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Standard Project Flood (SPF) Analysis for White Tanks Flood Retarding Strucuture No. 3

By
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1. Introduction

1.1 Standard Project Flood (SPF)

The Standard Project Flood (SPF) represents the flood that would result from the most severe combination of meteorologic and hydrologic conditions considered reasonably characteristic of the region (US Army Corps of Engineers, 1982). The storms causing the SPFs are called Stand Project Storms. The concept of SPF analysis is to use storm transposition technique to adjust the Stand Project Storm rainfall for the watershed of interest, center the adjusted Standard Project Storm over the watershed in the most critical flood-producing manner, and then perform rainfall-runoff modeling for this storm. Based on US Army Corps of Engineers (1982), two Standard Project Storms are used to perform SPF analysis for White Tanks Flood Retarding Structure (FRS) No. 3 drainage area. One Standard Project Storm is a local storm while another Standard Project Storm is a general summer storm.

Local storms also called thunderstorms consist of heavy downpours of rain over relatively small areas (up to about 300 square miles) for short periods of time (up to about 7 hours). They can occur any time of the year but are most prevalent and most intense during the summer months. The general summer storms usually last from one to three days and generally consist of numerous locally heavy storm cells in more widespread, general light to moderate rain. They can occur any time from late June through mid-October, but are most frequent from August through early October. The general summer storms normally result from a flow of warm and very moist tropical air into the region

from the southeast or south, including the Gulf of California, the tropical Pacific Ocean south of Baja California, and the Gulf of Mexico.

The local storm used in this study is the August 19th 1954 thunderstorm which was centered in the Queen Creek drainage east of Phoenix, Arizona (US Army Corps of Engineers, 1982). This storm was the most severe flood-peak-producing rainfall that can reasonably be expected to occur over smaller drainage areas in central Arizona. The general summer storm used in this study is the 26-29 August 1951 storm which brought heavy precipitation to southern Yavapai and northeastern Maricopa Counties, Arizona (US Army Corps of Engineers, 1982). This storm was the most severe flood-peak/flood-volume-producing depth-area-duration relationships that may reasonably be expected to occur over larger drainage areas in central Arizona. The transposition factors for the August 19th 1954 local storm and August 26-29th 1951 general storm are the 10-year, 6-hour storm and the 100-year, 24-hour storm rainfall amounts, respectively.

1.2 Objective

The objective of this study is to determine the runoff hydrograph for two Standard Project Floods (SPFs) for White Tanks Flood Retarding Structure (FRS) No.3 Watershed. These two SPFs result from the 1954 Queen Creek local storm and the 1951 Arizona general summer storm, respectively. The runoff hydrographs will be used as the SPF inflow hydrographs for future modification design of White Tanks FRS No. 3 Spillway.

1.3 Step-by-Step Procedures

The step-by-step procedures for achieving the objective are (1) determination of the SPF average rainfall depth based on the SPF methodology documented in US Army Corps of Engineers (1982); (2) determination of SPF rainfall distribution by running LAPRE-1, a computer model (US Army Corps of Engineers, 1989); (3) conversion from the rainfall distribution to the cumulative rainfall distribution; (4) replacing the average rainfall depth and cumulative rainfall distribution in an existing TR-20 model (NRCS, 1998) with the SPF average rainfall depth and cumulative rainfall distribution; and (5) running the TR-20 model for the SPF to obtain the direct runoff hydrograph and its volume. The digital input and output files for LAPRE-1 and TR-20 can be found in the diskette in the pocket at the end of this report.

2. SPF Analysis with 1954 Queen Creek Local Storm

2.1 Determination of SPF Average Rainfall Depth

The determination of SPF average rainfall depth is based on storm transposition process for the August 19th 1954 Queen Creek local storm (US Army Corps of Engineers, 1982). The SPF storm transposition procedures for the this storm are (a) obtaining the isohyetal map for the 1954 storm rainfall amount; (b) determining the maximum point rainfall depth ($P_{max\ of\ Queen\ Creek}$); (c) obtaining the isohyetal map for the 10-year, 6-hour storm; (d) determining the 10-year, 6-hour rainfall depth ($P_{1,\ 10\text{-}yr\ 6\text{-}hr}$) corresponding to the site where the maximum point rainfall occurs in the 1954 storm; (e) finding the ratio (R) of the maximum point rainfall to 10-year 6-hour rainfall depth for the 1954 Queen Creek storm ($R=P_{max\ of\ Queen\ Creek}/P_{1,\ 10\text{-}yr\ 6\text{-}hr}=3.178$ based on US Army Corps of Engineers,

1974); (f) determining the 10-year 6-hour rainfall depth ($(P_{2,\ 10\text{-yr}\ 6\text{-hr}})$ at White Tanks FRS #3 Watershed; (g) obtaining rainfall depth-area-reduction curve; (h) determining the area-depth reduction factor in percent (F) for the White Tanks FRS No. 3 Watershed drainage area; (i) computing the average rainfall depth (P) by.

$$P = 3.178 \cdot \frac{F}{100} \cdot P_{2,10-\text{yr}\ 6\text{-hr}}$$

The isohyetal maps for the 1954 storm rainfall and 10-year, 6-hour storm rainfall can be found in Figures 1 and 2, respectively. The rainfall depth-area-reduction curve can be found in Figure 3. Figures 1 and 3 are from US Army Corps of Engineers (1982). Figure 2 is from NOAA Atlas 2 and obtained from George et al. (1995). The White Tanks FRS No.3 watershed has a drainage area of 20.49 square miles and is located at longitude 112°30' and latitude 33°32' (southeastern corner of T3N and R3W). Based on Figure 2, the rainfall depth for White Tanks FRS No.3 watershed is 2.1 inches for the 10-year 6-hour storm ($P_{2,\ 10\text{-hr}\ 6\text{-hr}} = 2.1$"). The rainfall depth-area-reduction factor (F) can be found from Figure 3 as 90 (F=90). Therefore, the average rainfall depth for the 1954 Queen Creek SPF is computed by

$$\begin{aligned} P &= 3.178 \cdot \frac{F}{100} \cdot P_{2,10-\text{yr}\ 6\text{-hr}} \\ &= 3.178 \cdot \frac{90}{100} \cdot 2.1 \\ &= 6.0" \end{aligned}$$

This SPF average rainfall depth is then incorporated into the LAPRE-1 input file to compute the SPF rainfall distribution.

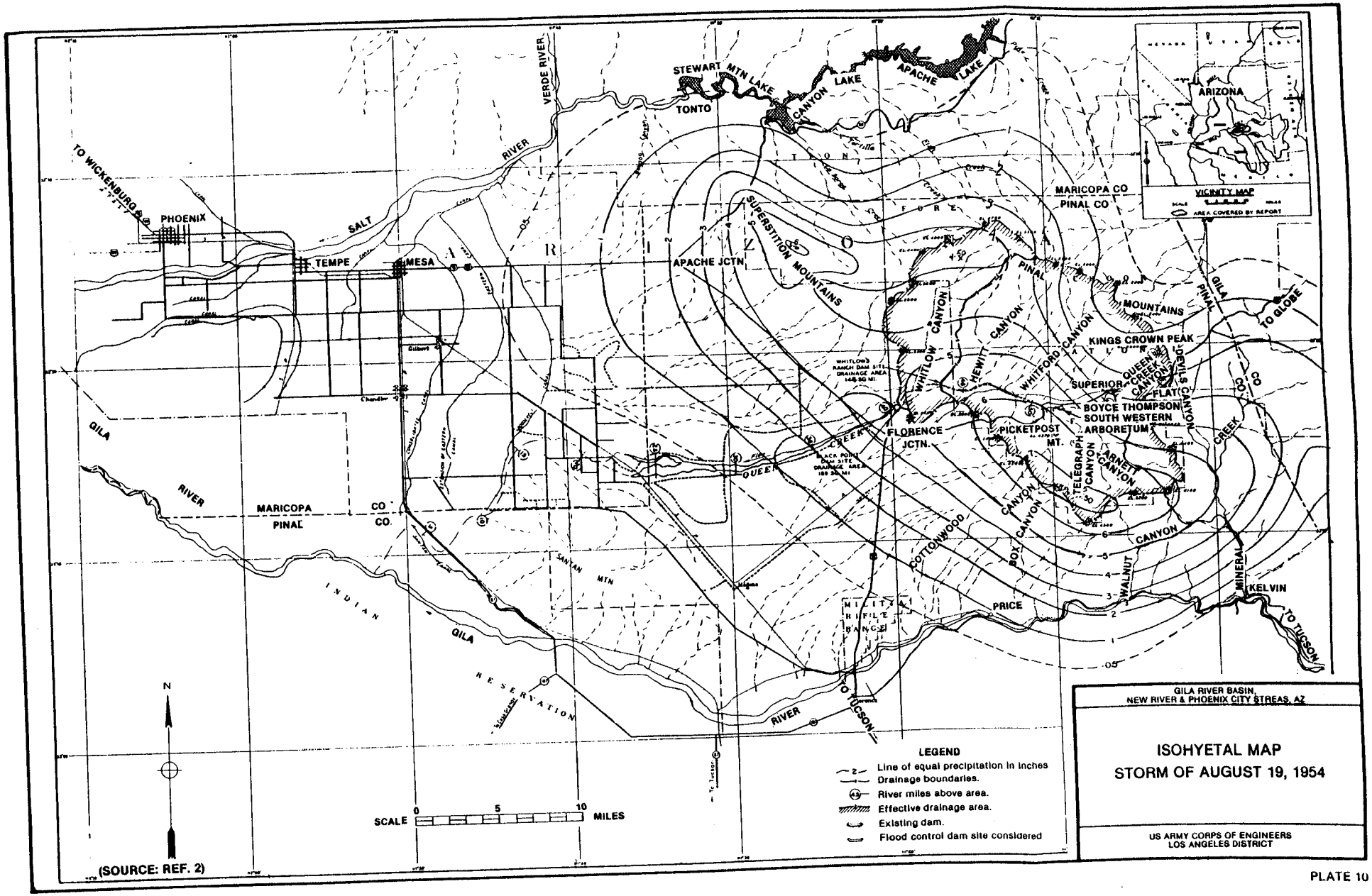


PLATE 10

Figure 1

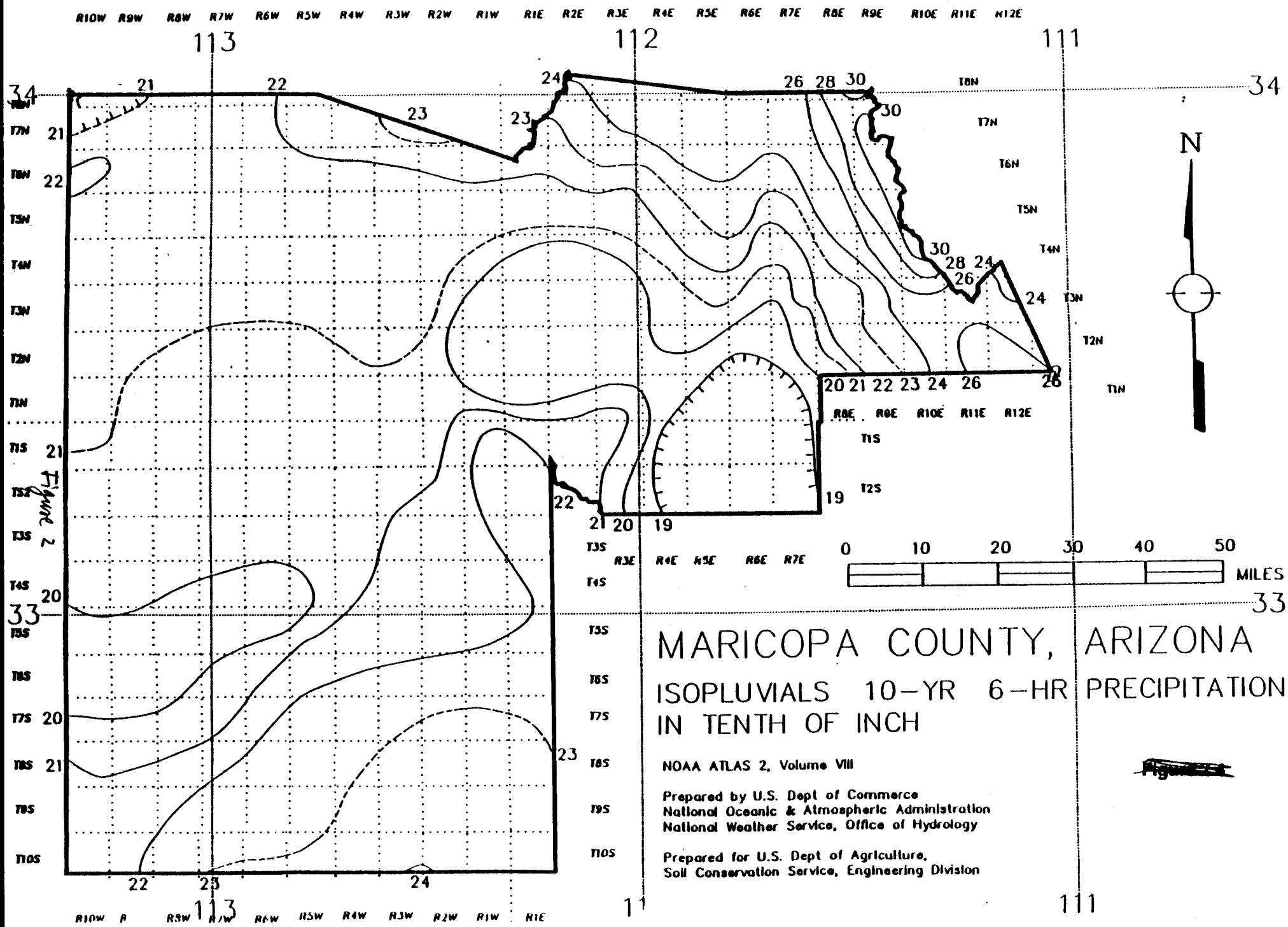
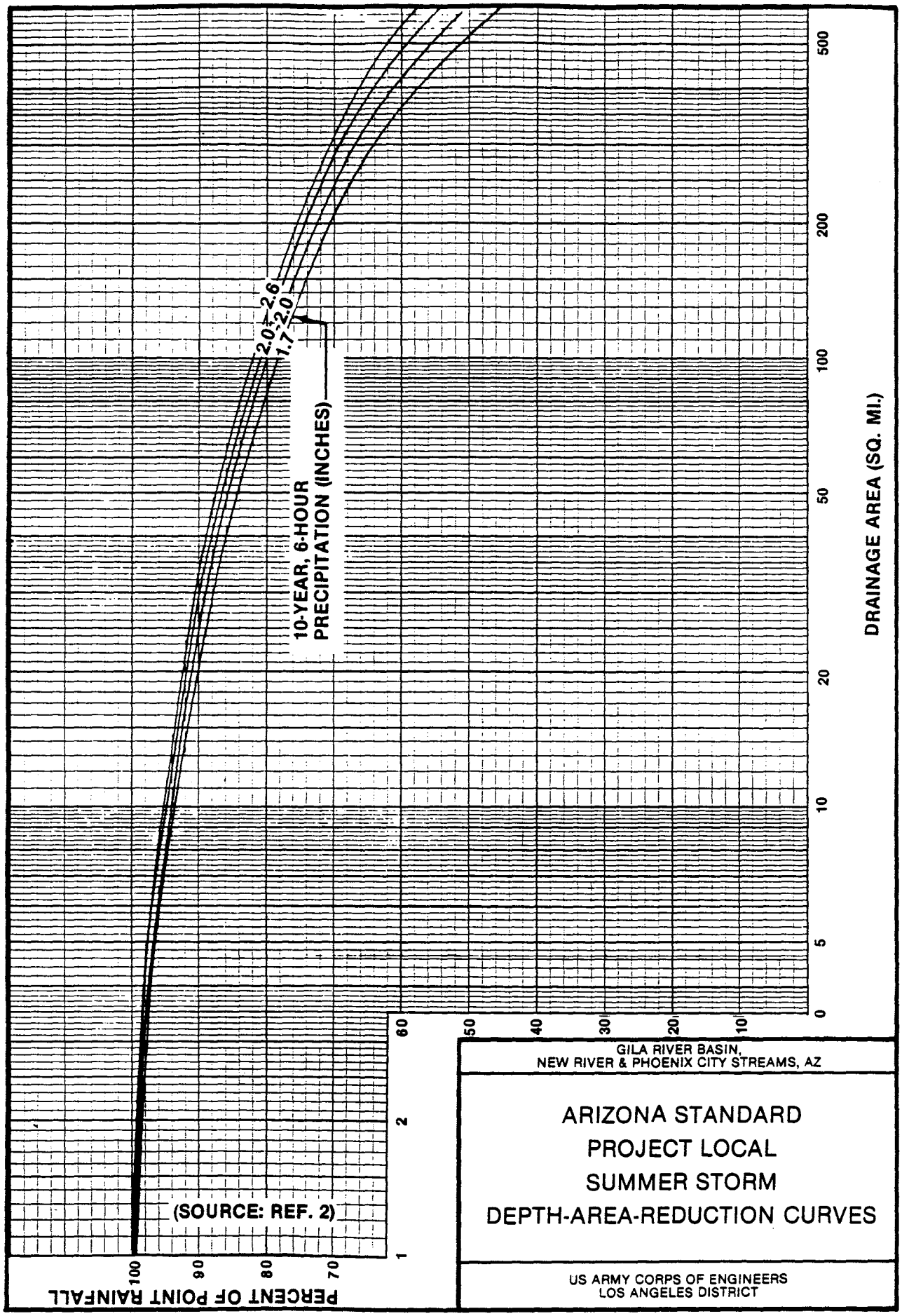

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 10-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
N
MILES
0 10 20 30 40 50
113
112
111
34
33
R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E
T8N T7N T6N T5N T4N T3N T2N T1N T1S T2S T3S T4S T5S T6S T7S T8S T9S T10S

Figure 2



GILA RIVER BASIN,
NEW RIVER & PHOENIX CITY STREAMS, AZ

ARIZONA STANDARD
PROJECT LOCAL
SUMMER STORM
DEPTH-AREA-REDUCTION CURVES

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

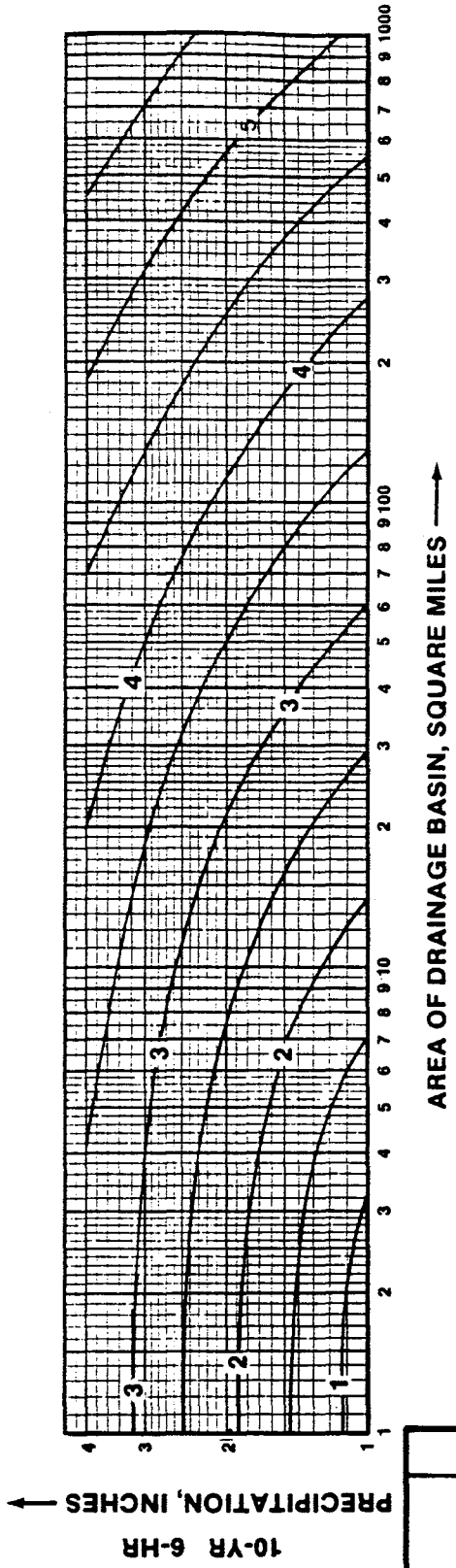
Figure 3

2.2 *Determination of SPF Rainfall Distribution*

The SPF rainfall distribution is computed by running LAPRE-1 computer software developed by US Army Corps of Engineers (1989). A duration of 7 hours is used because nearly all the precipitation fell within a 7-hour period in the original August 1954 storm. The card to be input into the LAPRE-1 input file for computing the rainfall distribution is "$P" card which requires the storm identification number, drainage area, SPF average rainfall depth, rainfall adjustment factor (RAF) and the curve number for precipitation pattern. The storm identification number is defined by LAPRE-1 and can be found in US Army Corps of Engineers (1989). The storm identification number for the 1954 storm is 10 for the 7-hour storm. The drainage area for the White Tanks FRS No.3 Watershed is 20.49 square miles. The SPF average rainfall depth is 6 inches as computed in Section 2.1. The rainfall adjustment factor (RAF) is 0. The curve number for precipitation pattern can be found as 3 in Figure 4 based on the 2.1 inches of 10-yr 6-hr storm and 20.49 square miles drainage area. The digital LAPRE-1 input file (filename: wt3_4.la1) for the 1951 storm can be found in the diskette in the end of the report. The hardcopy of this LAPRE-1 input file is as following

```
ID     1954 original Queen Creek patern, 7-hour duration, fifteen-minute intervals
ID     SAMPLE LAPRE1  (LAD PREPROCESSOR FOR HEC-1)
ID     HYDROLOGIC ENGINEERING CENTER, US ARMY ENGINEER DISTRICT, LOS ANGELES, CA.
ID     MARCH 1986
IT     15 05MAR86    0100      80
KK   100
KM     RUNOFF FROM SUBAREA A
BA 20.49
$P     10   20.49     6.0       0       3
ZZ
```

The SPF rainfall distribution is computed by running LAPRE-1 for the above input file. The digital output file (file name: wt3_4.dat) containing the results can be found in the diskette. The hardcopy of the output file is as following



—2— PATTERN NUMBER

REFER TO PLATE 19
FOR ACTUAL PATTERN

(SOURCE: REF. 2)

GILA RIVER BASIN,
NEW RIVER & PHOENIX CITY STREAMS, AZ.

ARIZONA STANDARD PROJECT
LOCAL SUMMER STORM
PRECIPITATION-AREA-PATTERN
CURVES

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PLATE 20

Figure 4

```
ID     1954 original Queen Creek patern, 7-hour duration, fifteen-minute interval
ID     SAMPLE LAPRE1  (LAD PREPROCESSOR FOR HEC-1)
ID     HYDROLOGIC ENGINEERING CENTER, US ARMY ENGINEER DISTRICT, LOS ANGELES, CA.
ID     MARCH 1986
IT     15 05MAR86     0100       80
KK   100
KM     RUNOFF FROM SUBAREA A
BA 20.49
KM ARIZONA STANDARD PROJECT SUMMER THUNDERSTORM
PB   5.99
PI  .175    .180    .187    .194    .230    .259    .278    .288    .295    .295
PI  .310    .329    .346    .353    .353    .358    .684   1.579   2.359   5.381
PI 3.917   1.913   1.109    .970    .470    .403    .377    .360
ZZ
```

The values in above PI cards are SPF rainfall distributions. However, the SPF cumulative rainfall distribution (dimensionless) is needed for running TR-20 models. Therefore, it is necessary to convert the above PI cards to the dimensionless cumulative rainfall distribution.

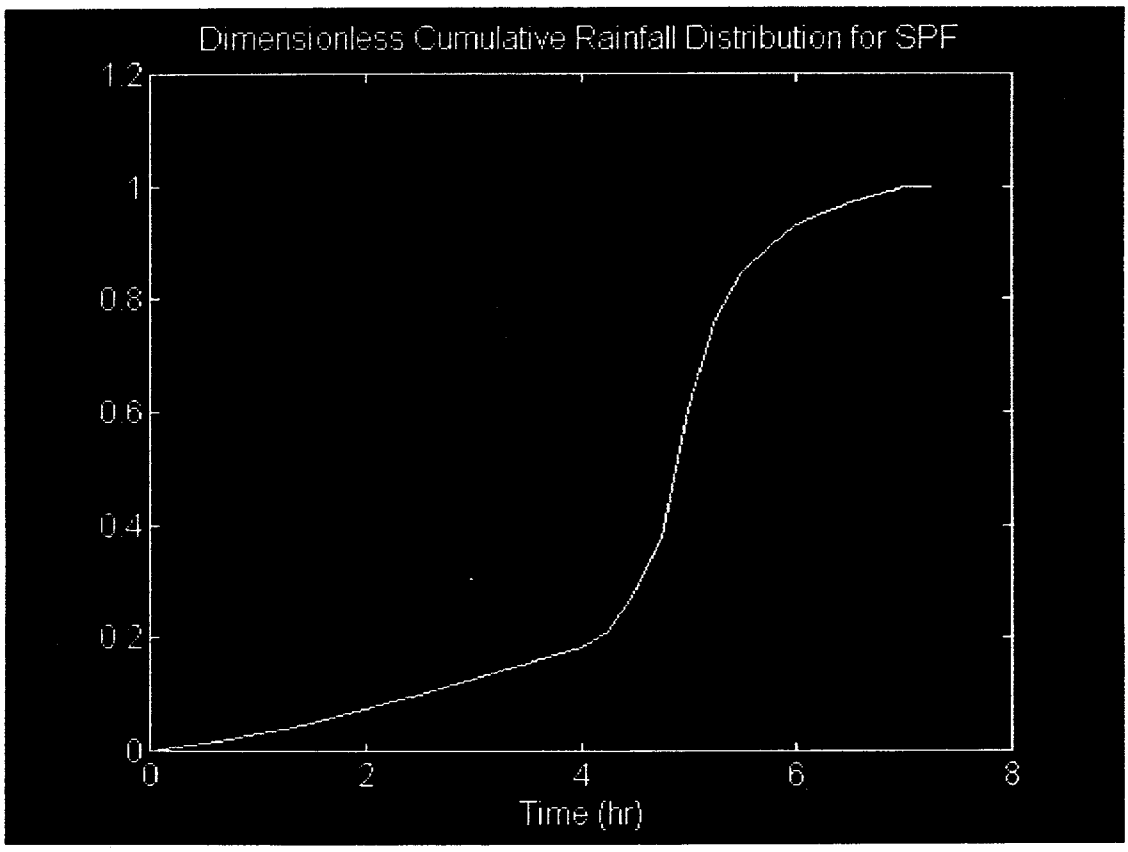
2.3 Conversion to Dimensionless Cumulative Rainfall Distribution

A small MATLAB computer program is written to convert the SPF rainfall distribution to dimensionless cumulative rainfall distribution. The MATLAB computer program is listed as following.

```
%pi2pc4.m:  convert PI to PC
%for 7-hr 1954 Queen Creek local SPF
pi=[0 .175 .180 .187 .194 .230 .259 .278 .288 .295 .295];
pi=[pi .310 .329 .346 .353 .353 .358 .684 1.579 2.359 5.381];
pi=[pi 3.917 1.913 1.109 .970 .470 .403 .377 .360];
pi=pi';
raind=sum(pi);
pi=pi/raind;
n=length(pi);
cumurain=0;
for i=1:1:n
    cumurain=cumurain+pi(i,1);
    pc(i,1)=cumurain;
end
x=0:0.25:(length(pc)-1)*0.25;
plot(x,pc)
xlabel('Time (hr)')
title('Dimensionless Cumulative Rainfall Distribution for SPF')
pause
end
```

The dimensionless cumulative rainfall distribution is obtained by running above computer program. The results can be seen in the following table and figure.

