9
21 AUG 1030	46	.11	.08	.03	10538.	*	23 AUG 1230	146	0.00	0.00	0.00	59.			10
21 AUG 1100	47	.11	.08	.03	9194.	*	23 AUG 1300	147	0.00	0.00	0.00	58.			11
21 AUG 1130	48	.11	.08	.03	8196.	*	23 AUG 1330	148	0.00	0.00	0.00	57.			12
21 AUG 1200	49	.11	.08	.03	7433.	*	23 AUG 1400	149	0.00	0.00	0.00	56.			
21 AUG 1230	50	.05	.05	0.00	6767.	*	23 AUG 1430	150	0.00	0.00	0.00	54.			
21 AUG 1300	51	.05	.05	0.00	6110.	*	23 AUG 1500	151	0.00	0.00	0.00	53.			
21 AUG 1330	52	.05	.05	0.00	5469.	*	23 AUG 1530	152	0.00	0.00	0.00	52.			
21 AUG 1400	53	.05	.05	0.00	4886.	*	23 AUG 1600	153	0.00	0.00	0.00	51.			
21 AUG 1430	54	.05	.05	0.00	4369.	*	23 AUG 1630	154	0.00	0.00	0.00	50.			
21 AUG 1500	55	.05	.05	0.00	3915.	*	23 AUG 1700	155	0.00	0.00	0.00	49.			
21 AUG 1530	56	.05	.05	0.00	3519.	*	23 AUG 1730	156	0.00	0.00	0.00	48.			
21 AUG 1600	57	.05	.05	0.00	3175.	*	23 AUG 1800	157	0.00	0.00	0.00	47.			
21 AUG 1630	58	.05	.05	0.00	2873.	*	23 AUG 1830	158	0.00	0.00	0.00	46.			
21 AUG 1700	59	.05	.05	0.00	2609.	*	23 AUG 1900	159	0.00	0.00	0.00	45.			
21 AUG 1730	60	.05	.05	0.00	2377.	*	23 AUG 1930	160	0.00	0.00	0.00	44.			
21 AUG 1800	61	.05	.05	0.00	2172.	*	23 AUG 2000	161	0.00	0.00	0.00	43.			
21 AUG 1830	62	.05	.05	0.00	1990.	*	23 AUG 2030	162	0.00	0.00	0.00	42.			
21 AUG 1900	63	.05	.05	0.00	1828.	*	23 AUG 2100	163	0.00	0.00	0.00	41.			
21 AUG 1930	64	.05	.05	0.00	1684.	*	23 AUG 2130	164	0.00	0.00	0.00	41.			
21 AUG 2000	65	.05	.05	0.00	1554.	*	23 AUG 2200	165	0.00	0.00	0.00	40.			
21 AUG 2030	66	.05	.05	0.00	1438.	*	23 AUG 2230	166	0.00	0.00	0.00	39.			
21 AUG 2100	67	.05	.05	0.00	1333.	*	23 AUG 2300	167	0.00	0.00	0.00	38.			
21 AUG 2130	68	.05	.05	0.00	1238.	*	23 AUG 2330	168	0.00	0.00	0.00	38.			
21 AUG 2200	69	.05	.05	0.00	1153.	*	24 AUG 0000	169	0.00	0.00	0.00	37.			
21 AUG 2230	70	.05	.05	0.00	1075.	*	24 AUG 0030	170	0.00	0.00	0.00	36.			
21 AUG 2300	71	.05	.05	0.00	1004.	*	24 AUG 0100	171	0.00	0.00	0.00	35.			
21 AUG 2330	72	.05	.05	0.00	939.	*	24 AUG 0130	172	0.00	0.00	0.00	35.			
22 AUG 0000	73	.05	.05	0.00	880.	*	24 AUG 0200	173	0.00	0.00	0.00	34.			
22 AUG 0030	74	.05	.05	0.00	826.	*	24 AUG 0230	174	0.00	0.00	0.00	34.			
22 AUG 0100	75	.05	.05	0.00	776.	*	24 AUG 0300	175	0.00	0.00	0.00	33.			
22 AUG 0130	76	.05	.05	0.00	731.	*	24 AUG 0330	176	0.00	0.00	0.00	32.			
22 AUG 0200	77	.05	.05	0.00	688.	*	24 AUG 0400	177	0.00	0.00	0.00	32.			
22 AUG 0230	78	.05	.05	0.00	650.	*	24 AUG 0430	178	0.00	0.00	0.00	31.			
22 AUG 0300	79	.05	.05	0.00	614.	*	24 AUG 0500	179	0.00	0.00	0.00	31.			
22 AUG 0330	80	.05	.05	0.00	581.	*	24 AUG 0530	180	0.00	0.00	0.00	30.			
22 AUG 0400	81	.05	.05	0.00	550.	*	24 AUG 0600	181	0.00	0.00	0.00	30.			
22 AUG 0430	82	.05	.05	0.00	521.	*	24 AUG 0630	182	0.00	0.00	0.00	29.			
22 AUG 0500	83	.05	.05	0.00	494.	*	24 AUG 0700	183	0.00	0.00	0.00	29.			
22 AUG 0530	84	.05	.05	0.00	470.	*	24 AUG 0730	184	0.00	0.00	0.00	28.			
22 AUG 0600	85	.05	.05	0.00	447.	*	24 AUG 0800	185	0.00	0.00	0.00	28.			
22 AUG 0630	86	.05	.05	0.00	425.	*	24 AUG 0830	186	0.00	0.00	0.00	27.			
22 AUG 0700	87	.05	.05	0.00	405.	*	24 AUG 0900	187	0.00	0.00	0.00	27.			
22 AUG 0730	88	.05	.05	0.00	386.	*	24 AUG 0930	188	0.00	0.00	0.00	26.			
22 AUG 0800	89	.05	.05	0.00	368.	*	24 AUG 1000	189	0.00	0.00	0.00	26.			
22 AUG 0830	90	.05	.05	0.00	352.	*	24 AUG 1030	190	0.00	0.00	0.00	25.			
22 AUG 0900	91	.05	.05	0.00	336.	*	24 AUG 1100	191	0.00	0.00	0.00	25.			12
22 AUG 0930	92	.05	.05	0.00	322.	*	24 AUG 1130	192	0.00	0.00	0.00	25.			11
22 AUG 1000	93	.05	.05	0.00	308.	*	24 AUG 1200	193	0.00	0.00	0.00	24.			10
22 AUG 1030	94	.05	.05	0.00	295.	*	24 AUG 1230	194	0.00	0.00	0.00	24.			9
22 AUG 1100	95	.05	.05	0.00	283.	*	24 AUG 1300	195	0.00	0.00	0.00	23.			8
22 AUG 1130	96	.05	.05	0.00	271.	*	24 AUG 1330	196	0.00	0.00	0.00	23.			7
22 AUG 1200	97	.05	.05	0.00	260.	*	24 AUG 1400	197	0.00	0.00	0.00	23.			6
22 AUG 1230	98	.01	.01	0.00	250.	*	24 AUG 1430	198	0.00	0.00	0.00	22.			5
22 AUG 1300	99	.01	.01	0.00	240.	*	24 AUG 1500	199	0.00	0.00	0.00	22.			4
22 AUG 1330	100	.01	.01	0.00	231.	*	24 AUG 1530	200	0.00	0.00	0.00	22.			3

1413

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                                                                  *                    SUM    15.00    6.89    8.11
                                                                  *
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PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR      24-HR      72-HR    99.50-HR
  64672.      18.00        (CFS)   54531.     20037.     6879.      4985.
                         (INCHES)   5.221      7.675     7.904      7.915
                          (AC-FT)  27040.     39744.    40935.     40989.

                         CUMULATIVE AREA =   97.10 SQ MI
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14113

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            **************
            *            *
 47 KK      *    DAM2    *      CAPB DAM
            *            *
            **************

              HYDROGRAPH ROUTING DATA

 48 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       ELEV  TYPE OF INITIAL CONDITION
                    RSVRIC       0.00  INITIAL CONDITION
                         X       0.00  WORKING R AND D COEFFICIENT

 49 SV            STORAGE        0.0    6020.0

 50 SE          ELEVATION       0.00     10.00

 51 SQ          DISCHARGE         0.    20900.

 52 SE          ELEVATION       0.00     10.00

 53 ST          TOP OF DAM
                     TOPEL       9.00  ELEVATION AT TOP OF DAM
                    DAMWID   21300.00  DAM WIDTH
                      COQD       3.00  WEIR COEFFICIENT
                      EXPD       1.50  EXPONENT OF HEAD

                                                    ***

                                        COMPUTED STORAGE-OUTFLOW CURVE
            STORAGE       0.00   6020.00

            OUTFLOW       0.00  20900.00
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HYDROGRAPH AT STATION DAM2

	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
	20	AUG	1200	1	0.	0.0	0.0	21	AUG	2130	68	2987.	860.5	1.4	23	AUG	0700	135	97.	27.8	.0
	20	AUG	1230	2	0.	0.0	0.0	21	AUG	2200	69	2748.	791.4	1.3	23	AUG	0730	136	94.	27.1	.0
	20	AUG	1300	3	0.	0.0	0.0	21	AUG	2230	70	2529.	728.4	1.2	23	AUG	0800	137	91.	26.3	.0
12	20	AUG	1330	4	0.	0.0	0.0	21	AUG	2300	71	2329.	671.0	1.1	23	AUG	0830	138	89.	25.6	.0
11	20	AUG	1400	5	0.	0.0	0.0	21	AUG	2330	72	2148.	618.6	1.0	23	AUG	0900	139	86.	24.9	.0
10	20	AUG	1430	6	0.	0.0	0.0	22	AUG	0000	73	1982.	570.9	.9	23	AUG	0930	140	84.	24.3	.0
9	20	AUG	1500	7	0.	0.0	0.0	22	AUG	0030	74	1831.	527.4	.9	23	AUG	1000	141	82.	23.6	.0
8	20	AUG	1530	8	0.	0.0	0.0	22	AUG	0100	75	1693.	487.7	.8	23	AUG	1030	142	80.	23.0	.0
7	20	AUG	1600	9	0.	0.0	0.0	22	AUG	0130	76	1567.	451.4	.7	23	AUG	1100	143	78.	22.4	.0
6	20	AUG	1630	10	0.	0.0	0.0	22	AUG	0200	77	1452.	418.4	.7	23	AUG	1130	144	76.	21.8	.0
5	20	AUG	1700	11	0.	0.0	0.0	22	AUG	0230	78	1348.	388.2	.6	23	AUG	1200	145	74.	21.3	.0
4	20	AUG	1730	12	0.	.0	.0	22	AUG	0300	79	1252.	360.6	.6	23	AUG	1230	146	72.	20.8	.0
3	20	AUG	1800	13	0.	.0	.0	22	AUG	0330	80	1164.	335.3	.6	23	AUG	1300	147	70.	20.3	.0

20	AUG	1830	14	0.	.1	.0	*	22 AUG 0400	81	1084.	312.2	.5	*	23 AUG 1330	148	69.	19.8	.0		
20	AUG	1900	15	5.	1.5	.0	*	22 AUG 0430	82	1011.	291.1	.5	*	23 AUG 1400	149	67.	19.3	.0		3
20	AUG	1930	16	35.	9.9	.0	*	22 AUG 0500	83	943.	271.7	.5	*	23 AUG 1430	150	65.	18.8	.0		4
20	AUG	2000	17	122.	35.1	.1	*	22 AUG 0530	84	881.	253.9	.4	*	23 AUG 1500	151	64.	18.4	.0		5
20	AUG	2030	18	299.	86.1	.1	*	22 AUG 0600	85	825.	237.6	.4	*	23 AUG 1530	152	62.	17.9	.0		6
20	AUG	2100	19	587.	169.1	.3	*	22 AUG 0630	86	773.	222.6	.4	*	23 AUG 1600	153	61.	17.5	.0		7
20	AUG	2130	20	996.	286.9	.5	*	22 AUG 0700	87	725.	208.8	.3	*	23 AUG 1630	154	59.	17.1	.0		8
20	AUG	2200	21	1524.	439.0	.7	*	22 AUG 0730	88	681.	196.1	.3	*	23 AUG 1700	155	58.	16.7	.0		9
20	AUG	2230	22	2158.	621.5	1.0	*	22 AUG 0800	89	640.	184.4	.3	*	23 AUG 1730	156	57.	16.4	.0		10
20	AUG	2300	23	2878.	828.9	1.4	*	22 AUG 0830	90	603.	173.6	.3	*	23 AUG 1800	157	55.	16.0	.0		11
20	AUG	2330	24	3661.	1054.6	1.8	*	22 AUG 0900	91	568.	163.6	.3	*	23 AUG 1830	158	54.	15.6	.0		12
21	AUG	0000	25	4486.	1292.2	2.1	*	22 AUG 0930	92	536.	154.4	.3	*	23 AUG 1900	159	53.	15.3	.0		
21	AUG	0030	26	5528.	1592.4	2.6	*	22 AUG 1000	93	506.	145.9	.2	*	23 AUG 1930	160	52.	15.0	.0		
21	AUG	0100	27	7297.	2101.7	3.5	*	22 AUG 1030	94	479.	138.0	.2	*	23 AUG 2000	161	51.	14.6	.0		
21	AUG	0130	28	10245.	2951.1	4.9	*	22 AUG 1100	95	454.	130.6	.2	*	23 AUG 2030	162	50.	14.3	.0		
21	AUG	0200	29	14230.	4098.7	6.8	*	22 AUG 1130	96	430.	123.8	.2	*	23 AUG 2100	163	49.	14.0	.0		
21	AUG	0230	30	18608.	5359.9	8.9	*	22 AUG 1200	97	408.	117.5	.2	*	23 AUG 2130	164	48.	13.7	.0		
21	AUG	0300	31	60426.	5859.1	9.7	*	22 AUG 1230	98	387.	111.6	.2	*	23 AUG 2200	165	47.	13.4	.0		
21	AUG	0330	32	50144.	5782.2	9.6	*	22 AUG 1300	99	368.	106.1	.2	*	23 AUG 2230	166	46.	13.2	.0		
21	AUG	0400	33	57803.	5840.2	9.7	*	22 AUG 1330	100	351.	101.0	.2	*	23 AUG 2300	167	45.	12.9	.0		
21	AUG	0430	34	60346.	5858.6	9.7	*	22 AUG 1400	101	334.	96.2	.2	*	23 AUG 2330	168	44.	12.6	.0		
21	AUG	0500	35	63053.	5877.8	9.8	*	22 AUG 1430	102	319.	91.7	.2	*	24 AUG 0000	169	43.	12.4	.0		
21	AUG	0530	36	63948.	5884.0	9.8	*	22 AUG 1500	103	304.	87.6	.1	*	24 AUG 0030	170	42.	12.1	.0		
21	AUG	0600	37	64651.	5888.9	9.8	*	22 AUG 1530	104	290.	83.6	.1	*	24 AUG 0100	171	41.	11.9	.0		
21	AUG	0630	38	60579.	5860.2	9.7	*	22 AUG 1600	105	278.	80.0	.1	*	24 AUG 0130	172	40.	11.6	.0		
21	AUG	0700	39	49989.	5781.0	9.6	*	22 AUG 1630	106	266.	76.5	.1	*	24 AUG 0200	173	40.	11.4	.0		
21	AUG	0730	40	38617.	5685.1	9.4	*	22 AUG 1700	107	254.	73.3	.1	*	24 AUG 0230	174	39.	11.2	.0		
21	AUG	0800	41	28907.	5587.1	9.3	*	22 AUG 1730	108	244.	70.2	.1	*	24 AUG 0300	175	38.	11.0	.0		
21	AUG	0830	42	23018.	5511.1	9.2	*	22 AUG 1800	109	234.	67.4	.1	*	24 AUG 0330	176	37.	10.8	.0		
21	AUG	0900	43	19927.	5455.3	9.1	*	22 AUG 1830	110	224.	64.7	.1	*	24 AUG 0400	177	37.	10.6	.0		
21	AUG	0930	44	18578.	5351.3	8.9	*	22 AUG 1900	111	216.	62.1	.1	*	24 AUG 0430	178	36.	10.4	.0		
14113 21	AUG	1000	45	17932.	5165.1	8.6	*	22 AUG 1930	112	207.	59.7	.1	*	24 AUG 0500	179	35.	10.2	.0		
21	AUG	1030	46	17068.	4916.1	8.2	*	22 AUG 2000	113	199.	57.4	.1	*	24 AUG 0530	180	35.	10.0	.0		
21	AUG	1100	47	16104.	4638.5	7.7	*	22 AUG 2030	114	192.	55.3	.1	*	24 AUG 0600	181	34.	9.8	.0		
21	AUG	1130	48	15112.	4352.8	7.2	*	22 AUG 2100	115	185.	53.2	.1	*	24 AUG 0630	182	33.	9.6	.0		
21	AUG	1200	49	14135.	4071.4	6.8	*	22 AUG 2130	116	178.	51.3	.1	*	24 AUG 0700	183	33.	9.4	.0		
21	AUG	1230	50	13193.	3800.2	6.3	*	22 AUG 2200	117	172.	49.4	.1	*	24 AUG 0730	184	32.	9.3	.0		
21	AUG	1300	51	12289.	3539.7	5.9	*	22 AUG 2230	118	166.	47.7	.1	*	24 AUG 0800	185	32.	9.1	.0		
21	AUG	1330	52	11419.	3289.1	5.5	*	22 AUG 2300	119	160.	46.0	.1	*	24 AUG 0830	186	31.	8.9	.0		
21	AUG	1400	53	10584.	3048.5	5.1	*	22 AUG 2330	120	154.	44.5	.1	*	24 AUG 0900	187	31.	8.8	.0		
21	AUG	1430	54	9786.	2818.8	4.7	*	23 AUG 0000	121	149.	43.0	.1	*	24 AUG 0930	188	30.	8.6	.0		
21	AUG	1500	55	9031.	2601.2	4.3	*	23 AUG 0030	122	144.	41.5	.1	*	24 AUG 1000	189	29.	8.5	.0		
21	AUG	1530	56	8320.	2396.3	4.0	*	23 AUG 0100	123	139.	40.2	.1	*	24 AUG 1030	190	29.	8.3	.0		
21	AUG	1600	57	7654.	2204.6	3.7	*	23 AUG 0130	124	135.	38.9	.1	*	24 AUG 1100	191	28.	8.2	.0		
21	AUG	1630	58	7034.	2026.1	3.4	*	23 AUG 0200	125	131.	37.6	.1	*	24 AUG 1130	192	28.	8.1	.0		
21	AUG	1700	59	6459.	1860.6	3.1	*	23 AUG 0230	126	127.	36.4	.1	*	24 AUG 1200	193	27.	7.9	.0		
21	AUG	1730	60	5929.	1707.6	2.8	*	23 AUG 0300	127	123.	35.3	.1	*	24 AUG 1230	194	27.	7.8	.0		
21	AUG	1800	61	5439.	1566.7	2.6	*	23 AUG 0330	128	119.	34.2	.1	*	24 AUG 1300	195	27.	7.7	.0		
21	AUG	1830	62	4990.	1437.3	2.4	*	23 AUG 0400	129	115.	33.2	.1	*	24 AUG 1330	196	26.	7.5	.0		
21	AUG	1900	63	4577.	1318.5	2.2	*	23 AUG 0430	130	112.	32.2	.1	*	24 AUG 1400	197	26.	7.4	.0		
21	AUG	1930	64	4200.	1209.7	2.0	*	23 AUG 0500	131	109.	31.3	.1	*	24 AUG 1430	198	25.	7.3	.0		
21	AUG	2000	65	3854.	1110.2	1.8	*	23 AUG 0530	132	105.	30.3	.1	*	24 AUG 1500	199	25.	7.2	.0		
21	AUG	2030	66	3539.	1019.2	1.7	*	23 AUG 0600	133	102.	29.5	.0	*	24 AUG 1530	200	24.	7.0	.0		
12 21	AUG	2100	67	3250.	936.2	1.6	*	23 AUG 0630	134	99.	28.6	.0	*							
11							*						*							

10 **********

9

8 PEAK OUTFLOW IS 64651. AT TIME 18.00 HOURS

7

6

5 PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW				
4 (CFS)	(HR)		6-HR	24-HR	72-HR	99.50-HR
3 64651.	18.00	(CFS)	51607.	19727.	6877.	4984.