Time (min)	Cum. Rain	Time (min)	Cum. Rain	Time (min)	Cum. Rain
0	0	180	0.1261	360	0.9328
15	0.0073	195	0.1405	375	0.9524
30	0.0148	210	0.1553	390	0.9692
45	0.0226	225	0.17	405	0.985
60	0.0307	240	0.185	420	1
75	0.0403	255	0.2135		
90	0.0511	270	0.2794		
105	0.0628	285	0.3779		
120	0.0748	300	0.6026		
135	0.0871	315	0.7661		
150	0.0994	330	0.846		
165	0.1123	345	0.8923		



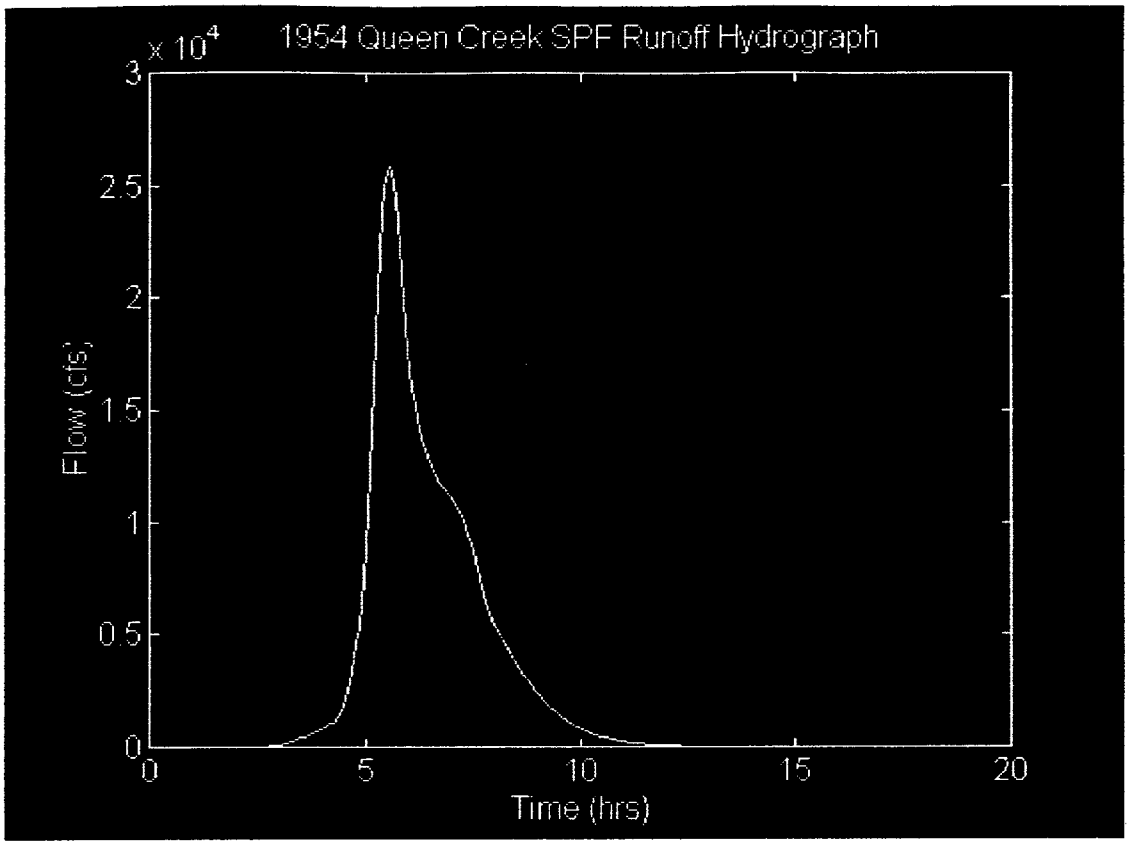
2.4 TR-20 Rainfall-Runoff Model

The SPF direct runoff hydrograph and its volume are computed by rainfall-runoff modeling. The rainfall-runoff model is developed by modifying an existing TR-20 model for White Tanks FRS No.3. The existing TR-20 model was developed by NRCS (1998). The SPF TR-20 model (file name: spfqc7h.dat) for White Tanks FRS No.3 can be found in the diskette. The hardcopy of the input file can be found in Appendix 6.1. The most recent version of TR-20 (PC Version 2.04Test) is used to run the model. There are two output files when TR-20 is used, which are "spfqc7h.out" and "spfqc7h.trd". The first file (spfqc7h.out) contains the results for each sub-basin. The second file (spfqc7h.trd) contains the direct runoff hydrograph which is ready to be used as inflow hydrograph for reservoir routing at White Tanks FRS No.3 for spillway design. The digital spfqc7h.out and spfqc7h.trd can be found in the diskette. The hardcopy for both files can be found in Appendix 6.2 and Appendix 6.3.

2.5 Results

The SPF direct runoff volume and peak discharge for White Tanks FRS No.3 watershed can be found from "spfqc7h.out" as **4238 ac-ft** and **25892 cfs**, respectively (The volume and discharge are associated with XSECTION 76 in "spfqc7h.out"). The SPF direct runoff hydrograph will be used as inflow hydrograph for reservoir routing at White Tanks FRS No.3 for spillway modification. The hydrograph can be found in Appendix 6.3, and is shown in the following table and figure. The digital file for the SPF direct runoff hydrograph can be found in the diskette (spfqc7h.trd).

Time (hr)	Flow (cfs)	Time (hr)	Flow (cfs)	Time (hr)	Flow (cfs)	Time (hr)	Flow (cfs)	Time (hr)	Flow (cfs)
0	0	3.15	166	6.3	13792	9.45	1502	12.6	31
0.05	0	3.2	194	6.35	13501	9.5	1423	12.65	29
0.1	0	3.25	223	6.4	13241	9.55	1348	12.7	28
0.15	0	3.3	256	6.45	13000	9.6	1276	12.75	26
0.2	0	3.35	290	6.5	12772	9.65	1207	12.8	24
0.25	0	3.4	326	6.55	12560	9.7	1142	12.85	23
0.3	0	3.45	363	6.6	12357	9.75	1079	12.9	21
0.35	0	3.5	401	6.65	12154	9.8	1020	12.95	20
0.4	0	3.55	440	6.7	11955	9.85	964	13	19
0.45	0	3.6	480	6.75	11768	9.9	911	13.05	17
0.5	0	3.65	521	6.8	11600	9.95	860	13.1	16
0.55	0	3.7	563	6.85	11458	10	812	13.15	15
0.6	0	3.75	605	6.9	11325	10.05	766	13.2	14
0.65	0	3.8	647	6.95	11199	10.1	723	13.25	13
0.7	0	3.85	690	7	11078	10.15	682	13.3	12
0.75	0	3.9	733	7.05	10962	10.2	643	13.35	12
0.8	0	3.95	776	7.1	10838	10.25	606	13.4	11
0.85	0	4	819	7.15	10693	10.3	571	13.45	10
0.9	0	4.05	864	7.2	10521	10.35	538	13.5	10
0.95	0	4.1	911	7.25	10314	10.4	507	13.55	9
1	0	4.15	963	7.3	10069	10.45	478	13.6	8
1.05	0	4.2	1021	7.35	9784	10.5	450	13.65	8
1.1	0	4.25	1089	7.4	9462	10.55	423	13.7	7
1.15	0	4.3	1172	7.45	9108	10.6	399	13.75	7
1.2	0	4.35	1280	7.5	8730	10.65	375	13.8	6
1.25	0	4.4	1418	7.55	8336	10.7	353	13.85	6
1.3	0	4.45	1592	7.6	7935	10.75	332	13.9	6
1.35	0	4.5	1810	7.65	7538	10.8	312	13.95	5
1.4	0	4.55	2085	7.7	7156	10.85	294	14	5
1.45	0	4.6	2427	7.75	6796	10.9	276	14.05	5
1.5	0	4.65	2839	7.8	6468	10.95	260	14.1	4
1.55	0	4.7	3320	7.85	6176	11	244	14.15	4
1.6	0	4.75	3882	7.9	5912	11.05	229	14.2	4
1.65	0	4.8	4550	7.95	5671	11.1	215	14.25	3
1.7	0	4.85	5357	8	5451	11.15	202	14.3	3
1.75	0	4.9	6322	8.05	5253	11.2	190	14.35	3
1.8	0	4.95	7466	8.1	5069	11.25	179	14.4	3
1.85	0	5	8817	8.15	4893	11.3	168	14.45	3
1.9	0	5.05	10387	8.2	4721	11.35	157	14.5	2
1.95	0	5.1	12161	8.25	4554	11.4	148	14.55	2
2	1	5.15	14102	8.3	4390	11.45	139	14.6	2
2.05	1	5.2	16150	8.35	4228	11.5	130	14.65	2
2.1	2	5.25	18231	8.4	4069	11.55	122	14.7	2
2.15	3	5.3	20247	8.45	3912	11.6	115	14.75	2
2.2	4	5.35	22099	8.5	3758	11.65	108	14.8	2
2.25	5	5.4	23668	8.55	3606	11.7	101	14.85	2
2.3	7	5.45	24861	8.6	3457	11.75	95	14.9	1
2.35	9	5.5	25620	8.65	3311	11.8	89	14.95	1
2.4	11	5.55	25891	8.7	3168	11.85	83	15	1
2.45	13	5.6	25680	8.75	3029	11.9	78	15.05	1
2.5	16	5.65	25141	8.8	2894	11.95	73	15.1	1
2.55	20	5.7	24368	8.85	2762	12	69	15.15	1
2.6	24	5.75	23418	8.9	2634	12.05	64	15.2	1
2.65	29	5.8	22321	8.95	2510	12.1	60	15.25	1
2.7	34	5.85	21160	9	2391	12.15	57	15.3	1
2.75	41	5.9	19984	9.05	2276	12.2	53	15.35	1
2.8	49	5.95	18833	9.1	2165	12.25	50	15.4	1
2.85	59	6	17753	9.15	2058	12.3	46	15.45	1
2.9	70	6.05	16783	9.2	1955	12.35	44	15.5	1
2.95	84	6.1	15975	9.25	1857	12.4	41	15.55	1
3	101	6.15	15270	9.3	1762	12.45	38	15.6	1
3.05	120	6.2	14670	9.35	1671	12.5	36	15.65	0

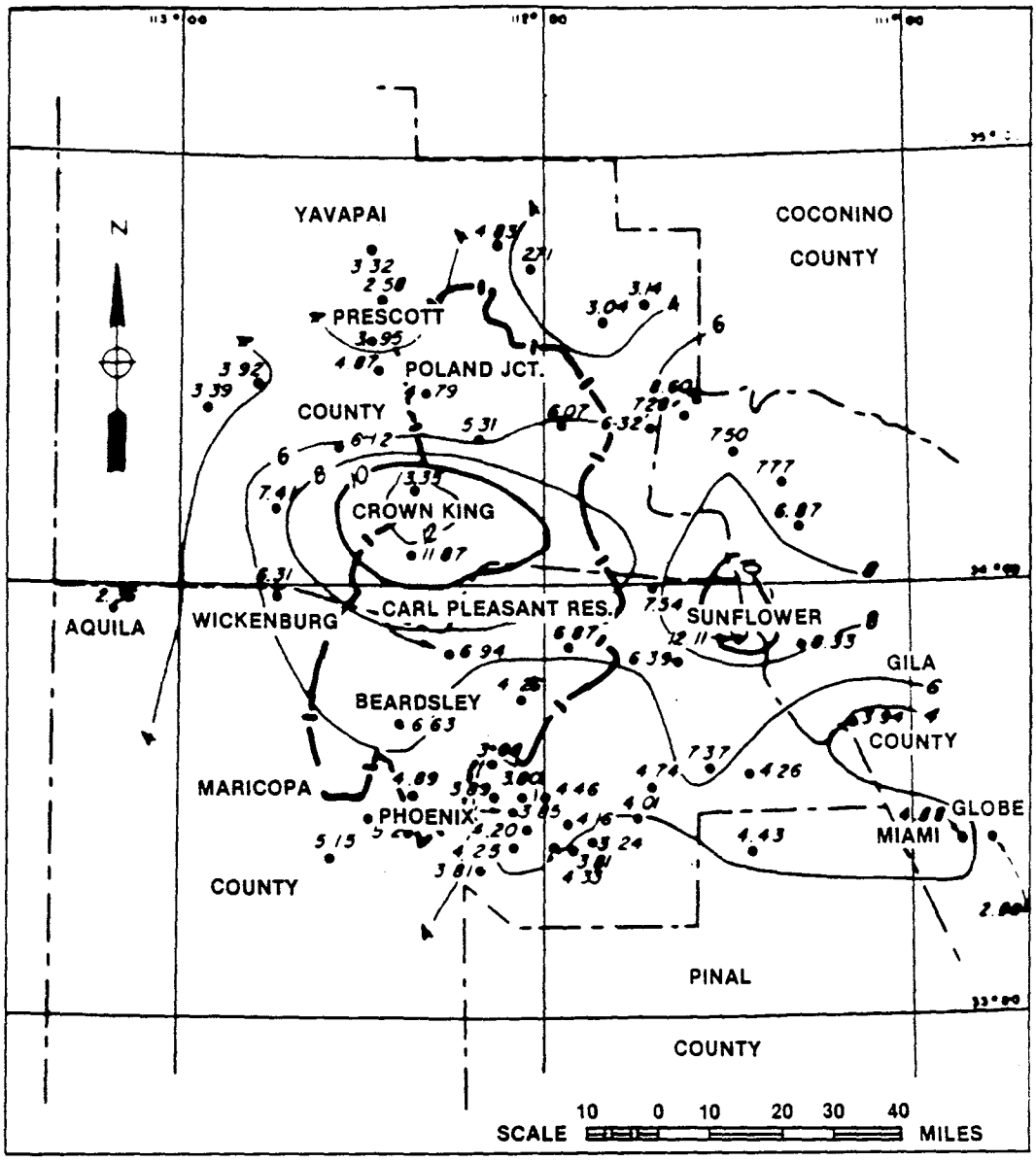

1954 Queen Creek SPF Runoff Hydrograph
x 10^4
3
2.5
2
1.5
1
0.5
0
Flow (cfs)
0
5
10
15
20
Time (hrs)

3. SPF Analysis with 1951 Arizona General Summer Storm

3.1 Determination of SPF Average Rainfall Depth

The determination of SPF average rainfall depth is based on storm transposition process for the general summer storm of 26-29 August 1951 storm (US Army Corps of Engineers, 1982). The SPF storm transposition procedures for the 1951 storm are (a) obtaining the isohyetal map for the 1951 storm rainfall amount; (b) obtaining the isohyetal map for the 100-year, 24-hour storm; (c) expressing the actual rainfall amounts in the 1951 storm as percentages of the 100-year, 24-hour rainfall; (d) constructing an isopercentual map based on those percentages; and (e) transposing the isopercentual lines to such a position over the basin as would result in the largest average rainfall over the drainage area (The average rainfall depth is computed based on the transposed isopercentual lines and the 100-year, 24-hour storm rainfall over the White Tanks FRS No.3 drainage area).

The isohyetal maps for the 1951 storm rainfall and 100-year, 24-hour storm rainfall can be found in Figures 5 and 6, respectively. The isopercentual map can be found in Figure 7. Figures 5-7 are from US Army Corps of Engineers (1982). The transposition process can be greatly simplified for this study because (1) the White Tanks FRS No.3 drainage area (20.49 square miles, located in longitude 112°30' and latitude 33°32') can be within the 210% contour line in the isopercentual map when the 1951 storm isopercentual lines are transposed over the drainage area, and (2) the 100-year, 24-hour isohyets are about 4.1 inches around the drainage area. The SPF average rainfall



LEGEND

— 1 — **BOUNDARY OF DRAINAGE AREA**

— 8 — **LINE OF EQUAL PRECIPITATION IN INCHES**

• 6.31 **RECORDED PRECIPITATION DEPTH IN INCHES**

(SOURCE: REF. 2)

GILA RIVER BASIN,
NEW RIVER & PHOENIX CITY STREAMS, AZ

ISOHYETAL MAP
STORM OF AUGUST 26-29, 1951

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PLATE 9

Figure 5

US Army Corps of Engr (1982)

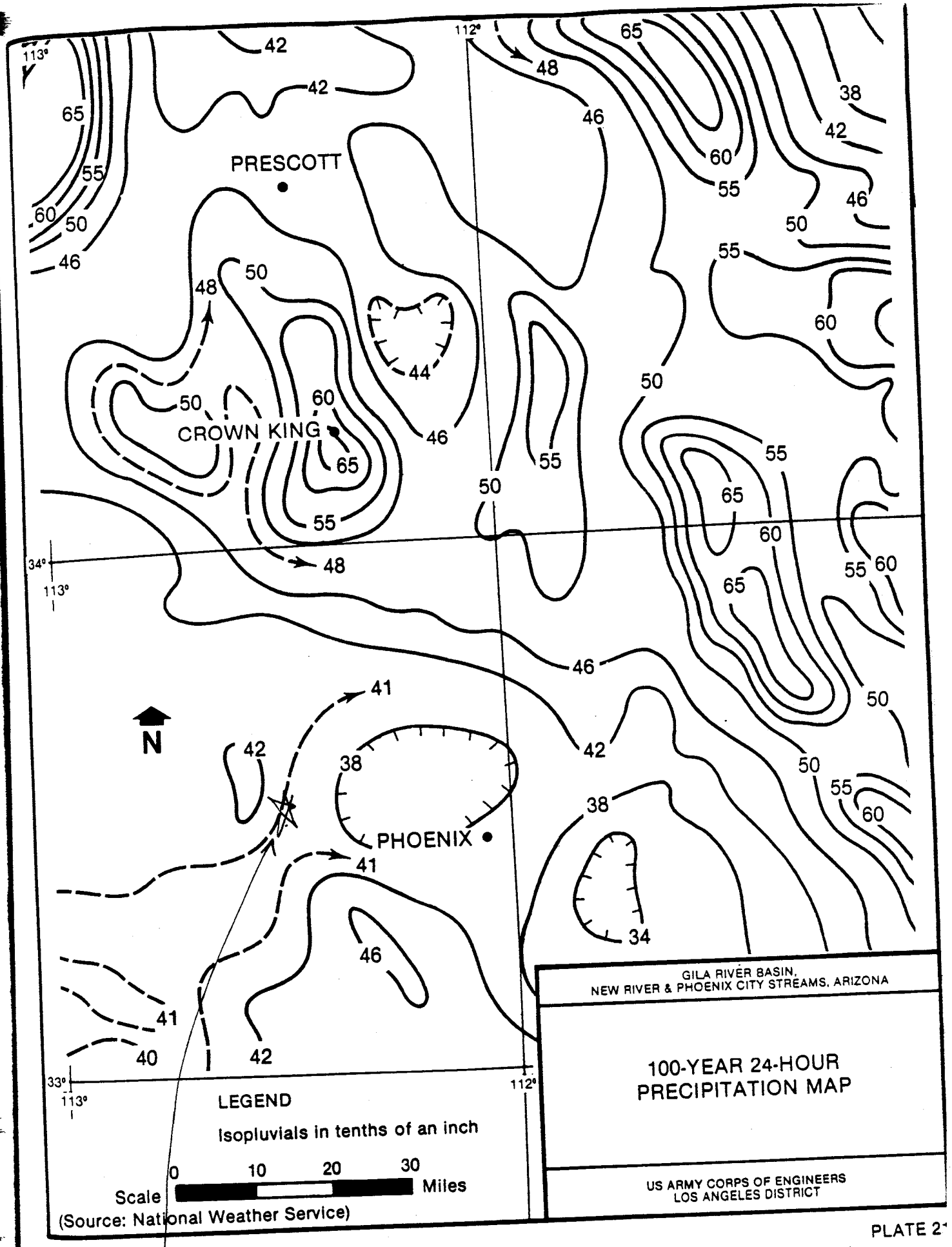


PLATE 2

White Tanks No. 3 Watershed

Figure D6

Corps of Engr (1982)

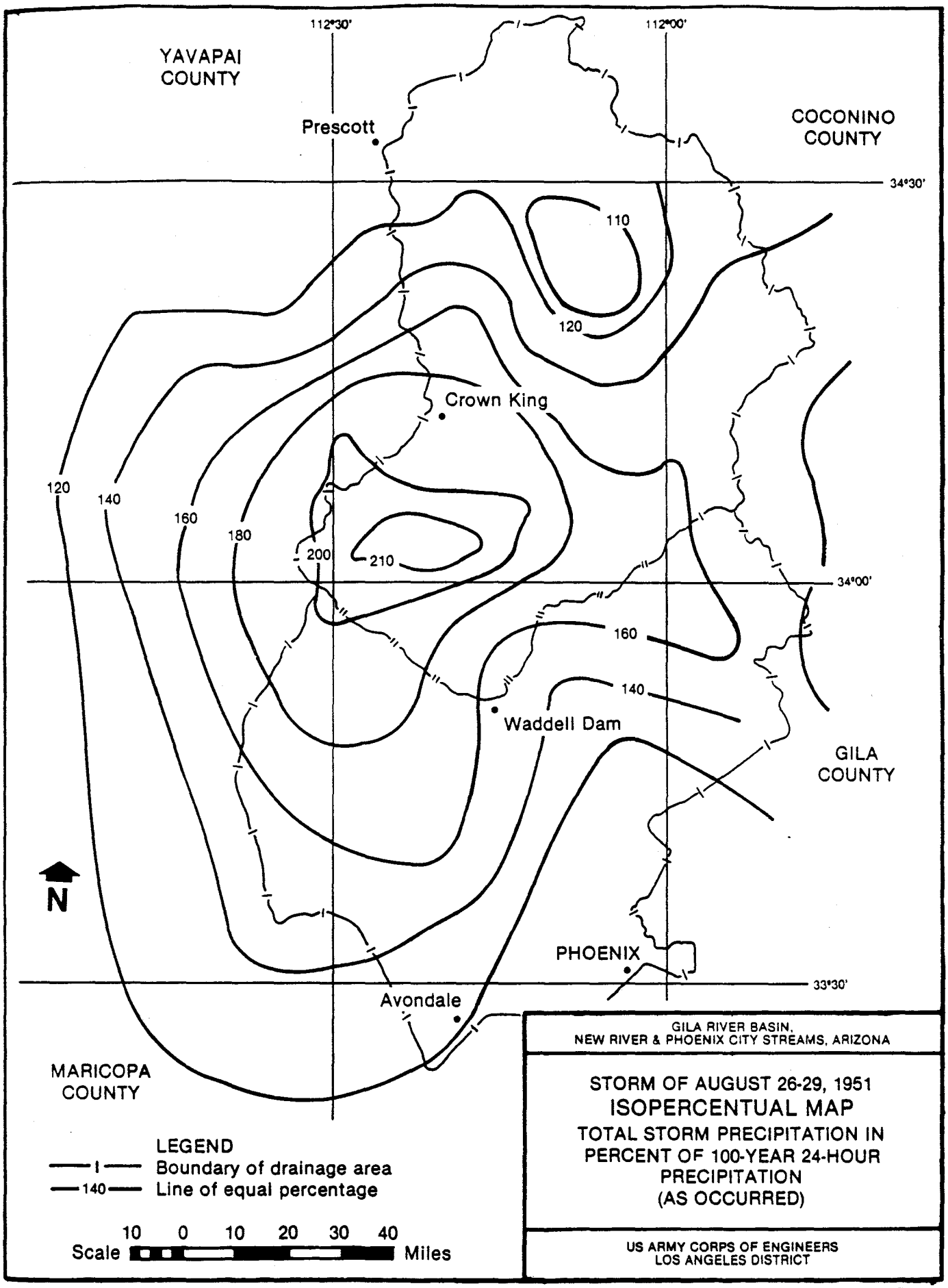


PLATE 22

Corps of Engr (1982)

Figure B7

depth over the White Tanks FRS No.3 drainage area is computed by 210%*4.1"= 8.61 inches. This SPF average rainfall depth is then incorporated into the LAPRE-1 input file to compute the SPF rainfall distribution.

3.2 Determination of SPF Rainfall Distribution

The SPF rainfall distribution is computed by running LAPRE-1 computer software developed by US Army Corps of Engineers (1989). The card to be input into the LAPRE-1 input file for computing the rainfall distribution is "$P" card which requires the storm identification number, drainage area, and SPF average rainfall depth. The storm identification number is defined by LAPRE-1 and can be found in US Army Corps of Engineers (1989). The storm identification number for the 1951 storm is 2. The drainage area for the White Tanks FRS No.3 Watershed is 20.49 square miles. The SPF average rainfall depth is 6 inches as computed in Section 2.1. The digital LAPRE-1 input file (filename: wt3_21.la1) for the 1951 storm can be found in the diskette in the end of the report. The hardcopy of this LAPRE-1 input file is as following

```
ID    General summer AZ storm (August, 1951)
ID    HYDROLOGIC ENGINEERING CENTER, US ARMY ENGINEER DISTRICT, LOS ANGELES, CA.
ID    MARCH 1986
IT    60 05MAR86    0100      80
KK   100
KM    RUNOFF FROM SUBAREA A
BA 20.49
$P     2   20.49    8.61
ZZ
```

The SPF rainfall distribution is computed by running LAPRE-1 for the above input file. The digital output file (file name: wt3_21.dat) containing the results can be found in the diskette. The hardcopy of the output file is as following

```
ID    General summer AZ storm (August, 1951)
ID    HYDROLOGIC ENGINEERING CENTER, US ARMY ENGINEER DISTRICT, LOS ANGELES, CA.
ID    MARCH 1986
IT    60 05MAR86    0100      80
KK   100
KM    RUNOFF FROM SUBAREA A
BA 20.49
KM      TRILBY WASH,ARIZONA AUGUST 1951 GENERAL STORM   68 HR DURATION
PB  8.61
PI  .000    .009    .009    .009    .009    .009    .009    .077    .000    .017
PI  .009    .017    .000    .000    .026    .043    .000    .026    .052    .103
PI  .060    .052    .370    .387    .517    .723    .715    .542    .456    .534
PI  .069    .017    .000    .017    .129    .155    .112    .086    .095    .138
PI  .095    .198    .103    .069    .164    .077    .000    .000    .155    .138
PI  .000    .000    .052    .413    .396    .034    .017    .138    .189    .103
PI  .095    .000    .379    .000    .034    .017    .000    .146
ZZ
```

The values in above PI cards are SPF rainfall distributions. However, the SPF cumulative rainfall distribution (dimensionless) is needed for running TR-20 models. Therefore, it is necessary to convert the above PI cards to the dimensionless cumulative rainfall distribution.

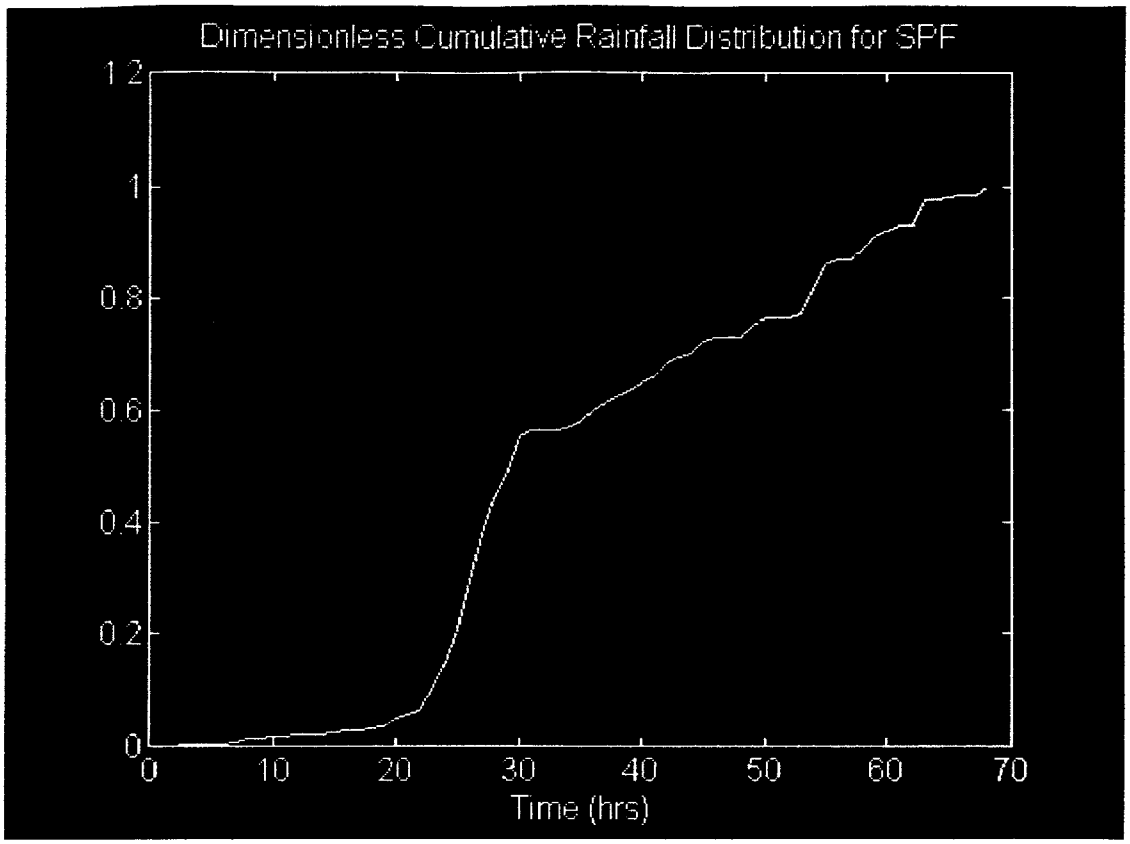
3.3 Conversion to Dimensionless Cumulative Rainfall Distribution

A small MATLAB computer program is written to convert the SPF rainfall distribution to dimensionless cumulative rainfall distribution. The MATLAB computer program is listed as following.

```
%pi2pc21.m:  convert PI to PC
%for 1951 Qyeen Creek general SPF
pi=[.000    .009    .009    .009    .009    .009    .009    .077    .000    .017];
pi=[pi  .009    .017    .000    .000    .026    .043    .000    .026    .052    .103];
pi=[pi  .060    .052    .370    .387    .517    .723    .715    .542    .456    .534];
pi=[pi  .069    .017    .000    .017    .129    .155    .112    .086    .095    .138];
pi=[pi  .095    .198    .103    .069    .164    .077    .000    .000    .155    .138];
pi=[pi  .000    .000    .052    .413    .396    .034    .017    .138    .189    .103];
pi=[pi  .095    .000    .379    .000    .034    .017    .000    .146];
pi=pi';
raind=sum(pi);
pi=pi/raind;
n=length(pi);
cumurain=0;
for i=1:1:n
    cumurain=cumurain+pi(i,1);
    pc(i,1)=cumurain;
end
plot(pc)
pause
save pi2pc21.out pc -ascii
end
```

The dimensionless cumulative rainfall distribution is obtained by running above computer program. The results can be seen in the following table and figure.