	(INCHES)	4.941	7.556	7.902	7.914
	(AC-FT)	25590.	39128.	40922.	40982.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	99.50-HR
5889.	18.00	5778.	3393.	1218.	883.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	99.50-HR
9.78	18.00	9.60	5.64	2.02	1.47

CUMULATIVE AREA = 97.10 SQ MI

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

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            *            *
 54 KK      *    SUB4    *      RUNOFF FROM SUBBASIN 4
            *            *
            **************

  6 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          360  TIME INTERVAL IN MINUTES
                    JXDATE     20AUG83  STARTING DATE
                    JXTIME         1200  STARTING TIME

              SUBBASIN RUNOFF DATA

 55 BA          SUBBASIN CHARACTERISTICS
                     TAREA        61.20  SUBBASIN AREA

                PRECIPITATION DATA

 56 PB                STORM        15.00  BASIN TOTAL PRECIPITATION

 57 PI            INCREMENTAL PRECIPITATION PATTERN
                      .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
                      .09       .09       .19       .19       .19       .19       .19       .19       .19       .19
                      .19       .19       .19       .19       .60       .60       .60       .60       .60       .60
                      .60       .60       .60       .60       .60       .60       .11       .11       .11       .11
                      .11       .11       .11       .11       .11       .11       .11       .11       .05       .05
                      .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .05       .05       .05       .05       .05       .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       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01

 59 LU          UNIFORM LOSS RATE
                     STRTL         .95  INITIAL LOSS
                     CNSTL         .15  UNIFORM LOSS RATE
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 60 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       3700.  OVERLAND FLOW LENGTH
                         S       .0080  SLOPE
                         N        .050  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
 61 RK            MAIN CHANNEL
                         L       8000.  CHANNEL LENGTH
                         S       .2000  SLOPE
                         N        .075  CHANNEL ROUGHNESS COEFFICIENT
                        CA       61.20  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD       30.00  BOTTOM WIDTH OR DIAMETER
                         Z        2.00  SIDE SLOPE
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RUPSTQ NO ROUTE UPSTREAM HYDROGRAPH

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COMPUTED KINEMATIC PARAMETERS

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)
1	2.6654	1.667	30.00	1850.00
3	1.2405	1.540	30.00	4000.00

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HYDROGRAPH AT STATION SUB4

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DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
20	AUG	1200	1	0.00	0.00	0.00	0.	*	22	AUG	1400	101	.01	.01	0.00	27.
20	AUG	1230	2	.09	.09	0.00	0.	*	22	AUG	1430	102	.01	.01	0.00	26.
20	AUG	1300	3	.09	.09	0.00	0.	*	22	AUG	1500	103	.01	.01	0.00	25.
20	AUG	1330	4	.09	.09	0.00	0.	*	22	AUG	1530	104	.01	.01	0.00	24.
20	AUG	1400	5	.09	.09	0.00	0.	*	22	AUG	1600	105	.01	.01	0.00	23.
20	AUG	1430	6	.09	.09	0.00	0.	*	22	AUG	1630	106	.01	.01	0.00	22.
20	AUG	1500	7	.09	.09	0.00	0.	*	22	AUG	1700	107	.01	.01	0.00	21.
20	AUG	1530	8	.09	.09	0.00	0.	*	22	AUG	1730	108	.01	.01	0.00	20.
20	AUG	1600	9	.09	.09	0.00	0.	*	22	AUG	1800	109	.01	.01	0.00	20.
20	AUG	1630	10	.09	.09	0.00	0.	*	22	AUG	1830	110	.01	.01	0.00	19.
20	AUG	1700	11	.09	.09	0.00	0.	*	22	AUG	1900	111	.01	.01	0.00	18.
20	AUG	1730	12	.09	.08	.01	4.	*	22	AUG	1930	112	.01	.01	0.00	18.
20	AUG	1800	13	.09	.08	.02	37.	*	22	AUG	2000	113	.01	.01	0.00	17.
20	AUG	1830	14	.19	.08	.12	689.	*	22	AUG	2030	114	.01	.01	0.00	17.
20	AUG	1900	15	.19	.08	.12	1978.	*	22	AUG	2100	115	.01	.01	0.00	16.
20	AUG	1930	16	.19	.08	.12	3626.	*	22	AUG	2130	116	.01	.01	0.00	16.
20	AUG	2000	17	.19	.08	.12	5297.	*	22	AUG	2200	117	.01	.01	0.00	15.
20	AUG	2030	18	.19	.08	.12	6675.	*	22	AUG	2230	118	.01	.01	0.00	15.
20	AUG	2100	19	.19	.08	.12	7636.	*	22	AUG	2300	119	.01	.01	0.00	14.
20	AUG	2130	20	.19	.08	.12	8230.	*	22	AUG	2330	120	.01	.01	0.00	14.
20	AUG	2200	21	.19	.08	.12	8571.	*	23	AUG	0000	121	.01	.01	0.00	13.
20	AUG	2230	22	.19	.08	.12	8758.	*	23	AUG	0030	122	.01	.01	0.00	13.
20	AUG	2300	23	.19	.08	.12	8858.	*	23	AUG	0100	123	.01	.01	0.00	13.
20	AUG	2330	24	.19	.08	.12	8910.	*	23	AUG	0130	124	.01	.01	0.00	12.
21	AUG	0000	25	.19	.08	.12	8938.	*	23	AUG	0200	125	.01	.01	0.00	12.
21	AUG	0030	26	.60	.08	.52	20329.	*	23	AUG	0230	126	.01	.01	0.00	11.
21	AUG	0100	27	.60	.08	.52	33415.	*	23	AUG	0300	127	.01	.01	0.00	11.
21	AUG	0130	28	.60	.08	.52	39468.	*	23	AUG	0330	128	.01	.01	0.00	11.
21	AUG	0200	29	.60	.08	.52	40021.	*	23	AUG	0400	129	.01	.01	0.00	11.
21	AUG	0230	30	.60	.08	.52	41379.	*	23	AUG	0430	130	.01	.01	0.00	10.
21	AUG	0300	31	.60	.08	.52	41406.	*	23	AUG	0500	131	.01	.01	0.00	10.
21	AUG	0330	32	.60	.08	.52	41406.	*	23	AUG	0530	132	.01	.01	0.00	10.
21	AUG	0400	33	.60	.08	.52	41406.	*	23	AUG	0600	133	.01	.01	0.00	9.
21	AUG	0430	34	.60	.08	.52	41406.	*	23	AUG	0630	134	.01	.01	0.00	9.
21	AUG	0500	35	.60	.08	.52	41406.	*	23	AUG	0700	135	.01	.01	0.00	9.
21	AUG	0530	36	.60	.08	.52	41406.	*	23	AUG	0730	136	.01	.01	0.00	9.
21	AUG	0600	37	.60	.08	.52	41406.	*	23	AUG	0800	137	.01	.01	0.00	9.
21	AUG	0630	38	.11	.08	.03	22534.	*	23	AUG	0830	138	.01	.01	0.00	8.
21	AUG	0700	39	.11	.08	.03	11435.	*	23	AUG	0900	139	.01	.01	0.00	8.
21	AUG	0730	40	.11	.08	.03	7596.	*	23	AUG	0930	140	.01	.01	0.00	8.
21	AUG	0800	41	.11	.08	.03	5718.	*	23	AUG	1000	141	.01	.01	0.00	8.
21	AUG	0830	42	.11	.08	.03	4647.	*	23	AUG	1030	142	.01	.01	0.00	8.
21	AUG	0900	43	.11	.08	.03	3984.	*	23	AUG	1100	143	.01	.01	0.00	7.
21	AUG	0930	44	.11	.08	.03	3552.	*	23	AUG	1130	144	.01	.01	0.00	7.
21	AUG	1000	45	.11	.08	.03	3260.	*	23	AUG	1200	145	.01	.01	0.00	7.
21	AUG	1030	46	.11	.08	.03	3058.	*	23	AUG	1230	146	0.00	0.00	0.00	7.

21 AUG 1100	47	.11	.08	.03	2916.	*	23 AUG 1300	147	0.00	0.00	0.00	7.			
21 AUG 1130	48	.11	.08	.03	2815.	*	23 AUG 1330	148	0.00	0.00	0.00	7.			3
21 AUG 1200	49	.11	.08	.03	2743.	*	23 AUG 1400	149	0.00	0.00	0.00	6.			4
21 AUG 1230	50	.05	.05	0.00	2244.	*	23 AUG 1430	150	0.00	0.00	0.00	6.			5
21 AUG 1300	51	.05	.05	0.00	1817.	*	23 AUG 1500	151	0.00	0.00	0.00	6.			6
21 AUG 1330	52	.05	.05	0.00	1482.	*	23 AUG 1530	152	0.00	0.00	0.00	6.			7
21 AUG 1400	53	.05	.05	0.00	1222.	*	23 AUG 1600	153	0.00	0.00	0.00	6.			8
21 AUG 1430	54	.05	.05	0.00	1020.	*	23 AUG 1630	154	0.00	0.00	0.00	6.			9
21 AUG 1500	55	.05	.05	0.00	860.	*	23 AUG 1700	155	0.00	0.00	0.00	6.			10
21 AUG 1530	56	.05	.05	0.00	733.	*	23 AUG 1730	156	0.00	0.00	0.00	5.			11
21 AUG 1600	57	.05	.05	0.00	631.	*	23 AUG 1800	157	0.00	0.00	0.00	5.			12
21 AUG 1630	58	.05	.05	0.00	547.	*	23 AUG 1830	158	0.00	0.00	0.00	5.			
21 AUG 1700	59	.05	.05	0.00	478.	*	23 AUG 1900	159	0.00	0.00	0.00	5.			
21 AUG 1730	60	.05	.05	0.00	421.	*	23 AUG 1930	160	0.00	0.00	0.00	5.			
21 AUG 1800	61	.05	.05	0.00	373.	*	23 AUG 2000	161	0.00	0.00	0.00	5.			
21 AUG 1830	62	.05	.05	0.00	332.	*	23 AUG 2030	162	0.00	0.00	0.00	5.			
21 AUG 1900	63	.05	.05	0.00	297.	*	23 AUG 2100	163	0.00	0.00	0.00	5.			
21 AUG 1930	64	.05	.05	0.00	268.	*	23 AUG 2130	164	0.00	0.00	0.00	5.			
21 AUG 2000	65	.05	.05	0.00	242.	*	23 AUG 2200	165	0.00	0.00	0.00	5.			
21 AUG 2030	66	.05	.05	0.00	219.	*	23 AUG 2230	166	0.00	0.00	0.00	4.			
21 AUG 2100	67	.05	.05	0.00	200.	*	23 AUG 2300	167	0.00	0.00	0.00	4.			
21 AUG 2130	68	.05	.05	0.00	183.	*	23 AUG 2330	168	0.00	0.00	0.00	4.			
21 AUG 2200	69	.05	.05	0.00	167.	*	24 AUG 0000	169	0.00	0.00	0.00	4.			
21 AUG 2230	70	.05	.05	0.00	154.	*	24 AUG 0030	170	0.00	0.00	0.00	4.			
21 AUG 2300	71	.05	.05	0.00	142.	*	24 AUG 0100	171	0.00	0.00	0.00	4.			
21 AUG 2330	72	.05	.05	0.00	131.	*	24 AUG 0130	172	0.00	0.00	0.00	4.			
22 AUG 0000	73	.05	.05	0.00	122.	*	24 AUG 0200	173	0.00	0.00	0.00	4.			
22 AUG 0030	74	.05	.05	0.00	113.	*	24 AUG 0230	174	0.00	0.00	0.00	4.			
22 AUG 0100	75	.05	.05	0.00	105.	*	24 AUG 0300	175	0.00	0.00	0.00	4.			
22 AUG 0130	76	.05	.05	0.00	98.	*	24 AUG 0330	176	0.00	0.00	0.00	4.			
22 AUG 0200	77	.05	.05	0.00	92.	*	24 AUG 0400	177	0.00	0.00	0.00	4.			
14113 22 AUG 0230	78	.05	.05	0.00	86.	*	24 AUG 0430	178	0.00	0.00	0.00	4.			
22 AUG 0300	79	.05	.05	0.00	81.	*	24 AUG 0500	179	0.00	0.00	0.00	4.			
22 AUG 0330	80	.05	.05	0.00	76.	*	24 AUG 0530	180	0.00	0.00	0.00	3.			
22 AUG 0400	81	.05	.05	0.00	71.	*	24 AUG 0600	181	0.00	0.00	0.00	3.			
22 AUG 0430	82	.05	.05	0.00	67.	*	24 AUG 0630	182	0.00	0.00	0.00	3.			
22 AUG 0500	83	.05	.05	0.00	63.	*	24 AUG 0700	183	0.00	0.00	0.00	3.			
22 AUG 0530	84	.05	.05	0.00	60.	*	24 AUG 0730	184	0.00	0.00	0.00	3.			
22 AUG 0600	85	.05	.05	0.00	57.	*	24 AUG 0800	185	0.00	0.00	0.00	3.			
22 AUG 0630	86	.05	.05	0.00	54.	*	24 AUG 0830	186	0.00	0.00	0.00	3.			
22 AUG 0700	87	.05	.05	0.00	51.	*	24 AUG 0900	187	0.00	0.00	0.00	3.			
22 AUG 0730	88	.05	.05	0.00	48.	*	24 AUG 0930	188	0.00	0.00	0.00	3.			
22 AUG 0800	89	.05	.05	0.00	46.	*	24 AUG 1000	189	0.00	0.00	0.00	3.			
22 AUG 0830	90	.05	.05	0.00	44.	*	24 AUG 1030	190	0.00	0.00	0.00	3.			
22 AUG 0900	91	.05	.05	0.00	42.	*	24 AUG 1100	191	0.00	0.00	0.00	3.			
22 AUG 0930	92	.05	.05	0.00	40.	*	24 AUG 1130	192	0.00	0.00	0.00	3.			
22 AUG 1000	93	.05	.05	0.00	38.	*	24 AUG 1200	193	0.00	0.00	0.00	3.			
22 AUG 1030	94	.05	.05	0.00	36.	*	24 AUG 1230	194	0.00	0.00	0.00	3.			
22 AUG 1100	95	.05	.05	0.00	35.	*	24 AUG 1300	195	0.00	0.00	0.00	3.			
22 AUG 1130	96	.05	.05	0.00	33.	*	24 AUG 1330	196	0.00	0.00	0.00	3.			
22 AUG 1200	97	.05	.05	0.00	32.	*	24 AUG 1400	197	0.00	0.00	0.00	3.			
22 AUG 1230	98	.01	.01	0.00	30.	*	24 AUG 1430	198	0.00	0.00	0.00	3.			
22 AUG 1300	99	.01	.01	0.00	29.	*	24 AUG 1500	199	0.00	0.00	0.00	3.			
12 22 AUG 1330	100	.01	.01	0.00	28.	*	24 AUG 1530	200	0.00	0.00	0.00	2.			
11						*		SUM	15.00	6.89	8.11				
10						*									

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7 PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
6 (CFS)	(HR)		6-HR	24-HR	72-HR	99.50-HR
5 41406.	15.00	(CFS)	38796.	13095.	4399.	3184.
4		(INCHES)	5.894	7.957	8.019	8.022
3		(AC-FT)	19238.	25973.	26176.	26182.