Time (hr)	Cum. Rain	Time (hr)	Cum. Rain	Time (hr)	Cum. Rain	Time (hr)	Cum. Rain
0	0	19	0.049	38	0.634	57	0.888
1	0.001	20	0.056	39	0.65	58	0.91
2	0.002	21	0.062	40	0.661	59	0.922
3	0.003	22	0.105	41	0.684	60	0.933
4	0.004	23	0.15	42	0.696	61	0.933
5	0.005	24	0.21	43	0.704	62	0.977
6	0.006	25	0.294	44	0.723	63	0.977
7	0.015	26	0.377	45	0.732	64	0.981
8	0.015	27	0.44	46	0.732	65	0.983
9	0.017	28	0.493	47	0.732	66	0.983
10	0.018	29	0.555	48	0.75	67	1
11	0.02	30	0.563	49	0.766	68	
12	0.02	31	0.565	50	0.766	69	
13	0.02	32	0.565	51	0.766	70	
14	0.023	33	0.567	52	0.772	71	
15	0.028	34	0.582	53	0.82	72	
16	0.028	35	0.6	54	0.866	73	
17	0.031	36	0.613	55	0.87	74	



3.4 TR-20 Rainfall-Runoff Model

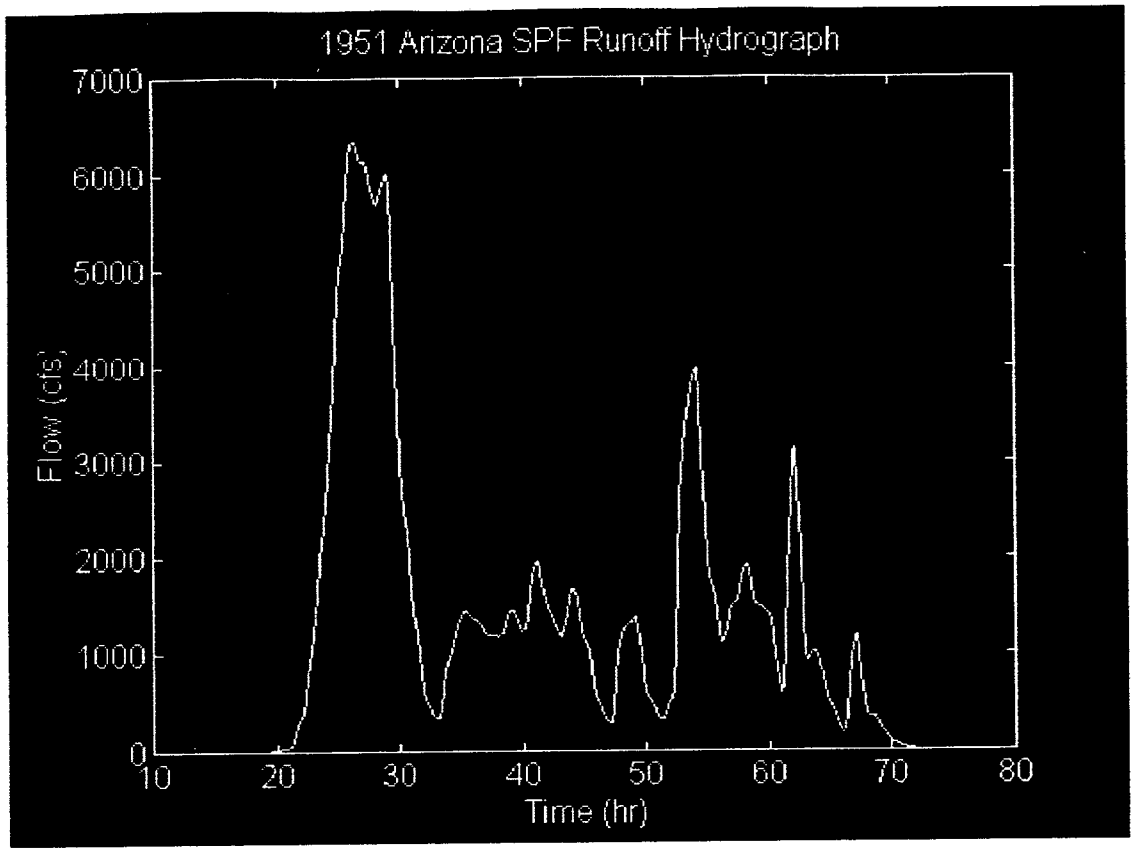
The SPF direct runoff hydrograph and its volume are computed by rainfall-runoff modeling. The rainfall-runoff model is developed by modifying an existing TR-20 model for White Tanks FRS No.3. The existing TR-20 model was developed by NRCS (1998). The SPF TR-20 model (file name: spf51_1.dat) for White Tanks FRS No.3 can be found in the diskette. The hardcopy of the input file can be found in Appendix 6.4. The most recent version of TR-20 (PC Version 2.04Test) is used to run the model. There are two output files when TR-20 is used, which are "spf51_1.out" and "spf51_1.trd". The first file (spf51_1.out) contains the results for each sub-basin. The second file (spf51_1.trd)

contains the direct runoff hydrograph which is ready to be used as inflow hydrograph for reservoir routing at White Tanks FRS No.3 for spillway design. The digital spf51_1.out and spf51_1.trd can be found in the diskette. The hardcopy for both files can be found in Appendix 6.5 and Appendix 6.6.

3.5 Results

The SPF direct runoff volume and peak discharge for White Tanks FRS No.3 watershed can be found from "spf51_1.out" as **6987 ac-ft** and **6346 cfs**, respectively (The volume and discharge are associated with XSECTION 76 in "spf51_1.out"). The SPF direct runoff hydrograph will be used as inflow hydrograph for reservoir routing at White Tanks FRS No.3 for spillway modification. The hydrograph can be found in Appendix 6.6, and is shown in the following table and figure. The digital file for the SPF direct runoff hydrograph can be found in the diskette (spf51_1.trd).

Time (hr)	Flow (cfs)	Time (hr)	Flow (cfs)	Time (hr)	Flow (cfs)	Time (hr)	Flow (cfs)	Time (hr)	Flow (cfs)
18.36	0	29.56	4454	40.76	1804	51.96	502	63.16	933
18.56	1	29.76	3565	40.96	1932	52.16	624	63.36	989
18.76	2	29.96	2988	41.16	1954	52.36	1079	63.56	1035
18.96	4	30.16	2713	41.36	1864	52.56	1832	63.76	1035
19.16	6	30.36	2519	41.56	1708	52.76	2608	63.96	983
19.36	9	30.56	2257	41.76	1556	52.96	3115	64.16	892
19.56	13	30.76	1956	41.96	1473	53.16	3356	64.36	779
19.76	18	30.96	1679	42.16	1446	53.36	3480	64.56	664
19.96	23	31.16	1441	42.36	1410	53.56	3611	64.76	563
20.16	28	31.36	1223	42.56	1338	53.76	3766	64.96	487
20.36	33	31.56	1012	42.76	1251	53.96	3931	65.16	430
20.56	37	31.76	821	42.96	1184	54.16	3974	65.36	370
20.76	41	31.96	664	43.16	1171	54.36	3682	65.56	303
20.96	44	32.16	545	43.36	1250	54.56	3062	65.76	238
21.16	58	32.36	465	43.56	1403	54.76	2385	65.96	192
21.36	102	32.56	414	43.76	1566	54.96	1975	66.16	215
21.56	178	32.76	378	43.96	1663	55.16	1811	66.36	378
21.76	268	32.96	344	44.16	1665	55.36	1722	66.56	667
21.96	340	33.16	344	44.36	1566	55.56	1586	66.76	970
22.16	415	33.36	439	44.56	1409	55.76	1413	66.96	1157
22.36	560	33.56	631	44.76	1258	55.96	1239	67.16	1185
22.56	782	33.76	838	44.96	1173	56.16	1122	67.36	1035
22.76	1021	33.96	971	45.16	1126	56.36	1129	67.56	775
22.96	1208	34.16	1039	45.36	1033	56.56	1253	67.76	517
23.16	1370	34.36	1104	45.56	870	56.76	1403	67.96	375
23.36	1618	34.56	1196	45.76	691	56.96	1480	68.16	345
23.56	1971	34.76	1299	45.96	563	57.16	1496	68.36	352
23.76	2330	34.96	1386	46.16	489	57.36	1541	68.56	343
23.96	2592	35.16	1439	46.36	440	57.56	1647	68.76	316
24.16	2818	35.36	1445	46.56	388	57.76	1774	68.96	278
24.36	3195	35.56	1413	46.76	334	57.96	1873	69.16	237
24.56	3741	35.76	1374	46.96	281	58.16	1907	69.36	198
24.76	4307	35.96	1358	47.16	282	58.36	1847	69.56	163
24.96	4717	36.16	1359	47.36	431	58.56	1719	69.76	132
25.16	4981	36.36	1344	47.56	712	58.76	1583	69.96	106
25.36	5239	36.56	1302	47.76	1008	58.96	1508	70.16	85
25.56	5564	36.76	1251	47.96	1192	59.16	1492	70.36	67
25.76	5897	36.96	1213	48.16	1263	59.36	1488	70.56	53
25.96	6161	37.16	1193	48.36	1279	59.56	1467	70.76	42
26.16	6318	37.36	1188	48.56	1294	59.76	1433	70.96	33
26.36	6344	37.56	1188	48.76	1323	59.96	1398	71.16	25
26.56	6276	37.76	1187	48.96	1366	60.16	1337	71.36	20
26.76	6184	37.96	1181	49.16	1375	60.36	1188	71.56	15
26.96	6140	38.16	1185	49.36	1261	60.56	964	71.76	12
27.16	6132	38.36	1224	49.56	1024	60.76	736	71.96	9
27.36	6086	38.56	1300	49.76	770	60.96	588	72.16	7
27.56	5978	38.76	1382	49.96	612	61.16	649	72.36	5
27.76	5842	38.96	1435	50.16	547	61.36	1077	72.56	4
27.96	5732	39.16	1446	50.36	518	61.56	1822	72.76	3
28.16	5687	39.36	1407	50.56	477	61.76	2599	72.96	2


1951 Arizona SPF Runoff Hydrograph
7000
6000
5000
4000
3000
2000
1000
0
Flow (cfs)
10
20
30
40
50
60
70
80
Time (hr)

4. Summary and Conclusions

Two SPF direct runoff hydrographs have been developed for White Tanks FRS No.3 watershed based on (1) the procedures documented in US Army Corps of Engineer (1982); (2) the computer program LAPRE-1 (US Army Corps of Engineer, 1989); and TR-20 rainfall-runoff modeling. These two SPFs are 1954 Queen Creek SPF and 1951 Arizona SPF. The SPF *direct runoff hydrograph* is essentially the same as the SPF *runoff hydrograph* since there is no baseflow for this particular study. The SPF direct runoff hydrographs will be used for reservoir routing at White Tanks FRS No.3 for future spillway modification. The SPF direct runoff volume has been found to be 4238 ac-ft and 6987 ac-ft for 1954 Queen Creek SPF and 1951 Arizona SPF, respectively. The digital file for the SPF direct runoff hydrographs can be found in "spfqc7h.trd" and "spf51_1.trd" in the diskette in the pocket of this report.

5. References

Sabol, G., Rumann, J., Khalili, D., Waters, S., and Lehman, T. (1995). "Drainage Design Manual for Maricopa County, Arizona," Volume I, Hydrology, Flood Control District of Maricopa County, Arizona.

NRCS (1998). "Hydrologic Analysis on White Tanks FRS #3."

NRCS (1990). "SCS Technical Release 20 (TR-20): Computer Program for Project Formulation."

US Army Corps of Engineer (1982). "Gila River Basin: Phoenix, Arizona & Vicinity (including New River, Hydrology Part 2," Design Memorandum No.2, Los Angeles District.

US Army Corps of Engineer (1989). "LAPRE-1, Preprocessor to HEC-1" Los Angels District.

6. Appendices

6.1 Input File for TR-20 1954 Queen Creek SPF Model ("spfqc7h.dat")

```
JOB TR-20 spfqc7h                          PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
 5 RAINFL 1              .25                                          LocSPF3h
 8          .000         .007        .014        .022        .030
 8          .040         .051        .062        .074        .087
 8          .099         .112        .126        .140        .155
 8          .170         .185        .213        .279        .377
 8          .602         .766        .846        .892        .932
 8          .952         .969        .985        1.00        1.00
 9 ENDTBL
 5 RAINFL 2              .1                                           6HR GEN
 8          .000         .005        .013        .020        .028
 8          .038         .045        .053        .060        .070
 8          .080         .085        .095        .108        .120
 8          .138         .150        .165        .190        .210
 8          .238         .280        .350        .440        .550
 8          .590         .620        .645        .668        .685
 8          .700         .720        .735        .753        .765
 8          .775         .790        .800        .810        .820
 8          .835         .843        .850        .863        .870
 8          .880         .890        .898        .908        .915
 8          .925         .930        .940        .945        .955
 8          .963         .970        .978        .985        .990
 8          1.00         1.00        1.00        1.00        1.00
 9 ENDTBL
 5 RAINFL 3              0.1                                          12HRGEN
 8          .000         .003        .007        .010        .013
 8          .016         .019        .022        .025        .028
 8          .031         .034        .037        .040        .043
 8          .045         .050        .054        .058        .062
 8          .066         .071        .075        .080        .085
 8          .089         .095        .101        .107        .112
 8          .118         .125        .132        .139        .146
 8          .153         .162        .171        .180        .189
 8          .198         .211        .224        .237        .250
 8          .264         .300        .345        .391        .436
 8          .491         .536        .564        .586        .607
 8          .629         .643        .657        .672        .686
 8          .700         .711        .721        .732        .742
 8          .753         .761        .769        .778        .786
 8          .795         .802        .809        .817        .824
 8          .832         .837        .843        .848        .854
 8          .859         .865        .870        .875        .881
 8          .886         .891        .895        .900        .905
 8          .909         .913        .917        .921        .925
 8          .929         .933        .936        .940        .944
 8          .948         .951        .954        .957        .960
 8          .963         .966        .969        .971        .974
 8          .977         .980        .982        .984        .986
 8          .989         .991        .993        .995        .998
 8          1.000       01.000       1.000       1.000       1.00
 9 ENDTBL
 5 RAINFL 4              0.1                                          18HRGEN
 8          .000         .001        .002        .003        .004
 8          .005         .005        .006        .007        .008
 8          .009         .012        .014        .017        .020
```

```
8          .023       .025       .028       .031       .033
8          .036       .040       .044       .049       .053
8          .057       .061       .065       .070       .074
8          .078       .084       .090       .096       .102
8          .108       .114       .120       .126       .132
8          .138       .146       .154       .162       .170
8          .179       .187       .195       .203       .211
8          .220       .238       .256       .275       .293
8          .311       .330       .348       .367       .385
8          .403       .430       .457       .484       .511
8          .538       .557       .577       .597       .616
8          .636       .653       .670       .687       .704
8          .721       .734       .746       .759       .771
8          .784       .792       .801       .810       .818
8          .827       .832       .838       .843       .848
8          .853       .856       .859       .862       .864
8          .867       .870       .872       .875       .878
8          .880       .882       .885       .887       .889
8          .891       .893       .895       .897       .899
8          .901       .903       .905       .907       .909
8          .911       .912       .914       .916       .917
8          .919       .920       .922       .924       .925
8          .927       .929       .930       .932       .934
8          .935       .937       .938       .940       .941
8          .943       .945       .946       .948       .949
8          .951       .952       .953       .955       .956
8          .957       .959       .960       .961       .963
8          .964       .965       .967       .968       .970
8          .971       .972       .974       .975       .976
8          .978       .979       .980       .982       .983
8          .984       .985       .986       .988       .989
8          .990       .991       .992       .993       .994
8          .995       .996       .997       .998       .999
8          1.000      1.000      1.000      1.000      1.000
9 ENDTBL
5 RAINFL 5            0.1                                          24HRGEN
8          0.000      0.000      0.001      0.001      0.002
8          0.002      0.002      0.003      0.003      0.003
8          0.004      0.005      0.007      0.009      0.010
8          0.012      0.013      0.015      0.016      0.018
8          0.019      0.022      0.024      0.027      0.030
8          0.032      0.035      0.037      0.040      0.042
8          0.045      0.048      0.051      0.055      0.058
8          0.061      0.064      0.068      0.071      0.074
8          0.078      0.082      0.087      0.091      0.096
8          0.100      0.104      0.109      0.113      0.118
8          0.122      0.127      0.132      0.137      0.142
8          0.147      0.151      0.156      0.161      0.166
8          0.171      0.177      0.184      0.191      0.198
8          0.205      0.214      0.224      0.233      0.242
8          0.252      0.265      0.278      0.291      0.303
8          0.316      0.334      0.351      0.368      0.386
8          0.403      0.425      0.447      0.468      0.490
8          0.512      0.527      0.543      0.558      0.574
8          0.589      0.603      0.617      0.631      0.645
8          0.659      0.671      0.684      0.696      0.709
8          0.721      0.731      0.741      0.751      0.761
8          0.771      0.779      0.786      0.793      0.800
8          0.808      0.814      0.820      0.825      0.831
8          0.837      0.840      0.843      0.847      0.850
8          0.853      0.855      0.857      0.859      0.861
8          0.864      0.866      0.868      0.870      0.872
8          0.874      0.876      0.878      0.880      0.881
8          0.883      0.885      0.886      0.888      0.890
8          0.891      0.893      0.895      0.896      0.898
8          0.899      0.901      0.902      0.904      0.905
8          0.907      0.908      0.909      0.910      0.912
8          0.913      0.914      0.915      0.916      0.917
8          0.919      0.920      0.921      0.922      0.923
8          0.924      0.926      0.927      0.928      0.929
8          0.930      0.932      0.933      0.935      0.936
```

```
8          0.938      0.940      0.941      0.943      0.944
8          0.946      0.947      0.947      0.948      0.949
8          0.950      0.950      0.951      0.952      0.953
8          0.953      0.955      0.956      0.957      0.958
8          0.959      0.960      0.961      0.962      0.963
8          0.964      0.965      0.966      0.967      0.968
8          0.969      0.970      0.971      0.972      0.973
8          0.974      0.975      0.976      0.977      0.978
8          0.979      0.980      0.981      0.982      0.983
8          0.984      0.985      0.986      0.987      0.988
8          0.988      0.989      0.990      0.991      0.991
8          0.992      0.993      0.994      0.995      0.995
8          0.996      0.997      0.998      0.998      0.999
8          1.000      1.000      1.000      1.000      1.000
9 ENDTBL
5 RAINFL 6            .25                                          48HRGEN
8          0.0000     0.0015     0.0029     0.0044     0.0058
8          0.0073     0.0088     0.0102     0.0117     0.0131
8          0.0146     0.0160     0.0175     0.0190     0.0204
8          0.0219     0.0233     0.0248     0.0263     0.0277
8          0.0292     0.0306     0.0321     0.0335     0.0350
8          0.0365     0.0379     0.0394     0.0408     0.0423
8          0.0438     0.0452     0.0467     0.0481     0.0496
8          0.0510     0.0525     0.0542     0.0558     0.0575
8          0.0592     0.0608     0.0625     0.0642     0.0658
8          0.0692     0.0725     0.0758     0.0792     0.0825
8          0.0858     0.0892     0.0925     0.0975     0.1025
8          0.1075     0.1125     0.1175     0.1225     0.1275
8          0.1325     0.1442     0.1560     0.1677     0.1794
8          0.1985     0.2176     0.2366     0.2557     0.3239
8          0.3921     0.4603     0.5285     0.5520     0.5754
8          0.5989     0.6224     0.6356     0.6488     0.6620
8          0.6752     0.6862     0.6972     0.7082     0.7192
8          0.7267     0.7342     0.7417     0.7492     0.7558
8          0.7625     0.7692     0.7758     0.7825     0.7892
8          0.7958     0.8025     0.8083     0.8142     0.8200
8          0.8258     0.8308     0.8358     0.8408     0.8458
8          0.8508     0.8558     0.8608     0.8658     0.8683
8          0.8708     0.8733     0.8758     0.8783     0.8808
8          0.8833     0.8858     0.8875     0.8892     0.8908
8          0.8925     0.8942     0.8958     0.8975     0.8992
8          0.9008     0.9025     0.9042     0.9058     0.9075
8          0.9092     0.9108     0.9125     0.9140     0.9154
8          0.9169     0.9183     0.9198     0.9213     0.9227
8          0.9242     0.9256     0.9271     0.9285     0.9300
8          0.9315     0.9329     0.9344     0.9358     0.9373
8          0.9388     0.9402     0.9417     0.9431     0.9446
8          0.9460     0.9475     0.9490     0.9504     0.9519
8          0.9533     0.9548     0.9563     0.9577     0.9592
8          0.9606     0.9621     0.9635     0.9650     0.9665
8          0.9679     0.9694     0.9708     0.9723     0.9737
8          0.9752     0.9767     0.9781     0.9796     0.9810
8          0.9825     0.9840     0.9854     0.9869     0.9883
8          0.9898     0.9912     0.9927     0.9942     0.9956
8          0.9971     0.9985     1.0000     1.0000     1.0
9 ENDTBL
5 RAINFL 7            .25                                          72HRGEN
8          0.0000     0.0005     0.0009     0.0014     0.0019
8          0.0025     0.0032     0.0038     0.0044     0.0051
8          0.0057     0.0063     0.0070     0.0076     0.0082
8          0.0089     0.0095     0.0103     0.0111     0.0119
8          0.0127     0.0134     0.0142     0.0150     0.0158
8          0.0171     0.0184     0.0196     0.0209     0.0222
8          0.0234     0.0247     0.0259     0.0272     0.0285
8          0.0297     0.0310     0.0323     0.0335     0.0348
8          0.0361     0.0375     0.0389     0.0403     0.0418
8          0.0432     0.0446     0.0460     0.0475     0.0489
8          0.0503     0.0517     0.0532     0.0546     0.0560
8          0.0574     0.0589     0.0604     0.0620     0.0636
8          0.0652     0.0668     0.0684     0.0699     0.0715
8          0.0731     0.0747     0.0763     0.0778     0.0797
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8          0.0816     0.0835     0.0854     0.0877     0.0899
8          0.0921     0.0943     0.0968     0.0994     0.1019
8          0.1044     0.1073     0.1101     0.1130     0.1158
8          0.1193     0.1228     0.1263     0.1297     0.1335
8          0.1373     0.1411     0.1449     0.1491     0.1532
8          0.1573     0.1614     0.1725     0.1837     0.1948
8          0.2059     0.2241     0.2422     0.2603     0.2784
8          0.3431     0.4078     0.4726     0.5373     0.5596
8          0.5819     0.6042     0.6265     0.6390     0.6515
8          0.6641     0.6766     0.6870     0.6975     0.7079
8          0.7184     0.7255     0.7326     0.7397     0.7468
8          0.7535     0.7601     0.7668     0.7734     0.7794
8          0.7854     0.7915     0.7975     0.8030     0.8085
8          0.8141     0.8196     0.8247     0.8297     0.8348
8          0.8399     0.8443     0.8487     0.8532     0.8576
8          0.8598     0.8620     0.8642     0.8665     0.8685
8          0.8706     0.8726     0.8747     0.8766     0.8785
8          0.8804     0.8823     0.8840     0.8858     0.8875
8          0.8892     0.8908     0.8924     0.8940     0.8956
8          0.8972     0.8987     0.9003     0.9019     0.9035
8          0.9051     0.9066     0.9082     0.9098     0.9114
8          0.9130     0.9146     0.9160     0.9174     0.9188
8          0.9203     0.9217     0.9231     0.9245     0.9259
8          0.9274     0.9288     0.9302     0.9316     0.9329
8          0.9342     0.9354     0.9367     0.9380     0.9392
8          0.9405     0.9418     0.9430     0.9443     0.9456
8          0.9468     0.9481     0.9494     0.9506     0.9519
8          0.9530     0.9541     0.9552     0.9563     0.9574
8          0.9585     0.9597     0.9608     0.9619     0.9630
8          0.9641     0.9652     0.9661     0.9671     0.9680
8          0.9690     0.9699     0.9709     0.9718     0.9728
8          0.9736     0.9744     0.9752     0.9759     0.9767
8          0.9775     0.9783     0.9791     0.9797     0.9804
8          0.9810     0.9816     0.9823     0.9829     0.9835
8          0.9842     0.9847     0.9851     0.9856     0.9861
8          0.9866     0.9870     0.9875     0.9880     0.9884
8          0.9889     0.9894     0.9899     0.9902     0.9905
8          0.9908     0.9911     0.9915     0.9918     0.9921
8          0.9924     0.9927     0.9930     0.9934     0.9937
8          0.9940     0.9943     0.9946     0.9949     0.9953
8          0.9956     0.9959     0.9962     0.9965     0.9968
8          0.9972     0.9975     0.9978     0.9981     0.9984
8          0.9987     0.9989     0.9991     0.9992     0.9994
8          0.9995     0.9997     0.9998     1.0000     1.0000
9 ENDTBL
5 RAINFL 8     1      2.4                                          10-DAY
8          .0000      .0024      .0048      .0073      .0097
8          .0121      .0148      .0174      .0201      .0228
8          .0254      .0284      .0314      .0344      .0374
8          .0404      .0437      .0471      .0505      .0539
8          .0572      .0612      .0651      .0690      .0729
8          .0768      .0815      .0862      .0909      .0955
8          .1002      .1061      .1120      .1179      .1238
8          .1297      .1377      .1458      .1538      .1618
8          .1699      .1832      .1966      .2099      .2232
8          .2366      .2548      .2778      .3093      .3614
8          1.092      1.174      1.213      1.240      1.260
8          1.276      1.286      1.296      1.306      1.316
8          1.326      1.333      1.340      1.347      1.354
8          1.360      1.365      1.371      1.376      1.381
8          1.386      1.391      1.395      1.399      1.403
8          1.408      1.411      1.415      1.418      1.422
8          1.426      1.429      1.432      1.435      1.438
8          1.442      1.444      1.447      1.450      1.453
8          1.456      1.458      1.461      1.463      1.466
8          1.468      1.471      1.473      1.475      1.477
8          1.48       1.48       1.48       1.48       1.48
9 ENDTBL
4 DIMHYD              .0556                                         WT3
8          0.0        .03        .10        .19        .31
8          .47        .66        .82        .93        .99
```

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8          1.0        .99        .93        .82        .66
8          .47        .31        .03        .00        .00
9 ENDTBL
2 XSECTN   005        1.0        8.77                            BOSSCS#5
8                     0.         0.0        0.0
8                     0.35       5.         5.56
8                     1.03       50.        30.95
8                     1.39       100.       52.16
8                     1.94       200.       88.72
8                     2.63       400.       148.61
8                     3.51       800.       260.63
8                     4.62       1600.      459.66
8                     6.04       3200.      929.36
8                     7.38       6400.      1811.51
8                     8.77       12800.     3374.20
8                     10.17      25600.     6398.87
8                     11.89      51200.     10982.51
9 ENDTBL
2 XSECTN   010        1.0        8.94                            BOSSCS#4
8                     0.         0.0        0.0
8                     0.91       5.         4.95
8                     2.03       50.        24.80
8                     2.63       100.       41.32
8                     3.34       200.       74.14
8                     4.15       400.       130.28
8                     5.23       800.       223.37
8                     6.41       1600.      447.51
8                     7.65       3200.      898.64
8                     8.94       6400.      1690.88
8                     10.29      12800.     3331.95
8                     11.64      25600.     6185.81
8                     13.14      51200.     10661.04
9 ENDTBL
2 XSECTN   020        1.0        7.3                             REACHC
8                     0.         0.0        0.0
8                     1.01       100.       57.78
8                     1.49       200.       86.31
8                     1.88       300.       110.25
8                     2.49       500.       149.47
8                     3.68       1000.      226.31
8                     5.40       2000.      346.26
8                     7.85       4000.      533.39
8                     9.64       6000.      688.07
8                     11.16      8000.      838.10
8                     12.46      10000.     985.31
8                     13.61      12000.     1122.03
8                     14.56      14000.     1236.94
8                     15.43      16000.     1345.18
8                     16.31      18000.     1456.68
9 ENDTBL
2 XSECTN   025        1.0        7.3                             REACHB
8                     0.         0.0        0.0
8                     0.63       100.       80.89
8                     0.93       200.       120.32
8                     1.17       300.       151.77
8                     1.56       500.       203.28
8                     2.30       1000.      302.00
8                     3.38       2000.      449.24
8                     4.97       4000.      673.73
8                     6.23       6000.      855.96
8                     7.31       8000.      1016.35
8                     8.24       10000.     1158.51
8                     9.09       12000.     1293.31
8                     9.90       14000.     1425.57
8                     10.64      16000.     1549.17
8                     11.36      18000.     1673.11
9 ENDTBL
2 XSECTN   030        1.0        9.45                            BOSSCS#6
8                     0.         0.0        0.0
8                     0.77       5.         4.67
8                     1.54       50.        32.06
```

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8                    1.78        100.        56.64
8                    2.10        200.        100.59
8                    2.50        400.        179.97
8                    3.01        800.        320.25
8                    3.63        1600.       589.66
8                    4.35        3200.       1110.72
8                    5.21        6400.       2084.48
8                    6.03        12800.      4119.83
8                    6.99        25600.      6856.75
8                    8.28        51200.      11085.87
9 ENDTBL
2 XSECTN    045      1.0         4.87                                REACHA
8                    0.          0.0         0.0
8                    0.60        100.        85.69
8                    0.90        200.        127.94
8                    1.13        300.        161.93
8                    1.52        500.        217.27
8                    2.25        1000.       324.03
8                    3.31        2000.       483.02
8                    4.87        4000.       722.17
8                    6.09        6000.       914.99
8                    7.15        8000.       1084.61
8                    8.05        10000.      1234.17
8                    8.87        12000.      1373.80
8                    9.64        14000.      1507.84
8                    10.34       16000.      1633.45
8                    11.00       18000.      1753.12
9 ENDTBL
2 XSECTN    060      1.0         4.7                                 2CP6CP7
8                    0.          0.0         0.0
8                    2.36        100.        45.12
8                    2.88        200.        83.75
8                    3.18        300.        114.33
8                    3.64        500.        172.72
8                    4.42        1000.       289.04
8                    5.40        2000.       470.72
8                    6.87        4000.       782.74
8                    7.91        6000.       1020.12
8                    8.79        8000.       1231.25
8                    9.60        10000.      1435.05
8                    10.26       12000.      1618.34
8                    10.94       14000.      1812.58
8                    11.47       16000.      1983.46
8                    11.96       18000.      2150.12
9 ENDTBL
2 XSECTN    067      1.0         8.77                                BOSSCS#5
8                    0.          0.0         0.0
8                    0.35        5.          5.56
8                    1.03        50.         30.95
8                    1.39        100.        52.16
8                    1.94        200.        88.72
8                    2.63        400.        148.61
8                    3.51        800.        260.63
8                    4.62        1600.       459.66
8                    6.04        3200.       929.36
8                    7.38        6400.       1811.51
8                    8.77        12800.      3374.20
8                    10.17       25600.      6398.87
8                    11.89       51200.      10982.51
9 ENDTBL
3 STRUCT      01                                                     95/11/6
8                    1196.5      0.0         0.
8                    1198.       0.8         152.
8                    1200.       1.0         425.
8                    1204.       1.5         1175.
8                    1206.       1.7         1638.
8                    1208.       1.9         2160.
8                    1210.       2.2         2810.
8                    1210.2      202.        2880.
8                    1210.5      885.        2990.
8                    1210.8      1900.       3100.
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8                        1211.2       3691.        3240.
8                        1211.6       5780.        3390.
8                        1211.9       7459.        3510.
8                        1212.2       9293.        3620.
8                        1212.5       11289.       3740.
8                        1212.7       12671.       3810.
8                        1213.0       14882.       3930.
8                        1213.2       16440.       4000.
8                        1214.0       23168.       4310.
8                        1215.0       32915.       4760.
9 ENDTBL
6 RUNOFF 1 001        1 2.45        87.2         0.85         1 1
6 REACH  3 005   1    7 9100.                                  1            BOSS#6
6 REACH  3 010   7    2 9100.                                  1            BOSS#4
6 RUNOFF 1 002        3 2.34        78.2         0.73         1 1
6 ADDHYD 4 012   2 3 1                                         1 1
6 DIVERT 6 012   1 4 7 4100.        .572         200.         1 1          OLIVE
6 REACH  3 020   4    7 3332.                                  1            REACH C
6 REACH  3 025   7    5 1950.                                  1            REACH B
6 RUNOFF 1 003        6 3.96        87.2         0.88         1 1
6 REACH  3 030   6    7 8865.                                  1            BOSS#6
6 REACH  3 005   7    1 8865.                                  1            BOSS#5
6 REACH  3 025   1    7 1950.                                  1            REACH B
6 RUNOFF 1 004        1 2.02        75.5         0.79         1 1
6 ADDHYD 4 034   7 1 2                                         1 1
6 ADDHYD 4 035   5 2 3                                         1 1
6 DIVERT 6 035   3 4 7 11000.       .822         199.         1 1          NORTHERN
6 REACH  3 045   4    5 4200.                                  1            REACH A
6 RUNOFF 1 006        2 1.50        87.2         0.47         1 1
6 REACH  3 060   2    3 7540.                                  1            CP6CP7
6 REACH  3 067   3    4 5140.                                  1            BOSS#5
6 ADDHYD 4 064   5 4 3                                         1 1
6 RUNOFF 1 005        6 4.76        76.5         0.78         1 1
6 RUNOFF 1 007        7 3.46        78.9         1.01         1 1
6 ADDHYD 4 075   6 7 1                                         1 1
6 ADDHYD 4 076   1 3 2                                         1 1      1
6 RESVOR 2    01 2    1 1196.5                                 1 1      1
  ENDATA
7 LIST                  1.0                      1.
7 INCREM 6              0.05
7 COMPUT 7 001       01 0.           6.0         1.0          1 2  01  01
  ENDCMP 1
  ENDJOB 2
```

6.2 Output File for TR-20 1954 Queen Creek SPF Model ("spfqc7h.out")

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1


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

JOB TR-20 spfqc7h                        PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
 5 RAINFL 1            .25                                          LocSPF3h
 8          .000        .007        .014        .022        .030
 8          .040        .051        .062        .074        .087
 8          .099        .112        .126        .140        .155
 8          .170        .185        .213        .279        .377
 8          .602        .766        .846        .892        .932
 8          .952        .969        .985        1.00        1.00
 9 ENDTBL
 5 RAINFL 2            .1                                           6HR GEN
 8          .000        .005        .013        .020        .028
 8          .038        .045        .053        .060        .070
 8          .080        .085        .095        .108        .120
 8          .138        .150        .165        .190        .210
 8          .238        .280        .350        .440        .550
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 8          .590        .620        .645        .668        .685
 8          .700        .720        .735        .753        .765
 8          .775        .790        .800        .810        .820
 8          .835        .843        .850        .863        .870
 8          .880        .890        .898        .908        .915
 8          .925        .930        .940        .945        .955
 8          .963        .970        .978        .985        .990
 8          1.00        1.00        1.00        1.00        1.00
 9 ENDTBL
 5 RAINFL 3            0.1                                          12HRGEN
 8          .000        .003        .007        .010        .013
 8          .016        .019        .022        .025        .028
 8          .031        .034        .037        .040        .043
 8          .045        .050        .054        .058        .062
 8          .066        .071        .075        .080        .085
 8          .089        .095        .101        .107        .112
 8          .118        .125        .132        .139        .146
 8          .153        .162        .171        .180        .189
 8          .198        .211        .224        .237        .250
 8          .264        .300        .345        .391        .436
 8          .491        .536        .564        .586        .607
 8          .629        .643        .657        .672        .686
 8          .700        .711        .721        .732        .742
 8          .753        .761        .769        .778        .786
 8          .795        .802        .809        .817        .824
 8          .832        .837        .843        .848        .854
 8          .859        .865        .870        .875        .881
 8          .886        .891        .895        .900        .905
 8          .909        .913        .917        .921        .925
 8          .929        .933        .936        .940        .944
 8          .948        .951        .954        .957        .960
 8          .963        .966        .969        .971        .974
 8          .977        .980        .982        .984        .986
1
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********************80-80 LIST OF INPUT DATA (CONTINUED)********************

 8          .989        .991        .993        .995        .998
 8          1.000      01.000       1.000       1.000       1.00
 9 ENDTBL
 5 RAINFL 4            0.1                                          18HRGEN
 8          .000        .001        .002        .003        .004
 8          .005        .005        .006        .007        .008
 8          .009        .012        .014        .017        .020
 8          .023        .025        .028        .031        .033
 8          .036        .040        .044        .049        .053
 8          .057        .061        .065        .070        .074
 8          .078        .084        .090        .096        .102
 8          .108        .114        .120        .126        .132
 8          .138        .146        .154        .162        .170
 8          .179        .187        .195        .203        .211
 8          .220        .238        .256        .275        .293
 8          .311        .330        .348        .367        .385
 8          .403        .430        .457        .484        .511
 8          .538        .557        .577        .597        .616
 8          .636        .653        .670        .687        .704
 8          .721        .734        .746        .759        .771
 8          .784        .792        .801        .810        .818
 8          .827        .832        .838        .843        .848
 8          .853        .856        .859        .862        .864
 8          .867        .870        .872        .875        .878
 8          .880        .882        .885        .887        .889
 8          .891        .893        .895        .897        .899
 8          .901        .903        .905        .907        .909
 8          .911        .912        .914        .916        .917
 8          .919        .920        .922        .924        .925
 8          .927        .929        .930        .932        .934
 8          .935        .937        .938        .940        .941
 8          .943        .945        .946        .948        .949
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8          .951       .952       .953       .955       .956
8          .957       .959       .960       .961       .963
8          .964       .965       .967       .968       .970
8          .971       .972       .974       .975       .976
8          .978       .979       .980       .982       .983
8          .984       .985       .986       .988       .989
8          .990       .991       .992       .993       .994
8          .995       .996       .997       .998       .999
8          1.000      1.000      1.000      1.000      1.000
9 ENDTBL
5 RAINFL 5            0.1                                          24HRGEN
8          0.000      0.000      0.001      0.001      0.002
8          0.002      0.002      0.003      0.003      0.003
8          0.004      0.005      0.007      0.009      0.010
8          0.012      0.013      0.015      0.016      0.018
8          0.019      0.022      0.024      0.027      0.030
8          0.032      0.035      0.037      0.040      0.042
8          0.045      0.048      0.051      0.055      0.058
1
```

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

8          0.061      0.064      0.068      0.071      0.074
8          0.078      0.082      0.087      0.091      0.096
8          0.100      0.104      0.109      0.113      0.118
8          0.122      0.127      0.132      0.137      0.142
8          0.147      0.151      0.156      0.161      0.166
8          0.171      0.177      0.184      0.191      0.198
8          0.205      0.214      0.224      0.233      0.242
8          0.252      0.265      0.278      0.291      0.303
8          0.316      0.334      0.351      0.368      0.386
8          0.403      0.425      0.447      0.468      0.490
8          0.512      0.527      0.543      0.558      0.574
8          0.589      0.603      0.617      0.631      0.645
8          0.659      0.671      0.684      0.696      0.709
8          0.721      0.731      0.741      0.751      0.761
8          0.771      0.779      0.786      0.793      0.800
8          0.808      0.814      0.820      0.825      0.831
8          0.837      0.840      0.843      0.847      0.850
8          0.853      0.855      0.857      0.859      0.861
8          0.864      0.866      0.868      0.870      0.872
8          0.874      0.876      0.878      0.880      0.881
8          0.883      0.885      0.886      0.888      0.890
8          0.891      0.893      0.895      0.896      0.898
8          0.899      0.901      0.902      0.904      0.905
8          0.907      0.908      0.909      0.910      0.912
8          0.913      0.914      0.915      0.916      0.917
8          0.919      0.920      0.921      0.922      0.923
8          0.924      0.926      0.927      0.928      0.929
8          0.930      0.932      0.933      0.935      0.936
8          0.938      0.940      0.941      0.943      0.944
8          0.946      0.947      0.947      0.948      0.949
8          0.950      0.950      0.951      0.952      0.953
8          0.953      0.955      0.956      0.957      0.958
8          0.959      0.960      0.961      0.962      0.963
8          0.964      0.965      0.966      0.967      0.968
8          0.969      0.970      0.971      0.972      0.973
8          0.974      0.975      0.976      0.977      0.978
8          0.979      0.980      0.981      0.982      0.983
8          0.984      0.985      0.986      0.987      0.988
8          0.988      0.989      0.990      0.991      0.991
8          0.992      0.993      0.994      0.995      0.995
8          0.996      0.997      0.998      0.998      0.999
8          1.000      1.000      1.000      1.000      1.000
9 ENDTBL
5 RAINFL 6            .25                                          48HRGEN
8          0.0000     0.0015     0.0029     0.0044     0.0058
8          0.0073     0.0088     0.0102     0.0117     0.0131
8          0.0146     0.0160     0.0175     0.0190     0.0204
```

```
8          0.0219     0.0233     0.0248     0.0263     0.0277
8          0.0292     0.0306     0.0321     0.0335     0.0350
8          0.0365     0.0379     0.0394     0.0408     0.0423
1

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

8          0.0438     0.0452     0.0467     0.0481     0.0496
8          0.0510     0.0525     0.0542     0.0558     0.0575
8          0.0592     0.0608     0.0625     0.0642     0.0658
8          0.0692     0.0725     0.0758     0.0792     0.0825
8          0.0858     0.0892     0.0925     0.0975     0.1025
8          0.1075     0.1125     0.1175     0.1225     0.1275
8          0.1325     0.1442     0.1560     0.1677     0.1794
8          0.1985     0.2176     0.2366     0.2557     0.3239
8          0.3921     0.4603     0.5285     0.5520     0.5754
8          0.5989     0.6224     0.6356     0.6488     0.6620
8          0.6752     0.6862     0.6972     0.7082     0.7192
8          0.7267     0.7342     0.7417     0.7492     0.7558
8          0.7625     0.7692     0.7758     0.7825     0.7892
8          0.7958     0.8025     0.8083     0.8142     0.8200
8          0.8258     0.8308     0.8358     0.8408     0.8458
8          0.8508     0.8558     0.8608     0.8658     0.8683
8          0.8708     0.8733     0.8758     0.8783     0.8808
8          0.8833     0.8858     0.8875     0.8892     0.8908
8          0.8925     0.8942     0.8958     0.8975     0.8992
8          0.9008     0.9025     0.9042     0.9058     0.9075
8          0.9092     0.9108     0.9125     0.9140     0.9154
8          0.9169     0.9183     0.9198     0.9213     0.9227
8          0.9242     0.9256     0.9271     0.9285     0.9300
8          0.9315     0.9329     0.9344     0.9358     0.9373
8          0.9388     0.9402     0.9417     0.9431     0.9446
8          0.9460     0.9475     0.9490     0.9504     0.9519
8          0.9533     0.9548     0.9563     0.9577     0.9592
8          0.9606     0.9621     0.9635     0.9650     0.9665
8          0.9679     0.9694     0.9708     0.9723     0.9737
8          0.9752     0.9767     0.9781     0.9796     0.9810
8          0.9825     0.9840     0.9854     0.9869     0.9883
8          0.9898     0.9912     0.9927     0.9942     0.9956
8          0.9971     0.9985     1.0000     1.0000     1.0
9 ENDTBL
5 RAINFL 7            .25                                          72HRGEN
8          0.0000     0.0005     0.0009     0.0014     0.0019
8          0.0025     0.0032     0.0038     0.0044     0.0051
8          0.0057     0.0063     0.0070     0.0076     0.0082
8          0.0089     0.0095     0.0103     0.0111     0.0119
8          0.0127     0.0134     0.0142     0.0150     0.0158
8          0.0171     0.0184     0.0196     0.0209     0.0222
8          0.0234     0.0247     0.0259     0.0272     0.0285
8          0.0297     0.0310     0.0323     0.0335     0.0348
8          0.0361     0.0375     0.0389     0.0403     0.0418
8          0.0432     0.0446     0.0460     0.0475     0.0489
8          0.0503     0.0517     0.0532     0.0546     0.0560
8          0.0574     0.0589     0.0604     0.0620     0.0636
8          0.0652     0.0668     0.0684     0.0699     0.0715
8          0.0731     0.0747     0.0763     0.0778     0.0797
8          0.0816     0.0835     0.0854     0.0877     0.0899
1

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

8          0.0921     0.0943     0.0968     0.0994     0.1019
8          0.1044     0.1073     0.1101     0.1130     0.1158
8          0.1193     0.1228     0.1263     0.1297     0.1335
8          0.1373     0.1411     0.1449     0.1491     0.1532
8          0.1573     0.1614     0.1725     0.1837     0.1948
8          0.2059     0.2241     0.2422     0.2603     0.2784
```

```
 8          0.3431      0.4078      0.4726      0.5373      0.5596
 8          0.5819      0.6042      0.6265      0.6390      0.6515
 8          0.6641      0.6766      0.6870      0.6975      0.7079
 8          0.7184      0.7255      0.7326      0.7397      0.7468
 8          0.7535      0.7601      0.7668      0.7734      0.7794
 8          0.7854      0.7915      0.7975      0.8030      0.8085
 8          0.8141      0.8196      0.8247      0.8297      0.8348
 8          0.8399      0.8443      0.8487      0.8532      0.8576
 8          0.8598      0.8620      0.8642      0.8665      0.8685
 8          0.8706      0.8726      0.8747      0.8766      0.8785
 8          0.8804      0.8823      0.8840      0.8858      0.8875
 8          0.8892      0.8908      0.8924      0.8940      0.8956
 8          0.8972      0.8987      0.9003      0.9019      0.9035
 8          0.9051      0.9066      0.9082      0.9098      0.9114
 8          0.9130      0.9146      0.9160      0.9174      0.9188
 8          0.9203      0.9217      0.9231      0.9245      0.9259
 8          0.9274      0.9288      0.9302      0.9316      0.9329
 8          0.9342      0.9354      0.9367      0.9380      0.9392
 8          0.9405      0.9418      0.9430      0.9443      0.9456
 8          0.9468      0.9481      0.9494      0.9506      0.9519
 8          0.9530      0.9541      0.9552      0.9563      0.9574
 8          0.9585      0.9597      0.9608      0.9619      0.9630
 8          0.9641      0.9652      0.9661      0.9671      0.9680
 8          0.9690      0.9699      0.9709      0.9718      0.9728
 8          0.9736      0.9744      0.9752      0.9759      0.9767
 8          0.9775      0.9783      0.9791      0.9797      0.9804
 8          0.9810      0.9816      0.9823      0.9829      0.9835
 8          0.9842      0.9847      0.9851      0.9856      0.9861
 8          0.9866      0.9870      0.9875      0.9880      0.9884
 8          0.9889      0.9894      0.9899      0.9902      0.9905
 8          0.9908      0.9911      0.9915      0.9918      0.9921
 8          0.9924      0.9927      0.9930      0.9934      0.9937
 8          0.9940      0.9943      0.9946      0.9949      0.9953
 8          0.9956      0.9959      0.9962      0.9965      0.9968
 8          0.9972      0.9975      0.9978      0.9981      0.9984
 8          0.9987      0.9989      0.9991      0.9992      0.9994
 8          0.9995      0.9997      0.9998      1.0000      1.0000
 9 ENDTBL
 5 RAINFL 8     1        2.4                                          10-DAY
 8          .0000       .0024       .0048       .0073       .0097
 8          .0121       .0148       .0174       .0201       .0228
 8          .0254       .0284       .0314       .0344       .0374
 8          .0404       .0437       .0471       .0505       .0539
 8          .0572       .0612       .0651       .0690       .0729
1


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

 8          .0768       .0815       .0862       .0909       .0955
 8          .1002       .1061       .1120       .1179       .1238
 8          .1297       .1377       .1458       .1538       .1618
 8          .1699       .1832       .1966       .2099       .2232
 8          .2366       .2548       .2778       .3093       .3614
 8          1.092       1.174       1.213       1.240       1.260
 8          1.276       1.286       1.296       1.306       1.316
 8          1.326       1.333       1.340       1.347       1.354
 8          1.360       1.365       1.371       1.376       1.381
 8          1.386       1.391       1.395       1.399       1.403
 8          1.408       1.411       1.415       1.418       1.422
 8          1.426       1.429       1.432       1.435       1.438
 8          1.442       1.444       1.447       1.450       1.453
 8          1.456       1.458       1.461       1.463       1.466
 8          1.468       1.471       1.473       1.475       1.477
 8          1.48        1.48        1.48        1.48        1.48
 9 ENDTBL
 4 DIMHYD               .0556                                            WT3
 8          0.0         .03         .10         .19         .31
 8          .47         .66         .82         .93         .99
 8          1.0         .99         .93         .82         .66
```

```
 8          .47         .31         .03         .00         .00
 9 ENDTBL
 2 XSECTN   005         1.0         8.77                                BOSSCS#5
 8                      0.          0.0         0.0
 8                      0.35        5.          5.56
 8                      1.03        50.         30.95
 8                      1.39        100.        52.16
 8                      1.94        200.        88.72
 8                      2.63        400.        148.61
 8                      3.51        800.        260.63
 8                      4.62        1600.       459.66
 8                      6.04        3200.       929.36
 8                      7.38        6400.       1811.51
 8                      8.77        12800.      3374.20
 8                      10.17       25600.      6398.87
 8                      11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN   010         1.0         8.94                                BOSSCS#4
 8                      0.          0.0         0.0
 8                      0.91        5.          4.95
 8                      2.03        50.         24.80
 8                      2.63        100.        41.32
 8                      3.34        200.        74.14
 8                      4.15        400.        130.28
 8                      5.23        800.        223.37
 8                      6.41        1600.       447.51
 8                      7.65        3200.       898.64
 8                      8.94        6400.       1690.88
 8                      10.29       12800.      3331.95
1


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

 8                      11.64       25600.      6185.81
 8                      13.14       51200.      10661.04
 9 ENDTBL
 2 XSECTN   020         1.0         7.3                                 REACHC
 8                      0.          0.0         0.0
 8                      1.01        100.        57.78
 8                      1.49        200.        86.81
 8                      1.88        300.        110.25
 8                      2.49        500.        149.47
 8                      3.68        1000.       226.31
 8                      5.40        2000.       346.26
 8                      7.85        4000.       533.39
 8                      9.64        6000.       688.07
 8                      11.16       8000.       838.10
 8                      12.46       10000.      985.31
 8                      13.61       12000.      1122.03
 8                      14.56       14000.      1236.94
 8                      15.43       16000.      1345.18
 8                      16.31       18000.      1456.68
 9 ENDTBL
 2 XSECTN   025         1.0         7.3                                 REACHB
 8                      0.          0.0         0.0
 8                      0.63        100.        80.89
 8                      0.93        200.        120.32
 8                      1.17        300.        151.77
 8                      1.56        500.        203.28
 8                      2.30        1000.       302.00
 8                      3.38        2000.       449.24
 8                      4.97        4000.       673.73
 8                      6.23        6000.       855.96
 8                      7.31        8000.       1016.35
 8                      8.24        10000.      1158.51
 8                      9.09        12000.      1293.31
 8                      9.90        14000.      1425.57
 8                      10.64       16000.      1549.17
 8                      11.36       18000.      1673.11
```

```
 9 ENDTBL
 2 XSECTN    030          1.0          9.45                                BOSSCS#6
 8                        0.           0.0          0.0
 8                        0.77         5.           4.67
 8                        1.54         50.          32.06
 8                        1.78         100.         56.64
 8                        2.10         200.         100.59
 8                        2.50         400.         179.97
 8                        3.01         800.         320.25
 8                        3.63         1600.        589.66
 8                        4.35         3200.        1110.72
 8                        5.21         6400.        2084.48
 8                        6.03         12800.       4119.83
 8                        6.99         25600.       6856.75
1
```

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

 8                        8.28         51200.       11085.87
 9 ENDTBL
 2 XSECTN    045          1.0          4.87                                REACHA
 8                        0.           0.0          0.0
 8                        0.60         100.         85.69
 8                        0.90         200.         127.94
 8                        1.13         300.         161.93
 8                        1.52         500.         217.27
 8                        2.25         1000.        324.03
 8                        3.31         2000.        483.02
 8                        4.87         4000.        722.17
 8                        6.09         6000.        914.99
 8                        7.15         8000.        1084.61
 8                        8.05         10000.       1234.17
 8                        8.87         12000.       1373.80
 8                        9.64         14000.       1507.84
 8                        10.34        16000.       1633.45
 8                        11.00        18000.       1753.12
 9 ENDTBL
 2 XSECTN    060          1.0          4.7                                 2CP6CP7
 8                        0.           0.0          0.0
 8                        2.36         100.         45.12
 8                        2.88         200.         83.75
 8                        3.18         300.         114.33
 8                        3.64         500.         172.72
 8                        4.42         1000.        289.04
 8                        5.40         2000.        470.72
 8                        6.87         4000.        782.74
 8                        7.91         6000.        1020.12
 8                        8.79         8000.        1231.25
 8                        9.60         10000.       1435.05
 8                        10.26        12000.       1618.34
 8                        10.94        14000.       1812.58
 8                        11.47        16000.       1983.46
 8                        11.96        18000.       2150.12
 9 ENDTBL
 2 XSECTN    067          1.0          8.77                                BOSSCS#5
 8                        0.           0.0          0.0
 8                        0.35         5.           5.56
 8                        1.03         50.          30.95
 8                        1.39         100.         52.16
 8                        1.94         200.         88.72
 8                        2.63         400.         148.61
 8                        3.51         800.         260.63
 8                        4.62         1600.        459.66
 8                        6.04         3200.        929.36
 8                        7.38         6400.        1811.51
 8                        8.77         12800.       3374.20
 8                        10.17        25600.       6398.87
 8                        11.89        51200.       10982.51
1
```

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

 9 ENDTBL
 3 STRUCT      01                                                        95/11/6
 8                        1196.5      0.0         0.
 8                        1198.       0.8         152.
 8                        1200.       1.0         425.
 8                        1204.       1.5         1175.
 8                        1206.       1.7         1638.
 8                        1208.       1.9         2160.
 8                        1210.       2.2         2810.
 8                        1210.2      202.        2880.
 8                        1210.5      885.        2990.
 8                        1210.8      1900.       3100.
 8                        1211.2      3691.       3240.
 8                        1211.6      5780.       3390.
 8                        1211.9      7459.       3510.
 8                        1212.2      9293.       3620.
 8                        1212.5      11289.      3740.
 8                        1212.7      12671.      3810.
 8                        1213.0      14882.      3930.
 8                        1213.2      16440.      4000.
 8                        1214.0      23168.      4310.
 8                        1215.0      32915.      4760.
 9 ENDTBL
 6 RUNOFF 1 001        1 2.45        87.2        0.85        1 1
 6 REACH  3 005   1    7 9100.                                 1           BOSS#6
 6 REACH  3 010   7    2 9100.                                 1           BOSS#4
 6 RUNOFF 1 002        3 2.34        78.2        0.73        1 1
 6 ADDHYD 4 012   2 3 1                                        1 1
 6 DIVERT 6 012   1 4 7 4100.        .572        200.        1 1         OLIVE
 6 REACH  3 020   4    7 3332.                                 1           REACH C
 6 REACH  3 025   7    5 1950.                                 1           REACH B
 6 RUNOFF 1 003        6 3.96        87.2        0.88        1 1
 6 REACH  3 030   6    7 8865.                                 1           BOSS#6
 6 REACH  3 005   7    1 8865.                                 1           BOSS#5
 6 REACH  3 025   1    7 1950.                                 1           REACH B
 6 RUNOFF 1 004        1 2.02        75.5        0.79        1 1
 6 ADDHYD 4 034   7 1 2                                        1 1
 6 ADDHYD 4 035   5 2 3                                        1 1
 6 DIVERT 6 035   3 4 7 11000.       .822        199.        1 1         NORTHERN
 6 REACH  3 045   4    5 4200.                                 1           REACH A
 6 RUNOFF 1 006        2 1.50        87.2        0.47        1 1
 6 REACH  3 060   2    3 7540.                                 1           CP6CP7
 6 REACH  3 067   3    4 5140.                                 1           BOSS#5
 6 ADDHYD 4 064   5 4 3                                        1 1
 6 RUNOFF 1 005        6 4.76        76.5        0.78        1 1
 6 RUNOFF 1 007        7 3.46        78.9        1.01        1 1
 6 ADDHYD 4 075   6 7 1                                        1 1
 6 ADDHYD 4 076   1 3 2                                        1 1     1
 6 RESVOR 2    01 2    1 1196.5                                1 1     1
   ENDATA
1


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

 7 LIST                  1.0                     1.
 7 INCREM 6              0.05
 7 COMPUT 7 001       01 0.          6.0         1.0         1 2  01  01
   ENDCMP 1
   ENDJOB 2

*******************************END OF 80-80 LIST******************************
1
 TR20 ------------------------------------------------------------------ SCS -
 spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
```

COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

The Users' Manual for this program is SCS Technical Release 20 (TR-20), dated April 1990. The TR-20 program is no longer supported on the mainframe since all post 1986 program changes have only been in the IBM compatable microcomputer environnment.

Compatable input and data check programs are TR20INPT.EXE, version III, dated 01/30/90 and TR20CK.EXE, version II, which is forthcoming.

Major changes from the 1986 TR-20 microcomputer version are:

HYDROGRAPH GENERATION: program procedure to develop runoff hydrographs revised to preserve total hydrograph volume as well as the peak discharge. Hydrographs can contain up to four hundred main time increment points from the beginning of runoff.

ATTKIN ROUTING: seperate channel and floodplain lengths can be entered to define additional storage in meandering channels below the representative low ground elevation. Program changes have been made to better handle multiple peaked hydrographs.

FLOW DURATION: can be obtained if requested.

OUTPUT 80 COLUMNS: Output fits 80 column paper. Hydrograph coordinates over 100 cfs are rounded and shown as whole numbers.

ERRORS, WARNINGS, AND MESSAGES: expanded and updated.

LIST OPTIONS: can print all or selected parts of input data.

INTERMEDIATE PEAKS: requires new IPEAKS record.

RUNOFF OPTION USED WITH RAINTABLE NO. 8, RUNOFF CURVE NO. = 100.

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

EXECUTIVE CONTROL LIST 1. 0. 1.