CUMULATIVE AREA = 61.20 SQ MI

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            *            *
 62 KK      *    TRB     *      TRILBY WASH NEAR MCMICKEN DAM
            *            *
            **************
                                COMBINE STREAM FLOW FROM CAP8 DAM AND SUB4

 64 HC            HYDROGRAPH COMBINATION
                       ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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HYDROGRAPH AT STATION TRB
SUM OF 2 HYDROGRAPHS

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	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
	20	AUG	1200	1	0.	21	AUG	1300	51	14106.	22	AUG	1400	101	361.	23	AUG	1500	151	70.
	20	AUG	1230	2	0.	21	AUG	1330	52	12901.	22	AUG	1430	102	344.	23	AUG	1530	152	68.
	20	AUG	1300	3	0.	21	AUG	1400	53	11806.	22	AUG	1500	103	329.	23	AUG	1600	153	67.
14113	20	AUG	1330	4	0.	21	AUG	1430	54	10806.	22	AUG	1530	104	314.	23	AUG	1630	154	65.
	20	AUG	1400	5	0.	21	AUG	1500	55	9891.	22	AUG	1600	105	301.	23	AUG	1700	155	64.
	20	AUG	1430	6	0.	21	AUG	1530	56	9053.	22	AUG	1630	106	288.	23	AUG	1730	156	62.
	20	AUG	1500	7	0.	21	AUG	1600	57	8285.	22	AUG	1700	107	276.	23	AUG	1800	157	61.
	20	AUG	1530	8	0.	21	AUG	1630	58	7581.	22	AUG	1730	108	264.	23	AUG	1830	158	60.
	20	AUG	1600	9	0.	21	AUG	1700	59	6938.	22	AUG	1800	109	254.	23	AUG	1900	159	58.
	20	AUG	1630	10	0.	21	AUG	1730	60	6350.	22	AUG	1830	110	244.	23	AUG	1930	160	57.
	20	AUG	1700	11	0.	21	AUG	1800	61	5812.	22	AUG	1900	111	234.	23	AUG	2000	161	56.
	20	AUG	1730	12	4.	21	AUG	1830	62	5322.	22	AUG	1930	112	225.	23	AUG	2030	162	55.
	20	AUG	1800	13	37.	21	AUG	1900	63	4875.	22	AUG	2000	113	217.	23	AUG	2100	163	53.
	20	AUG	1830	14	690.	21	AUG	1930	64	4467.	22	AUG	2030	114	208.	23	AUG	2130	164	52.
	20	AUG	1900	15	1983.	21	AUG	2000	65	4096.	22	AUG	2100	115	201.	23	AUG	2200	165	51.
	20	AUG	1930	16	3660.	21	AUG	2030	66	3758.	22	AUG	2130	116	194.	23	AUG	2230	166	50.
	20	AUG	2000	17	5419.	21	AUG	2100	67	3450.	22	AUG	2200	117	187.	23	AUG	2300	167	49.
	20	AUG	2030	18	6974.	21	AUG	2130	68	3170.	22	AUG	2230	118	180.	23	AUG	2330	168	48.
	20	AUG	2100	19	8223.	21	AUG	2200	69	2915.	22	AUG	2300	119	174.	24	AUG	0000	169	47.
	20	AUG	2130	20	9227.	21	AUG	2230	70	2683.	22	AUG	2330	120	168.	24	AUG	0030	170	46.
	20	AUG	2200	21	10095.	21	AUG	2300	71	2471.	23	AUG	0000	121	162.	24	AUG	0100	171	45.
	20	AUG	2230	22	10915.	21	AUG	2330	72	2279.	23	AUG	0030	122	157.	24	AUG	0130	172	44.
	20	AUG	2300	23	11735.	22	AUG	0000	73	2104.	23	AUG	0100	123	152.	24	AUG	0200	173	44.
	20	AUG	2330	24	12572.	22	AUG	0030	74	1944.	23	AUG	0130	124	147.	24	AUG	0230	174	43.
	21	AUG	0000	25	13424.	22	AUG	0100	75	1798.	23	AUG	0200	125	142.	24	AUG	0300	175	42.
12	21	AUG	0030	26	25857.	22	AUG	0130	76	1665.	23	AUG	0230	126	138.	24	AUG	0330	176	41.
11	21	AUG	0100	27	40711.	22	AUG	0200	77	1544.	23	AUG	0300	127	134.	24	AUG	0400	177	40.
10	21	AUG	0130	28	49714.	22	AUG	0230	78	1433.	23	AUG	0330	128	130.	24	AUG	0430	178	40.
9	21	AUG	0200	29	54250.	22	AUG	0300	79	1332.	23	AUG	0400	129	126.	24	AUG	0500	179	39.
8	21	AUG	0230	30	59988.	22	AUG	0330	80	1240.	23	AUG	0430	130	122.	24	AUG	0530	180	38.
7	21	AUG	0300	31	101832.	22	AUG	0400	81	1155.	23	AUG	0500	131	119.	24	AUG	0600	181	37.
6	21	AUG	0330	32	91550.	22	AUG	0430	82	1078.	23	AUG	0530	132	115.	24	AUG	0630	182	37.
5	21	AUG	0400	33	99209.	22	AUG	0500	83	1007.	23	AUG	0600	133	112.	24	AUG	0700	183	36.
4	21	AUG	0430	34	101752.	22	AUG	0530	84	941.	23	AUG	0630	134	109.	24	AUG	0730	184	35.
3	21	AUG	0500	35	104459.	22	AUG	0600	85	881.	23	AUG	0700	135	106.	24	AUG	0800	185	35.

21 AUG 0530	36	105354.	*	22 AUG 0630	86	826.	*	23 AUG 0730	136	103.	*	24 AUG 0830	186	34.			
21 AUG 0600	37	106057.	*	22 AUG 0700	87	776.	*	23 AUG 0800	137	100.	*	24 AUG 0900	187	34.			3
21 AUG 0630	38	83113.	*	22 AUG 0730	88	729.	*	23 AUG 0830	138	97.	*	24 AUG 0930	188	33.			4
21 AUG 0700	39	61424.	*	22 AUG 0800	89	686.	*	23 AUG 0900	139	95.	*	24 AUG 1000	189	32.			5
21 AUG 0730	40	46213.	*	22 AUG 0830	90	646.	*	23 AUG 0930	140	92.	*	24 AUG 1030	190	32.			6
21 AUG 0800	41	34625.	*	22 AUG 0900	91	610.	*	23 AUG 1000	141	90.	*	24 AUG 1100	191	31.			7
21 AUG 0830	42	27665.	*	22 AUG 0930	92	576.	*	23 AUG 1030	142	87.	*	24 AUG 1130	192	31.			8
21 AUG 0900	43	23911.	*	22 AUG 1000	93	544.	*	23 AUG 1100	143	85.	*	24 AUG 1200	193	30.			9
21 AUG 0930	44	22130.	*	22 AUG 1030	94	515.	*	23 AUG 1130	144	83.	*	24 AUG 1230	194	30.			10
21 AUG 1000	45	21192.	*	22 AUG 1100	95	488.	*	23 AUG 1200	145	81.	*	24 AUG 1300	195	29.			11
21 AUG 1030	46	20125.	*	22 AUG 1130	96	463.	*	23 AUG 1230	146	79.	*	24 AUG 1330	196	29.			12
21 AUG 1100	47	19019.	*	22 AUG 1200	97	440.	*	23 AUG 1300	147	77.	*	24 AUG 1400	197	28.			
21 AUG 1130	48	17927.	*	22 AUG 1230	98	418.	*	23 AUG 1330	148	75.	*	24 AUG 1430	198	28.			
21 AUG 1200	49	16878.	*	22 AUG 1300	99	397.	*	23 AUG 1400	149	73.	*	24 AUG 1500	199	27.			
21 AUG 1230	50	15438.	*	22 AUG 1330	100	379.	*	23 AUG 1430	150	72.	*	24 AUG 1530	200	27.			
			*				*				*						

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.50-HR
106057.	18.00	(CFS)	84746.	32433.	11275.	8168.
		(INCHES)	4.977	7.620	7.947	7.955
		(AC-FT)	42023.	64329.	67091.	67165.

CUMULATIVE AREA = 158.30 SQ MI

14113

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

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          *            *
 65 KK    *    SUB8    *        RUNOFF FROM SUBBASIN 8
          *            *
          **************

  6 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          360  TIME INTERVAL IN MINUTES
                    JXDATE     20AUG83  STARTING DATE
                    JXTIME         1200  STARTING TIME

              SUBBASIN RUNOFF DATA

 66 BA          SUBBASIN CHARACTERISTICS
                     TAREA        24.90  SUBBASIN AREA

                PRECIPITATION DATA

 67 PB               STORM        15.00  BASIN TOTAL PRECIPITATION

 68 PI            INCREMENTAL PRECIPITATION PATTERN
                      .09        .09        .09        .09        .09        .09        .09        .09        .09        .09
                      .09        .09        .19        .19        .19        .19        .19        .19        .19        .19
                      .19        .19        .19        .19        .60        .60        .60        .60        .60        .60
                      .60        .60        .60        .60        .60        .60        .11        .11        .11        .11
                      .11        .11        .11        .11        .11        .11        .11        .11        .05        .05
                      .05        .05        .05        .05        .05        .05        .05        .05        .05        .05
                      .05        .05        .05        .05        .05        .05        .05        .05        .05        .05
                      .05        .05        .05        .05        .05        .05        .05        .05        .05        .05
                      .05        .05        .05        .05        .05        .05        .05        .05        .05        .05
                      .05        .05        .05        .05        .05        .05        .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        .01        .01        .01        .01        .01        .01
                      .01        .01        .01        .01        .01        .01        .01        .01        .01        .01
                      .01        .01        .01        .01

 70 LU          UNIFORM LOSS RATE
                     STRTL         .95  INITIAL LOSS
                     CNSTL         .15  UNIFORM LOSS RATE
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 71 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       2000.  OVERLAND FLOW LENGTH
                         S       .0910  SLOPE
                         N        .050  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
 72 RK            COLLECTOR CHANNEL
                         L      15000.  CHANNEL LENGTH
                         S       .0910  SLOPE
                         N        .075  CHANNEL ROUGHNESS COEFFICIENT
                        CA        4.00  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD       30.00  BOTTOM WIDTH OR DIAMETER
                         Z        2.00  SIDE SLOPE
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73 RK MAIN CHANNEL

L	18800.	CHANNEL LENGTH
S	.0080	SLOPE
N	.075	CHANNEL ROUGHNESS COEFFICIENT
CA	24.90	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	55.00	BOTTOM WIDTH OR DIAMETER
Z	2.00	SIDE SLOPE
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

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COMPUTED KINEMATIC PARAMETERS

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)
1	8.9895	1.667	30.00	1000.00
3	.8367	1.540	30.00	7500.00
4	.1572	1.585	30.00	9400.00

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HYDROGRAPH AT STATION SUB8

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DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
20 AUG 1200	1	0.00	0.00	0.00	0.	*	22 AUG 1400	101	.01	.01	0.00	2.
20 AUG 1230	2	.09	.09	0.00	0.	*	22 AUG 1430	102	.01	.01	0.00	2.
20 AUG 1300	3	.09	.09	0.00	0.	*	22 AUG 1500	103	.01	.01	0.00	2.
20 AUG 1330	4	.09	.09	0.00	0.	*	22 AUG 1530	104	.01	.01	0.00	2.
20 AUG 1400	5	.09	.09	0.00	0.	*	22 AUG 1600	105	.01	.01	0.00	2.
20 AUG 1430	6	.09	.09	0.00	0.	*	22 AUG 1630	106	.01	.01	0.00	2.
20 AUG 1500	7	.09	.09	0.00	0.	*	22 AUG 1700	107	.01	.01	0.00	2.
20 AUG 1530	8	.09	.09	0.00	0.	*	22 AUG 1730	108	.01	.01	0.00	2.
20 AUG 1600	9	.09	.09	0.00	0.	*	22 AUG 1800	109	.01	.01	0.00	2.
20 AUG 1630	10	.09	.09	0.00	0.	*	22 AUG 1830	110	.01	.01	0.00	2.
20 AUG 1700	11	.09	.09	0.00	0.	*	22 AUG 1900	111	.01	.01	0.00	2.
20 AUG 1730	12	.09	.08	.01	0.	*	22 AUG 1930	112	.01	.01	0.00	1.
20 AUG 1800	13	.09	.08	.02	1.	*	22 AUG 2000	113	.01	.01	0.00	1.
20 AUG 1830	14	.19	.08	.12	303.	*	22 AUG 2030	114	.01	.01	0.00	1.
20 AUG 1900	15	.19	.08	.12	2130.	*	22 AUG 2100	115	.01	.01	0.00	1.
20 AUG 1930	16	.19	.08	.12	3600.	*	22 AUG 2130	116	.01	.01	0.00	1.
20 AUG 2000	17	.19	.08	.12	3741.	*	22 AUG 2200	117	.01	.01	0.00	1.
20 AUG 2030	18	.19	.08	.12	3741.	*	22 AUG 2230	118	.01	.01	0.00	1.
20 AUG 2100	19	.19	.08	.12	3741.	*	22 AUG 2300	119	.01	.01	0.00	1.
20 AUG 2130	20	.19	.08	.12	3741.	*	22 AUG 2330	120	.01	.01	0.00	1.
20 AUG 2200	21	.19	.08	.12	3741.	*	23 AUG 0000	121	.01	.01	0.00	1.
20 AUG 2230	22	.19	.08	.12	3741.	*	23 AUG 0030	122	.01	.01	0.00	1.
20 AUG 2300	23	.19	.08	.12	3741.	*	23 AUG 0100	123	.01	.01	0.00	1.
20 AUG 2330	24	.19	.08	.12	3741.	*	23 AUG 0130	124	.01	.01	0.00	1.
21 AUG 0000	25	.19	.08	.12	3741.	*	23 AUG 0200	125	.01	.01	0.00	1.
21 AUG 0030	26	.60	.08	.52	9887.	*	23 AUG 0230	126	.01	.01	0.00	1.
21 AUG 0100	27	.60	.08	.52	15542.	*	23 AUG 0300	127	.01	.01	0.00	1.
21 AUG 0130	28	.60	.08	.52	16768.	*	23 AUG 0330	128	.01	.01	0.00	1.
21 AUG 0200	29	.60	.08	.52	16847.	*	23 AUG 0400	129	.01	.01	0.00	1.
21 AUG 0230	30	.60	.08	.52	16847.	*	23 AUG 0430	130	.01	.01	0.00	1.
21 AUG 0300	31	.60	.08	.52	16847.	*	23 AUG 0500	131	.01	.01	0.00	1.
21 AUG 0330	32	.60	.08	.52	16847.	*	23 AUG 0530	132	.01	.01	0.00	1.
21 AUG 0400	33	.60	.08	.52	16847.	*	23 AUG 0600	133	.01	.01	0.00	1.
21 AUG 0430	34	.60	.08	.52	16847.	*	23 AUG 0630	134	.01	.01	0.00	1.
21 AUG 0500	35	.60	.08	.52	16847.	*	23 AUG 0700	135	.01	.01	0.00	1.
21 AUG 0530	36	.60	.08	.52	16847.	*	23 AUG 0730	136	.01	.01	0.00	1.
21 AUG 0600	37	.60	.08	.52	16847.	*	23 AUG 0800	137	.01	.01	0.00	1.

	21 AUG 0630	38	.11	.08	.03	9265.	*	23 AUG 0830	138	.01	.01	0.00	1.		
	21 AUG 0700	39	.11	.08	.03	3666.	*	23 AUG 0900	139	.01	.01	0.00	1.		3
	21 AUG 0730	40	.11	.08	.03	1525.	*	23 AUG 0930	140	.01	.01	0.00	1.		4
	21 AUG 0800	41	.11	.08	.03	1067.	*	23 AUG 1000	141	.01	.01	0.00	1.		5
	21 AUG 0830	42	.11	.08	.03	1067.	*	23 AUG 1030	142	.01	.01	0.00	1.		6
	21 AUG 0900	43	.11	.08	.03	1067.	*	23 AUG 1100	143	.01	.01	0.00	1.		7
	21 AUG 0930	44	.11	.08	.03	1067.	*	23 AUG 1130	144	.01	.01	0.00	1.		8
	21 AUG 1000	45	.11	.08	.03	1067.	*	23 AUG 1200	145	.01	.01	0.00	1.		9
	21 AUG 1030	46	.11	.08	.03	1067.	*	23 AUG 1230	146	0.00	0.00	0.00	1.		10
	21 AUG 1100	47	.11	.08	.03	1067.	*	23 AUG 1300	147	0.00	0.00	0.00	1.		11
	21 AUG 1130	48	.11	.08	.03	1067.	*	23 AUG 1330	148	0.00	0.00	0.00	1.		12
	21 AUG 1200	49	.11	.08	.03	1067.	*	23 AUG 1400	149	0.00	0.00	0.00	0.		
	21 AUG 1230	50	.05	.05	0.00	917.	*	23 AUG 1430	150	0.00	0.00	0.00	0.		
	21 AUG 1300	51	.05	.05	0.00	532.	*	23 AUG 1500	151	0.00	0.00	0.00	0.		
	21 AUG 1330	52	.05	.05	0.00	346.	*	23 AUG 1530	152	0.00	0.00	0.00	0.		
	21 AUG 1400	53	.05	.05	0.00	235.	*	23 AUG 1600	153	0.00	0.00	0.00	0.		
	21 AUG 1430	54	.05	.05	0.00	172.	*	23 AUG 1630	154	0.00	0.00	0.00	0.		
	21 AUG 1500	55	.05	.05	0.00	132.	*	23 AUG 1700	155	0.00	0.00	0.00	0.		
	21 AUG 1530	56	.05	.05	0.00	105.	*	23 AUG 1730	156	0.00	0.00	0.00	0.		
	21 AUG 1600	57	.05	.05	0.00	85.	*	23 AUG 1800	157	0.00	0.00	0.00	0.		
	21 AUG 1630	58	.05	.05	0.00	71.	*	23 AUG 1830	158	0.00	0.00	0.00	0.		
	21 AUG 1700	59	.05	.05	0.00	60.	*	23 AUG 1900	159	0.00	0.00	0.00	0.		
	21 AUG 1730	60	.05	.05	0.00	51.	*	23 AUG 1930	160	0.00	0.00	0.00	0.		
	21 AUG 1800	61	.05	.05	0.00	44.	*	23 AUG 2000	161	0.00	0.00	0.00	0.		
	21 AUG 1830	62	.05	.05	0.00	38.	*	23 AUG 2030	162	0.00	0.00	0.00	0.		
	21 AUG 1900	63	.05	.05	0.00	33.	*	23 AUG 2100	163	0.00	0.00	0.00	0.		
	21 AUG 1930	64	.05	.05	0.00	30.	*	23 AUG 2130	164	0.00	0.00	0.00	0.		
	21 AUG 2000	65	.05	.05	0.00	26.	*	23 AUG 2200	165	0.00	0.00	0.00	0.		
	21 AUG 2030	66	.05	.05	0.00	23.	*	23 AUG 2230	166	0.00	0.00	0.00	0.		
	21 AUG 2100	67	.05	.05	0.00	21.	*	23 AUG 2300	167	0.00	0.00	0.00	0.		
	21 AUG 2130	68	.05	.05	0.00	19.	*	23 AUG 2330	168	0.00	0.00	0.00	0.		
14113	21 AUG 2200	69	.05	.05	0.00	17.	*	24 AUG 0000	169	0.00	0.00	0.00	0.		
	21 AUG 2230	70	.05	.05	0.00	16.	*	24 AUG 0030	170	0.00	0.00	0.00	0.		
	21 AUG 2300	71	.05	.05	0.00	14.	*	24 AUG 0100	171	0.00	0.00	0.00	0.		
	21 AUG 2330	72	.05	.05	0.00	13.	*	24 AUG 0130	172	0.00	0.00	0.00	0.		
	22 AUG 0000	73	.05	.05	0.00	12.	*	24 AUG 0200	173	0.00	0.00	0.00	0.		
	22 AUG 0030	74	.05	.05	0.00	11.	*	24 AUG 0230	174	0.00	0.00	0.00	0.		
	22 AUG 0100	75	.05	.05	0.00	10.	*	24 AUG 0300	175	0.00	0.00	0.00	0.		
	22 AUG 0130	76	.05	.05	0.00	9.	*	24 AUG 0330	176	0.00	0.00	0.00	0.		
	22 AUG 0200	77	.05	.05	0.00	9.	*	24 AUG 0400	177	0.00	0.00	0.00	0.		
	22 AUG 0230	78	.05	.05	0.00	8.	*	24 AUG 0430	178	0.00	0.00	0.00	0.		
	22 AUG 0300	79	.05	.05	0.00	8.	*	24 AUG 0500	179	0.00	0.00	0.00	0.		
	22 AUG 0330	80	.05	.05	0.00	7.	*	24 AUG 0530	180	0.00	0.00	0.00	0.		
	22 AUG 0400	81	.05	.05	0.00	7.	*	24 AUG 0600	181	0.00	0.00	0.00	0.		
	22 AUG 0430	82	.05	.05	0.00	6.	*	24 AUG 0630	182	0.00	0.00	0.00	0.		
	22 AUG 0500	83	.05	.05	0.00	6.	*	24 AUG 0700	183	0.00	0.00	0.00	0.		
	22 AUG 0530	84	.05	.05	0.00	5.	*	24 AUG 0730	184	0.00	0.00	0.00	0.		
	22 AUG 0600	85	.05	.05	0.00	5.	*	24 AUG 0800	185	0.00	0.00	0.00	0.		
	22 AUG 0630	86	.05	.05	0.00	5.	*	24 AUG 0830	186	0.00	0.00	0.00	0.		
	22 AUG 0700	87	.05	.05	0.00	5.	*	24 AUG 0900	187	0.00	0.00	0.00	0.		
	22 AUG 0730	88	.05	.05	0.00	4.	*	24 AUG 0930	188	0.00	0.00	0.00	0.		
	22 AUG 0800	89	.05	.05	0.00	4.	*	24 AUG 1000	189	0.00	0.00	0.00	0.		
	22 AUG 0830	90	.05	.05	0.00	4.	*	24 AUG 1030	190	0.00	0.00	0.00	0.		
12	22 AUG 0900	91	.05	.05	0.00	4.	*	24 AUG 1100	191	0.00	0.00	0.00	0.		
11	22 AUG 0930	92	.05	.05	0.00	3.	*	24 AUG 1130	192	0.00	0.00	0.00	0.		
10	22 AUG 1000	93	.05	.05	0.00	3.	*	24 AUG 1200	193	0.00	0.00	0.00	0.		
9	22 AUG 1030	94	.05	.05	0.00	3.	*	24 AUG 1230	194	0.00	0.00	0.00	0.		
8	22 AUG 1100	95	.05	.05	0.00	3.	*	24 AUG 1300	195	0.00	0.00	0.00	0.		
7	22 AUG 1130	96	.05	.05	0.00	3.	*	24 AUG 1330	196	0.00	0.00	0.00	0.		
6	22 AUG 1200	97	.05	.05	0.00	3.	*	24 AUG 1400	197	0.00	0.00	0.00	0.		
5	22 AUG 1230	98	.01	.01	0.00	3.	*	24 AUG 1430	198	0.00	0.00	0.00	0.		
4	22 AUG 1300	99	.01	.01	0.00	2.	*	24 AUG 1500	199	0.00	0.00	0.00	0.		
3	22 AUG 1330	100	.01	.01	0.00	2.	*	24 AUG 1530	200	0.00	0.00	0.00	0.		