LISTING OF CURRENT DATA

COMPUTED TIME INCREMENT
4 DIMHYD .0556

```
8                .0000       .0300       .1000       .1900       .3100
8                .4700       .6600       .8200       .9300       .9900
8               1.0000       .9900       .9300       .8200       .6600
8                .4700       .3100       .0300       .0000       .0000
9 ENDTBL

  COMPUTED PEAK RATE FACTOR =  664.607

1
TR20 ------------------------------------------------------------------- SCS -
spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/13/98   7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
17:32:55                    PASS   1   JOB NO.   1                     PAGE   4


     TABLE NO.       TIME INCREMENT
5 RAINFL 1                   .2500

8                .0000       .0070       .0140       .0220       .0300
8                .0400       .0510       .0620       .0740       .0870
8                .0990       .1120       .1260       .1400       .1550
8                .1700       .1850       .2130       .2790       .3770
8                .6020       .7660       .8460       .8920       .9320
8                .9520       .9690       .9850      1.0000      1.0000
9 ENDTBL
1
TR20 ------------------------------------------------------------------- SCS -
spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/13/98   7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
17:32:55                    PASS   1   JOB NO.   1                     PAGE   5


                  STANDARD CONTROL INSTRUCTIONS


6 RUNOFF 1   1       1       2.4500     87.2000       .85001 1 0 0 0 1
6 REACH  3   5   1   7    9100.0000       .0000       .00001 0 0 0 0 1
6 REACH  3  10   7   2    9100.0000       .0000       .00001 0 0 0 0 1
6 RUNOFF 1   2       3       2.3400     78.2000       .73001 1 0 0 0 1
6 ADDHYD 4  12   2 3 1                                     1 1 0 0 0 1
6 DIVERT 6  12   1 4 7    4100.0000       .5720    200.00001 1 0 0 0 1
6 REACH  3  20   4   7    3332.0000       .0000       .00001 0 0 0 0 1
6 REACH  3  25   7   5    1950.0000       .0000       .00001 0 0 0 0 1
6 RUNOFF 1   3       6       3.9600     87.2000       .88001 1 0 0 0 1
6 REACH  3  30   6   7    8865.0000       .0000       .00001 0 0 0 0 1
6 REACH  3   5   7   1    8865.0000       .0000       .00001 0 0 0 0 1
6 REACH  3  25   1   7    1950.0000       .0000       .00001 0 0 0 0 1
6 RUNOFF 1   4       1       2.0200     75.5000       .79001 1 0 0 0 1
6 ADDHYD 4  34   7 1 2                                     1 1 0 0 0 1
6 ADDHYD 4  35   5 2 3                                     1 1 0 0 0 1
6 DIVERT 6  35   3 4 7   11000.0000       .8220    199.00001 1 0 0 0 1
6 REACH  3  45   4   5    4200.0000       .0000       .00001 0 0 0 0 1
6 RUNOFF 1   6       2       1.5000     87.2000       .47001 1 0 0 0 1
6 REACH  3  60   2   3    7540.0000       .0000       .00001 0 0 0 0 1
6 REACH  3  67   3   4    5140.0000       .0000       .00001 0 0 0 0 1
6 ADDHYD 4  64   5 4 3                                     1 1 0 0 0 1
6 RUNOFF 1   5       6       4.7600     76.5000       .78001 1 0 0 0 1
6 RUNOFF 1   7       7       3.4600     78.9000      1.01001 1 0 0 0 1
6 ADDHYD 4  75   6 7 1                                     1 1 0 0 0 1
6 ADDHYD 4  76   1 3 2                                     1 1 0 0 1 1
6 RESVOR 2      1 2   1    1196.5000                        1 1 0 0 1 1
  ENDATA


END OF LISTING
1
TR20 ------------------------------------------------------------------- SCS -
spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/13/98   7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
```

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .050 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO STRUCTURE 1
STARTING TIME = .00 RAIN DEPTH = 6.00 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .050 HOURS
ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 1

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.48	5916.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.45 SQ.MI.

HRS								
1.60 CFS	.45	.91	1.62	2.67	4.21	6.33	9.04	12.34
2.00 CFS	16.26	20.91	26.31	32.36	38.91	45.85	53.16	60.73
2.40 CFS	68	76	83	91	98	104	111	117
2.80 CFS	124	130	137	143	150	157	165	173
3.20 CFS	180	188	195	203	210	217	224	231
3.60 CFS	238	245	251	258	265	272	278	284
4.00 CFS	290	297	305	315	327	345	370	406
4.40 CFS	453	514	591	687	806	944	1100	1272
4.80 CFS	1470	1705	1977	2290	2652	3063	3513	3977
5.20 CFS	4436	4871	5255	5567	5785	5900	5903	5787
5.60 CFS	5546	5188	4769	4341	3917	3511	3138	2799
6.00 CFS	2495	2231	2012	1846	1711	1586	1469	1362
6.40 CFS	1268	1182	1095	1010	929	854	788	731
6.80 CFS	685	651	630	616	604	592	578	561
7.20 CFS	540	513	477	434	385	332	278	224
7.60 CFS	172	124	82	48	23	7	1	0

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.54 WATERSHED INCHES; 7175 CFS-HRS; 593.0 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.14	3800.7	6.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.54 WATERSHED INCHES; 7175 CFS-HRS; 593.0 ACRE-FEET.

OPERATION REACH XSECTION 10

1
TR20 ---------- SCS -
spfqc7h WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/13/98 7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.81	2828.3	7.36

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.54 WATERSHED INCHES; 7175 CFS-HRS; 593.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.42	4917.9	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 2.34 SQ.MI.			
2.50 CFS	.42	.76	1.32	2.17	3.38	5.03	7.22	9.95
2.90 CFS	13.17	16.86	21.02	25.65	30.63	35.79	40.99	46.17
3.30 CFS	51.37	56.71	62.15	67.58	72.96	78.34	83.90	89.58
3.70 CFS	95	101	106	112	117	122	127	132
4.10 CFS	139	148	159	174	195	225	264	315
4.50 CFS	379	459	556	668	793	935	1103	1308
4.90 CFS	1554	1849	2198	2599	3034	3477	3899	4275
5.30 CFS	4580	4796	4907	4898	4753	4487	4161	3817
5.70 CFS	3469	3126	2794	2482	2202	1964	1782	1643
6.10 CFS	1524	1417	1320	1237	1160	1082	1001	919
6.50 CFS	841	768	702	647	604	574	558	546
6.90 CFS	535	526	518	509	497	480	455	422
7.30 CFS	380	330	276	221	168	118	75	41
7.70 CFS	16.31	4.06	.51	.02				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.60 WATERSHED INCHES; 5439 CFS-HRS; 449.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.44	5305.0	(NULL)
6.46	3475.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1

HRS	MAIN TIME INCREMENT = .050 hr,				DRAINAGE AREA = 4.79 SQ.MI.			
2.40 CFS	.40	.68	1.09	1.73	2.70	4.06	5.91	8.35
2.80 CFS	11.49	15.35	19.87	25.06	30.92	37.45	44.53	51.98
3.20 CFS	60	68	76	84	93	101	110	119
3.60 CFS	129	138	148	158	168	178	188	198
4.00 CFS	208	218	230	244	261	281	308	343
4.40 CFS	388	444	515	601	704	821	952	1101
4.80 CFS	1276	1487	1741	2044	2402	2813	3260	3718
5.20 CFS	4157	4554	4882	5127	5270	5300	5201	4989
5.60 CFS	4726	4454	4188	3939	3712	3515	3360	3255
6.00 CFS	3213	3217	3243	3279	3321	3369	3416	3450
6.40 CFS	3469	3475	3471	3461	3444	3426	3410	3396

1
TR20 ---------- SCS -
spfqc7h WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/13/98 7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
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6.80 CFS	3386	3371	3349	3322	3289	3249	3201	3142
7.20 CFS	3071	2988	2893	2788	2676	2562	2449	2338
7.60 CFS	2233	2138	2052	1979	1915	1855	1796	1737
8.00 CFS	1678	1620	1562	1505	1448	1391	1335	1280
8.40 CFS	1225	1172	1120	1069	1019	971	925	880
8.80 CFS	837	795	755	716	679	644	610	577
9.20 CFS	546	517	489	462	436	412	389	367
9.60 CFS	346	326	308	290	273	257	242	228
10.00 CFS	214	202	190	178	168	158	148	139
10.40 CFS	131	123	115	108	102	95	89	84
10.80 CFS	78.67	73.77	69.17	64.84	60.77	56.96	53.37	50.00
11.20 CFS	46.84	43.87	41.08	38.47	36.02	33.72	31.56	29.54
11.60 CFS	27.65	25.87	24.20	22.64	21.18	19.81	18.53	17.33
12.00 CFS	16.20	15.15	14.16	13.23	12.37	11.56	10.80	10.09
12.40 CFS	9.43	8.81	8.23	7.69	7.18	6.71	6.26	5.85
12.80 CFS	5.46	5.10	4.76	4.44	4.14	3.87	3.61	3.37
13.20 CFS	3.14	2.93	2.74	2.55	2.38	2.22	2.07	1.93
13.60 CFS	1.80	1.68	1.56	1.46	1.36	1.27	1.18	1.10
14.00 CFS	1.02	.95	.89	.83	.77	.72	.67	.62
14.40 CFS	.58	.54	.50	.47				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.08 WATERSHED INCHES; 12614 CFS-HRS; 1042.4 ACRE-FEET.

OPERATION DIVERT XSECTION 12

OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.20	4100.0 *	(DIVERT)
6.46	3475.1	(DIVERT)

* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.74 SQ.MI.

HRS								
2.40 CFS	.40	.68	1.09	1.73	2.70	4.06	5.91	8.35
2.80 CFS	11.49	15.35	19.87	25.06	30.92	37.45	44.53	51.98
3.20 CFS	60	68	76	84	93	101	110	119
3.60 CFS	129	138	148	158	168	178	188	198
4.00 CFS	208	218	230	244	261	281	308	343
4.40 CFS	388	444	515	601	704	821	952	1101
4.80 CFS	1276	1487	1741	2044	2402	2813	3260	3718
5.20 CFS	4100	4100	4100	4100	4100	4100	4100	4100
5.60 CFS	4100	4100	4100	3939	3712	3515	3360	3255
6.00 CFS	3213	3217	3243	3279	3321	3369	3416	3450
6.40 CFS	3469	3475	3471	3461	3444	3426	3410	3396
6.80 CFS	3386	3371	3349	3322	3289	3249	3201	3142
7.20 CFS	3071	2988	2893	2788	2676	2562	2449	2338
7.60 CFS	2233	2138	2052	1979	1915	1855	1796	1737
8.00 CFS	1678	1620	1562	1505	1448	1391	1335	1280

8.40 CFS	1225	1172	1120	1069	1019	971	925	880
8.80 CFS	837	795	755	716	679	644	610	577
9.20 CFS	546	517	489	462	436	412	389	367
9.60 CFS	346	326	308	290	273	257	242	228
10.00 CFS	214	202	190	178	168	158	148	139
10.40 CFS	131	123	115	108	102	95	89	84
10.80 CFS	78.67	73.77	69.17	64.84	60.77	56.96	53.37	50.00
11.20 CFS	46.84	43.87	41.08	38.47	36.02	33.72	31.56	29.54
11.60 CFS	27.65	25.87	24.20	22.64	21.18	19.81	18.53	17.33
12.00 CFS	16.20	15.15	14.16	13.23	12.37	11.56	10.80	10.09
12.40 CFS	9.43	8.81	8.23	7.69	7.18	6.71	6.26	5.85
12.80 CFS	5.46	5.10	4.76	4.44	4.14	3.87	3.61	3.37
13.20 CFS	3.14	2.93	2.74	2.55	2.38	2.22	2.07	1.93
13.60 CFS	1.80	1.68	1.56	1.46	1.36	1.27	1.18	1.10
14.00 CFS	1.02	.95	.89	.83	.77	.72	.67	.62
14.40 CFS	.58	.54	.50	.47				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.91 WATERSHED INCHES; 12225 CFS-HRS; 1010.3 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.44	1205.0	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.05 SQ.MI.

HRS								
5.15 CFS	0	57	454	782	1027	1170	1200	1101
5.55 CFS	889	626	354	88	0			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.29 WATERSHED INCHES; 389 CFS-HRS; 32.1 ACRE-FEET.

OPERATION REACH XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.73	4109.5	7.95
6.56	3464.9	7.19

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =     .00 CFS)
                 6.91 WATERSHED INCHES;   12227 CFS-HRS;    1010.4 ACRE-FEET.


OPERATION REACH    XSECTION  25

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       5.78                        4105.3                          5.04
       6.64                        3460.9                          4.54
1
TR20 ------------------------------------------------------------------ SCS -
spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/13/98   7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
17:32:55                     PASS   1   JOB NO.   1                    PAGE  10


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =     .00 CFS)
                 6.91 WATERSHED INCHES;   12226 CFS-HRS;    1010.4 ACRE-FEET.


OPERATION RUNOFF   XSECTION   3

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       5.49                        9439.0                        (RUNOFF)

                 HYDROGRAPH POINTS FOR   ALTERNATE = 1,   STORM = 1
    HRS      MAIN TIME INCREMENT =  .050 hr,      DRAINAGE AREA =   3.96 SQ.MI.
    1.55 CFS      .25      .64     1.31     2.36     3.88     6.13     9.29    13.38
    1.95 CFS    18.37    24.31    31.36    39.67    49.06    59.31    70.24    81.77
    2.35 CFS       94      106      118      130      142      154      165      175
    2.75 CFS      186      196      207      218      228      239      250      262
    3.15 CFS      275      287      299      311      324      335      347      358
    3.55 CFS      369      381      392      403      413      424      435      446
    3.95 CFS      456      465      476      489      505      524      551      589
    4.35 CFS      643      716      809      926     1073     1253     1466     1706
    4.75 CFS     1976     2287     2652     3078     3566     4127     4761     5456
    5.15 CFS     6183     6906     7595     8218     8739     9131     9368     9438
    5.55 CFS     9328     9033     8558     7943     7267     6590     5930     5311
    5.95 CFS     4748     4242     3793     3407     3095     2851     2643     2448
    6.35 CFS     2265     2102     1957     1820     1685     1554     1431     1320
    6.75 CFS     1224     1142     1078     1033     1005      985      964      941
    7.15 CFS      914      881      839      786      720      646      564      480
    7.55 CFS      395      312      234      164      105       58       25        6
    7.95 CFS      .47

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =     .00 CFS)
                 4.54 WATERSHED INCHES;   11602 CFS-HRS;     958.8 ACRE-FEET.


OPERATION REACH    XSECTION  30

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       6.18                        5874.0                          5.07

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =     .00 CFS)
                 4.54 WATERSHED INCHES;   11601 CFS-HRS;     958.7 ACRE-FEET.


OPERATION REACH    XSECTION   5

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       6.86                        4449.5                          6.56

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =     .00 CFS)
                 4.54 WATERSHED INCHES;   11601 CFS-HRS;     958.7 ACRE-FEET.
1
TR20 ------------------------------------------------------------------ SCS -
spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/13/98   7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
17:32:55                     PASS   1   JOB NO.   1                    PAGE  11
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OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.94	4444.1	5.25

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.54 WATERSHED INCHES; 11601 CFS-HRS; 958.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.47	3895.9	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 2.02 SQ.MI.

HRS								
2.85 CFS	.44	.84	1.45	2.32	3.57	5.24	7.26	9.63
3.25 CFS	12.34	15.49	19.03	22.83	26.79	30.85	35.14	39.40
3.65 CFS	43.82	48.30	52.74	57.25	61.52	65.84	70.13	74.31
4.05 CFS	79	84	90	98	107	120	139	164
4.45 CFS	195	235	287	352	427	514	611	730
4.85 CFS	876	1054	1266	1519	1819	2145	2490	2832
5.25 CFS	3152	3435	3656	3812	3890	3877	3770	3554
5.65 CFS	3302	3038	2770	2500	2244	2003	1786	1602
6.05 CFS	1449	1342	1247	1160	1079	1005	942	878
6.45 CFS	814	749	687	630	579	535	501	476
6.85 CFS	463	453	445	437	429	420	407	390
7.25 CFS	366	336	300	259	217	174	133	95
7.65 CFS	61.04	34.09	14.63	2.90	.18			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.33 WATERSHED INCHES; 4342 CFS-HRS; 358.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.50	4459.0	(NULL)
6.90	4894.0	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 5.98 SQ.MI.

HRS								
2.45 CFS	.32	.51	.78	1.17	1.68	2.36	3.22	4.35
2.85 CFS	5.84	7.73	10.09	13.01	16.60	20.90	25.88	31.50
3.25 CFS	37.76	44.77	52.45	60.68	69.34	78.38	87.90	97.63
3.65 CFS	108	118	129	140	151	162	174	185
4.05 CFS	197	210	224	240	258	280	307	340
4.45 CFS	381	430	491	565	650	745	853	981
4.85 CFS	1138	1325	1548	1814	2127	2469	2830	3193
5.25 CFS	3536	3847	4101	4296	4419	4459	4415	4272
5.65 CFS	4106	3941	3787	3648	3538	3460	3421	3428

6.05 CFS	3479	3585	3709	3842	3980	4117	4257	4383
6.45 CFS	4492	4585	4662	4725	4775	4814	4845	4867
6.85 CFS	4886	4894	4889	4872	4842	4802	4748	4680
7.25 CFS	4599	4503	4396	4279	4155	4028	3899	3771
7.65 CFS	3647	3528	3415	3311	3216	3123	3031	2939
8.05 CFS	2848	2756	2666	2575	2485	2396	2307	2219
8.45 CFS	2131	2045	1961	1878	1797	1718	1641	1566
8.85 CFS	1494	1424	1357	1291	1229	1168	1110	1055
9.25 CFS	1001	950	901	855	810	767	727	688
9.65 CFS	651	616	583	551	521	492	465	439
10.05 CFS	414	391	369	348	328	310	292	275
10.45 CFS	259	244	230	217	204	192	181	170

10.85 CFS	160	151	142	133	125	118	111	104
11.25 CFS	97.90	92.00	86.45	81.22	76.30	71.67	67.31	63.21
11.65 CFS	59.35	55.72	52.31	49.10	46.09	43.25	40.59	38.08
12.05 CFS	35.73	33.52	31.44	29.49	27.66	25.93	24.32	22.80
12.45 CFS	21.38	20.04	18.79	17.61	16.50	15.47	14.49	13.58
12.85 CFS	12.73	11.92	11.17	10.46	9.80	9.18	8.60	8.05
13.25 CFS	7.54	7.06	6.61	6.19	5.79	5.43	5.08	4.75
13.65 CFS	4.45	4.16	3.90	3.65	3.41	3.19	2.99	2.79
14.05 CFS	2.61	2.44	2.29	2.14	2.00	1.87	1.75	1.63
14.45 CFS	1.53	1.43	1.33	1.25	1.16	1.09	1.02	.95
14.85 CFS	.89	.83	.77	.72	.68	.63	.59	.55
15.25 CFS	.51	.48						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.13 WATERSHED INCHES; 15944 CFS-HRS; 1317.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.52	8512.7	(NULL)
6.85	8304.6	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 8.72 SQ.MI.

HRS								
2.45 CFS	.43	.73	1.17	1.81	2.72	4.00	5.75	8.13
2.85 CFS	11.31	15.45	20.68	27.10	34.86	43.99	54.46	66.20
3.25 CFS	79	93	108	124	141	158	176	194
3.65 CFS	213	233	253	273	294	315	336	358
4.05 CFS	380	402	427	453	483	518	562	615
4.45 CFS	681	763	866	992	1143	1318	1520	1757
4.85 CFS	2038	2369	2761	3227	3779	4406	5101	5842
5.25 CFS	6598	7318	7847	8205	8418	8507	8488	8359
5.65 CFS	8199	8037	7885	7747	7586	7390	7196	7042
6.05 CFS	6948	6946	7005	7109	7246	7401	7571	7735
6.45 CFS	7883	8008	8107	8183	8236	8270	8290	8300
6.85 CFS	8305	8299	8281	8247	8198	8132	8047	7943
7.25 CFS	7815	7665	7492	7298	7086	6861	6627	6390
7.65 CFS	6156	5928	5712	5510	5326	5155	4992	4834

1
TR20 ---------- SCS -
spfqc7h WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/13/98 7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
17:32:55 PASS 1 JOB NO. 1 PAGE 13

8.05 CFS	4680	4528	4377	4228	4080	3933	3786	3641
8.45 CFS	3498	3356	3217	3080	2947	2816	2689	2566
8.85 CFS	2446	2331	2219	2111	2007	1908	1812	1720
9.25 CFS	1632	1547	1467	1389	1316	1246	1179	1115
9.65 CFS	1054	996	941	889	840	793	748	706
10.05 CFS	666	628	592	558	526	495	466	439
10.45 CFS	413	389	366	344	324	305	287	269
10.85 CFS	253	238	224	210	197	185	174	164
11.25 CFS	154	144	135	127	119	112	105	98
11.65 CFS	92.29	86.55	81.16	76.10	71.35	66.89	62.70	58.76
12.05 CFS	55.07	51.61	48.36	45.31	42.44	39.76	37.24	34.88
12.45 CFS	32.66	30.59	28.64	26.81	25.10	23.50	22.00	20.59
12.85 CFS	19.27	18.03	16.87	15.79	14.77	13.82	12.93	12.10
13.25 CFS	11.31	10.58	9.90	9.26	8.65	8.09	7.57	7.07
13.65 CFS	6.61	6.18	5.78	5.40	5.05	4.72	4.41	4.12
14.05 CFS	3.85	3.59	3.36	3.14	2.93	2.74	2.56	2.39
14.45 CFS	2.23	2.08	1.94	1.81	1.69	1.58	1.47	1.37
14.85 CFS	1.28	1.19	1.11	1.04	.97	.90	.84	.78
15.25 CFS	.73	.68	.63	.59	.55	.51	.48	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.01 WATERSHED INCHES; 28170 CFS-HRS; 2328.0 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.52	8512.7	(DIVERT)
6.85	8304.6	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 7.17 SQ.MI.

HRS									
2.45	CFS	.43	.73	1.17	1.81	2.72	4.00	5.75	8.13
2.85	CFS	11.31	15.45	20.68	27.10	34.86	43.99	54.46	66.20
3.25	CFS	79	93	108	124	141	158	176	194
3.65	CFS	213	233	253	273	294	315	336	358
4.05	CFS	380	402	427	453	483	518	562	615
4.45	CFS	681	763	866	992	1143	1318	1520	1757
4.85	CFS	2038	2369	2761	3227	3779	4406	5101	5842
5.25	CFS	6598	7318	7847	8205	8418	8507	8488	8359
5.65	CFS	8199	8037	7885	7747	7586	7390	7196	7042
6.05	CFS	6948	6946	7005	7109	7246	7401	7571	7735
6.45	CFS	7883	8008	8107	8183	8236	8270	8290	8300
6.85	CFS	8305	8299	8281	8247	8198	8132	8047	7943
7.25	CFS	7815	7665	7492	7298	7086	6861	6627	6390
7.65	CFS	6156	5928	5712	5510	5326	5155	4992	4834
8.05	CFS	4680	4528	4377	4228	4080	3933	3786	3641
8.45	CFS	3498	3356	3217	3080	2947	2816	2689	2566
8.85	CFS	2446	2331	2219	2111	2007	1908	1812	1720
9.25	CFS	1632	1547	1467	1389	1316	1246	1179	1115

1

9.65	CFS	1054	996	941	889	840	793	748	706
10.05	CFS	666	628	592	558	526	495	466	439
10.45	CFS	413	389	366	344	324	305	287	269
10.85	CFS	253	238	224	210	197	185	174	164
11.25	CFS	154	144	135	127	119	112	105	98
11.65	CFS	92.29	86.55	81.16	76.10	71.35	66.89	62.70	58.76
12.05	CFS	55.07	51.61	48.36	45.31	42.44	39.76	37.24	34.88
12.45	CFS	32.66	30.59	28.64	26.81	25.10	23.50	22.00	20.59
12.85	CFS	19.27	18.03	16.87	15.79	14.77	13.82	12.93	12.10
13.25	CFS	11.31	10.58	9.90	9.26	8.65	8.09	7.57	7.07
13.65	CFS	6.61	6.18	5.78	5.40	5.05	4.72	4.41	4.12
14.05	CFS	3.85	3.59	3.36	3.14	2.93	2.74	2.56	2.39
14.45	CFS	2.23	2.08	1.94	1.81	1.69	1.58	1.47	1.37
14.85	CFS	1.28	1.19	1.11	1.04	.97	.90	.84	.78
15.25	CFS	.73	.68	.63	.59	.55	.51	.48	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 28170 CFS-HRS; 2328.0 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 325 CFS-HRS; 2328.0 ACRE-FEET.

OPERATION REACH XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.64	8335.1	7.30
6.96	8289.2	7.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 28170 CFS-HRS; 2328.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.21	4153.6	(RUNOFF)

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                    HYDROGRAPH POINTS FOR   ALTERNATE = 1,   STORM = 1
     HRS       MAIN TIME INCREMENT =  .050 hr,       DRAINAGE AREA =   1.50 SQ.MI.
     1.55 CFS       .46    1.10    2.28    4.11    6.42    9.18   12.45   16.23
     1.95 CFS     20.40   24.63   29.03   33.83   39.00   44.24   49.18   53.86
     2.35 CFS     58.52   63.01   66.95   70.12   72.92   76.03   79.69   83.80
     2.75 CFS        88      93      97     103     108     113     117     122
     3.15 CFS       127     131     135     138     141     146     150     155
     3.55 CFS       160     165     169     173     176     179     182     185
     3.95 CFS       188     191     196     206     224     249     282     326
     4.35 CFS       384     462     559     669     790     922    1065    1209
1
TR20 ------------------------------------------------------------------- SCS -
spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/13/98   7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
17:32:55                     PASS   1   JOB NO.   1                    PAGE  15

     4.75 CFS      1351    1514    1737    2045    2444    2893    3339    3739
     5.15 CFS      4030    4151    4089    3911    3679    3406    3095    2785
     5.55 CFS      2475    2163    1870    1623    1450    1317    1195    1088
     5.95 CFS      1007     959     927     888     837     773     701     627
     6.35 CFS       555     492     446     418     403     392     382     373
     6.75 CFS       367     363     359     354     350     345     336     320
     7.15 CFS       292     249     196     141      87      43      13       2
     7.55 CFS       .13

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 4.52 WATERSHED INCHES;    4379 CFS-HRS;     361.9 ACRE-FEET.


OPERATION REACH    XSECTION  60

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       5.51                        3215.2                          6.29

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 4.52 WATERSHED INCHES;    4379 CFS-HRS;     361.9 ACRE-FEET.


OPERATION REACH    XSECTION  67

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       5.87                        2586.2                          5.50

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 4.52 WATERSHED INCHES;    4379 CFS-HRS;     361.9 ACRE-FEET.