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                                                                  *                    SUM    15.00    6.89    8.11
                                                                  *
*****************************************************************************************************************

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR      24-HR      72-HR    99.50-HR
 15847.      14.00        (CFS)    16125.      5423.      1811.      1311.
                       (INCHES)    6.021      8.100      8.115      8.115
                        (AC-FT)    7996.     10756.     10776.     10777.

                       CUMULATIVE AREA =   24.90 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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          *            *
 74 KK    *    SUB5    *      RUNOFF FROM SUBBASIN 5
          *            *
          **************

  6 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          360  TIME INTERVAL IN MINUTES
                    JXDATE     20AUG83  STARTING DATE
                    JXTIME         1200  STARTING TIME

              SUBBASIN RUNOFF DATA

 75 BA          SUBBASIN CHARACTERISTICS
                     TAREA        27.70  SUBBASIN AREA

              PRECIPITATION DATA

 76 PB               STORM        15.00  BASIN TOTAL PRECIPITATION

 77 PI           INCREMENTAL PRECIPITATION PATTERN
                      .09        .09        .09        .09        .09        .09        .09        .09        .09        .09
                      .09        .09        .19        .19        .19        .19        .19        .19        .19        .19
                      .19        .19        .19        .19        .60        .60        .60        .60        .60        .60
                      .60        .60        .60        .60        .60        .60        .11        .11        .11        .11
                      .11        .11        .11        .11        .11        .11        .11        .11        .05        .05
                      .05        .05        .05        .05        .05        .05        .05        .05        .05        .05
                      .05        .05        .05        .05        .05        .05        .05        .05        .05        .05
                      .05        .05        .05        .05        .05        .05        .05        .05        .05        .05
                      .05        .05        .05        .05        .05        .05        .05        .05        .05        .05
                      .05        .05        .05        .05        .05        .05        .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        .01        .01        .01        .01        .01        .01
                      .01        .01        .01        .01        .01        .01        .01        .01        .01        .01
                      .01        .01        .01        .01

 79 LU          UNIFORM LOSS RATE
                     STRTL          .95  INITIAL LOSS
                     CNSTL          .15  UNIFORM LOSS RATE
                     RTIMP         0.00  PERCENT IMPERVIOUS AREA

              KINEMATIC WAVE
 80 UK          OVERLAND-FLOW ELEMENT NO. 1
                         L        1400.  OVERLAND FLOW LENGTH
                         S        .2900  SLOPE
                         N         .050  ROUGHNESS COEFFICIENT
                        PA        100.0  PERCENT OF SUBBASIN
 81 RK          COLLECTOR CHANNEL
                         L       10500.  CHANNEL LENGTH
                         S       .0500  SLOPE
                         N         .075  CHANNEL ROUGHNESS COEFFICIENT
                        CA         .33  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD       30.00  BOTTOM WIDTH OR DIAMETER
                         Z        2.00  SIDE SLOPE
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82 RK MAIN CHANNEL

L	57000.	CHANNEL LENGTH
S	.0300	SLOPE
N	.075	CHANNEL ROUGHNESS COEFFICIENT
CA	27.70	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	410.00	BOTTOM WIDTH OR DIAMETER
Z	6.00	SIDE SLOPE
RUPSTQ	NO	ROUTE UPSTREAM HYDROGRAPH

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COMPUTED KINEMATIC PARAMETERS

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)
1	16.0478	1.667	30.00	700.00
3	.6202	1.540	30.00	5250.00
4	.0743	1.632	30.00	28500.00

HYDROGRAPH AT STATION SUB5

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
20	AUG	1200	1	0.00	0.00	0.00	0.	22	AUG	1400	101	.01	.01	0.00	18.
20	AUG	1230	2	.09	.09	0.00	0.	22	AUG	1430	102	.01	.01	0.00	17.
20	AUG	1300	3	.09	.09	0.00	0.	22	AUG	1500	103	.01	.01	0.00	16.
20	AUG	1330	4	.09	.09	0.00	0.	22	AUG	1530	104	.01	.01	0.00	16.
20	AUG	1400	5	.09	.09	0.00	0.	22	AUG	1600	105	.01	.01	0.00	15.
20	AUG	1430	6	.09	.09	0.00	0.	22	AUG	1630	106	.01	.01	0.00	14.
20	AUG	1500	7	.09	.09	0.00	0.	22	AUG	1700	107	.01	.01	0.00	14.
20	AUG	1530	8	.09	.09	0.00	0.	22	AUG	1730	108	.01	.01	0.00	13.
20	AUG	1600	9	.09	.09	0.00	0.	22	AUG	1800	109	.01	.01	0.00	13.
20	AUG	1630	10	.09	.09	0.00	0.	22	AUG	1830	110	.01	.01	0.00	12.
20	AUG	1700	11	.09	.09	0.00	0.	22	AUG	1900	111	.01	.01	0.00	12.
20	AUG	1730	12	.09	.08	.01	0.	22	AUG	1930	112	.01	.01	0.00	11.
20	AUG	1800	13	.09	.08	.02	0.	22	AUG	2000	113	.01	.01	0.00	11.
20	AUG	1830	14	.19	.08	.12	26.	22	AUG	2030	114	.01	.01	0.00	11.
20	AUG	1900	15	.19	.08	.12	232.	22	AUG	2100	115	.01	.01	0.00	10.
20	AUG	1930	16	.19	.08	.12	688.	22	AUG	2130	116	.01	.01	0.00	10.
20	AUG	2000	17	.19	.08	.12	1292.	22	AUG	2200	117	.01	.01	0.00	10.
20	AUG	2030	18	.19	.08	.12	1953.	22	AUG	2230	118	.01	.01	0.00	9.
20	AUG	2100	19	.19	.08	.12	2567.	22	AUG	2300	119	.01	.01	0.00	9.
20	AUG	2130	20	.19	.08	.12	3063.	22	AUG	2330	120	.01	.01	0.00	9.
20	AUG	2200	21	.19	.08	.12	3423.	23	AUG	0000	121	.01	.01	0.00	8.
20	AUG	2230	22	.19	.08	.12	3664.	23	AUG	0030	122	.01	.01	0.00	8.
20	AUG	2300	23	.19	.08	.12	3818.	23	AUG	0100	123	.01	.01	0.00	8.
20	AUG	2330	24	.19	.08	.12	3913.	23	AUG	0130	124	.01	.01	0.00	8.
21	AUG	0000	25	.19	.08	.12	3970.	23	AUG	0200	125	.01	.01	0.00	7.
21	AUG	0030	26	.60	.08	.52	6465.	23	AUG	0230	126	.01	.01	0.00	7.
21	AUG	0100	27	.60	.08	.52	11062.	23	AUG	0300	127	.01	.01	0.00	7.
21	AUG	0130	28	.60	.08	.52	15267.	23	AUG	0330	128	.01	.01	0.00	7.
21	AUG	0200	29	.60	.08	.52	17385.	23	AUG	0400	129	.01	.01	0.00	7.
21	AUG	0230	30	.60	.08	.52	18034.	23	AUG	0430	130	.01	.01	0.00	6.
21	AUG	0300	31	.60	.08	.52	18197.	23	AUG	0500	131	.01	.01	0.00	6.
21	AUG	0330	32	.60	.08	.52	18238.	23	AUG	0530	132	.01	.01	0.00	6.
21	AUG	0400	33	.60	.08	.52	18248.	23	AUG	0600	133	.01	.01	0.00	6.
21	AUG	0430	34	.60	.08	.52	18250.	23	AUG	0630	134	.01	.01	0.00	6.
21	AUG	0500	35	.60	.08	.52	18251.	23	AUG	0700	135	.01	.01	0.00	6.
21	AUG	0530	36	.60	.08	.52	18251.	23	AUG	0730	136	.01	.01	0.00	5.
21	AUG	0600	37	.60	.08	.52	18251.	23	AUG	0800	137	.01	.01	0.00	5.

21 AUG 0630	38	.11	.08	.03	13720.	*	23 AUG 0830	138	.01	.01	0.00	5.			
21 AUG 0700	39	.11	.08	.03	8455.	*	23 AUG 0900	139	.01	.01	0.00	5.			3
21 AUG 0730	40	.11	.08	.03	5418.	*	23 AUG 0930	140	.01	.01	0.00	5.			4
21 AUG 0800	41	.11	.08	.03	3839.	*	23 AUG 1000	141	.01	.01	0.00	5.			5
21 AUG 0830	42	.11	.08	.03	2936.	*	23 AUG 1030	142	.01	.01	0.00	5.			6
21 AUG 0900	43	.11	.08	.03	2380.	*	23 AUG 1100	143	.01	.01	0.00	5.			7
21 AUG 0930	44	.11	.08	.03	2018.	*	23 AUG 1130	144	.01	.01	0.00	4.			8
21 AUG 1000	45	.11	.08	.03	1772.	*	23 AUG 1200	145	.01	.01	0.00	4.			9
21 AUG 1030	46	.11	.08	.03	1600.	*	23 AUG 1230	146	0.00	0.00	0.00	4.			10
21 AUG 1100	47	.11	.08	.03	1477.	*	23 AUG 1300	147	0.00	0.00	0.00	4.			11
21 AUG 1130	48	.11	.08	.03	1387.	*	23 AUG 1330	148	0.00	0.00	0.00	4.			12
21 AUG 1200	49	.11	.08	.03	1321.	*	23 AUG 1400	149	0.00	0.00	0.00	4.			
21 AUG 1230	50	.05	.05	0.00	1232.	*	23 AUG 1430	150	0.00	0.00	0.00	4.			
21 AUG 1300	51	.05	.05	0.00	1091.	*	23 AUG 1500	151	0.00	0.00	0.00	4.			
21 AUG 1330	52	.05	.05	0.00	943.	*	23 AUG 1530	152	0.00	0.00	0.00	4.			
21 AUG 1400	53	.05	.05	0.00	808.	*	23 AUG 1600	153	0.00	0.00	0.00	4.			
21 AUG 1430	54	.05	.05	0.00	692.	*	23 AUG 1630	154	0.00	0.00	0.00	4.			
21 AUG 1500	55	.05	.05	0.00	595.	*	23 AUG 1700	155	0.00	0.00	0.00	3.			
21 AUG 1530	56	.05	.05	0.00	513.	*	23 AUG 1730	156	0.00	0.00	0.00	3.			
21 AUG 1600	57	.05	.05	0.00	445.	*	23 AUG 1800	157	0.00	0.00	0.00	3.			
21 AUG 1630	58	.05	.05	0.00	388.	*	23 AUG 1830	158	0.00	0.00	0.00	3.			
21 AUG 1700	59	.05	.05	0.00	341.	*	23 AUG 1900	159	0.00	0.00	0.00	3.			
21 AUG 1730	60	.05	.05	0.00	300.	*	23 AUG 1930	160	0.00	0.00	0.00	3.			
21 AUG 1800	61	.05	.05	0.00	266.	*	23 AUG 2000	161	0.00	0.00	0.00	3.			
21 AUG 1830	62	.05	.05	0.00	237.	*	23 AUG 2030	162	0.00	0.00	0.00	3.			
21 AUG 1900	63	.05	.05	0.00	212.	*	23 AUG 2100	163	0.00	0.00	0.00	3.			
21 AUG 1930	64	.05	.05	0.00	191.	*	23 AUG 2130	164	0.00	0.00	0.00	3.			
21 AUG 2000	65	.05	.05	0.00	172.	*	23 AUG 2200	165	0.00	0.00	0.00	3.			
21 AUG 2030	66	.05	.05	0.00	156.	*	23 AUG 2230	166	0.00	0.00	0.00	3.			
21 AUG 2100	67	.05	.05	0.00	142.	*	23 AUG 2300	167	0.00	0.00	0.00	3.			
21 AUG 2130	68	.05	.05	0.00	129.	*	23 AUG 2330	168	0.00	0.00	0.00	3.			
14113 21 AUG 2200	69	.05	.05	0.00	118.	*	24 AUG 0000	169	0.00	0.00	0.00	3.			
21 AUG 2230	70	.05	.05	0.00	108.	*	24 AUG 0030	170	0.00	0.00	0.00	3.			
21 AUG 2300	71	.05	.05	0.00	100.	*	24 AUG 0100	171	0.00	0.00	0.00	2.			
21 AUG 2330	72	.05	.05	0.00	92.	*	24 AUG 0130	172	0.00	0.00	0.00	2.			
22 AUG 0000	73	.05	.05	0.00	85.	*	24 AUG 0200	173	0.00	0.00	0.00	2.			
22 AUG 0030	74	.05	.05	0.00	79.	*	24 AUG 0230	174	0.00	0.00	0.00	2.			
22 AUG 0100	75	.05	.05	0.00	73.	*	24 AUG 0300	175	0.00	0.00	0.00	2.			
22 AUG 0130	76	.05	.05	0.00	68.	*	24 AUG 0330	176	0.00	0.00	0.00	2.			
22 AUG 0200	77	.05	.05	0.00	63.	*	24 AUG 0400	177	0.00	0.00	0.00	2.			
22 AUG 0230	78	.05	.05	0.00	59.	*	24 AUG 0430	178	0.00	0.00	0.00	2.			
22 AUG 0300	79	.05	.05	0.00	55.	*	24 AUG 0500	179	0.00	0.00	0.00	2.			
22 AUG 0330	80	.05	.05	0.00	52.	*	24 AUG 0530	180	0.00	0.00	0.00	2.			
22 AUG 0400	81	.05	.05	0.00	49.	*	24 AUG 0600	181	0.00	0.00	0.00	2.			
22 AUG 0430	82	.05	.05	0.00	46.	*	24 AUG 0630	182	0.00	0.00	0.00	2.			
22 AUG 0500	83	.05	.05	0.00	43.	*	24 AUG 0700	183	0.00	0.00	0.00	2.			
22 AUG 0530	84	.05	.05	0.00	41.	*	24 AUG 0730	184	0.00	0.00	0.00	2.			
22 AUG 0600	85	.05	.05	0.00	38.	*	24 AUG 0800	185	0.00	0.00	0.00	2.			
22 AUG 0630	86	.05	.05	0.00	36.	*	24 AUG 0830	186	0.00	0.00	0.00	2.			
22 AUG 0700	87	.05	.05	0.00	34.	*	24 AUG 0900	187	0.00	0.00	0.00	2.			
22 AUG 0730	88	.05	.05	0.00	33.	*	24 AUG 0930	188	0.00	0.00	0.00	2.			
22 AUG 0800	89	.05	.05	0.00	31.	*	24 AUG 1000	189	0.00	0.00	0.00	2.			
22 AUG 0830	90	.05	.05	0.00	29.	*	24 AUG 1030	190	0.00	0.00	0.00	2.			
12 22 AUG 0900	91	.05	.05	0.00	28.	*	24 AUG 1100	191	0.00	0.00	0.00	2.			
11 22 AUG 0930	92	.05	.05	0.00	26.	*	24 AUG 1130	192	0.00	0.00	0.00	2.			
10 22 AUG 1000	93	.05	.05	0.00	25.	*	24 AUG 1200	193	0.00	0.00	0.00	2.			
9 22 AUG 1030	94	.05	.05	0.00	24.	*	24 AUG 1230	194	0.00	0.00	0.00	2.			
8 22 AUG 1100	95	.05	.05	0.00	23.	*	24 AUG 1300	195	0.00	0.00	0.00	2.			
7 22 AUG 1130	96	.05	.05	0.00	22.	*	24 AUG 1330	196	0.00	0.00	0.00	2.			
6 22 AUG 1200	97	.05	.05	0.00	21.	*	24 AUG 1400	197	0.00	0.00	0.00	2.			
5 22 AUG 1230	98	.01	.01	0.00	20.	*	24 AUG 1430	198	0.00	0.00	0.00	2.			
4 22 AUG 1300	99	.01	.01	0.00	19.	*	24 AUG 1500	199	0.00	0.00	0.00	1.			
3 22 AUG 1330	100	.01	.01	0.00	18.	*	24 AUG 1530	200	0.00	0.00	0.00	1.			