OPERATION ADDHYD   XSECTION  64

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       5.71                       10708.3                        (NULL)
       6.67                        9469.5                        (NULL)

                    HYDROGRAPH POINTS FOR   ALTERNATE = 1,   STORM = 1
     HRS       MAIN TIME INCREMENT =  .050 hr,       DRAINAGE AREA =   8.67 SQ.MI.
     1.95 CFS       .47     .81    1.29    1.95    2.81    3.88    5.18    6.72
     2.35 CFS      8.52   10.59   12.94   15.57   18.48   21.69   25.21   29.05
     2.75 CFS     33.24   37.85   42.99   48.79   55.41   63.00   71.69   81.63
     3.15 CFS        93     106     120     135     152     169     188     208
     3.55 CFS       228     250     271     294     317     340     364     389
     3.95 CFS       413     439     464     490     516     543     571     602
     4.35 CFS       637     678     728     789     865     960    1077    1221
     4.75 CFS      1394    1597    1837    2118    2449    2837    3295    3836
     5.15 CFS      4464    5181    5978    6836    7718    8533    9232    9797
     5.55 CFS     10222   10510   10661   10707   10682   10608   10500   10354
     5.95 CFS     10162    9940    9714    9508    9350    9246    9192    9181
     6.35 CFS      9202    9249    9309    9368    9418    9452    9468    9466
1
TR20 ------------------------------------------------------------------- SCS -
spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
```

6.75 CFS	9446	9413	9369	9319	9264	9201	9130	9049
7.15 CFS	8956	8851	8731	8594	8437	8260	8063	7845
7.55 CFS	7611	7362	7104	6842	6582	6328	6085	5857
7.95 CFS	5643	5442	5252	5069	4893	4721	4554	4390
8.35 CFS	4228	4069	3912	3758	3606	3457	3311	3168
8.75 CFS	3029	2894	2762	2634	2510	2391	2276	2165
9.15 CFS	2058	1955	1857	1762	1671	1585	1502	1423
9.55 CFS	1348	1276	1207	1142	1079	1020	964	911
9.95 CFS	860	812	766	723	682	643	606	571
10.35 CFS	538	507	478	450	423	399	375	353
10.75 CFS	332	312	294	276	260	244	229	215
11.15 CFS	202	190	179	168	157	148	139	130
11.55 CFS	122	115	108	101	95	89	83	78
11.95 CFS	73.20	68.63	64.33	60.30	56.51	52.96	49.63	46.50
12.35 CFS	43.56	40.81	38.22	35.80	33.53	31.40	29.40	27.53
12.75 CFS	25.77	24.13	22.59	21.14	19.79	18.52	17.33	16.22
13.15 CFS	15.17	14.20	13.28	12.42	11.62	10.87	10.17	9.51
13.55 CFS	8.89	8.31	7.77	7.27	6.80	6.35	5.94	5.55
13.95 CFS	5.19	4.85	4.53	4.23	3.95	3.69	3.45	3.22
14.35 CFS	3.01	2.81	2.63	2.45	2.29	2.14	2.00	1.86
14.75 CFS	1.74	1.62	1.51	1.41	1.32	1.23	1.14	1.07
15.15 CFS	1.00	.93	.87	.81	.75	.70	.65	.61
15.55 CFS	.57	.53	.49					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.82 WATERSHED INCHES; 32549 CFS-HRS; 2689.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.46	9445.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 4.76 SQ.MI.

HRS								
2.65 CFS	.45	.88	1.55	2.65	4.33	6.65	9.71	13.66
3.05 CFS	18.73	24.90	31.94	39.68	48.10	57.29	67.03	77.22
3.45 CFS	88	98	109	119	130	141	152	162
3.85 CFS	173	183	193	204	215	227	243	262
4.25 CFS	287	322	369	433	515	619	752	915
4.65 CFS	1106	1323	1571	1868	2231	2670	3193	3820
5.05 CFS	4547	5345	6179	7001	7767	8430	8943	9292
5.45 CFS	9442	9372	9055	8506	7880	7230	6574	5920
5.85 CFS	5303	4723	4207	3773	3422	3178	2954	2747
6.25 CFS	2557	2382	2235	2082	1925	1770	1621	1486
6.65 CFS	1364	1263	1184	1129	1102	1080	1059	1041
7.05 CFS	1022	1000	969	926	868	794	705	608
7.45 CFS	505	403	304	213	135	73	29	6
7.85 CFS	.41							

1
TR20 ---------- SCS -
spfqc7h WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/13/98 7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
17:32:55 PASS 1 JOB NO. 1 PAGE 17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.43 WATERSHED INCHES; 10536 CFS-HRS; 870.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.60	6663.8	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 3.46 SQ.MI.

HRS								
2.45 CFS	.41	.71	1.19	1.95	3.03	4.44	6.25	8.57

2.85 CFS	11.48	15.03	19.19	23.92	29.23	35.15	41.61	48.53
3.25 CFS	56	63	71	79	87	95	103	111
3.65 CFS	120	128	136	145	153	161	169	177
4.05 CFS	185	194	205	217	231	249	274	307
4.45 CFS	349	402	469	553	655	776	917	1085
4.85 CFS	1289	1534	1824	2160	2545	2980	3459	3968
5.25 CFS	4485	4981	5437	5843	6187	6451	6613	6664
5.65 CFS	6601	6431	6162	5793	5357	4908	4464	4040
6.05 CFS	3646	3289	2966	2677	2428	2228	2063	1910
6.45 CFS	1766	1633	1521	1419	1322	1227	1138	1058
6.85 CFS	987	926	875	836	809	789	768	744
7.25 CFS	715	682	641	593	539	481	421	360
7.65 CFS	299	240	185	134	91	55	28	9
8.05 CFS	1.55	.17						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.67 WATERSHED INCHES; 8193 CFS-HRS; 677.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.50	15823.3	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 8.22 SQ.MI.

HRS								
2.45 CFS	.41	.71	1.24	2.13	3.47	5.33	7.81	11.22
2.85 CFS	15.81	21.69	28.90	37.57	47.97	60.05	73.55	88.21
3.25 CFS	104	121	138	156	175	193	212	231
3.65 CFS	250	269	288	307	325	344	362	381
4.05 CFS	400	421	447	478	518	571	643	740
4.45 CFS	864	1021	1220	1467	1761	2099	2488	2953
4.85 CFS	3520	4204	5017	5980	7092	8325	9638	10969
5.25 CFS	12252	13411	14381	15135	15628	15823	15669	15170
5.65 CFS	14481	13661	12736	11713	10660	9631	8671	7813
6.05 CFS	7069	6467	5919	5424	4985	4611	4299	3992
6.45 CFS	3691	3404	3142	2905	2686	2490	2322	2187
6.85 CFS	2089	2005	1935	1877	1832	1789	1737	1670
7.25 CFS	1583	1475	1347	1201	1045	884	725	573
7.65 CFS	434	313	214	141	91	55	28	9

8.05 CFS	1.55	.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.53 WATERSHED INCHES; 18729 CFS-HRS; 1547.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.55	25891.6	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 16.89 SQ.MI.

HRS								
1.95 CFS	.47	.81	1.29	1.95	2.81	3.88	5.18	6.74
2.35 CFS	8.61	10.81	13.35	16.28	19.72	23.83	28.68	34.38
2.75 CFS	41	49	59	70	84	101	120	142
3.15 CFS	166	194	223	256	290	326	363	401
3.55 CFS	440	480	521	563	605	647	690	733
3.95 CFS	776	819	864	911	963	1021	1089	1172
4.35 CFS	1280	1418	1592	1810	2085	2427	2839	3320
4.75 CFS	3882	4550	5357	6322	7466	8817	10387	12161
5.15 CFS	14102	16150	18231	20247	22099	23668	24861	25620
5.55 CFS	25891	25680	25141	24368	23418	22321	21160	19984
5.95 CFS	18833	17753	16783	15975	15270	14670	14177	13792
6.35 CFS	13501	13241	13000	12772	12560	12357	12154	11955

6.75 CFS	11768	11600	11458	11325	11199	11078	10962	10838
7.15 CFS	10693	10521	10314	10069	9784	9462	9108	8730
7.55 CFS	8336	7935	7538	7156	6796	6468	6176	5912
7.95 CFS	5671	5451	5253	5069	4893	4721	4554	4390
8.35 CFS	4228	4069	3912	3758	3606	3457	3311	3168
8.75 CFS	3029	2894	2762	2634	2510	2391	2276	2165
9.15 CFS	2058	1955	1857	1762	1671	1585	1502	1423
9.55 CFS	1348	1276	1207	1142	1079	1020	964	911
9.95 CFS	860	812	766	723	682	643	606	571
10.35 CFS	538	507	478	450	423	399	375	353
10.75 CFS	332	312	294	276	260	244	229	215
11.15 CFS	202	190	179	168	157	148	139	130
11.55 CFS	122	115	108	101	95	89	83	78
11.95 CFS	73.20	68.63	64.33	60.30	56.51	52.96	49.63	46.50
12.35 CFS	43.56	40.81	38.22	35.80	33.53	31.40	29.40	27.53
12.75 CFS	25.77	24.13	22.59	21.14	19.79	18.52	17.33	16.22
13.15 CFS	15.17	14.20	13.28	12.42	11.62	10.87	10.17	9.51
13.55 CFS	8.89	8.31	7.77	7.27	6.80	6.35	5.94	5.55
13.95 CFS	5.19	4.85	4.53	4.23	3.95	3.69	3.45	3.22
14.35 CFS	3.01	2.81	2.63	2.45	2.29	2.14	2.00	1.86
14.75 CFS	1.74	1.62	1.51	1.41	1.32	1.23	1.14	1.07
15.15 CFS	1.00	.93	.87	.81	.75	.70	.65	.61
15.55 CFS	.57	.53	.49					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.70 WATERSHED INCHES; 51278 CFS-HRS; 4237.6 ACRE-FEET.

1

--- XSECTION 76, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.96	5655.0	1211.58

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .050 hr, DRAINAGE AREA = 16.89 SQ.MI.

HRS								
2.75 CFS	.00	.01	.01	.01	.01	.01	.01	.02
3.15 CFS	.02	.02	.03	.03	.04	.05	.05	.06
3.55 CFS	.07	.08	.09	.10	.12	.13	.14	.16
3.95 CFS	.18	.19	.21	.23	.25	.27	.30	.32
4.35 CFS	.35	.38	.41	.45	.49	.54	.60	.66
4.75 CFS	.74	.80	.82	.84	.86	.88	.91	.95
5.15 CFS	.99	1.03	1.08	1.13	1.19	1.25	1.32	1.39
5.55 CFS	1.46	1.52	1.56	1.61	1.65	1.69	1.73	1.76
5.95 CFS	1.79	1.82	1.85	1.87	1.90	1.93	1.95	1.98
6.35 CFS	2.01	2.03	2.06	2.08	2.10	2.13	2.15	2.17
6.75 CFS	2	123	320	600	870	1247	1613	1983
7.15 CFS	2436	2856	3246	3604	3950	4267	4548	4792
7.55 CFS	5001	5177	5320	5433	5520	5582	5623	5647
7.95 CFS	5655	5650	5633	5607	5572	5529	5479	5423
8.35 CFS	5360	5293	5220	5142	5061	4975	4886	4794
8.75 CFS	4699	4602	4503	4402	4299	4196	4092	3987
9.15 CFS	3882	3777	3674	3578	3482	3387	3292	3198
9.55 CFS	3104	3012	2921	2831	2742	2655	2569	2485
9.95 CFS	2403	2322	2243	2166	2091	2017	1945	1882
10.35 CFS	1833	1784	1735	1688	1641	1595	1550	1505
10.75 CFS	1462	1419	1377	1336	1296	1257	1219	1182
11.15 CFS	1145	1110	1075	1042	1009	977	945	915
11.55 CFS	886	866	847	828	810	791	773	756
11.95 CFS	739	722	705	689	673	657	642	627
12.35 CFS	612	598	584	570	556	543	530	517
12.75 CFS	505	493	481	469	458	447	436	425
13.15 CFS	415	405	395	385	376	366	357	349
13.55 CFS	340	332	323	315	308	300	293	285

13.95 CFS	278	271	264	258	251	245	239	233
14.35 CFS	227	222	216	211	205	201	199	197
14.75 CFS	194	192	190	188	185	183	181	179
15.15 CFS	177	175	173	171	169	167	165	163
15.55 CFS	161	159	157	155	154	152	150	148
15.95 CFS	147	145	143	141	140	138	137	135
16.35 CFS	133	132	130	129	127	126	124	123
16.75 CFS	121	120	119	117	116	114	113	112
17.15 CFS	110	109	108	107	105	104	103	102
17.55 CFS	101	99	98	97	96	95	94	93
17.95 CFS	91.46	90.39	89.33	88.28	87.25	86.22	85.21	84.21
18.35 CFS	83.23	82.25	81.29	80.33	79.39	78.46	77.54	76.63

1

18.75 CFS	75.73	74.85	73.97	73.10	72.24	71.40	70.56	69.73
19.15 CFS	68.91	68.11	67.31	66.52	65.74	64.97	64.21	63.45
19.55 CFS	62.71	61.97	61.25	60.53	59.82	59.12	58.42	57.74
19.95 CFS	57.06	56.39	55.73	55.08	54.43	53.79	53.16	52.54
20.35 CFS	51.92	51.31	50.71	50.12	49.53	48.95	48.38	47.81
20.75 CFS	47.25	46.69	46.15	45.61	45.07	44.54	44.02	43.50
21.15 CFS	42.99	42.49	41.99					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.57 WATERSHED INCHES; 17108 CFS-HRS; 1413.8 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

RAINFALL OF 6.00 inches AND 7.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 1, ARC 2
MAIN TIME INCREMENT .050 HOURS

ALTERNATE 1 STORM 1

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
XSECTION 1	RUNOFF	2.45	4.54	---	5.48	5917	2415.1
XSECTION 5	REACH	2.45	4.54	6.29	6.14	3801	1551.4
XSECTION 10	REACH	2.45	4.54	7.36	6.81	2828	1154.3
XSECTION 2	RUNOFF	2.34	3.60	---	5.42	4918	2101.7
XSECTION 12	ADDHYD	4.79	4.08	---	5.44	5305	1107.5
XSECTION 12	DIVERT	2.74	6.91	---	5.20F	4100F	1496.4
XSECTION 200	DIVERT	2.05	.29	---	5.44	1205	587.8
XSECTION 20	REACH	2.74	6.91	7.95	5.73	4109	1499.6
XSECTION 25	REACH	2.74	6.91	5.04	5.78	4105	1498.2
XSECTION 3	RUNOFF	3.96	4.54	---	5.49	9439	2383.6
XSECTION 30	REACH	3.96	4.54	5.07	6.18	5874	1483.3
XSECTION 5	REACH	3.96	4.54	6.56	6.86	4449	1123.5

XSECTION	25	REACH	3.96	4.54	5.25	6.94	4444	1122.2
XSECTION	4	RUNOFF	2.02	3.33	---	5.47	3896	1928.7
XSECTION	34	ADDHYD	5.98	4.13	---	6.90	4894	813.4
XSECTION	35	ADDHYD	8.72	5.01	---	5.52	8513	976.3
XSECTION	35	DIVERT	7.17	6.09	---	5.52	8513	1187.3
XSECTION	199	DIVERT	1.55	6.09	---	.00	0	.0
XSECTION	45	REACH	7.17	6.09	7.30	5.64	8335	1162.5
XSECTION	6	RUNOFF	1.50	4.52	---	5.21	4154	2769.3
XSECTION	60	REACH	1.50	4.52	6.29	5.51	3215	2143.3
XSECTION	67	REACH	1.50	4.52	5.50	5.87	2586	1724.0
XSECTION	64	ADDHYD	8.67	5.82	---	5.71	10708	1235.1
XSECTION	5	RUNOFF	4.76	3.43	---	5.46	9446	1984.5
XSECTION	7	RUNOFF	3.46	3.67	---	5.60	6664	1926.0
XSECTION	75	ADDHYD	8.22	3.53	---	5.50	15823	1924.9
XSECTION	76	ADDHYD	16.89	4.70	---	5.55	25892	1533.0
STRUCTURE	1	RESVOR	16.89	1.57	1211.58	7.96	5655	334.8

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 1											
5	9100		5903	5.5	3800	6.2	1.75	1.10	.553	.644	.07
10	9100		3800	6.2	2828	6.8	2.24	1.07	.346	.744	.07
20	3332		4100	5.2	4100	5.8	.14	1.63	.005	1.000	.50
25	1950		4100	5.8	4099	5.8	.052	1.73	.002	1.000	.65
30	8865		9438	5.5	5871	6.2	1.38	1.10	.608	.622	.07
5	8865		5871	6.2	4449	6.8	1.90	1.08	.324	.758	.07
25	1950		4449	6.8	4444	6.9	.053	1.73	.003	.999	.66
45	4200		8507	5.5	8333	5.7	.049	1.72	.005	.980	.44
60	7540		4151	5.2	3215	5.5	.46	1.36	.271	.774	.16
67	5140		3215	5.5	2584	5.8	1.36	1.14	.253	.804	.13

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

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

```
STRUCTURE    1          16.89
----------------------------
   ALTERNATE     1                    5655

XSECTION     1          2.45
----------------------------
   ALTERNATE     1                    5917

XSECTION     2          2.34
----------------------------
   ALTERNATE     1                    4918

XSECTION     3          3.96
----------------------------
   ALTERNATE     1                    9439

XSECTION     4          2.02
----------------------------
   ALTERNATE     1                    3896

XSECTION     5          4.76
----------------------------
   ALTERNATE     1                    9446

XSECTION     6          1.50
----------------------------
   ALTERNATE     1                    4154

XSECTION     7          3.46
----------------------------
   ALTERNATE     1                    6664

XSECTION    10          2.45
----------------------------
   ALTERNATE     1                    2828

XSECTION    12          2.74
----------------------------
   ALTERNATE     1                    4100

XSECTION    20          2.74
----------------------------
   ALTERNATE     1                    4109

XSECTION    25          3.96
----------------------------
   ALTERNATE     1                    4444

XSECTION    30          3.96
----------------------------
   ALTERNATE     1                    5874

XSECTION    34          5.98
----------------------------
1
TR20 ------------------------------------------------------------------ SCS -
spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/13/98   7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
17:32:55                    SUMMARY, JOB NO.   1                       PAGE  24


                           SUMMARY TABLE 3
                           ---------------
     STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
     QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

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

```
XSECTION   34          5.98
---------------------------
   ALTERNATE    1                 4894

XSECTION   35          7.17
---------------------------
   ALTERNATE    1                 8513

XSECTION   45          7.17
---------------------------
   ALTERNATE    1                 8335

XSECTION   60          1.50
---------------------------
   ALTERNATE    1                 3215

XSECTION   64          8.67
---------------------------
   ALTERNATE    1                10708

XSECTION   67          1.50
---------------------------
   ALTERNATE    1                 2586

XSECTION   75          8.22
---------------------------
   ALTERNATE    1                15823

XSECTION   76         16.89
---------------------------
   ALTERNATE    1                25892

XSECTION  199          1.55
---------------------------
   ALTERNATE    1                    0

XSECTION  200          2.05
---------------------------
   ALTERNATE    1                 1205
1
TR20 ------------------------------------------------------------------------ SCS -
spfqc7h     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/13/98   7HR LOCAL SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST


END OF  1 JOBS IN THIS RUN


                    SCS  TR-20,  VERSION 2.04TEST
                          spfqc7h   FILES

    INPUT  = spfqc7h.dat                          , GIVEN DATA FILE
    OUTPUT = spfqc7h.OUT                          , DATED 07/13/98,17:32:55

             FILES GENERATED - DATED 07/13/98,17:32:55

   FILE spfqc7h.TRD CONTAINS READHD INFORMATION

   FILE spfqc7h.TMG CONTAINS MESSAGE + WARNING INFORMATION
```

```
TOTAL NUMBER OF WARNINGS =   0,  MESSAGES =   3

*** TR-20 RUN COMPLETED ***
```

6.3 TR-20 1954 Queen Creek SPF Hydrograph ("spfqc7h.trd")

```
7 READHD 9      2                                                    XS 76 04
 7 READHD 9       1.9500       .0500     16.3877       .0000          A 1  S 1
 8                    0.          1.          1.          2.          3.
 8                    4.          5.          7.          9.         11.
 8                   13.         16.         20.         24.         29.
 8                   34.         41.         49.         59.         70.
 8                   84.        101.        120.        142.        166.
 8                  194.        223.        256.        290.        326.
 8                  363.        401.        440.        480.        521.
 8                  563.        605.        647.        690.        733.
 8                  776.        819.        864.        911.        963.
 8                 1021.       1089.       1172.       1280.       1418.
 8                 1592.       1810.       2085.       2427.       2839.
 8                 3320.       3882.       4550.       5357.       6322.
 8                 7466.       8817.      10387.      12161.      14102.
 8                16150.      18231.      20247.      22099.      23668.
 8                24861.      25620.      25891.      25680.      25141.
 8                24368.      23418.      22321.      21160.      19984.
 8                18833.      17753.      16783.      15975.      15270.
 8                14670.      14177.      13792.      13501.      13241.
 8                13000.      12772.      12560.      12357.      12154.
 8                11955.      11768.      11600.      11458.      11325.
 8                11199.      11078.      10962.      10838.      10693.
 8                10521.      10314.      10069.       9784.       9462.
 8                 9108.       8730.       8336.       7935.       7538.
 8                 7156.       6796.       6468.       6176.       5912.
 8                 5671.       5451.       5253.       5069.       4893.
 8                 4721.       4554.       4390.       4228.       4069.
 8                 3912.       3758.       3606.       3457.       3311.
 8                 3168.       3029.       2894.       2762.       2634.
 8                 2510.       2391.       2276.       2165.       2058.
 8                 1955.       1857.       1762.       1671.       1585.
 8                 1502.       1423.       1348.       1276.       1207.
 8                 1142.       1079.       1020.        964.        911.
 8                  860.        812.        766.        723.        682.
 8                  643.        606.        571.        538.        507.
 8                  478.        450.        423.        399.        375.
 8                  353.        332.        312.        294.        276.
 8                  260.        244.        229.        215.        202.
 8                  190.        179.        168.        157.        148.
 8                  139.        130.        122.        115.        108.
 8                  101.         95.         89.         83.         78.
 8                   73.         69.         64.         60.         57.
 8                   53.         50.         46.         44.         41.
 8                   38.         36.         34.         31.         29.
 8                   28.         26.         24.         23.         21.
 8                   20.         19.         17.         16.         15.
 8                   14.         13.         12.         12.         11.
 8                   10.         10.          9.          8.          8.
 8                    7.          7.          6.          6.          6.
 8                    5.          5.          5.          4.          4.
 8                    4.          3.          3.          3.          3.
 8                    3.          2.          2.          2.          2.
 8                    2.          2.          2.          2.          1.
 8                    1.          1.          1.          1.          1.
 8                    1.          1.          1.          1.          1.
 8                    1.          1.          1.          1.          0.
 9 ENDTBL
 7 READHD 8      1                                                    STR 1 02
```

7	READHD 9	2.7500	.0500	16.8877	.0000	A 1 S 1
8		0.	0.	0.	0.	0.
8		0.	0.	0.	0.	0.
8		0.	0.	0.	0.	0.
8		0.	0.	0.	0.	0.
8		0.	0.	0.	0.	0.
8		0.	0.	0.	0.	0.
8		0.	0.	0.	0.	0.
8		0.	0.	1.	1.	1.
8		1.	1.	1.	1.	1.
8		1.	1.	1.	1.	1.
8		1.	1.	1.	1.	1.
8		1.	1.	2.	2.	2.
8		2.	2.	2.	2.	2.
8		2.	2.	2.	2.	2.
8		2.	2.	2.	2.	2.
8		2.	2.	2.	2.	2.
8		2.	123.	320.	600.	870.
8		1247.	1613.	1983.	2436.	2856.
8		3246.	3604.	3950.	4267.	4548.
8		4792.	5001.	5177.	5320.	5433.
8		5520.	5582.	5623.	5647.	5655.
8		5650.	5633.	5607.	5572.	5529.
8		5479.	5423.	5360.	5293.	5220.
8		5142.	5061.	4975.	4886.	4794.
8		4699.	4602.	4503.	4402.	4299.
8		4196.	4092.	3987.	3882.	3777.
8		3674.	3578.	3482.	3387.	3292.
8		3198.	3104.	3012.	2921.	2831.
8		2742.	2655.	2569.	2485.	2403.
8		2322.	2243.	2166.	2091.	2017.
8		1945.	1882.	1833.	1784.	1735.
8		1688.	1641.	1595.	1550.	1505.
8		1462.	1419.	1377.	1336.	1296.
8		1257.	1219.	1182.	1145.	1110.
8		1075.	1042.	1009.	977.	945.
8		915.	886.	866.	847.	828.
8		810.	791.	773.	756.	739.
8		722.	705.	689.	673.	657.
8		642.	627.	612.	598.	584.
8		570.	556.	543.	530.	517.
8		505.	493.	481.	469.	458.
8		447.	436.	425.	415.	405.
8		395.	385.	376.	366.	357.
8		349.	340.	332.	323.	315.
8		308.	300.	293.	285.	278.
8		271.	264.	258.	251.	245.
8		239.	233.	227.	222.	216.
8		211.	205.	201.	199.	197.
8		194.	192.	190.	188.	185.
8		183.	181.	179.	177.	175.
8		173.	171.	169.	167.	165.
8		163.	161.	159.	157.	155.
8		154.	152.	150.	148.	147.
8		145.	143.	141.	140.	138.
8		137.	135.	133.	132.	130.
8		129.	127.	126.	124.	123.
8		121.	120.	119.	117.	116.
8		114.	113.	112.	110.	109.
8		108.	107.	105.	104.	103.
8		102.	101.	99.	98.	97.
8		96.	95.	94.	93.	91.
8		90.	89.	88.	87.	86.
8		85.	84.	83.	82.	81.
8		80.	79.	78.	78.	77.
8		76.	75.	74.	73.	72.
8		71.	71.	70.	69.	68.
8		67.	67.	66.	65.	64.
8		63.	63.	62.	61.	61.
8		60.	59.	58.	58.	57.
8		56.	56.	55.	54.	54.

```
8                    53.        53.        52.        51.        51.
8                    50.        50.        49.        48.        48.
8                    47.        47.        46.        46.        45.
8                    45.        44.        44.        43.        42.
8                    42.
9 ENDTBL
```