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                                                                  *                    SUM    15.00    6.89    8.11
                                                                  *
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PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR       24-HR       72-HR     99.50-HR
  18251.      18.00        (CFS)    16821.      5805.       1956.       1416.
                         (INCHES)    5.646      7.794       7.879       7.882
                          (AC-FT)    8341.     11514.      11640.      11644.

                       CUMULATIVE AREA =    27.70 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 83 KK      *    SUB6    *      RUNOFF FROM SUBBASIN 6
            *            *
            **************

  6 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          360  TIME INTERVAL IN MINUTES
                    JXDATE     20AUG83  STARTING DATE
                    JXTIME        1200  STARTING TIME

              SUBBASIN RUNOFF DATA

 84 BA          SUBBASIN CHARACTERISTICS
                     TAREA        19.10  SUBBASIN AREA

                PRECIPITATION DATA

 85 PB                STORM        15.00  BASIN TOTAL PRECIPITATION

 86 PI            INCREMENTAL PRECIPITATION PATTERN
                      .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
                      .09       .09       .19       .19       .19       .19       .19       .19       .19       .19
                      .19       .19       .19       .19       .60       .60       .60       .60       .60       .60
                      .60       .60       .60       .60       .60       .60       .11       .11       .11       .11
                      .11       .11       .11       .11       .11       .11       .11       .11       .05       .05
                      .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
                      .05       .05       .05       .05       .05       .05       .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       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01

 88 LU          UNIFORM LOSS RATE
                     STRTL         .95  INITIAL LOSS
                     CNSTL         .15  UNIFORM LOSS RATE
                     RTIMP        0.00  PERCENT IMPERVIOUS AREA

                KINEMATIC WAVE
 89 UK            OVERLAND-FLOW ELEMENT NO. 1
                         L       2000.  OVERLAND FLOW LENGTH
                         S       .0150  SLOPE
                         N        .050  ROUGHNESS COEFFICIENT
                        PA       100.0  PERCENT OF SUBBASIN
 90 RK            MAIN CHANNEL
                         L      30900.  CHANNEL LENGTH
                         S       .0130  SLOPE
                         N        .075  CHANNEL ROUGHNESS COEFFICIENT
                        CA       19.10  CONTRIBUTING AREA
                     SHAPE        TRAP  CHANNEL SHAPE
                        WD      450.00  BOTTOM WIDTH OR DIAMETER
                         Z        6.00  SIDE SLOPE
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RUPSTO YES ROUTE UPSTREAM HYDROGRAPH

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COMPUTED KINEMATIC PARAMETERS

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)
1	3.6497	1.667	30.00	1000.00
3	.0455	1.635	30.00	15450.00

HYDROGRAPH AT STATION SUB6

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
20	AUG	1200	1	0.00	0.00	0.00	0.	22	AUG	1400	101	.01	.01	0.00	44.
20	AUG	1230	2	.09	.09	0.00	0.	22	AUG	1430	102	.01	.01	0.00	43.
20	AUG	1300	3	.09	.09	0.00	0.	22	AUG	1500	103	.01	.01	0.00	41.
20	AUG	1330	4	.09	.09	0.00	0.	22	AUG	1530	104	.01	.01	0.00	39.
20	AUG	1400	5	.09	.09	0.00	0.	22	AUG	1600	105	.01	.01	0.00	38.
20	AUG	1430	6	.09	.09	0.00	0.	22	AUG	1630	106	.01	.01	0.00	36.
20	AUG	1500	7	.09	.09	0.00	0.	22	AUG	1700	107	.01	.01	0.00	35.
20	AUG	1530	8	.09	.09	0.00	0.	22	AUG	1730	108	.01	.01	0.00	34.
20	AUG	1600	9	.09	.09	0.00	0.	22	AUG	1800	109	.01	.01	0.00	33.
20	AUG	1630	10	.09	.09	0.00	0.	22	AUG	1830	110	.01	.01	0.00	31.
20	AUG	1700	11	.09	.09	0.00	0.	22	AUG	1900	111	.01	.01	0.00	30.
20	AUG	1730	12	.09	.08	.01	0.	22	AUG	1930	112	.01	.01	0.00	29.
20	AUG	1800	13	.09	.08	.02	0.	22	AUG	2000	113	.01	.01	0.00	28.
20	AUG	1830	14	.19	.08	.12	17.	22	AUG	2030	114	.01	.01	0.00	27.
20	AUG	1900	15	.19	.08	.12	133.	22	AUG	2100	115	.01	.01	0.00	26.
20	AUG	1930	16	.19	.08	.12	461.	22	AUG	2130	116	.01	.01	0.00	25.
20	AUG	2000	17	.19	.08	.12	1062.	22	AUG	2200	117	.01	.01	0.00	25.
20	AUG	2030	18	.19	.08	.12	1989.	22	AUG	2230	118	.01	.01	0.00	24.
20	AUG	2100	19	.19	.08	.12	3171.	22	AUG	2300	119	.01	.01	0.00	23.
20	AUG	2130	20	.19	.08	.12	4354.	22	AUG	2330	120	.01	.01	0.00	22.
20	AUG	2200	21	.19	.08	.12	5292.	23	AUG	0000	121	.01	.01	0.00	22.
20	AUG	2230	22	.19	.08	.12	5919.	23	AUG	0030	122	.01	.01	0.00	21.
20	AUG	2300	23	.19	.08	.12	6302.	23	AUG	0100	123	.01	.01	0.00	20.
20	AUG	2330	24	.19	.08	.12	6530.	23	AUG	0130	124	.01	.01	0.00	20.
21	AUG	0000	25	.19	.08	.12	6663.	23	AUG	0200	125	.01	.01	0.00	19.
21	AUG	0030	26	.60	.08	.52	9428.	23	AUG	0230	126	.01	.01	0.00	19.
21	AUG	0100	27	.60	.08	.52	16970.	23	AUG	0300	127	.01	.01	0.00	18.
21	AUG	0130	28	.60	.08	.52	20165.	23	AUG	0330	128	.01	.01	0.00	18.
21	AUG	0200	29	.60	.08	.52	25556.	23	AUG	0400	129	.01	.01	0.00	17.
21	AUG	0230	30	.60	.08	.52	29150.	23	AUG	0430	130	.01	.01	0.00	17.
21	AUG	0300	31	.60	.08	.52	30619.	23	AUG	0500	131	.01	.01	0.00	16.
21	AUG	0330	32	.60	.08	.52	31036.	23	AUG	0530	132	.01	.01	0.00	16.
21	AUG	0400	33	.60	.08	.52	31139.	23	AUG	0600	133	.01	.01	0.00	15.
21	AUG	0430	34	.60	.08	.52	31165.	23	AUG	0630	134	.01	.01	0.00	15.
21	AUG	0500	35	.60	.08	.52	31171.	23	AUG	0700	135	.01	.01	0.00	15.
21	AUG	0530	36	.60	.08	.52	31173.	23	AUG	0730	136	.01	.01	0.00	14.
21	AUG	0600	37	.60	.08	.52	31174.	23	AUG	0800	137	.01	.01	0.00	14.
21	AUG	0630	38	.11	.08	.03	26925.	23	AUG	0830	138	.01	.01	0.00	13.
21	AUG	0700	39	.11	.08	.03	19498.	23	AUG	0900	139	.01	.01	0.00	13.
21	AUG	0730	40	.11	.08	.03	13623.	23	AUG	0930	140	.01	.01	0.00	13.
21	AUG	0800	41	.11	.08	.03	9757.	23	AUG	1000	141	.01	.01	0.00	12.
21	AUG	0830	42	.11	.08	.03	6819.	23	AUG	1030	142	.01	.01	0.00	12.
21	AUG	0900	43	.11	.08	.03	4764.	23	AUG	1100	143	.01	.01	0.00	12.
21	AUG	0930	44	.11	.08	.03	3857.	23	AUG	1130	144	.01	.01	0.00	12.
21	AUG	1000	45	.11	.08	.03	3320.	23	AUG	1200	145	.01	.01	0.00	11.
21	AUG	1030	46	.11	.08	.03	2960.	23	AUG	1230	146	0.00	0.00	0.00	11.
21	AUG	1100	47	.11	.08	.03	2705.	23	AUG	1300	147	0.00	0.00	0.00	11.
								23	AUG	1330	148	0.00	0.00	0.00	10.

21 AUG 1200	49	.11	.08	.03	2378.	*	23 AUG 1400	149	0.00	0.00	0.00	10.			
21 AUG 1230	50	.05	.05	0.00	2201.	*	23 AUG 1430	150	0.00	0.00	0.00	10.			
21 AUG 1300	51	.05	.05	0.00	1997.	*	23 AUG 1500	151	0.00	0.00	0.00	10.			3
21 AUG 1330	52	.05	.05	0.00	1783.	*	23 AUG 1530	152	0.00	0.00	0.00	10.			4
21 AUG 1400	53	.05	.05	0.00	1577.	*	23 AUG 1600	153	0.00	0.00	0.00	9.			5
21 AUG 1430	54	.05	.05	0.00	1388.	*	23 AUG 1630	154	0.00	0.00	0.00	9.			6
21 AUG 1500	55	.05	.05	0.00	1220.	*	23 AUG 1700	155	0.00	0.00	0.00	9.			7
21 AUG 1530	56	.05	.05	0.00	1074.	*	23 AUG 1730	156	0.00	0.00	0.00	9.			8
21 AUG 1600	57	.05	.05	0.00	948.	*	23 AUG 1800	157	0.00	0.00	0.00	9.			9
21 AUG 1630	58	.05	.05	0.00	839.	*	23 AUG 1830	158	0.00	0.00	0.00	8.			10
21 AUG 1700	59	.05	.05	0.00	746.	*	23 AUG 1900	159	0.00	0.00	0.00	8.			11
21 AUG 1730	60	.05	.05	0.00	665.	*	23 AUG 1930	160	0.00	0.00	0.00	8.			12
21 AUG 1800	61	.05	.05	0.00	596.	*	23 AUG 2000	161	0.00	0.00	0.00	8.			
21 AUG 1830	62	.05	.05	0.00	535.	*	23 AUG 2030	162	0.00	0.00	0.00	8.			
21 AUG 1900	63	.05	.05	0.00	483.	*	23 AUG 2100	163	0.00	0.00	0.00	8.			
21 AUG 1930	64	.05	.05	0.00	437.	*	23 AUG 2130	164	0.00	0.00	0.00	7.			
21 AUG 2000	65	.05	.05	0.00	397.	*	23 AUG 2200	165	0.00	0.00	0.00	7.			
21 AUG 2030	66	.05	.05	0.00	362.	*	23 AUG 2230	166	0.00	0.00	0.00	7.			
21 AUG 2100	67	.05	.05	0.00	331.	*	23 AUG 2300	167	0.00	0.00	0.00	7.			
21 AUG 2130	68	.05	.05	0.00	303.	*	23 AUG 2330	168	0.00	0.00	0.00	7.			
21 AUG 2200	69	.05	.05	0.00	279.	*	24 AUG 0000	169	0.00	0.00	0.00	7.			
21 AUG 2230	70	.05	.05	0.00	257.	*	24 AUG 0030	170	0.00	0.00	0.00	7.			
21 AUG 2300	71	.05	.05	0.00	237.	*	24 AUG 0100	171	0.00	0.00	0.00	6.			
21 AUG 2330	72	.05	.05	0.00	219.	*	24 AUG 0130	172	0.00	0.00	0.00	6.			
22 AUG 0000	73	.05	.05	0.00	204.	*	24 AUG 0200	173	0.00	0.00	0.00	6.			
22 AUG 0030	74	.05	.05	0.00	189.	*	24 AUG 0230	174	0.00	0.00	0.00	6.			
22 AUG 0100	75	.05	.05	0.00	176.	*	24 AUG 0300	175	0.00	0.00	0.00	6.			
22 AUG 0130	76	.05	.05	0.00	165.	*	24 AUG 0330	176	0.00	0.00	0.00	6.			
22 AUG 0200	77	.05	.05	0.00	154.	*	24 AUG 0400	177	0.00	0.00	0.00	6.			
22 AUG 0230	78	.05	.05	0.00	144.	*	24 AUG 0430	178	0.00	0.00	0.00	6.			
22 AUG 0300	79	.05	.05	0.00	135.	*	24 AUG 0500	179	0.00	0.00	0.00	6.			
22 AUG 0330	80	.05	.05	0.00	127.	*	24 AUG 0530	180	0.00	0.00	0.00	5.			
22 AUG 0400	81	.05	.05	0.00	119.	*	24 AUG 0600	181	0.00	0.00	0.00	5.			
22 AUG 0430	82	.05	.05	0.00	112.	*	24 AUG 0630	182	0.00	0.00	0.00	5.			
22 AUG 0500	83	.05	.05	0.00	106.	*	24 AUG 0700	183	0.00	0.00	0.00	5.			
22 AUG 0530	84	.05	.05	0.00	100.	*	24 AUG 0730	184	0.00	0.00	0.00	5.			
22 AUG 0600	85	.05	.05	0.00	95.	*	24 AUG 0800	185	0.00	0.00	0.00	5.			
22 AUG 0630	86	.05	.05	0.00	90.	*	24 AUG 0830	186	0.00	0.00	0.00	5.			
22 AUG 0700	87	.05	.05	0.00	85.	*	24 AUG 0900	187	0.00	0.00	0.00	5.			
22 AUG 0730	88	.05	.05	0.00	81.	*	24 AUG 0930	188	0.00	0.00	0.00	5.			
22 AUG 0800	89	.05	.05	0.00	77.	*	24 AUG 1000	189	0.00	0.00	0.00	5.			
22 AUG 0830	90	.05	.05	0.00	73.	*	24 AUG 1030	190	0.00	0.00	0.00	5.			
22 AUG 0900	91	.05	.05	0.00	69.	*	24 AUG 1100	191	0.00	0.00	0.00	4.			
22 AUG 0930	92	.05	.05	0.00	66.	*	24 AUG 1130	192	0.00	0.00	0.00	4.			
22 AUG 1000	93	.05	.05	0.00	63.	*	24 AUG 1200	193	0.00	0.00	0.00	4.			
22 AUG 1030	94	.05	.05	0.00	60.	*	24 AUG 1230	194	0.00	0.00	0.00	4.			
22 AUG 1100	95	.05	.05	0.00	57.	*	24 AUG 1300	195	0.00	0.00	0.00	4.			
22 AUG 1130	96	.05	.05	0.00	55.	*	24 AUG 1330	196	0.00	0.00	0.00	4.			
22 AUG 1200	97	.05	.05	0.00	53.	*	24 AUG 1400	197	0.00	0.00	0.00	4.			
22 AUG 1230	98	.01	.01	0.00	50.	*	24 AUG 1430	198	0.00	0.00	0.00	4.			
22 AUG 1300	99	.01	.01	0.00	48.	*	24 AUG 1500	199	0.00	0.00	0.00	4.			
22 AUG 1330	100	.01	.01	0.00	46.	*	24 AUG 1530	200	0.00	0.00	0.00	4.			
						*		SUM	15.00	6.89	8.11				
						*									

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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.50-HR
31174.	18.00	(CFS)	28126.	9909.	3351.	2426.
		(INCHES)	5.588	7.875	7.989	7.993
		(AC-FT)	13947.	19655.	19941.	19952.