6.4 Input File for TR-20 1951 Arizona SPF Model ("spf51_1.dat")

```
JOB TR-20 spf1951                          PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
 5 RAINFL 1            1.0                                          GenSPF
 8          .000       .001       .002       .003       .004
 8          .005       .006       .015       .015       .017
 8          .018       .020       .020       .020       .023
 8          .028       .028       .031       .037       .049
 8          .056       .062       .105       .150       .210
 8          .294       .377       .440       .493       .555
 8          .563       .565       .565       .567       .582
 8          .600       .613       .623       .634       .650
 8          .661       .684       .696       .704       .723
 8          .732       .732       .732       .750       .766
 8          .766       .766       .772       .820       .866
 8          .870       .872       .888       .910       .922
 8          .933       .933       .977       .977       .981
 8          .983       .983       1.00       1.00       1.00
 9 ENDTBL
 5 RAINFL 2            .1                                           6HR GEN
 8          .000       .005       .013       .020       .028
 8          .038       .045       .053       .060       .070
 8          .080       .085       .095       .108       .120
 8          .138       .150       .165       .190       .210
 8          .238       .280       .350       .440       .550
 8          .590       .620       .645       .668       .685
 8          .700       .720       .735       .753       .765
 8          .775       .790       .800       .810       .820
 8          .835       .843       .850       .863       .870
 8          .880       .890       .898       .908       .915
 8          .925       .930       .940       .945       .955
 8          .963       .970       .978       .985       .990
 8          1.00       1.00       1.00       1.00       1.00
 9 ENDTBL
 5 RAINFL 3            0.1                                          12HRGEN
 8          .000       .003       .007       .010       .013
 8          .016       .019       .022       .025       .028
 8          .031       .034       .037       .040       .043
 8          .045       .050       .054       .058       .062
 8          .066       .071       .075       .080       .085
 8          .089       .095       .101       .107       .112
 8          .118       .125       .132       .139       .146
 8          .153       .162       .171       .180       .189
 8          .198       .211       .224       .237       .250
 8          .264       .300       .345       .391       .436
 8          .491       .536       .564       .586       .607
 8          .629       .643       .657       .672       .686
 8          .700       .711       .721       .732       .742
 8          .753       .761       .769       .778       .786
 8          .795       .802       .809       .817       .824
 8          .832       .837       .843       .848       .854
 8          .859       .865       .870       .875       .881
 8          .886       .891       .895       .900       .905
 8          .909       .913       .917       .921       .925
 8          .929       .933       .936       .940       .944
 8          .948       .951       .954       .957       .960
 8          .963       .966       .969       .971       .974
 8          .977       .980       .982       .984       .986
 8          .989       .991       .993       .995       .998
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8          1.000      01.000      1.000      1.000      1.00
9 ENDTBL
5 RAINFL 4            0.1                                                  18HRGEN
8          .000       .001       .002       .003       .004
8          .005       .005       .006       .007       .008
8          .009       .012       .014       .017       .020
8          .023       .025       .028       .031       .033
8          .036       .040       .044       .049       .053
8          .057       .061       .065       .070       .074
8          .078       .084       .090       .096       .102
8          .108       .114       .120       .126       .132
8          .138       .146       .154       .162       .170
8          .179       .187       .195       .203       .211
8          .220       .238       .256       .275       .293
8          .311       .330       .348       .367       .385
8          .403       .430       .457       .484       .511
8          .538       .557       .577       .597       .616
8          .636       .653       .670       .687       .704
8          .721       .734       .746       .759       .771
8          .784       .792       .801       .810       .818
8          .827       .832       .838       .843       .848
8          .853       .856       .859       .862       .864
8          .867       .870       .872       .875       .878
8          .880       .882       .885       .887       .889
8          .891       .893       .895       .897       .899
8          .901       .903       .905       .907       .909
8          .911       .912       .914       .916       .917
8          .919       .920       .922       .924       .925
8          .927       .929       .930       .932       .934
8          .935       .937       .938       .940       .941
8          .943       .945       .946       .948       .949
8          .951       .952       .953       .955       .956
8          .957       .959       .960       .961       .963
8          .964       .965       .967       .968       .970
8          .971       .972       .974       .975       .976
8          .978       .979       .980       .982       .983
8          .984       .985       .986       .988       .989
8          .990       .991       .992       .993       .994
8          .995       .996       .997       .998       .999
8          1.000      1.000      1.000      1.000      1.000
9 ENDTBL
5 RAINFL 5            0.1                                                  24HRGEN
8          0.000      0.000      0.001      0.001      0.002
8          0.002      0.002      0.003      0.003      0.003
8          0.004      0.005      0.007      0.009      0.010
8          0.012      0.013      0.015      0.016      0.018
8          0.019      0.022      0.024      0.027      0.030
8          0.032      0.035      0.037      0.040      0.042
8          0.045      0.048      0.051      0.055      0.058
8          0.061      0.064      0.068      0.071      0.074
8          0.078      0.082      0.087      0.091      0.096
8          0.100      0.104      0.109      0.113      0.118
8          0.122      0.127      0.132      0.137      0.142
8          0.147      0.151      0.156      0.161      0.166
8          0.171      0.177      0.184      0.191      0.198
8          0.205      0.214      0.224      0.233      0.242
8          0.252      0.265      0.278      0.291      0.303
8          0.316      0.334      0.351      0.368      0.386
8          0.403      0.425      0.447      0.468      0.490
8          0.512      0.527      0.543      0.558      0.574
8          0.589      0.603      0.617      0.631      0.645
8          0.659      0.671      0.684      0.696      0.709
8          0.721      0.731      0.741      0.751      0.761
8          0.771      0.779      0.786      0.793      0.800
8          0.808      0.814      0.820      0.825      0.831
8          0.837      0.840      0.843      0.847      0.850
8          0.853      0.855      0.857      0.859      0.861
8          0.864      0.866      0.868      0.870      0.872
8          0.874      0.876      0.878      0.880      0.881
8          0.883      0.885      0.886      0.888      0.890
8          0.891      0.893      0.895      0.896      0.898
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8          0.899      0.901      0.902      0.904      0.905
8          0.907      0.908      0.909      0.910      0.912
8          0.913      0.914      0.915      0.916      0.917
8          0.919      0.920      0.921      0.922      0.923
8          0.924      0.926      0.927      0.928      0.929
8          0.930      0.932      0.933      0.935      0.936
8          0.938      0.940      0.941      0.943      0.944
8          0.946      0.947      0.947      0.948      0.949
8          0.950      0.950      0.951      0.952      0.953
8          0.953      0.955      0.956      0.957      0.958
8          0.959      0.960      0.961      0.962      0.963
8          0.964      0.965      0.966      0.967      0.968
8          0.969      0.970      0.971      0.972      0.973
8          0.974      0.975      0.976      0.977      0.978
8          0.979      0.980      0.981      0.982      0.983
8          0.984      0.985      0.986      0.987      0.988
8          0.988      0.989      0.990      0.991      0.991
8          0.992      0.993      0.994      0.995      0.995
8          0.996      0.997      0.998      0.998      0.999
8          1.000      1.000      1.000      1.000      1.000
9 ENDTBL
5 RAINFL 6            .25                                          48HRGEN
8          0.0000     0.0015     0.0029     0.0044     0.0058
8          0.0073     0.0088     0.0102     0.0117     0.0131
8          0.0146     0.0160     0.0175     0.0190     0.0204
8          0.0219     0.0233     0.0248     0.0263     0.0277
8          0.0292     0.0306     0.0321     0.0335     0.0350
8          0.0365     0.0379     0.0394     0.0408     0.0423
8          0.0438     0.0452     0.0467     0.0481     0.0496
8          0.0510     0.0525     0.0542     0.0558     0.0575
8          0.0592     0.0608     0.0625     0.0642     0.0658
8          0.0692     0.0725     0.0758     0.0792     0.0825
8          0.0858     0.0892     0.0925     0.0975     0.1025
8          0.1075     0.1125     0.1175     0.1225     0.1275
8          0.1325     0.1442     0.1560     0.1677     0.1794
8          0.1985     0.2176     0.2366     0.2557     0.3239
8          0.3921     0.4603     0.5285     0.5520     0.5754
8          0.5989     0.6224     0.6356     0.6488     0.6620
8          0.6752     0.6862     0.6972     0.7082     0.7192
8          0.7267     0.7342     0.7417     0.7492     0.7558
8          0.7625     0.7692     0.7758     0.7825     0.7892
8          0.7958     0.8025     0.8083     0.8142     0.8200
8          0.8258     0.8308     0.8358     0.8408     0.8458
8          0.8508     0.8558     0.8608     0.8658     0.8683
8          0.8708     0.8733     0.8758     0.8783     0.8808
8          0.8833     0.8858     0.8875     0.8892     0.8908
8          0.8925     0.8942     0.8958     0.8975     0.8992
8          0.9008     0.9025     0.9042     0.9058     0.9075
8          0.9092     0.9108     0.9125     0.9140     0.9154
8          0.9169     0.9183     0.9198     0.9213     0.9227
8          0.9242     0.9256     0.9271     0.9285     0.9300
8          0.9315     0.9329     0.9344     0.9358     0.9373
8          0.9388     0.9402     0.9417     0.9431     0.9446
8          0.9460     0.9475     0.9490     0.9504     0.9519
8          0.9533     0.9548     0.9563     0.9577     0.9592
8          0.9606     0.9621     0.9635     0.9650     0.9665
8          0.9679     0.9694     0.9708     0.9723     0.9737
8          0.9752     0.9767     0.9781     0.9796     0.9810
8          0.9825     0.9840     0.9854     0.9869     0.9883
8          0.9898     0.9912     0.9927     0.9942     0.9956
8          0.9971     0.9985     1.0000     1.0000     1.0
9 ENDTBL
5 RAINFL 7            .25                                          72HRGEN
8          0.0000     0.0005     0.0009     0.0014     0.0019
8          0.0025     0.0032     0.0038     0.0044     0.0051
8          0.0057     0.0063     0.0070     0.0076     0.0082
8          0.0089     0.0095     0.0103     0.0111     0.0119
8          0.0127     0.0134     0.0142     0.0150     0.0158
8          0.0171     0.0184     0.0196     0.0209     0.0222
8          0.0234     0.0247     0.0259     0.0272     0.0285
8          0.0297     0.0310     0.0323     0.0335     0.0348
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8          0.0361     0.0375     0.0389     0.0403     0.0418
8          0.0432     0.0446     0.0460     0.0475     0.0489
8          0.0503     0.0517     0.0532     0.0546     0.0560
8          0.0574     0.0589     0.0604     0.0620     0.0636
8          0.0652     0.0668     0.0684     0.0699     0.0715
8          0.0731     0.0747     0.0763     0.0778     0.0797
8          0.0816     0.0835     0.0854     0.0877     0.0899
8          0.0921     0.0943     0.0968     0.0994     0.1019
8          0.1044     0.1073     0.1101     0.1130     0.1158
8          0.1193     0.1228     0.1263     0.1297     0.1335
8          0.1373     0.1411     0.1449     0.1491     0.1532
8          0.1573     0.1614     0.1725     0.1837     0.1948
8          0.2059     0.2241     0.2422     0.2603     0.2784
8          0.3431     0.4078     0.4726     0.5373     0.5596
8          0.5819     0.6042     0.6265     0.6390     0.6515
8          0.6641     0.6766     0.6870     0.6975     0.7079
8          0.7184     0.7255     0.7326     0.7397     0.7468
8          0.7535     0.7601     0.7668     0.7734     0.7794
8          0.7854     0.7915     0.7975     0.8030     0.8085
8          0.8141     0.8196     0.8247     0.8297     0.8348
8          0.8399     0.8443     0.8487     0.8532     0.8576
8          0.8598     0.8620     0.8642     0.8665     0.8685
8          0.8706     0.8726     0.8747     0.8766     0.8785
8          0.8804     0.8823     0.8840     0.8858     0.8875
8          0.8892     0.8908     0.8924     0.8940     0.8956
8          0.8972     0.8987     0.9003     0.9019     0.9035
8          0.9051     0.9066     0.9082     0.9098     0.9114
8          0.9130     0.9146     0.9160     0.9174     0.9188
8          0.9203     0.9217     0.9231     0.9245     0.9259
8          0.9274     0.9288     0.9302     0.9316     0.9329
8          0.9342     0.9354     0.9367     0.9380     0.9392
8          0.9405     0.9418     0.9430     0.9443     0.9456
8          0.9468     0.9481     0.9494     0.9506     0.9519
8          0.9530     0.9541     0.9552     0.9563     0.9574
8          0.9585     0.9597     0.9608     0.9619     0.9630
8          0.9641     0.9652     0.9661     0.9671     0.9680
8          0.9690     0.9699     0.9709     0.9718     0.9728
8          0.9736     0.9744     0.9752     0.9759     0.9767
8          0.9775     0.9783     0.9791     0.9797     0.9804
8          0.9810     0.9816     0.9823     0.9829     0.9835
8          0.9842     0.9847     0.9851     0.9856     0.9861
8          0.9866     0.9870     0.9875     0.9880     0.9884
8          0.9889     0.9894     0.9899     0.9902     0.9905
8          0.9908     0.9911     0.9915     0.9918     0.9921
8          0.9924     0.9927     0.9930     0.9934     0.9937
8          0.9940     0.9943     0.9946     0.9949     0.9953
8          0.9956     0.9959     0.9962     0.9965     0.9968
8          0.9972     0.9975     0.9978     0.9981     0.9984
8          0.9987     0.9989     0.9991     0.9992     0.9994
8          0.9995     0.9997     0.9998     1.0000     1.0000
9 ENDTBL
5 RAINFL 8     1      2.4                                          10-DAY
8          .0000      .0024      .0048      .0073      .0097
8          .0121      .0148      .0174      .0201      .0228
8          .0254      .0284      .0314      .0344      .0374
8          .0404      .0437      .0471      .0505      .0539
8          .0572      .0612      .0651      .0690      .0729
8          .0768      .0815      .0862      .0909      .0955
8          .1002      .1061      .1120      .1179      .1238
8          .1297      .1377      .1458      .1538      .1618
8          .1699      .1832      .1966      .2099      .2232
8          .2366      .2548      .2778      .3093      .3614
8          1.092      1.174      1.213      1.240      1.260
8          1.276      1.286      1.296      1.306      1.316
8          1.326      1.333      1.340      1.347      1.354
8          1.360      1.365      1.371      1.376      1.381
8          1.386      1.391      1.395      1.399      1.403
8          1.408      1.411      1.415      1.418      1.422
8          1.426      1.429      1.432      1.435      1.438
8          1.442      1.444      1.447      1.450      1.453
8          1.456      1.458      1.461      1.463      1.466
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8          1.468      1.471      1.473      1.475      1.477
8          1.48       1.48       1.48       1.48       1.48
9 ENDTBL
4 DIMHYD              .0556                                          WT3
8          0.0        .03        .10        .19        .31
8          .47        .66        .82        .93        .99
8          1.0        .99        .93        .82        .66
8          .47        .31        .03        .00        .00
9 ENDTBL
2 XSECTN   005        1.0        8.77                               BOSSCS#5
8                     0.         0.0        0.0
8                     0.35       5.         5.56
8                     1.03       50.        30.95
8                     1.39       100.       52.16
8                     1.94       200.       88.72
8                     2.63       400.       148.61
8                     3.51       800.       260.63
8                     4.62       1600.      459.66
8                     6.04       3200.      929.36
8                     7.38       6400.      1811.51
8                     8.77       12800.     3374.20
8                     10.17      25600.     6398.87
8                     11.89      51200.     10982.51
9 ENDTBL
2 XSECTN   010        1.0        8.94                               BOSSCS#4
8                     0.         0.0        0.0
8                     0.91       5.         4.95
8                     2.03       50.        24.80
8                     2.63       100.       41.32
8                     3.34       200.       74.14
8                     4.15       400.       130.28
8                     5.23       800.       223.37
8                     6.41       1600.      447.51
8                     7.65       3200.      898.64
8                     8.94       6400.      1690.88
8                     10.29      12800.     3331.95
8                     11.64      25600.     6185.81
8                     13.14      51200.     10661.04
9 ENDTBL
2 XSECTN   020        1.0        7.3                                REACHC
8                     0.         0.0        0.0
8                     1.01       100.       57.78
8                     1.49       200.       86.81
8                     1.88       300.       110.25
8                     2.49       500.       149.47
8                     3.68       1000.      226.31
8                     5.40       2000.      346.26
8                     7.85       4000.      533.39
8                     9.64       6000.      688.07
8                     11.16      8000.      838.10
8                     12.46      10000.     985.31
8                     13.61      12000.     1122.03
8                     14.56      14000.     1236.94
8                     15.43      16000.     1345.18
8                     16.31      18000.     1456.68
9 ENDTBL
2 XSECTN   025        1.0        7.3                                REACHB
8                     0.         0.0        0.0
8                     0.63       100.       80.89
8                     0.93       200.       120.32
8                     1.17       300.       151.77
8                     1.56       500.       203.28
8                     2.30       1000.      302.00
8                     3.38       2000.      449.24
8                     4.97       4000.      673.73
8                     6.23       6000.      855.96
8                     7.31       8000.      1016.35
8                     8.24       10000.     1158.51
8                     9.09       12000.     1293.31
8                     9.90       14000.     1425.57
8                     10.64      16000.     1549.17
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8                       11.36       18000.      1673.11
9 ENDTBL
2 XSECTN    030         1.0         9.45                                BOSSCS#6
8                       0.          0.0         0.0
8                       0.77        5.          4.67
8                       1.54        50.         32.06
8                       1.78        100.        56.64
8                       2.10        200.        100.59
8                       2.50        400.        179.97
8                       3.01        800.        320.25
8                       3.63        1600.       589.66
8                       4.35        3200.       1110.72
8                       5.21        6400.       2084.48
8                       6.03        12800.      4119.83
8                       6.99        25600.      6856.75
8                       8.28        51200.      11085.87
9 ENDTBL
2 XSECTN    045         1.0         4.87                                REACHA
8                       0.          0.0         0.0
8                       0.60        100.        85.69
8                       0.90        200.        127.94
8                       1.13        300.        161.93
8                       1.52        500.        217.27
8                       2.25        1000.       324.03
8                       3.31        2000.       483.02
8                       4.87        4000.       722.17
8                       6.09        6000.       914.99
8                       7.15        8000.       1084.61
8                       8.05        10000.      1234.17
8                       8.87        12000.      1373.80
8                       9.64        14000.      1507.84
8                       10.34       16000.      1633.45
8                       11.00       18000.      1753.12
9 ENDTBL
2 XSECTN    060         1.0         4.7                                 2CP6CP7
8                       0.          0.0         0.0
8                       2.36        100.        45.12
8                       2.88        200.        83.75
8                       3.18        300.        114.33
8                       3.64        500.        172.72
8                       4.42        1000.       289.04
8                       5.40        2000.       470.72
8                       6.87        4000.       782.74
8                       7.91        6000.       1020.12
8                       8.79        8000.       1231.25
8                       9.60        10000.      1435.05
8                       10.26       12000.      1618.34
8                       10.94       14000.      1812.58
8                       11.47       16000.      1983.46
8                       11.96       18000.      2150.12
9 ENDTBL
2 XSECTN    067         1.0         8.77                                BOSSCS#5
8                       0.          0.0         0.0
8                       0.35        5.          5.56
8                       1.03        50.         30.95
8                       1.39        100.        52.16
8                       1.94        200.        88.72
8                       2.63        400.        148.61
8                       3.51        800.        260.63
8                       4.62        1600.       459.66
8                       6.04        3200.       929.36
8                       7.38        6400.       1811.51
8                       8.77        12800.      3374.20
8                       10.17       25600.      6398.87
8                       11.89       51200.      10982.51
9 ENDTBL
3 STRUCT        01                                                      95/11/6
8                       1196.5      0.0         0.
8                       1198.       0.8         152.
8                       1200.       1.0         425.
8                       1204.       1.5         1175.
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8                       1206.       1.7         1638.
8                       1208.       1.9         2160.
8                       1210.       2.2         2810.
8                       1210.2      202.        2880.
8                       1210.5      885.        2990.
8                       1210.8      1900.       3100.
8                       1211.2      3691.       3240.
8                       1211.6      5780.       3390.
8                       1211.9      7459.       3510.
8                       1212.2      9293.       3620.
8                       1212.5      11289.      3740.
8                       1212.7      12671.      3810.
8                       1213.0      14882.      3930.
8                       1213.2      16440.      4000.
8                       1214.0      23168.      4310.
8                       1215.0      32915.      4760.
9 ENDTBL
6 RUNOFF 1 001 -      1 2.45        87.2        0.85        1 1
6 REACH  3 005   1    7 9100.                               1           BOSS#6
6 REACH  3 010   7    2 9100.                               1           BOSS#4
6 RUNOFF 1 002        3 2.34        78.2        0.73        1 1
6 ADDHYD 4 012   2 3 1                                      1 1
6 DIVERT 6 012   1 4 7 4100.        .572        200.        1 1         OLIVE
6 REACH  3 020   4    7 3332.                               1           REACH C
6 REACH  3 025   7    5 1950.                               1           REACH B
6 RUNOFF 1 003        6 3.96        87.2        0.88        1 1
6 REACH  3 030   6    7 8865.                               1           BOSS#6
6 REACH  3 005   7    1 8865.                               1           BOSS#5
6 REACH  3 025   1    7 1950.                               1           REACH B
6 RUNOFF 1 004        1 2.02        75.5        0.79        1 1
6 ADDHYD 4 034   7 1 2                                      1 1
6 ADDHYD 4 035   5 2 3                                      1 1
6 DIVERT 6 035   3 4 7 11000.       .822        199.        1 1         NORTHERN
6 REACH  3 045   4    5 4200.                               1           REACH A
6 RUNOFF 1 006        2 1.50        87.2        0.47        1 1
6 REACH  3 060   2    3 7540.                               1           CP6CP7
6 REACH  3 067   3    4 5140.                               1           BOSS#5
6 ADDHYD 4 064   5 4 3                                      1 1
6 RUNOFF 1 005        6 4.76        76.5        0.78        1 1
6 RUNOFF 1 007        7 3.46        78.9        1.01        1 1
6 ADDHYD 4 075   6 7 1                                      1 1
6 ADDHYD 4 076   1 3 2                                      1 1     1
6 RESVOR 2     01 2   1 1196.5                               1 1     1
  ENDATA
7 LIST                  1.0                       1.
7 INCREM 6              0.20
7 COMPUT 7 001       01 0.          8.61        1.0         1 2  01  01
  ENDCMP 1
  ENDJOB 2
```

6.5 *Output File for TR-20 1951 Arizona SPF Model ("spf51_1.out")*

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

JOB TR-20 spf1951                        PASS=001  SUMMARY
TITLE     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS
TITLE     General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT
 5 RAINFL 1             1.0                                          GenSPF
 8          .000        .001        .002        .003        .004
 8          .005        .006        .015        .015        .017
 8          .018        .020        .020        .020        .023
 8          .028        .028        .031        .037        .049
```

```
 8          .056        .062        .105        .150        .210
 8          .294        .377        .440        .493        .555
 8          .563        .565        .565        .567        .582
 8          .600        .613        .623        .634        .650
 8          .661        .684        .696        .704        .723
 8          .732        .732        .732        .750        .766
 8          .766        .766        .772        .820        .866
 8          .870        .872        .888        .910        .922
 8          .933        .933        .977        .977        .981
 8          .983        .983        1.00        1.00        1.00
 9 ENDTBL
 5 RAINFL 2             .1                                          6HR GEN
 8          .000        .005        .013        .020        .028
 8          .038        .045        .053        .060        .070
 8          .080        .085        .095        .108        .120
 8          .138        .150        .165        .190        .210
 8          .238        .280        .350        .440        .550
 8          .590        .620        .645        .668        .685
 8          .700        .720        .735        .753        .765
 8          .775        .790        .800        .810        .820
 8          .835        .843        .850        .863        .870
 8          .880        .890        .898        .908        .915
 8          .925        .930        .940        .945        .955
 8          .963        .970        .978        .985        .990
 8          1.00        1.00        1.00        1.00        1.00
 9 ENDTBL
 5 RAINFL 3             0.1                                         12HRGEN
 8          .000        .003        .007        .010        .013
 8          .016        .019        .022        .025        .028
 8          .031        .034        .037        .040        .043
 8          .045        .050        .054        .058        .062
 8          .066        .071        .075        .080        .085
 8          .089        .095        .101        .107        .112
 8          .118        .125        .132        .139        .146
 8          .153        .162        .171        .180        .189
 8          .198        .211        .224        .237        .250
 8          .264        .300        .345        .391        .436
 8          .491        .536        .564        .586        .607
 8          .629        .643        .657        .672        .686
 8          .700        .711        .721        .732        .742
 8          .753        .761        .769        .778        .786
 8          .795        .802        .809        .817        .824
1

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

 8          .832        .837        .843        .848        .854
 8          .859        .865        .870        .875        .881
 8          .886        .891        .895        .900        .905
 8          .909        .913        .917        .921        .925
 8          .929        .933        .936        .940        .944
 8          .948        .951        .954        .957        .960
 8          .963        .966        .969        .971        .974
 8          .977        .980        .982        .984        .986
 8          .989        .991        .993        .995        .998
 8          1.000      01.000       1.000       1.000       1.00
 9 ENDTBL
 5 RAINFL 4             0.1                                         18HRGEN
 8          .000        .001        .002        .003        .004
 8          .005        .005        .006        .007        .008
 8          .009        .012        .014        .017        .020
 8          .023        .025        .028        .031        .033
 8          .036        .040        .044        .049        .053
 8          .057        .061        .065        .070        .074
 8          .078        .084        .090        .096        .102
 8          .108        .114        .120        .126        .132
 8          .138        .146        .154        .162        .170
 8          .179        .187        .195        .203        .211
 8          .220        .238        .256        .275        .293
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 8          .311       .330       .348       .367       .385
 8          .403       .430       .457       .484       .511
 8          .538       .557       .577       .597       .616
 8          .636       .653       .670       .687       .704
 8          .721       .734       .746       .759       .771
 8          .784       .792       .801       .810       .818
 8          .827       .832       .838       .843       .848
 8          .853       .856       .859       .862       .864
 8          .867       .870       .872       .875       .878
 8          .880       .882       .885       .887       .889
 8          .891       .893       .895       .897       .899
 8          .901       .903       .905       .907       .909
 8          .911       .912       .914       .916       .917
 8          .919       .920       .922       .924       .925
 8          .927       .929       .930       .932       .934
 8          .935       .937       .938       .940       .941
 8          .943       .945       .946       .948       .949
 8          .951       .952       .953       .955       .956
 8          .957       .959       .960       .961       .963
 8          .964       .965       .967       .968       .970
 8          .971       .972       .974       .975       .976
 8          .978       .979       .980       .982       .983
 8          .984       .985       .986       .988       .989
 8          .990       .991       .992       .993       .994
 8          .995       .996       .997       .998       .999
 8          1.000      1.000      1.000      1.000      1.000
 9 ENDTBL
1

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

 5 RAINFL 5            0.1                                                24HRGEN
 8          0.000      0.000      0.001      0.001      0.002
 8          0.002      0.002      0.003      0.003      0.003
 8          0.004      0.005      0.007      0.009      0.010
 8          0.012      0.013      0.015      0.016      0.018
 8          0.019      0.022      0.024      0.027      0.030
 8          0.032      0.035      0.037      0.040      0.042
 8          0.045      0.048      0.051      0.055      0.058
 8          0.061      0.064      0.068      0.071      0.074
 8          0.078      0.082      0.087      0.091      0.096
 8          0.100      0.104      0.109      0.113      0.118
 8          0.122      0.127      0.132      0.137      0.142
 8          0.147      0.151      0.156      0.161      0.166
 8          0.171      0.177      0.184      0.191      0.198
 8          0.205      0.214      0.224      0.233      0.242
 8          0.252      0.265      0.278      0.291      0.303
 8          0.316      0.334      0.351      0.368      0.386
 8          0.403      0.425      0.447      0.468      0.490
 8          0.512      0.527      0.543      0.558      0.574
 8          0.589      0.603      0.617      0.631      0.645
 8          0.659      0.671      0.684      0.696      0.709
 8          0.721      0.731      0.741      0.751      0.761
 8          0.771      0.779      0.786      0.793      0.800
 8          0.808      0.814      0.820      0.825      0.831
 8          0.837      0.840      0.843      0.847      0.850
 8          0.853      0.855      0.857      0.859      0.861
 8          0.864      0.866      0.868      0.870      0.872
 8          0.874      0.876      0.878      0.880      0.881
 8          0.883      0.885      0.886      0.888      0.890
 8          0.891      0.893      0.895      0.896      0.898
 8          0.899      0.901      0.902      0.904      0.905
 8          0.907      0.908      0.909      0.910      0.912
 8          0.913      0.914      0.915      0.916      0.917
 8          0.919      0.920      0.921      0.922      0.923
 8          0.924      0.926      0.927      0.928      0.929
 8          0.930      0.932      0.933      0.935      0.936
 8          0.938      0.940      0.941      0.943      0.944
 8          0.946      0.947      0.947      0.948      0.949
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 8          0.950       0.950       0.951       0.952       0.953
 8          0.953       0.955       0.956       0.957       0.958
 8          0.959       0.960       0.961       0.962       0.963
 8          0.964       0.965       0.966       0.967       0.968
 8          0.969       0.970       0.971       0.972       0.973
 8          0.974       0.975       0.976       0.977       0.978
 8          0.979       0.980       0.981       0.982       0.983
 8          0.984       0.985       0.986       0.987       0.988
 8          0.988       0.989       0.990       0.991       0.991
 8          0.992       0.993       0.994       0.995       0.995
 8          0.996       0.997       0.998       0.998       0.999
 8          1.000       1.000       1.000       1.000       1.000
1


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

 9 ENDTBL
 5 RAINFL 6             .25                                                48HRGEN
 8          0.0000      0.0015      0.0029      0.0044      0.0058
 8          0.0073      0.0088      0.0102      0.0117      0.0131
 8          0.0146      0.0160      0.0175      0.0190      0.0204
 8          0.0219      0.0233      0.0248      0.0263      0.0277
 8          0.0292      0.0306      0.0321      0.0335      0.0350
 8          0.0365      0.0379      0.0394      0.0408      0.0423
 8          0.0438      0.0452      0.0467      0.0481      0.0496
 8          0.0510      0.0525      0.0542      0.0558      0.0575
 8          0.0592      0.0608      0.0625      0.0642      0.0658
 8          0.0692      0.0725      0.0758      0.0792      0.0825
 8          0.0858      0.0892      0.0925      0.0975      0.1025
 8          0.1075      0.1125      0.1175      0.1225      0.1275
 8          0.1325      0.1442      0.1560      0.1677      0.1794
 8          0.1985      0.2176      0.2366      0.2557      0.3239
 8          0.3921      0.4603      0.5285      0.5520      0.5754
 8          0.5989      0.6224      0.6356      0.6488      0.6620
 8          0.6752      0.6862      0.6972      0.7082      0.7192
 8          0.7267      0.7342      0.7417      0.7492      0.7558
 8          0.7625      0.7692      0.7758      0.7825      0.7892
 8          0.7958      0.8025      0.8083      0.8142      0.8200
 8          0.8258      0.8308      0.8358      0.8408      0.8458
 8          0.8508      0.8558      0.8608      0.8658      0.8683
 8          0.8708      0.8733      0.8758      0.8783      0.8808
 8          0.8833      0.8858      0.8875      0.8892      0.8908
 8          0.8925      0.8942      0.8958      0.8975      0.8992
 8          0.9008      0.9025      0.9042      0.9058      0.9075
 8          0.9092      0.9108      0.9125      0.9140      0.9154
 8          0.9169      0.9183      0.9198      0.9213      0.9227
 8          0.9242      0.9256      0.9271      0.9285      0.9300
 8          0.9315      0.9329      0.9344      0.9358      0.9373
 8          0.9388      0.9402      0.9417      0.9431      0.9446
 8          0.9460      0.9475      0.9490      0.9504      0.9519
 8          0.9533      0.9548      0.9563      0.9577      0.9592
 8          0.9606      0.9621      0.9635      0.9650      0.9665
 8          0.9679      0.9694      0.9708      0.9723      0.9737
 8          0.9752      0.9767      0.9781      0.9796      0.9810
 8          0.9825      0.9840      0.9854      0.9869      0.9883
 8          0.9898      0.9912      0.9927      0.9942      0.9956
 8          0.9971      0.9985      1.0000      1.0000      1.0
 9 ENDTBL
 5 RAINFL 7             .25                                                72HRGEN
 8          0.0000      0.0005      0.0009      0.0014      0.0019
 8          0.0025      0.0032      0.0038      0.0044      0.0051
 8          0.0057      0.0063      0.0070      0.0076      0.0082
 8          0.0089      0.0095      0.0103      0.0111      0.0119
 8          0.0127      0.0134      0.0142      0.0150      0.0158
 8          0.0171      0.0184      0.0196      0.0209      0.0222
 8          0.0234      0.0247      0.0259      0.0272      0.0285
1
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*********************80-80 LIST OF INPUT DATA (CONTINUED)*********************

 8          0.0297      0.0310      0.0323      0.0335      0.0348
 8          0.0361      0.0375      0.0389      0.0403      0.0418
 8          0.0432      0.0446      0.0460      0.0475      0.0489
 8          0.0503      0.0517      0.0532      0.0546      0.0560
 8          0.0574      0.0589      0.0604      0.0620      0.0636
 8          0.0652      0.0668      0.0684      0.0699      0.0715
 8          0.0731      0.0747      0.0763      0.0778      0.0797
 8          0.0816      0.0835      0.0854      0.0877      0.0899
 8          0.0921      0.0943      0.0968      0.0994      0.1019
 8          0.1044      0.1073      0.1101      0.1130      0.1158
 8          0.1193      0.1228      0.1263      0.1297      0.1335
 8          0.1373      0.1411      0.1449      0.1491      0.1532
 8          0.1573      0.1614      0.1725      0.1837      0.1948
 8          0.2059      0.2241      0.2422      0.2603      0.2784
 8          0.3431      0.4078      0.4726      0.5373      0.5596
 8          0.5819      0.6042      0.6265      0.6390      0.6515
 8          0.6641      0.6766      0.6870      0.6975      0.7079
 8          0.7184      0.7255      0.7326      0.7397      0.7468
 8          0.7535      0.7601      0.7668      0.7734      0.7794
 8          0.7854      0.7915      0.7975      0.8030      0.8085
 8          0.8141      0.8196      0.8247      0.8297      0.8348
 8          0.8399      0.8443      0.8487      0.8532      0.8576
 8          0.8598      0.8620      0.8642      0.8665      0.8685
 8          0.8706      0.8726      0.8747      0.8766      0.8785
 8          0.8804      0.8823      0.8840      0.8858      0.8875
 8          0.8892      0.8908      0.8924      0.8940      0.8956
 8          0.8972      0.8987      0.9003      0.9019      0.9035
 8          0.9051      0.9066      0.9082      0.9098      0.9114
 8          0.9130      0.9146      0.9160      0.9174      0.9188
 8          0.9203      0.9217      0.9231      0.9245      0.9259
 8          0.9274      0.9288      0.9302      0.9316      0.9329
 8          0.9342      0.9354      0.9367      0.9380      0.9392
 8          0.9405      0.9418      0.9430      0.9443      0.9456
 8          0.9468      0.9481      0.9494      0.9506      0.9519
 8          0.9530      0.9541      0.9552      0.9563      0.9574
 8          0.9585      0.9597      0.9608      0.9619      0.9630
 8          0.9641      0.9652      0.9661      0.9671      0.9680
 8          0.9690      0.9699      0.9709      0.9718      0.9728
 8          0.9736      0.9744      0.9752      0.9759      0.9767
 8          0.9775      0.9783      0.9791      0.9797      0.9804
 8          0.9810      0.9816      0.9823      0.9829      0.9835
 8          0.9842      0.9847      0.9851      0.9856      0.9861
 8          0.9866      0.9870      0.9875      0.9880      0.9884
 8          0.9889      0.9894      0.9899      0.9902      0.9905
 8          0.9908      0.9911      0.9915      0.9918      0.9921
 8          0.9924      0.9927      0.9930      0.9934      0.9937
 8          0.9940      0.9943      0.9946      0.9949      0.9953
 8          0.9956      0.9959      0.9962      0.9965      0.9968
 8          0.9972      0.9975      0.9978      0.9981      0.9984
 8          0.9987      0.9989      0.9991      0.9992      0.9994
1