CUMULATIVE AREA = 46.80 SQ MI

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91 KK       *    CAP9    *
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DIVERT FLOW AT CAP9 DAM

DT DIVERSION
ISTAD DIV DIVERSION HYDROGRAPH IDENTIFICATION

DI	INFLOW	0.00	500.00	1000.00	1760.00	1960.00	5000.00	10000.00	17800.00	20000.00	30000.00
		40000.00									
DQ	DIVERTED FLOW	0.00	500.00	1000.00	1760.00	1960.00	1960.00	1960.00	1960.00	1960.00	1960.00
		1960.00									

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DIVERSION HYDROGRAPH DIV

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
20	AUG	1200	1	0.	21	AUG	1300	51	1960.	22	AUG	1400	101	44.	23	AUG	1500	151	10.
20	AUG	1230	2	0.	21	AUG	1330	52	1783.	22	AUG	1430	102	43.	23	AUG	1530	152	10.
20	AUG	1300	3	0.	21	AUG	1400	53	1577.	22	AUG	1500	103	41.	23	AUG	1600	153	9.
20	AUG	1330	4	0.	21	AUG	1430	54	1388.	22	AUG	1530	104	39.	23	AUG	1630	154	9.
20	AUG	1400	5	0.	21	AUG	1500	55	1220.	22	AUG	1600	105	38.	23	AUG	1700	155	9.
20	AUG	1430	6	0.	21	AUG	1530	56	1074.	22	AUG	1630	106	36.	23	AUG	1730	156	9.
20	AUG	1500	7	0.	21	AUG	1600	57	948.	22	AUG	1700	107	35.	23	AUG	1800	157	9.
20	AUG	1530	8	0.	21	AUG	1630	58	839.	22	AUG	1730	108	34.	23	AUG	1830	158	8.
20	AUG	1600	9	0.	21	AUG	1700	59	746.	22	AUG	1800	109	33.	23	AUG	1900	159	8.
20	AUG	1630	10	0.	21	AUG	1730	60	665.	22	AUG	1830	110	31.	23	AUG	1930	160	8.
20	AUG	1700	11	0.	21	AUG	1800	61	596.	22	AUG	1900	111	30.	23	AUG	2000	161	8.
20	AUG	1730	12	0.	21	AUG	1830	62	535.	22	AUG	1930	112	29.	23	AUG	2030	162	8.
20	AUG	1800	13	0.	21	AUG	1900	63	483.	22	AUG	2000	113	28.	23	AUG	2100	163	8.
20	AUG	1830	14	17.	21	AUG	1930	64	437.	22	AUG	2030	114	27.	23	AUG	2130	164	7.
20	AUG	1900	15	133.	21	AUG	2000	65	397.	22	AUG	2100	115	26.	23	AUG	2200	165	7.
20	AUG	1930	16	461.	21	AUG	2030	66	362.	22	AUG	2130	116	25.	23	AUG	2230	166	7.
20	AUG	2000	17	1062.	21	AUG	2100	67	331.	22	AUG	2200	117	25.	23	AUG	2300	167	7.
20	AUG	2030	18	1960.	21	AUG	2130	68	303.	22	AUG	2230	118	24.	23	AUG	2330	168	7.
20	AUG	2100	19	1960.	21	AUG	2200	69	279.	22	AUG	2300	119	23.	24	AUG	0000	169	7.
20	AUG	2130	20	1960.	21	AUG	2230	70	257.	22	AUG	2330	120	22.	24	AUG	0030	170	7.
20	AUG	2200	21	1960.	21	AUG	2300	71	237.	23	AUG	0000	121	22.	24	AUG	0100	171	6.
20	AUG	2230	22	1960.	21	AUG	2330	72	219.	23	AUG	0030	122	21.	24	AUG	0130	172	6.
20	AUG	2300	23	1960.	22	AUG	0000	73	204.	23	AUG	0100	123	20.	24	AUG	0200	173	6.
20	AUG	2330	24	1960.	22	AUG	0030	74	189.	23	AUG	0130	124	20.	24	AUG	0230	174	6.
21	AUG	0000	25	1960.	22	AUG	0100	75	176.	23	AUG	0200	125	19.	24	AUG	0300	175	6.
21	AUG	0030	26	1960.	22	AUG	0130	76	165.	23	AUG	0230	126	19.	24	AUG	0330	176	6.
21	AUG	0100	27	1960.	22	AUG	0200	77	154.	23	AUG	0300	127	18.	24	AUG	0400	177	6.
21	AUG	0130	28	1960.	22	AUG	0230	78	144.	23	AUG	0330	128	18.	24	AUG	0430	178	6.
21	AUG	0200	29	1960.	22	AUG	0300	79	135.	23	AUG	0400	129	17.	24	AUG	0500	179	6.
21	AUG	0230	30	1960.	22	AUG	0330	80	127.	23	AUG	0430	130	17.	24	AUG	0530	180	5.

	21 AUG 0300	31	1960.	*	22 AUG 0400	81	119.	*	23 AUG 0500	131	16.	*	24 AUG 0600	181	5.				
	21 AUG 0330	32	1960.	*	22 AUG 0430	82	112.	*	23 AUG 0530	132	16.	*	24 AUG 0630	182	5.		3		
	21 AUG 0400	33	1960.	*	22 AUG 0500	83	106.	*	23 AUG 0600	133	15.	*	24 AUG 0700	183	5.		4		
	21 AUG 0430	34	1960.	*	22 AUG 0530	84	100.	*	23 AUG 0630	134	15.	*	24 AUG 0730	184	5.		5		
	21 AUG 0500	35	1960.	*	22 AUG 0600	85	95.	*	23 AUG 0700	135	15.	*	24 AUG 0800	185	5.		6		
	21 AUG 0530	36	1960.	*	22 AUG 0630	86	90.	*	23 AUG 0730	136	14.	*	24 AUG 0830	186	5.		7		
	21 AUG 0600	37	1960.	*	22 AUG 0700	87	85.	*	23 AUG 0800	137	14.	*	24 AUG 0900	187	5.		8		
	21 AUG 0630	38	1960.	*	22 AUG 0730	88	81.	*	23 AUG 0830	138	13.	*	24 AUG 0930	188	5.		9		
	21 AUG 0700	39	1960.	*	22 AUG 0800	89	77.	*	23 AUG 0900	139	13.	*	24 AUG 1000	189	5.		10		
	21 AUG 0730	40	1960.	*	22 AUG 0830	90	73.	*	23 AUG 0930	140	13.	*	24 AUG 1030	190	5.		11		
	21 AUG 0800	41	1960.	*	22 AUG 0900	91	69.	*	23 AUG 1000	141	12.	*	24 AUG 1100	191	4.		12		
	21 AUG 0830	42	1960.	*	22 AUG 0930	92	66.	*	23 AUG 1030	142	12.	*	24 AUG 1130	192	4.				
	21 AUG 0900	43	1960.	*	22 AUG 1000	93	63.	*	23 AUG 1100	143	12.	*	24 AUG 1200	193	4.				
	21 AUG 0930	44	1960.	*	22 AUG 1030	94	60.	*	23 AUG 1130	144	12.	*	24 AUG 1230	194	4.				
	21 AUG 1000	45	1960.	*	22 AUG 1100	95	57.	*	23 AUG 1200	145	11.	*	24 AUG 1300	195	4.				
	21 AUG 1030	46	1960.	*	22 AUG 1130	96	55.	*	23 AUG 1230	146	11.	*	24 AUG 1330	196	4.				
	21 AUG 1100	47	1960.	*	22 AUG 1200	97	53.	*	23 AUG 1300	147	11.	*	24 AUG 1400	197	4.				
	21 AUG 1130	48	1960.	*	22 AUG 1230	98	50.	*	23 AUG 1330	148	10.	*	24 AUG 1430	198	4.				
	21 AUG 1200	49	1960.	*	22 AUG 1300	99	48.	*	23 AUG 1400	149	10.	*	24 AUG 1500	199	4.				
	21 AUG 1230	50	1960.	*	22 AUG 1330	100	46.	*	23 AUG 1430	150	10.	*	24 AUG 1530	200	4.				
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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.50-HR
1960.	8.50	(CFS)	1960.	1667.	604.	438.
		(INCHES)	.389	1.325	1.439	1.443
		(AC-FT)	972.	3306.	3592.	3602.

CUMULATIVE AREA = 46.80 SQ MI

14113

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HYDROGRAPH AT STATION CAP9

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	DA MON HRMN	ORD	FLOW	*	DA MON HRMN	ORD	FLOW	*	DA MON HRMN	ORD	FLOW	*	DA MON HRMN	ORD	FLOW
	20 AUG 1200	1	0.	*	21 AUG 1300	51	37.	*	22 AUG 1400	101	0.	*	23 AUG 1500	151	0.
	20 AUG 1230	2	0.	*	21 AUG 1330	52	0.	*	22 AUG 1430	102	0.	*	23 AUG 1530	152	0.
	20 AUG 1300	3	0.	*	21 AUG 1400	53	0.	*	22 AUG 1500	103	0.	*	23 AUG 1600	153	0.
	20 AUG 1330	4	0.	*	21 AUG 1430	54	0.	*	22 AUG 1530	104	0.	*	23 AUG 1630	154	0.
	20 AUG 1400	5	0.	*	21 AUG 1500	55	0.	*	22 AUG 1600	105	0.	*	23 AUG 1700	155	0.
	20 AUG 1430	6	0.	*	21 AUG 1530	56	0.	*	22 AUG 1630	106	0.	*	23 AUG 1730	156	0.
	20 AUG 1500	7	0.	*	21 AUG 1600	57	0.	*	22 AUG 1700	107	0.	*	23 AUG 1800	157	0.
	20 AUG 1530	8	0.	*	21 AUG 1630	58	0.	*	22 AUG 1730	108	0.	*	23 AUG 1830	158	0.
	20 AUG 1600	9	0.	*	21 AUG 1700	59	0.	*	22 AUG 1800	109	0.	*	23 AUG 1900	159	0.
	20 AUG 1630	10	0.	*	21 AUG 1730	60	0.	*	22 AUG 1830	110	0.	*	23 AUG 1930	160	0.
	20 AUG 1700	11	0.	*	21 AUG 1800	61	0.	*	22 AUG 1900	111	0.	*	23 AUG 2000	161	0.
	20 AUG 1730	12	0.	*	21 AUG 1830	62	0.	*	22 AUG 1930	112	0.	*	23 AUG 2030	162	0.
	20 AUG 1800	13	0.	*	21 AUG 1900	63	0.	*	22 AUG 2000	113	0.	*	23 AUG 2100	163	0.
12	20 AUG 1830	14	0.	*	21 AUG 1930	64	0.	*	22 AUG 2030	114	0.	*	23 AUG 2130	164	0.
11	20 AUG 1900	15	0.	*	21 AUG 2000	65	0.	*	22 AUG 2100	115	0.	*	23 AUG 2200	165	0.
10	20 AUG 1930	16	0.	*	21 AUG 2030	66	0.	*	22 AUG 2130	116	0.	*	23 AUG 2230	166	0.
9	20 AUG 2000	17	0.	*	21 AUG 2100	67	0.	*	22 AUG 2200	117	0.	*	23 AUG 2300	167	0.
8	20 AUG 2030	18	29.	*	21 AUG 2130	68	0.	*	22 AUG 2230	118	0.	*	23 AUG 2330	168	0.
7	20 AUG 2100	19	1211.	*	21 AUG 2200	69	0.	*	22 AUG 2300	119	0.	*	24 AUG 0000	169	0.
6	20 AUG 2130	20	2394.	*	21 AUG 2230	70	0.	*	22 AUG 2330	120	0.	*	24 AUG 0030	170	0.
5	20 AUG 2200	21	3332.	*	21 AUG 2300	71	0.	*	23 AUG 0000	121	0.	*	24 AUG 0100	171	0.
4	20 AUG 2230	22	3959.	*	21 AUG 2330	72	0.	*	23 AUG 0030	122	0.	*	24 AUG 0130	172	0.
3	20 AUG 2300	23	4342.	*	22 AUG 0000	73	0.	*	23 AUG 0100	123	0.	*	24 AUG 0200	173	0.

20 AUG 2330	24	4570.	*	22 AUG 0030	74	0.	*	23 AUG 0130	124	0.	*	24 AUG 0230	174	0.					
21 AUG 0000	25	4703.	*	22 AUG 0100	75	0.	*	23 AUG 0200	125	0.	*	24 AUG 0300	175	0.					3
21 AUG 0030	26	7468.	*	22 AUG 0130	76	0.	*	23 AUG 0230	126	0.	*	24 AUG 0330	176	0.					4
21 AUG 0100	27	15010.	*	22 AUG 0200	77	0.	*	23 AUG 0300	127	0.	*	24 AUG 0400	177	0.					5
21 AUG 0130	28	18205.	*	22 AUG 0230	78	0.	*	23 AUG 0330	128	0.	*	24 AUG 0430	178	0.					6
21 AUG 0200	29	23596.	*	22 AUG 0300	79	0.	*	23 AUG 0400	129	0.	*	24 AUG 0500	179	0.					7
21 AUG 0230	30	27190.	*	22 AUG 0330	80	0.	*	23 AUG 0430	130	0.	*	24 AUG 0530	180	0.					8
21 AUG 0300	31	28659.	*	22 AUG 0400	81	0.	*	23 AUG 0500	131	0.	*	24 AUG 0600	181	0.					9
21 AUG 0330	32	29076.	*	22 AUG 0430	82	0.	*	23 AUG 0530	132	0.	*	24 AUG 0630	182	0.					10
21 AUG 0400	33	29179.	*	22 AUG 0500	83	0.	*	23 AUG 0600	133	0.	*	24 AUG 0700	183	0.					11
21 AUG 0430	34	29205.	*	22 AUG 0530	84	0.	*	23 AUG 0630	134	0.	*	24 AUG 0730	184	0.					12
21 AUG 0500	35	29211.	*	22 AUG 0600	85	0.	*	23 AUG 0700	135	0.	*	24 AUG 0800	185	0.					
21 AUG 0530	36	29213.	*	22 AUG 0630	86	0.	*	23 AUG 0730	136	0.	*	24 AUG 0830	186	0.					
21 AUG 0600	37	29214.	*	22 AUG 0700	87	0.	*	23 AUG 0800	137	0.	*	24 AUG 0900	187	0.					
21 AUG 0630	38	24965.	*	22 AUG 0730	88	0.	*	23 AUG 0830	138	0.	*	24 AUG 0930	188	0.					
21 AUG 0700	39	17538.	*	22 AUG 0800	89	0.	*	23 AUG 0900	139	0.	*	24 AUG 1000	189	0.					
21 AUG 0730	40	11663.	*	22 AUG 0830	90	0.	*	23 AUG 0930	140	0.	*	24 AUG 1030	190	0.					
21 AUG 0800	41	7797.	*	22 AUG 0900	91	0.	*	23 AUG 1000	141	0.	*	24 AUG 1100	191	0.					
21 AUG 0830	42	4859.	*	22 AUG 0930	92	0.	*	23 AUG 1030	142	0.	*	24 AUG 1130	192	0.					
21 AUG 0900	43	2804.	*	22 AUG 1000	93	0.	*	23 AUG 1100	143	0.	*	24 AUG 1200	193	0.					
21 AUG 0930	44	1897.	*	22 AUG 1030	94	0.	*	23 AUG 1130	144	0.	*	24 AUG 1230	194	0.					
21 AUG 1000	45	1360.	*	22 AUG 1100	95	0.	*	23 AUG 1200	145	0.	*	24 AUG 1300	195	0.					
21 AUG 1030	46	1000.	*	22 AUG 1130	96	0.	*	23 AUG 1230	146	0.	*	24 AUG 1330	196	0.					
21 AUG 1100	47	745.	*	22 AUG 1200	97	0.	*	23 AUG 1300	147	0.	*	24 AUG 1400	197	0.					
21 AUG 1130	48	558.	*	22 AUG 1230	98	0.	*	23 AUG 1330	148	0.	*	24 AUG 1430	198	0.					
21 AUG 1200	49	418.	*	22 AUG 1300	99	0.	*	23 AUG 1400	149	0.	*	24 AUG 1500	199	0.					
21 AUG 1230	50	241.	*	22 AUG 1330	100	0.	*	23 AUG 1430	150	0.	*	24 AUG 1530	200	0.					
			*				*				*								

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	99.50-HR
29214.	18.00	(CFS)	26166.	8243.	2748.	1988.
		(INCHES)	5.198	6.550	6.550	6.550
		(AC-FT)	12975.	16349.	16349.	16349.

CUMULATIVE AREA = 46.80 SQ MI

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            *            *
 98 KK      *    SUB7    *      RUNOFF FROM SUBBASIN 7
            *            *
            **************

  6 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN        360  TIME INTERVAL IN MINUTES
                    JXDATE    20AUG83  STARTING DATE
                    JXTIME       1200  STARTING TIME

              SUBBASIN RUNOFF DATA

 99 BA          SUBBASIN CHARACTERISTICS
                     TAREA       5.40  SUBBASIN AREA

                PRECIPITATION DATA

100 PB               STORM      15.00  BASIN TOTAL PRECIPITATION
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101 PI INCREMENTAL PRECIPITATION PATTERN

.09	.09	.09	.09	.09	.09	.09	.09	.09	.09
.09	.09	.19	.19	.19	.19	.19	.19	.19	.19
.19	.19	.19	.19	.60	.60	.60	.60	.60	.60
.60	.60	.60	.60	.60	.60	.11	.11	.11	.11
.11	.11	.11	.11	.11	.11	.11	.11	.05	.05
.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
.05	.05	.05	.05	.05	.05	.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	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01						

103 LU UNIFORM LOSS RATE

STRTL	.95	INITIAL LOSS
CNSTL	.15	UNIFORM LOSS RATE
RTIMP	0.00	PERCENT IMPERVIOUS AREA

KINEMATIC WAVE

104 UK OVERLAND-FLOW ELEMENT NO. 1

L	5000.	OVERLAND FLOW LENGTH
S	.0080	SLOPE
N	.050	ROUGHNESS COEFFICIENT
PA	100.0	PERCENT OF SUBBASIN

105 RK MAIN CHANNEL

L	14500.	CHANNEL LENGTH
S	.0080	SLOPE
N	.075	CHANNEL ROUGHNESS COEFFICIENT
CA	5.40	CONTRIBUTING AREA
SHAPE	TRAP	CHANNEL SHAPE
WD	410.00	BOTTOM WIDTH OR DIAMETER
Z	6.00	SIDE SLOPE
RUPSTQ	YES	ROUTE UPSTREAM HYDROGRAPH

14113

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COMPUTED KINEMATIC PARAMETERS

ELEMENT	ALPHA	M	DT (MIN)	DX (FT)
1	2.6654	1.667	30.00	1666.67
3	.0384	1.632	30.00	7250.00

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HYDROGRAPH AT STATION SUB7

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	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
12							*						
11	20 AUG 1200	1	0.00	0.00	0.00	0.	*	22 AUG 1400	101	.01	.01	0.00	6.
10	20 AUG 1230	2	.09	.09	0.00	0.	*	22 AUG 1430	102	.01	.01	0.00	6.
9	20 AUG 1300	3	.09	.09	0.00	0.	*	22 AUG 1500	103	.01	.01	0.00	5.
8	20 AUG 1330	4	.09	.09	0.00	0.	*	22 AUG 1530	104	.01	.01	0.00	5.
7	20 AUG 1400	5	.09	.09	0.00	0.	*	22 AUG 1600	105	.01	.01	0.00	5.
6	20 AUG 1430	6	.09	.09	0.00	0.	*	22 AUG 1630	106	.01	.01	0.00	5.
5	20 AUG 1500	7	.09	.09	0.00	0.	*	22 AUG 1700	107	.01	.01	0.00	5.
4	20 AUG 1530	8	.09	.09	0.00	0.	*	22 AUG 1730	108	.01	.01	0.00	4.
3	20 AUG 1600	9	.09	.09	0.00	0.	*	22 AUG 1800	109	.01	.01	0.00	4.

20 AUG 1630	10	.09	.09	0.00	0.	*	22 AUG 1830	110	.01	.01	0.00	4.			
20 AUG 1700	11	.09	.09	0.00	0.	*	22 AUG 1900	111	.01	.01	0.00	4.	3		
20 AUG 1730	12	.09	.08	.01	0.	*	22 AUG 1930	112	.01	.01	0.00	4.	4		
20 AUG 1800	13	.09	.08	.02	0.	*	22 AUG 2000	113	.01	.01	0.00	4.	6		
20 AUG 1830	14	.19	.08	.12	1.	*	22 AUG 2030	114	.01	.01	0.00	4.	5		
20 AUG 1900	15	.19	.08	.12	7.	*	22 AUG 2100	115	.01	.01	0.00	4.	7		
20 AUG 1930	16	.19	.08	.12	26.	*	22 AUG 2130	116	.01	.01	0.00	3.	8		
20 AUG 2000	17	.19	.08	.12	73.	*	22 AUG 2200	117	.01	.01	0.00	3.	9		
20 AUG 2030	18	.19	.08	.12	159.	*	22 AUG 2230	118	.01	.01	0.00	3.	10		
20 AUG 2100	19	.19	.08	.12	290.	*	22 AUG 2300	119	.01	.01	0.00	3.	11		
20 AUG 2130	20	.19	.08	.12	963.	*	22 AUG 2330	120	.01	.01	0.00	3.	12		
20 AUG 2200	21	.19	.08	.12	3143.	*	23 AUG 0000	121	.01	.01	0.00	3.			
20 AUG 2230	22	.19	.08	.12	3517.	*	23 AUG 0030	122	.01	.01	0.00	3.			
20 AUG 2300	23	.19	.08	.12	4427.	*	23 AUG 0100	123	.01	.01	0.00	3.			
20 AUG 2330	24	.19	.08	.12	4962.	*	23 AUG 0130	124	.01	.01	0.00	3.			
21 AUG 0000	25	.19	.08	.12	5269.	*	23 AUG 0200	125	.01	.01	0.00	3.			
21 AUG 0030	26	.60	.08	.52	6389.	*	23 AUG 0230	126	.01	.01	0.00	3.			
21 AUG 0100	27	.60	.08	.52	10607.	*	23 AUG 0300	127	.01	.01	0.00	2.			
21 AUG 0130	28	.60	.08	.52	17531.	*	23 AUG 0330	128	.01	.01	0.00	2.			
21 AUG 0200	29	.60	.08	.52	23290.	*	23 AUG 0400	129	.01	.01	0.00	2.			
21 AUG 0230	30	.60	.08	.52	27983.	*	23 AUG 0430	130	.01	.01	0.00	2.			
21 AUG 0300	31	.60	.08	.52	31037.	*	23 AUG 0500	131	.01	.01	0.00	2.			
21 AUG 0330	32	.60	.08	.52	32325.	*	23 AUG 0530	132	.01	.01	0.00	2.			
21 AUG 0400	33	.60	.08	.52	32728.	*	23 AUG 0600	133	.01	.01	0.00	2.			
21 AUG 0430	34	.60	.08	.52	32833.	*	23 AUG 0630	134	.01	.01	0.00	2.			
21 AUG 0500	35	.60	.08	.52	32858.	*	23 AUG 0700	135	.01	.01	0.00	2.			
21 AUG 0530	36	.60	.08	.52	32865.	*	23 AUG 0730	136	.01	.01	0.00	2.			
21 AUG 0600	37	.60	.08	.52	32867.	*	23 AUG 0800	137	.01	.01	0.00	2.			
21 AUG 0630	38	.11	.08	.03	29839.	*	23 AUG 0830	138	.01	.01	0.00	2.			
21 AUG 0700	39	.11	.08	.03	24063.	*	23 AUG 0900	139	.01	.01	0.00	2.			
21 AUG 0730	40	.11	.08	.03	17676.	*	23 AUG 0930	140	.01	.01	0.00	2.			
14113 21 AUG 0800	41	.11	.08	.03	12545.	*	23 AUG 1000	141	.01	.01	0.00	2.			
21 AUG 0830	42	.11	.08	.03	8876.	*	23 AUG 1030	142	.01	.01	0.00	2.			
21 AUG 0900	43	.11	.08	.03	6236.	*	23 AUG 1100	143	.01	.01	0.00	2.			
21 AUG 0930	44	.11	.08	.03	4301.	*	23 AUG 1130	144	.01	.01	0.00	2.			
21 AUG 1000	45	.11	.08	.03	2939.	*	23 AUG 1200	145	.01	.01	0.00	2.			
21 AUG 1030	46	.11	.08	.03	2208.	*	23 AUG 1230	146	0.00	0.00	0.00	1.			
21 AUG 1100	47	.11	.08	.03	1680.	*	23 AUG 1300	147	0.00	0.00	0.00	1.			
21 AUG 1130	48	.11	.08	.03	1146.	*	23 AUG 1330	148	0.00	0.00	0.00	1.			
21 AUG 1200	49	.11	.08	.03	929.	*	23 AUG 1400	149	0.00	0.00	0.00	1.			
21 AUG 1230	50	.05	.05	0.00	766.	*	23 AUG 1430	150	0.00	0.00	0.00	1.			
21 AUG 1300	51	.05	.05	0.00	603.	*	23 AUG 1500	151	0.00	0.00	0.00	1.			
21 AUG 1330	52	.05	.05	0.00	441.	*	23 AUG 1530	152	0.00	0.00	0.00	1.			
21 AUG 1400	53	.05	.05	0.00	328.	*	23 AUG 1600	153	0.00	0.00	0.00	1.			
21 AUG 1430	54	.05	.05	0.00	254.	*	23 AUG 1630	154	0.00	0.00	0.00	1.			
21 AUG 1500	55	.05	.05	0.00	204.	*	23 AUG 1700	155	0.00	0.00	0.00	1.			
21 AUG 1530	56	.05	.05	0.00	168.	*	23 AUG 1730	156	0.00	0.00	0.00	1.			
21 AUG 1600	57	.05	.05	0.00	141.	*	23 AUG 1800	157	0.00	0.00	0.00	1.			
21 AUG 1630	58	.05	.05	0.00	120.	*	23 AUG 1830	158	0.00	0.00	0.00	1.			
21 AUG 1700	59	.05	.05	0.00	104.	*	23 AUG 1900	159	0.00	0.00	0.00	1.			
21 AUG 1730	60	.05	.05	0.00	91.	*	23 AUG 1930	160	0.00	0.00	0.00	1.			
21 AUG 1800	61	.05	.05	0.00	80.	*	23 AUG 2000	161	0.00	0.00	0.00	1.			
21 AUG 1830	62	.05	.05	0.00	71.	*	23 AUG 2030	162	0.00	0.00	0.00	1.			
12 21 AUG 1900	63	.05	.05	0.00	64.	*	23 AUG 2100	163	0.00	0.00	0.00	1.			
11 21 AUG 1930	64	.05	.05	0.00	57.	*	23 AUG 2130	164	0.00	0.00	0.00	1.			
10 21 AUG 2000	65	.05	.05	0.00	52.	*	23 AUG 2200	165	0.00	0.00	0.00	1.			
9 21 AUG 2030	66	.05	.05	0.00	47.	*	23 AUG 2230	166	0.00	0.00	0.00	1.			
8 21 AUG 2100	67	.05	.05	0.00	43.	*	23 AUG 2300	167	0.00	0.00	0.00	1.			
7 21 AUG 2130	68	.05	.05	0.00	39.	*	23 AUG 2330	168	0.00	0.00	0.00	1.			
6 21 AUG 2200	69	.05	.05	0.00	36.	*	24 AUG 0000	169	0.00	0.00	0.00	1.			
5 21 AUG 2230	70	.05	.05	0.00	33.	*	24 AUG 0030	170	0.00	0.00	0.00	1.			
4 21 AUG 2300	71	.05	.05	0.00	30.	*	24 AUG 0100	171	0.00	0.00	0.00	1.			
3 21 AUG 2330	72	.05	.05	0.00	28.	*	24 AUG 0130	172	0.00	0.00	0.00	1.			

22 AUG 0000	73	.05	.05	0.00	26.	*	24 AUG 0200	173	0.00	0.00	0.00	1.		
22 AUG 0030	74	.05	.05	0.00	24.	*	24 AUG 0230	174	0.00	0.00	0.00	1.		3
22 AUG 0100	75	.05	.05	0.00	23.	*	24 AUG 0300	175	0.00	0.00	0.00	1.		4
22 AUG 0130	76	.05	.05	0.00	21.	*	24 AUG 0330	176	0.00	0.00	0.00	1.		5
22 AUG 0200	77	.05	.05	0.00	20.	*	24 AUG 0400	177	0.00	0.00	0.00	1.		6
22 AUG 0230	78	.05	.05	0.00	19.	*	24 AUG 0430	178	0.00	0.00	0.00	1.		7
22 AUG 0300	79	.05	.05	0.00	17.	*	24 AUG 0500	179	0.00	0.00	0.00	1.		8
22 AUG 0330	80	.05	.05	0.00	16.	*	24 AUG 0530	180	0.00	0.00	0.00	1.		9
22 AUG 0400	81	.05	.05	0.00	15.	*	24 AUG 0600	181	0.00	0.00	0.00	1.		10
22 AUG 0430	82	.05	.05	0.00	15.	*	24 AUG 0630	182	0.00	0.00	0.00	1.		11
22 AUG 0500	83	.05	.05	0.00	14.	*	24 AUG 0700	183	0.00	0.00	0.00	1.		12
22 AUG 0530	84	.05	.05	0.00	13.	*	24 AUG 0730	184	0.00	0.00	0.00	1.		
22 AUG 0600	85	.05	.05	0.00	12.	*	24 AUG 0800	185	0.00	0.00	0.00	1.		
22 AUG 0630	86	.05	.05	0.00	12.	*	24 AUG 0830	186	0.00	0.00	0.00	1.		
22 AUG 0700	87	.05	.05	0.00	11.	*	24 AUG 0900	187	0.00	0.00	0.00	1.		
22 AUG 0730	88	.05	.05	0.00	10.	*	24 AUG 0930	188	0.00	0.00	0.00	1.		
22 AUG 0800	89	.05	.05	0.00	10.	*	24 AUG 1000	189	0.00	0.00	0.00	1.		
22 AUG 0830	90	.05	.05	0.00	9.	*	24 AUG 1030	190	0.00	0.00	0.00	1.		
22 AUG 0900	91	.05	.05	0.00	9.	*	24 AUG 1100	191	0.00	0.00	0.00	1.		
22 AUG 0930	92	.05	.05	0.00	9.	*	24 AUG 1130	192	0.00	0.00	0.00	1.		
22 AUG 1000	93	.05	.05	0.00	8.	*	24 AUG 1200	193	0.00	0.00	0.00	1.		
22 AUG 1030	94	.05	.05	0.00	8.	*	24 AUG 1230	194	0.00	0.00	0.00	1.		
22 AUG 1100	95	.05	.05	0.00	8.	*	24 AUG 1300	195	0.00	0.00	0.00	1.		
22 AUG 1130	96	.05	.05	0.00	7.	*	24 AUG 1330	196	0.00	0.00	0.00	1.		
22 AUG 1200	97	.05	.05	0.00	7.	*	24 AUG 1400	197	0.00	0.00	0.00	1.		
22 AUG 1230	98	.01	.01	0.00	7.	*	24 AUG 1430	198	0.00	0.00	0.00	1.		
22 AUG 1300	99	.01	.01	0.00	6.	*	24 AUG 1500	199	0.00	0.00	0.00	1.		
22 AUG 1330	100	.01	.01	0.00	6.	*	24 AUG 1530	200	0.00	0.00	0.00	1.		
						*		SUM	15.00	6.89	8.11			
						*								

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	99.50-HR
32867.	18.00	(CFS)	29191.	9417.	3145.	2276.
		(INCHES)	5.199	6.709	6.722	6.723
		(AC-FT)	14475.	18679.	18715.	18716.

CUMULATIVE AREA = 52.20 SQ MI

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106 KK * MDB * MCMICKEN DETENTION BASIN (INFLOW TO MCMICKEN DAM)

COMBINE STREAMFLOW OF SUB7,S8 AND S4B

108 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION MDB
SUM OF 3 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
20	AUG	1200	1	0.	21	AUG	1300	51	15240.	22	AUG	1400	101	369.	23	AUG	1500	151	72.
20	AUG	1230	2	0.	21	AUG	1330	52	13687.	22	AUG	1430	102	352.	23	AUG	1530	152	70.
20	AUG	1300	3	0.	21	AUG	1400	53	12369.	22	AUG	1500	103	336.	23	AUG	1600	153	68.
20	AUG	1330	4	0.	21	AUG	1430	54	11232.	22	AUG	1530	104	321.	23	AUG	1630	154	67.
20	AUG	1400	5	0.	21	AUG	1500	55	10227.	22	AUG	1600	105	307.	23	AUG	1700	155	65.
20	AUG	1430	6	0.	21	AUG	1530	56	9325.	22	AUG	1630	106	294.	23	AUG	1730	156	64.
20	AUG	1500	7	0.	21	AUG	1600	57	8511.	22	AUG	1700	107	282.	23	AUG	1800	157	62.
20	AUG	1530	8	0.	21	AUG	1630	58	7773.	22	AUG	1730	108	270.	23	AUG	1830	158	61.
20	AUG	1600	9	0.	21	AUG	1700	59	7102.	22	AUG	1800	109	260.	23	AUG	1900	159	60.
20	AUG	1630	10	0.	21	AUG	1730	60	6491.	22	AUG	1830	110	249.	23	AUG	1930	160	58.
20	AUG	1700	11	0.	21	AUG	1800	61	5936.	22	AUG	1900	111	240.	23	AUG	2000	161	57.
20	AUG	1730	12	4.	21	AUG	1830	62	5431.	22	AUG	1930	112	230.	23	AUG	2030	162	56.
20	AUG	1800	13	38.	21	AUG	1900	63	4972.	22	AUG	2000	113	222.	23	AUG	2100	163	55.
20	AUG	1830	14	993.	21	AUG	1930	64	4554.	22	AUG	2030	114	213.	23	AUG	2130	164	54.
20	AUG	1900	15	4119.	21	AUG	2000	65	4174.	22	AUG	2100	115	206.	23	AUG	2200	165	53.
20	AUG	1930	16	7286.	21	AUG	2030	66	3828.	22	AUG	2130	116	198.	23	AUG	2230	166	51.
20	AUG	2000	17	9233.	21	AUG	2100	67	3514.	22	AUG	2200	117	191.	23	AUG	2300	167	50.
20	AUG	2030	18	10875.	21	AUG	2130	68	3228.	22	AUG	2230	118	185.	23	AUG	2330	168	49.
20	AUG	2100	19	12255.	21	AUG	2200	69	2968.	22	AUG	2300	119	178.	24	AUG	0000	169	48.
20	AUG	2130	20	13930.	21	AUG	2230	70	2731.	22	AUG	2330	120	172.	24	AUG	0030	170	47.
20	AUG	2200	21	16979.	21	AUG	2300	71	2516.	23	AUG	0000	121	166.	24	AUG	0100	171	47.
20	AUG	2230	22	18173.	21	AUG	2330	72	2320.	23	AUG	0030	122	161.	24	AUG	0130	172	46.
20	AUG	2300	23	19903.	22	AUG	0000	73	2142.	23	AUG	0100	123	156.	24	AUG	0200	173	45.
20	AUG	2330	24	21275.	22	AUG	0030	74	1979.	23	AUG	0130	124	151.	24	AUG	0230	174	44.
21	AUG	0000	25	22434.	22	AUG	0100	75	1831.	23	AUG	0200	125	146.	24	AUG	0300	175	43.
21	AUG	0030	26	42134.	22	AUG	0130	76	1696.	23	AUG	0230	126	141.	24	AUG	0330	176	42.
21	AUG	0100	27	66860.	22	AUG	0200	77	1573.	23	AUG	0300	127	137.	24	AUG	0400	177	41.
21	AUG	0130	28	84013.	22	AUG	0230	78	1460.	23	AUG	0330	128	133.	24	AUG	0430	178	41.
21	AUG	0200	29	94387.	22	AUG	0300	79	1357.	23	AUG	0400	129	129.	24	AUG	0500	179	40.
21	AUG	0230	30	104817.	22	AUG	0330	80	1263.	23	AUG	0430	130	125.	24	AUG	0530	180	39.
21	AUG	0300	31	149716.	22	AUG	0400	81	1177.	23	AUG	0500	131	121.	24	AUG	0600	181	38.
21	AUG	0330	32	140722.	22	AUG	0430	82	1098.	23	AUG	0530	132	118.	24	AUG	0630	182	38.
21	AUG	0400	33	148783.	22	AUG	0500	83	1026.	23	AUG	0600	133	115.	24	AUG	0700	183	37.
21	AUG	0430	34	151431.	22	AUG	0530	84	960.	23	AUG	0630	134	111.	24	AUG	0730	184	36.
21	AUG	0500	35	154164.	22	AUG	0600	85	899.	23	AUG	0700	135	108.	24	AUG	0800	185	36.
21	AUG	0530	36	155065.	22	AUG	0630	86	843.	23	AUG	0730	136	105.	24	AUG	0830	186	35.
21	AUG	0600	37	155771.	22	AUG	0700	87	791.	23	AUG	0800	137	102.	24	AUG	0900	187	34.

21	AUG	0630	38	122217.	*	22	AUG	0730	88	744.	*	23	AUG	0830	138	100.	*	24	AUG	0930	188	34.	
21	AUG	0700	39	89153.	*	22	AUG	0800	89	700.	*	23	AUG	0900	139	97.	*	24	AUG	1000	189	33.	
21	AUG	0730	40	65415.	*	22	AUG	0830	90	660.	*	23	AUG	0930	140	94.	*	24	AUG	1030	190	33.	3
21	AUG	0800	41	48237.	*	22	AUG	0900	91	622.	*	23	AUG	1000	141	92.	*	24	AUG	1100	191	32.	4
21	AUG	0830	42	37608.	*	22	AUG	0930	92	588.	*	23	AUG	1030	142	90.	*	24	AUG	1130	192	32.	5
21	AUG	0900	43	31214.	*	22	AUG	1000	93	556.	*	23	AUG	1100	143	87.	*	24	AUG	1200	193	31.	6
21	AUG	0930	44	27498.	*	22	AUG	1030	94	526.	*	23	AUG	1130	144	85.	*	24	AUG	1230	194	31.	7
21	AUG	1000	45	25197.	*	22	AUG	1100	95	499.	*	23	AUG	1200	145	83.	*	24	AUG	1300	195	30.	8
21	AUG	1030	46	23400.	*	22	AUG	1130	96	473.	*	23	AUG	1230	146	81.	*	24	AUG	1330	196	30.	9
21	AUG	1100	47	21766.	*	22	AUG	1200	97	449.	*	23	AUG	1300	147	79.	*	24	AUG	1400	197	29.	10
21	AUG	1130	48	20140.	*	22	AUG	1230	98	427.	*	23	AUG	1330	148	77.	*	24	AUG	1430	198	29.	11
21	AUG	1200	49	18874.	*	22	AUG	1300	99	406.	*	23	AUG	1400	149	75.	*	24	AUG	1500	199	28.	12
21	AUG	1230	50	17121.	*	22	AUG	1330	100	387.	*	23	AUG	1430	150	73.	*	24	AUG	1530	200	28.	
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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.50-HR
155771.	18.00	(CFS)	128412.	47207.	16231.	11754.
		(INCHES)	5.072	7.458	7.693	7.699
		(AC-FT)	63675.	93633.	96582.	96658.

CUMULATIVE AREA = 235.40 SQ MI

1413

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            *            *
109 KK      *     MD     *      MCMICKEN DAM
            *            *
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              HYDROGRAPH ROUTING DATA

110 RS          STORAGE ROUTING
                     NSTPS          1  NUMBER OF SUBREACHES
                      ITYP       ELEV  TYPE OF INITIAL CONDITION
                     RSVRIC    1340.00  INITIAL CONDITION
                         X       0.00  WORKING R AND D COEFFICIENT

111 SV            STORAGE        0.0    1100.0    9000.0   19000.0   32000.0   39000.0   49000.0

112 SE          ELEVATION    1340.00   1345.00   1350.00   1355.00   1360.00   1361.00   1365.00

114 SL          LOW-LEVEL OUTLET
                     ELEVL    1335.00  ELEVATION AT CENTER OF OUTLET
                     CAREA     154.00  CROSS-SECTIONAL AREA
                      COOL       .84  COEFFICIENT
                      EXPL       .50  EXPONENT OF HEAD

113 SS          SPILLWAY
                      CREL    1353.60  SPILLWAY CREST ELEVATION
                     SPWID    1980.00  SPILLWAY WIDTH
                      COOW       3.09  WEIR COEFFICIENT
                      EXPW       1.50  EXPONENT OF HEAD

115 ST          TOP OF DAM
                     TOPEL    1361.00  ELEVATION AT TOP OF DAM
                    DAMWID   49500.00  DAM WIDTH
                      COOD       3.05  WEIR COEFFICIENT
                      EXPD       1.50  EXPONENT OF HEAD

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                                          COMPUTED RATING CURVE

          ELEVATION   1340.00   1340.58   1341.27   1342.09   1343.09   1344.32   1345.85   1347.78   1350.28   1353.60
                      1353.72   1354.07   1354.64   1355.45   1356.47   1357.73   1359.20   1360.91   1362.84   1365.00

            OUTFLOW      0.00   2436.39   2582.37   2746.95   2933.93   3148.23   3396.31   3686.82   4031.69   4447.73
                      4722.96   6474.31  11096.39  19983.37  34529.11  56127.27  86171.37 126054.92 177171.45 240914.58

                                          COMPUTED STORAGE-OUTFLOW CURVE
            STORAGE      0.00    127.87    279.42    460.84    680.57    950.19   2435.95   5492.89   9566.14  16200.00
                     16444.13  17140.40  18289.15  20157.51  22827.35  26085.42  29931.72  38370.68  43604.82  49000.00

            OUTFLOW      0.00   2436.39   2582.37   2746.95   2933.93   3148.23   3396.31   3686.82   4031.69   4447.73
                      4722.96   6474.31  11096.39  19983.37  34529.11  56127.27  86171.37 126054.92 177171.45 240914.58

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                                          HYDROGRAPH AT STATION       MD
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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
20	AUG	1200	1	2306.	0.0	1340.0	21	AUG	2130	68	6378.	17110.1	1354.1	23	AUG	0700	135	3835.	7147.1	1348.8
20	AUG	1230	2	0.	0.0	1340.0	21	AUG	2200	69	5990.	16982.6	1354.0	23	AUG	0730	136	3821.	6993.3	1348.7
20	AUG	1300	3	0.	0.0	1340.0	21	AUG	2230	70	5646.	16859.9	1353.9	23	AUG	0800	137	3808.	6839.9	1348.6
20	AUG	1330	4	0.	0.0	1340.0	21	AUG	2300	71	5341.	16741.4	1353.9	23	AUG	0830	138	3794.	6687.0	1348.5
20	AUG	1400	5	0.	0.0	1340.0	21	AUG	2330	72	5074.	16626.1	1353.8	23	AUG	0900	139	3781.	6534.6	1348.4
20	AUG	1430	6	0.	0.0	1340.0	22	AUG	0000	73	4845.	16513.4	1353.8	23	AUG	0930	140	3767.	6382.6	1348.3
20	AUG	1500	7	0.	0.0	1340.0	22	AUG	0030	74	4656.	16402.2	1353.7	23	AUG	1000	141	3754.	6231.1	1348.2
20	AUG	1530	8	0.	0.0	1340.0	22	AUG	0100	75	4513.	16291.5	1353.6	23	AUG	1030	142	3740.	6080.0	1348.2
20	AUG	1600	9	0.	0.0	1340.0	22	AUG	0130	76	4446.	16179.2	1353.6	23	AUG	1100	143	3726.	5929.4	1348.1
20	AUG	1630	10	0.	0.0	1340.0	22	AUG	0200	77	4440.	16063.2	1353.5	23	AUG	1130	144	3713.	5779.2	1348.0
20	AUG	1700	11	0.	0.0	1340.0	22	AUG	0230	78	4432.	15942.5	1353.5	23	AUG	1200	145	3699.	5629.6	1347.9
20	AUG	1730	12	2306.	0.0	1340.0	22	AUG	0300	79	4425.	15817.7	1353.4	23	AUG	1230	146	3686.	5480.4	1347.8
20	AUG	1800	13	0.	0.0	1340.0	22	AUG	0330	80	4417.	15689.2	1353.3	23	AUG	1300	147	3672.	5331.6	1347.7
20	AUG	1830	14	2306.	0.0	1340.0	22	AUG	0400	81	4409.	15557.2	1353.3	23	AUG	1330	148	3658.	5183.4	1347.6
20	AUG	1900	15	2317.	10.1	1340.0	22	AUG	0430	82	4401.	15422.2	1353.2	23	AUG	1400	149	3645.	5035.7	1347.5
20	AUG	1930	16	2455.	147.2	1340.7	22	AUG	0500	83	4393.	15284.4	1353.1	23	AUG	1430	150	3631.	4888.4	1347.4
20	AUG	2000	17	2677.	382.4	1341.7	22	AUG	0530	84	4384.	15144.1	1353.1	23	AUG	1500	151	3618.	4741.6	1347.3
20	AUG	2030	18	2935.	681.9	1343.1	22	AUG	0600	85	4375.	15001.5	1353.0	23	AUG	1530	152	3604.	4595.3	1347.2
20	AUG	2100	19	3211.	1032.8	1344.7	22	AUG	0630	86	4367.	14856.9	1352.9	23	AUG	1600	153	3590.	4449.6	1347.1
20	AUG	2130	20	3296.	1439.4	1345.2	22	AUG	0700	87	4358.	14710.4	1352.9	23	AUG	1630	154	3577.	4304.3	1347.0
20	AUG	2200	21	3347.	1940.8	1345.5	22	AUG	0730	88	4349.	14562.2	1352.8	23	AUG	1700	155	3563.	4159.5	1346.9
20	AUG	2230	22	3405.	2527.5	1345.9	22	AUG	0800	89	4340.	14412.5	1352.7	23	AUG	1730	156	3549.	4015.2	1346.8
20	AUG	2300	23	3469.	3172.2	1346.3	22	AUG	0830	90	4330.	14261.5	1352.6	23	AUG	1800	157	3536.	3871.4	1346.8
20	AUG	2330	24	3536.	3878.3	1346.8	22	AUG	0900	91	4321.	14109.2	1352.6	23	AUG	1830	158	3522.	3728.2	1346.7
21	AUG	0000	25	3608.	4633.7	1347.2	22	AUG	0930	92	4311.	13955.9	1352.5	23	AUG	1900	159	3508.	3585.4	1346.6
21	AUG	0030	26	3716.	5816.5	1348.0	22	AUG	1000	93	4302.	13801.6	1352.4	23	AUG	1930	160	3495.	3443.1	1346.5
21	AUG	0100	27	3901.	7911.0	1349.3	22	AUG	1030	94	4292.	13646.3	1352.3	23	AUG	2000	161	3481.	3301.4	1346.4
21	AUG	0130	28	4116.	10862.6	1350.9	22	AUG	1100	95	4283.	13490.3	1352.2	23	AUG	2030	162	3467.	3160.2	1346.3
21	AUG	0200	29	4337.	14373.9	1352.7	22	AUG	1130	96	4273.	13333.6	1352.2	23	AUG	2100	163	3454.	3019.5	1346.2
21	AUG	0230	30	10591.	18181.2	1354.6	22	AUG	1200	97	4263.	13176.3	1352.1	23	AUG	2130	164	3440.	2879.3	1346.1
21	AUG	0300	31	32834.	22543.0	1356.4	22	AUG	1230	98	4253.	13018.5	1352.0	23	AUG	2200	165	3426.	2739.6	1346.0
21	AUG	0330	32	60059.	26624.5	1357.9	22	AUG	1300	99	4243.	12860.1	1351.9	23	AUG	2230	166	3413.	2600.4	1345.9
21	AUG	0400	33	83701.	29635.8	1359.1	22	AUG	1330	100	4233.	12701.4	1351.9	23	AUG	2300	167	3399.	2461.8	1345.9
21	AUG	0430	34	103801.	31964.5	1360.0	22	AUG	1400	101	4223.	12542.3	1351.8	23	AUG	2330	168	3385.	2323.7	1345.8
21	AUG	0500	35	110352.	33853.8	1360.3	22	AUG	1430	102	4213.	12382.8	1351.7	24	AUG	0000	169	3371.	2186.1	1345.7
21	AUG	0530	36	116205.	35561.9	1360.5	22	AUG	1500	103	4203.	12223.2	1351.6	24	AUG	0030	170	3358.	2049.1	1345.6
21	AUG	0600	37	121472.	37073.4	1360.7	22	AUG	1530	104	4193.	12063.3	1351.5	24	AUG	0100	171	3344.	1912.5	1345.5
21	AUG	0630	38	123849.	37748.4	1360.8	22	AUG	1600	105	4183.	11903.2	1351.5	24	AUG	0130	172	3330.	1776.5	1345.4
21	AUG	0700	39	121385.	37048.7	1360.7	22	AUG	1630	106	4173.	11743.0	1351.4	24	AUG	0200	173	3317.	1641.1	1345.3
21	AUG	0730	40	115469.	35348.6	1360.5	22	AUG	1700	107	4163.	11582.7	1351.3	24	AUG	0230	174	3303.	1506.1	1345.3
21	AUG	0800	41	107751.	33084.8	1360.2	22	AUG	1730	108	4152.	11422.3	1351.2	24	AUG	0300	175	3289.	1371.7	1345.2
21	AUG	0830	42	92823.	30714.4	1359.5	22	AUG	1800	109	4142.	11261.9	1351.1	24	AUG	0330	176	3275.	1237.8	1345.1
21	AUG	0900	43	75694.	28654.5	1358.7	22	AUG	1830	110	4132.	11101.4	1351.1	24	AUG	0400	177	3262.	1104.5	1345.0
21	AUG	0930	44	62886.	27004.3	1358.1	22	AUG	1900	111	4121.	10941.0	1351.0	24	AUG	0430	178	3166.	973.4	1344.4
21	AUG	1000	45	53320.	25692.1	1357.6	22	AUG	1930	112	4111.	10780.6	1350.9	24	AUG	0500	179	3067.	846.3	1343.8
21	AUG	1030	46	46087.	24642.3	1357.2	22	AUG	2000	113	4101.	10620.3	1350.8	24	AUG	0530	180	2969.	723.2	1343.3
21	AUG	1100	47	40484.	23786.9	1356.8	22	AUG	2030	114	4090.	10460.1	1350.7	24	AUG	0600	181	2870.	604.1	1342.7
21	AUG	1130	48	36014.	23072.1	1356.6	22	AUG	2100	115	4080.	10299.9	1350.6	24	AUG	0630	182	2772.	489.1	1342.2
21	AUG	1200	49	32376.	22465.2	1356.3	22	AUG	2130	116	4069.	10139.9	1350.6	24	AUG	0700	183	2673.	378.2	1341.7
21	AUG	1230	50	29316.	21934.3	1356.1	22	AUG	2200	117	4059.	9980.0	1350.5	24	AUG	0730	184	2575.	271.3	1341.2
21	AUG	1300	51	26616.	21447.3	1355.9	22	AUG	2230	118	4048.	9820.3	1350.4	24	AUG	0800	185	2476.	168.4	1340.8
21	AUG	1330	52	24202.	20995.0	1355.8	22	AUG	2300	119	4038.	9660.7	1350.3	24	AUG	0830	186	2378.	69.6	1340.3
21	AUG	1400	53	22057.	20577.6	1355.6	22	AUG	2330	120	4027.	9501.3	1350.3	24	AUG	0900	187	2306.	0.0	1340.0
21	AUG	1430	54	20155.	20193.0	1355.5	23	AUG	0000	121	4017.	9342.1	1350.2	24	AUG	0930	188	0.	0.0	1340.0
21	AUG	1500	55	18467.	19838.4	1355.3	23	AUG	0030	122	4006.	9183.1	1350.1	24	AUG	1000	189	2306.	0.0	1340.0
21	AUG	1530	56	16962.	19510.4	1355.2	23	AUG	0100	123	3996.	9024.3	1350.0	24	AUG	1030	190	0.	0.0	1340.0
21	AUG	1600	57	15617.	19205.8	1355.1	23	AUG	0130	124	3983.	8865.8	1349.9	24	AUG	1100	191	2306.	0.0	1340.0
21	AUG	1630	58	14322.	18923.7	1355.0	23	AUG	0200	125	3969.	8707.6	1349.8	24	AUG	1130	192	0.	0.0	1340.0

21	AUG	1700	59	12967.	18667.2	1354.8	*	23	AUG	0230	126	3956.	8549.8	1349.7	*	24	AUG	1200	193	2306.	0.0	1340.0
21	AUG	1730	60	11806.	18436.2	1354.7	*	23	AUG	0300	127	3943.	8392.3	1349.6	*	24	AUG	1230	194	0.	0.0	1340.0
21	AUG	1800	61	10799.	18225.9	1354.6	*	23	AUG	0330	128	3929.	8235.3	1349.5	*	24	AUG	1300	195	2306.	0.0	1340.0
21	AUG	1830	62	9918.	18032.8	1354.5	*	23	AUG	0400	129	3916.	8078.6	1349.4	*	24	AUG	1330	196	0.	0.0	1340.0
21	AUG	1900	63	9142.	17853.9	1354.4	*	23	AUG	0430	130	3902.	7922.3	1349.3	*	24	AUG	1400	197	2306.	0.0	1340.0
21	AUG	1930	64	8455.	17687.2	1354.3	*	23	AUG	0500	131	3889.	7766.4	1349.2	*	24	AUG	1430	198	0.	0.0	1340.0
21	AUG	2000	65	7844.	17530.7	1354.3	*	23	AUG	0530	132	3875.	7611.0	1349.1	*	24	AUG	1500	199	2306.	0.0	1340.0
21	AUG	2030	66	7299.	17383.2	1354.2	*	23	AUG	0600	133	3862.	7455.9	1349.0	*	24	AUG	1530	200	0.	0.0	1340.0
21	AUG	2100	67	6813.	17243.3	1354.1	*	23	AUG	0630	134	3848.	7301.3	1348.9	*							
							*								*							

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PEAK OUTFLOW IS 123849. AT TIME 18.50 HOURS

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	99.50-HR
123849.	18.50	(CFS)	102831.	38983.	15634.	11851.
		(INCHES)	4.061	6.159	7.410	7.762
		(AC-FT)	50991.	77322.	93027.	97454.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	99.50-HR
37748.	18.50	33125.	22777.	13661.	10047.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	99.50-HR
1360.82	18.50	1359.91	1356.24	1351.96	1349.20

CUMULATIVE AREA = 235.40 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	SUB1	21680.	18.00	19081.	6813.	2321.	32.90		
ROUTED TO	DAM1	21675.	18.00	19110.	6813.	2321.	32.90	4.95	18.00
HYDROGRAPH AT	SUB2	33265.	18.00	28105.	10342.	3539.	50.10		
ROUTED TO	H60A	33237.	18.00	28111.	10341.	3539.	50.10	4.70	18.00
HYDROGRAPH AT	SUB3	64672.	18.00	54531.	20037.	6879.	97.10		
ROUTED TO	DAM2	64651.	18.00	51607.	19727.	6877.	97.10	9.78	18.00
HYDROGRAPH AT	SUB4	41406.	15.00	38796.	13095.	4399.	61.20		
2 COMBINED AT	TRB	106057.	18.00	84746.	32433.	11275.	158.30		
HYDROGRAPH AT	SUB8	16847.	14.00	16125.	5423.	1811.	24.90		
HYDROGRAPH AT	SUB5	18251.	18.00	16821.	5805.	1956.	27.70		
HYDROGRAPH AT	SUB6	31174.	18.00	28126.	9909.	3351.	46.80		
DIVERSION TO	DIV	1960.	18.00	1960.	1667.	604.	46.80		
HYDROGRAPH AT	CAP9	29214.	18.00	26166.	8243.	2748.	46.80		
HYDROGRAPH AT	SUB7	32867.	18.00	29191.	9417.	3145.	52.20		
3 COMBINED AT	MDB	155771.	18.00	128412.	47207.	16231.	235.40		
ROUTED TO	MD	123849.	18.50	102831.	38983.	15634.	235.40	1360.82	18.50

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DAM1

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	0.00	0.00	9.00
STORAGE	0.	0.	563.
OUTFLOW	0.	0.	39375.

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	4.95	0.00	310.	21675.	0.00	18.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION H60A

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	0.00	0.00	7.00
STORAGE	0.	0.	830.
OUTFLOW	0.	0.	49515.

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	4.70	0.00	557.	33237.	0.00	18.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION DAM2

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	0.00	0.00	9.00
STORAGE	0.	0.	5418.
OUTFLOW	0.	0.	18810.

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	9.78	.78	5889.	64651.	6.50	18.00	0.00

SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION MD

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1340.00	1353.60	1361.00
STORAGE	0.	16200.	39000.
OUTFLOW	2306.	4448.	128299.

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	1360.82	0.00	37748.	123849.	0.00	18.50	0.00

*** NORMAL END OF JOB ***