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

 8          0.9995      0.9997      0.9998      1.0000      1.0000
 9 ENDTBL
 5 RAINFL 8     1        2.4                                            10-DAY
 8          .0000       .0024       .0048       .0073       .0097
 8          .0121       .0148       .0174       .0201       .0228
 8          .0254       .0284       .0314       .0344       .0374
 8          .0404       .0437       .0471       .0505       .0539
 8          .0572       .0612       .0651       .0690       .0729
 8          .0768       .0815       .0862       .0909       .0955
 8          .1002       .1061       .1120       .1179       .1238
 8          .1297       .1377       .1458       .1538       .1618
 8          .1699       .1832       .1966       .2099       .2232
```

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 8          .2366       .2548       .2778       .3093       .3614
 8          1.092       1.174       1.213       1.240       1.260
 8          1.276       1.286       1.296       1.306       1.316
 8          1.326       1.333       1.340       1.347       1.354
 8          1.360       1.365       1.371       1.376       1.381
 8          1.386       1.391       1.395       1.399       1.403
 8          1.408       1.411       1.415       1.418       1.422
 8          1.426       1.429       1.432       1.435       1.438
 8          1.442       1.444       1.447       1.450       1.453
 8          1.456       1.458       1.461       1.463       1.466
 8          1.468       1.471       1.473       1.475       1.477
 8          1.48        1.48        1.48        1.48        1.48
 9 ENDTBL
 4 DIMHYD               .0556                                           WT3
 8          0.0         .03         .10         .19         .31
 8          .47         .66         .82         .93         .99
 8          1.0         .99         .93         .82         .66
 8          .47         .31         .03         .00         .00
 9 ENDTBL
 2 XSECTN   005         1.0         8.77                                BOSSCS#5
 8                      0.          0.0         0.0
 8                      0.35        5.          5.56
 8                      1.03        50.         30.95
 8                      1.39        100.        52.16
 8                      1.94        200.        88.72
 8                      2.63        400.        148.61
 8                      3.51        800.        260.63
 8                      4.62        1600.       459.66
 8                      6.04        3200.       929.36
 8                      7.38        6400.       1811.51
 8                      8.77        12800.      3374.20
 8                      10.17       25600.      6398.87
 8                      11.89       51200.      10982.51
 9 ENDTBL
 2 XSECTN   010         1.0         8.94                                BOSSCS#4
 8                      0.          0.0         0.0
 8                      0.91        5.          4.95
 8                      2.03        50.         24.80
1


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

 8                      2.63        100.        41.32
 8                      3.34        200.        74.14
 8                      4.15        400.        130.28
 8                      5.23        800.        223.37
 8                      6.41        1600.       447.51
 8                      7.65        3200.       898.64
 8                      8.94        6400.       1690.88
 8                      10.29       12800.      3331.95
 8                      11.64       25600.      6185.81
 8                      13.14       51200.      10661.04
 9 ENDTBL
 2 XSECTN   020         1.0         7.3                                 REACHC
 8                      0.          0.0         0.0
 8                      1.01        100.        57.78
 8                      1.49        200.        86.81
 8                      1.88        300.        110.25
 8                      2.49        500.        149.47
 8                      3.68        1000.       226.31
 8                      5.40        2000.       346.26
 8                      7.85        4000.       533.39
 8                      9.64        6000.       688.07
 8                      11.16       8000.       838.10
 8                      12.46       10000.      985.31
 8                      13.61       12000.      1122.03
 8                      14.56       14000.      1236.94
 8                      15.43       16000.      1345.18
 8                      16.31       18000.      1456.68
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 9 ENDTBL
 2 XSECTN    025          1.0          7.3                                REACHB
 8                        0.           0.0          0.0
 8                        0.63         100.         80.89
 8                        0.93         200.         120.32
 8                        1.17         300.         151.77
 8                        1.56         500.         203.28
 8                        2.30         1000.        302.00
 8                        3.38         2000.        449.24
 8                        4.97         4000.        673.73
 8                        6.23         6000.        855.96
 8                        7.31         8000.        1016.35
 8                        8.24         10000.       1158.51
 8                        9.09         12000.       1293.31
 8                        9.90         14000.       1425.57
 8                        10.64        16000.       1549.17
 8                        11.36        18000.       1673.11
 9 ENDTBL
 2 XSECTN    030          1.0          9.45                               BOSSCS#6
 8                        0.           0.0          0.0
 8                        0.77         5.           4.67
 8                        1.54         50.          32.06
 8                        1.78         100.         56.64
1
```

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

 8                        2.10         200.         100.59
 8                        2.50         400.         179.97
 8                        3.01         800.         320.25
 8                        3.63         1600.        589.66
 8                        4.35         3200.        1110.72
 8                        5.21         6400.        2084.48
 8                        6.03         12800.       4119.83
 8                        6.99         25600.       6856.75
 8                        8.28         51200.       11085.87
 9 ENDTBL
 2 XSECTN    045          1.0          4.87                               REACHA
 8                        0.           0.0          0.0
 8                        0.60         100.         85.69
 8                        0.90         200.         127.94
 8                        1.13         300.         161.93
 8                        1.52         500.         217.27
 8                        2.25         1000.        324.03
 8                        3.31         2000.        483.02
 8                        4.87         4000.        722.17
 8                        6.09         6000.        914.99
 8                        7.15         8000.        1084.61
 8                        8.05         10000.       1234.17
 8                        8.87         12000.       1373.80
 8                        9.64         14000.       1507.84
 8                        10.34        16000.       1633.45
 8                        11.00        18000.       1753.12
 9 ENDTBL
 2 XSECTN    060          1.0          4.7                                2CP6CP7
 8                        0.           0.0          0.0
 8                        2.36         100.         45.12
 8                        2.88         200.         83.75
 8                        3.18         300.         114.33
 8                        3.64         500.         172.72
 8                        4.42         1000.        289.04
 8                        5.40         2000.        470.72
 8                        6.87         4000.        782.74
 8                        7.91         6000.        1020.12
 8                        8.79         8000.        1231.25
 8                        9.60         10000.       1435.05
 8                        10.26        12000.       1618.34
 8                        10.94        14000.       1812.58
 8                        11.47        16000.       1983.46
```

```
  8                        11.96        18000.       2150.12
  9 ENDTBL
  2 XSECTN    067          1.0          8.77                                BOSSCS#5
  8                        0.           0.0          0.0
  8                        0.35         5.           5.56
  8                        1.03         50.          30.95
  8                        1.39         100.         52.16
  8                        1.94         200.         88.72
1


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

  8                        2.63         400.         148.61
  8                        3.51         800.         260.63
  8                        4.62         1600.        459.66
  8                        6.04         3200.        929.36
  8                        7.38         6400.        1811.51
  8                        8.77         12800.       3374.20
  8                        10.17        25600.       6398.87
  8                        11.89        51200.       10982.51
  9 ENDTBL
  3 STRUCT       01                                                          95/11/6
  8                        1196.5       0.0          0.
  8                        1198.        0.8          152.
  8                        1200.        1.0          425.
  8                        1204.        1.5          1175.
  8                        1206.        1.7          1638.
  8                        1208.        1.9          2160.
  8                        1210.        2.2          2810.
  8                        1210.2       202.         2880.
  8                        1210.5       885.         2990.
  8                        1210.8       1900.        3100.
  8                        1211.2       3691.        3240.
  8                        1211.6       5780.        3390.
  8                        1211.9       7459.        3510.
  8                        1212.2       9293.        3620.
  8                        1212.5       11289.       3740.
  8                        1212.7       12671.       3810.
  8                        1213.0       14882.       3930.
  8                        1213.2       16440.       4000.
  8                        1214.0       23168.       4310.
  8                        1215.0       32915.       4760.
  9 ENDTBL
  6 RUNOFF 1 001        1 2.45          87.2         0.85         1 1
  6 REACH  3 005    1   7 9100.                                    1          BOSS#6
  6 REACH  3 010    7   2 9100.                                    1          BOSS#4
  6 RUNOFF 1 002        3 2.34          78.2         0.73         1 1
  6 ADDHYD 4 012    2 3 1                                          1 1
  6 DIVERT 6 012    1 4 7 4100.         .572         200.         1 1        OLIVE
  6 REACH  3 020    4   7 3332.                                    1          REACH C
  6 REACH  3 025    7   5 1950.                                    1          REACH B
  6 RUNOFF 1 003        6 3.96          87.2         0.88         1 1
  6 REACH  3 030    6   7 8865.                                    1          BOSS#6
  6 REACH  3 005    7   1 8865.                                    1          BOSS#5
  6 REACH  3 025    1   7 1950.                                    1          REACH B
  6 RUNOFF 1 004        1 2.02          75.5         0.79         1 1
  6 ADDHYD 4 034    7 1 2                                          1 1
  6 ADDHYD 4 035    5 2 3                                          1 1
  6 DIVERT 6 035    3 4 7 11000.        .822         199.         1 1        NORTHERN
  6 REACH  3 045    4   5 4200.                                    1          REACH A
  6 RUNOFF 1 006        2 1.50          87.2         0.47         1 1
  6 REACH  3 060    2   3 7540.                                    1          CP6CP7
1


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

  6 REACH  3 067    3   4 5140.                                    1          BOSS#5
```

```
 6 ADDHYD 4 064    5 4 3                                        1 1
 6 RUNOFF 1 005        6 4.76        76.5        0.78         1 1
 6 RUNOFF 1 007        7 3.46        78.9        1.01         1 1
 6 ADDHYD 4 075    6 7 1                                        1 1
 6 ADDHYD 4 076    1 3 2                                        1 1      1
 6 RESVOR 2     01 2    1 1196.5                                1 1      1
   ENDATA
 7 LIST                  1.0                     1.
 7 INCREM 6              0.20
 7 COMPUT 7 001       01 0.          8.61        1.0          1 2  01  01
   ENDCMP 1
   ENDJOB 2

*******************************END OF 80-80 LIST*******************************
1
TR20 ------------------------------------------------------------------- SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                     PAGE   1
```

COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

The Users' Manual for this program is SCS Technical Release 20 (TR-20), dated April 1990. The TR-20 program is no longer supported on the mainframe since all post 1986 program changes have only been in the IBM compatable microcomputer environnment.

Compatable input and data check programs are TR20INPT.EXE, version III, dated 01/30/90 and TR20CK.EXE, version II, which is forthcoming.

Major changes from the 1986 TR-20 microcomputer version are:

HYDROGRAPH GENERATION: program procedure to develop runoff hydrographs revised to preserve total hydrograph volume as well as the peak discharge. Hydrographs can contain up to four hundred main time increment points from the beginning of runoff.

ATTKIN ROUTING: seperate channel and floodplain lengths can be entered to define additional storage in meandering channels below the representative low ground elevation. Program changes have been made to better handle muitiple peaked hydrographs.

FLOW DURATION: can be obtained if requested.

OUTPUT 80 COLUMNS: Output fits 80 column paper. Hydrograph coordinates over 100 cfs are rounded and shown as whole numbers.

ERRORS, WARNINGS, AND MESSAGES: expanded and updated.

LIST OPTIONS: can print all or selected parts of input data.

INTERMEDIATE PEAKS: requires new IPEAKS record.

```
1
TR20 ------------------------------------------------------------------- SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                     PAGE   2
```

RUNOFF OPTION USED WITH RAINTABLE NO. 8, RUNOFF CURVE NO. = 100.

COMPUTED DIMHYD PEAK RATE FACTOR = 664.607

```
1
TR20 ------------------------------------------------------------------ SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                      PAGE   3


EXECUTIVE CONTROL LIST            1.          0.          1.

         LISTING OF CURRENT DATA


                     COMPUTED TIME INCREMENT
4 DIMHYD                      .0556

8                  .0000       .0300       .1000       .1900       .3100
8                  .4700       .6600       .8200       .9300       .9900
8                 1.0000       .9900       .9300       .8200       .6600
8                  .4700       .3100       .0300       .0000       .0000
9 ENDTBL

  COMPUTED PEAK RATE FACTOR =  664.607

1
TR20 ------------------------------------------------------------------ SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                      PAGE   4


     TABLE NO.        TIME INCREMENT
5 RAINFL 1                   1.0000

8                  .0000       .0010       .0020       .0030       .0040
8                  .0050       .0060       .0150       .0150       .0170
8                  .0180       .0200       .0200       .0200       .0230
8                  .0280       .0280       .0310       .0370       .0490
8                  .0560       .0620       .1050       .1500       .2100
8                  .2940       .3770       .4400       .4930       .5550
8                  .5630       .5650       .5650       .5670       .5820
8                  .6000       .6130       .6230       .6340       .6500
8                  .6610       .6840       .6960       .7040       .7230
8                  .7320       .7320       .7320       .7500       .7660
8                  .7660       .7660       .7720       .8200       .8660
8                  .8700       .8720       .8880       .9100       .9220
8                  .9330       .9330       .9770       .9770       .9810
8                  .9830       .9830      1.0000      1.0000      1.0000
9 ENDTBL
1
TR20 ------------------------------------------------------------------ SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                      PAGE   5


                 STANDARD CONTROL INSTRUCTIONS


6 RUNOFF 1   1       1       2.4500     87.2000       .85001 1 0 0 0 1
6 REACH  3   5   1   7    9100.0000       .0000       .00001 0 0 0 0 1
6 REACH  3  10   7   2    9100.0000       .0000       .00001 0 0 0 0 1
6 RUNOFF 1   2       3       2.3400     78.2000       .73001 1 0 0 0 1
6 ADDHYD 4  12   2 3 1                                     1 1 0 0 0 1
6 DIVERT 6  12   1 4 7    4100.0000       .5720    200.00001 1 0 0 0 1
6 REACH  3  20   4   7    3332.0000       .0000       .00001 0 0 0 0 1
6 REACH  3  25   7   5    1950.0000       .0000       .00001 0 0 0 0 1
6 RUNOFF 1   3       6       3.9600     87.2000       .88001 1 0 0 0 1
```

```
6 REACH  3  30   6   7    8865.0000        .0000        .00001 0 0 0 0 1
6 REACH  3   5   7   1    8865.0000        .0000        .00001 0 0 0 0 1
6 REACH  3  25   1   7    1950.0000        .0000        .00001 0 0 0 0 1
6 RUNOFF 1   4       1       2.0200      75.5000        .79001 1 0 0 0 1
6 ADDHYD 4  34   7 1 2                                       1 1 0 0 0 1
6 ADDHYD 4  35   5 2 3                                       1 1 0 0 0 1
6 DIVERT 6  35   3 4 7   11000.0000        .8220     199.00001 1 0 0 0 1
6 REACH  3  45   4   5    4200.0000        .0000        .00001 0 0 0 0 1
6 RUNOFF 1   6       2       1.5000      87.2000        .47001 1 0 0 0 1
6 REACH  3  60   2   3    7540.0000        .0000        .00001 0 0 0 0 1
6 REACH  3  67   3   4    5140.0000        .0000        .00001 0 0 0 0 1
6 ADDHYD 4  64   5 4 3                                       1 1 0 0 0 1
6 RUNOFF 1   5       6       4.7600      76.5000        .78001 1 0 0 0 1
6 RUNOFF 1   7       7       3.4600      78.9000       1.01001 1 0 0 0 1
6 ADDHYD 4  75   6 7 1                                       1 1 0 0 0 1
6 ADDHYD 4  76   1 3 2                                       1 1 0 0 1 1
6 RESVOR 2      1 2   1    1196.5000                         1 1 0 0 1 1
  ENDATA


END OF LISTING
1
TR20 ------------------------------------------------------------------------ SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                     PAGE   6


EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .200 HOURS


EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO STRUCTURE  1
   STARTING TIME =   .00       RAIN DEPTH =  8.61       RAIN DURATION =  1.00
   ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .200 HOURS
   ALTERNATE NO. = 1           STORM NO. = 1            RAIN TABLE NO. = 1


OPERATION RUNOFF   XSECTION   1

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      25.94                        990.2                        (RUNOFF)
      28.92                        797.6                        (RUNOFF)
      34.96                        233.6                        (RUNOFF)
      40.99                        301.5                        (RUNOFF)
      44.01                        250.1                        (RUNOFF)
      48.08                        239.3                        (RUNOFF)
      53.09                        641.3                        (RUNOFF)
      57.96                        293.9                        (RUNOFF)
      62.00                        589.1                        (RUNOFF)
      67.00                        227.6                        (RUNOFF)

                  HYDROGRAPH POINTS FOR   ALTERNATE = 1,   STORM = 1
    HRS       MAIN TIME INCREMENT =  .200 hr,      DRAINAGE AREA =   2.45 SQ.MI.
   17.60 CFS       .45      .63      .71     1.82     5.50    10.75    14.79    15.80
   19.20 CFS     15.95    16.43    17.13    17.65    17.81    17.94    18.39    19.04
   20.80 CFS        20       21       35       88      161      217      232      241
   22.40 CFS       273      316      350      359      374      430      508      569
   24.00 CFS       584      610      694      814      905      929      934      949
   25.60 CFS       970      986      989      974      923      851      796      780
   27.20 CFS       773      745      707      678      670      678      710      753
   28.80 CFS       787      793      744      574      334      147      103       97
   30.40 CFS     78.54    51.56    31.38    25.72    23.82    17.60     8.62     1.94
   32.00 CFS       .12     1.92     8.30    17.23    23.94    26.36    37.52    80.03
   33.60 CFS       138      183      194      197      207      221      231      234
   35.20 CFS       229      213      191      173      169      166      157      143
   36.80 CFS       133      130      131      135      139      143      144      148
   38.40 CFS       165      187      204      209      205      188      166      148
   40.00 CFS       144      155      195      249      293      301      291      256
   41.60 CFS       206      168      158      154      141      123      109      106
   43.20 CFS       116      152      202      240      250      241      208      163
```

44.80 CFS	128	119	111	81	39	7	0	0
46.40 CFS	0	0	0	1	19	76	159	221
48.00 CFS	238	236	230	221	214	211	196	144
49.60 CFS	70.61	15.71	.00	.00	.00	.00	.00	.00
51.20 CFS	5	25	53	75	81	122	258	452
52.80 CFS	600	637	635	630	621	615	610	569
54.40 CFS	434	240	95	53	51	45	36	29

56.00 CFS	27	40	87	152	201	214	219	239
57.60 CFS	267	289	294	284	251	205	170	160
59.20 CFS	159	156	152	148	147	136	100	49
60.80 CFS	11	2	41	190	394	548	589	549
62.40 CFS	401	196	37	0	4	17	36	50
64.00 CFS	53.56	51.55	45.07	35.73	28.75	26.70	24.72	18.25
65.60 CFS	9	2	1	17	73	152	211	228
67.20 CFS	212	155	76	16	0			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 11280 CFS-HRS; 932.2 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.63	945.4	3.71
29.46	756.9	3.42
35.72	212.2	1.98
39.70	189.5	1.88
41.70	257.8	2.14
44.69	211.4	1.98
49.41	203.7	1.95
54.47	577.6	3.02
58.66	259.3	2.14
62.68	420.9	2.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 11280 CFS-HRS; 932.2 ACRE-FEET.

OPERATION REACH XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.19	903.4	5.38
29.73	748.8	5.09
36.35	195.6	3.31
40.20	178.5	3.19
42.19	234.6	3.48
45.16	192.4	3.29
49.90	186.1	3.24
54.93	527.2	4.49
59.19	235.4	3.48
63.16	330.7	3.87

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 11280 CFS-HRS; 932.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

25.90	766.4	(RUNOFF)
28.88	676.2	(RUNOFF)
34.90	202.4	(RUNOFF)
40.91	266.2	(RUNOFF)
43.90	224.2	(RUNOFF)
47.96	211.4	(RUNOFF)
53.04	570.6	(RUNOFF)
57.90	267.6	(RUNOFF)
61.90	547.4	(RUNOFF)
66.91	209.4	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 2.34 SQ.MI.

HRS								
21.00 CFS	0	5	25	48	58	59	71	109
22.60 CFS	153	174	176	194	254	323	356	358
24.20 CFS	387	486	604	657	657	667	703	745
25.80 CFS	764	764	750	707	656	633	631	624
27.40 CFS	599	570	557	557	568	607	654	674
29.00 CFS	672	615	421	195	93	88	81	60
30.60 CFS	34.47	22.80	22.09	19.92	12.59	3.98	.04	.01
32.20 CFS	2	10	18	22	23	37	85	140
33.80 CFS	166	167	171	182	196	202	202	197
35.40 CFS	178	156	147	147	143	132	119	113
37.00 CFS	113	115	118	123	125	125	131	150
38.60 CFS	172	183	183	178	158	136	126	127
40.20 CFS	140	186	240	264	265	252	211	163
41.80 CFS	140	139	134	119	101	93	93	105
43.40 CFS	148	199	222	221	209	171	127	106
45.00 CFS	105	94	60	19	1	0	0	0
46.60 CFS	0	0	0	21	91	173	210	211
48.20 CFS	209	202	193	189	188	169	107	34
49.80 CFS	.87	.00	.00	.00	.00	.00	.25	7.26
51.40 CFS	31	58	70	73	124	287	478	566
53.00 CFS	570	569	562	555	552	551	504	335
54.60 CFS	138	49	48	46	38	29	24	25
56.20 CFS	42	97	162	192	193	200	224	253
57.80 CFS	266	266	254	214	167	146	145	144
59.40 CFS	140	136	134	133	120	76	24	1
61.00 CFS	0	49	231	442	536	534	481	304
62.60 CFS	98.63	4.38	.25	5.22	21.17	39.84	48.47	48.92
64.20 CFS	46.46	38.36	28.82	24.46	24.43	22.15	13.92	4.37
65.80 CFS	0	1	22	90	170	206	207	196
67.40 CFS	118	38	1	0				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.04 WATERSHED INCHES; 9117 CFS-HRS; 753.4 ACRE-FEET.

1
TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
16:35:43 PASS 1 JOB NO. 1 PAGE 9

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.28	1533.9	(NULL)
27.07	1531.1	(NULL)
28.70	1438.8	(NULL)
40.92	435.6	(NULL)
43.84	376.3	(NULL)
54.11	942.8	(NULL)
54.92	575.8	(NULL)
58.14	425.7	(NULL)
59.14	380.2	(NULL)
61.90	639.0	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 4.79 SQ.MI.

HRS								
18.80 CFS	.39	.90	1.97	3.58	5.40	7.20	8.87	10.40

20.40 CFS	11.78	12.97	13.99	14.87	20.98	41.52	65.21	77.31
22.00 CFS	84	111	171	241	287	315	361	450
23.60 CFS	548	607	638	699	837	993	1084	1125
25.20 CFS	1185	1278	1378	1452	1501	1531	1527	1511
26.80 CFS	1514	1530	1527	1496	1454	1425	1407	1397
28.40 CFS	1413	1436	1437	1420	1356	1162	941	840
30.00 CFS	823	776	689	587	499	426	359	293
31.60 CFS	233	187	151	123	106	94	81	69
33.20 CFS	75	117	169	194	199	213	242	275
34.80 CFS	301	320	333	331	325	328	337	338
36.40 CFS	328	313	304	299	295	292	289	285
38.00 CFS	280	282	298	319	328	330	328	316
39.60 CFS	301	298	304	319	363	413	434	435
41.20 CFS	429	401	368	361	370	369	350	324
42.80 CFS	306	295	295	326	364	376	370	360
44.40 CFS	330	297	289	295	286	248	199	171
46.00 CFS	158	142	123	103	84	68	75	134
47.60 CFS	206	238	240	249	262	278	300	321
49.20 CFS	321	274	212	186	185	176	158	136
50.80 CFS	113	93	82	90	104	107	104	154
52.40 CFS	320	516	614	641	682	738	800	864
54.00 CFS	924	928	800	637	571	574	550	497
55.60 CFS	432	370	317	285	298	327	328	311
57.20 CFS	311	340	379	404	419	424	403	374
58.80 CFS	368	378	380	372	359	348	338	315
60.40 CFS	263	204	172	162	197	360	551	630
62.00 CFS	628	600	471	324	287	321	335	332
63.60 CFS	315	283	245	210	176	146	126	114
65.20 CFS	100	83	65	53	48	62	124	197
66.80 CFS	230	233	224	176	120	106	121	125
68.40 CFS	118	105	90	74	61	49	38	30
70.00 CFS	23.39	18.06	13.86	10.59	8.05	6.10	4.60	3.46

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TR20 ------------------------------------------------------------------- SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                     PAGE  10
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71.60 CFS	2.60	1.95	1.45	1.08	.81	.60	.44

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.60 WATERSHED INCHES; 20396 CFS-HRS; 1685.5 ACRE-FEET.

OPERATION DIVERT XSECTION 12
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.28	1533.9	(DIVERT)
27.07	1531.1	(DIVERT)
28.70	1438.8	(DIVERT)
40.92	435.6	(DIVERT)
43.84	376.3	(DIVERT)
54.11	942.8	(DIVERT)
54.92	575.8	(DIVERT)
58.14	425.7	(DIVERT)
59.14	380.2	(DIVERT)
61.90	639.0	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 2.74 SQ.MI.

HRS								
18.80 CFS	.39	.90	1.97	3.58	5.40	7.20	8.87	10.40
20.40 CFS	11.78	12.97	13.99	14.87	20.98	41.52	65.21	77.31
22.00 CFS	84	111	171	241	287	315	361	450
23.60 CFS	548	607	638	699	837	993	1084	1125
25.20 CFS	1185	1278	1378	1452	1501	1531	1527	1511
26.80 CFS	1514	1530	1527	1496	1454	1425	1407	1397
28.40 CFS	1413	1436	1437	1420	1356	1162	941	840
30.00 CFS	823	776	689	587	499	426	359	293
31.60 CFS	233	187	151	123	106	94	81	69
33.20 CFS	75	117	169	194	199	213	242	275

34.80 CFS	301	320	333	331	325	328	337	338
36.40 CFS	328	313	304	299	295	292	289	285
38.00 CFS	280	282	298	319	328	330	328	316
39.60 CFS	301	298	304	319	363	413	434	435
41.20 CFS	429	401	368	361	370	369	350	324
42.80 CFS	306	295	295	326	364	376	370	360
44.40 CFS	330	297	289	295	286	248	199	171
46.00 CFS	158	142	123	103	84	68	75	134
47.60 CFS	206	238	240	249	262	278	300	321
49.20 CFS	321	274	212	186	185	176	158	136
50.80 CFS	113	93	82	90	104	107	104	154
52.40 CFS	320	516	614	641	682	738	800	864
54.00 CFS	924	928	800	637	571	574	550	497
55.60 CFS	432	370	317	285	298	327	328	311
57.20 CFS	311	340	379	404	419	424	403	374
58.80 CFS	368	378	380	372	359	348	338	315
60.40 CFS	263	204	172	162	197	360	551	630
62.00 CFS	628	600	471	324	287	321	335	332

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TR20 ------------------------------------------------------------------- SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                     PAGE  11
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63.60 CFS	315	283	245	210	176	146	126	114
65.20 CFS	100	83	65	53	48	62	124	197
66.80 CFS	230	233	224	176	120	106	121	125
68.40 CFS	118	105	90	74	61	49	38	30
70.00 CFS	23.39	18.06	13.86	10.59	8.05	6.10	4.60	3.46
71.60 CFS	2.60	1.95	1.45	1.08	.81	.60	.44	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.53 WATERSHED INCHES; 20396 CFS-HRS; 1685.5 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 200)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.53 WATERSHED INCHES; 292 CFS-HRS; 1685.5 ACRE-FEET.

OPERATION REACH XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.48	1533.3	4.60
27.27	1530.7	4.59
28.91	1438.4	4.43
41.14	435.4	2.29
44.04	376.0	2.11
54.31	941.5	3.54
55.11	576.4	2.67
58.34	425.3	2.26
59.34	380.0	2.12
62.11	631.0	2.80

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.54 WATERSHED INCHES; 20397 CFS-HRS; 1685.6 ACRE-FEET.

OPERATION REACH XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.48	1533.3	2.88
27.27	1530.7	2.87
28.91	1438.4	2.77
41.14	435.4	1.43
44.04	376.0	1.32
54.31	941.5	2.21
55.11	576.4	1.67
58.34	425.3	1.41
59.34	380.0	1.33

62.11 631.0 1.75

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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
11.54 WATERSHED INCHES; 20397 CFS-HRS; 1685.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
25.95	1600.0	(RUNOFF)
28.94	1284.5	(RUNOFF)
34.99	377.3	(RUNOFF)
41.01	486.8	(RUNOFF)
44.03	404.8	(RUNOFF)
48.09	388.3	(RUNOFF)
53.11	1028.4	(RUNOFF)
57.99	474.3	(RUNOFF)
62.01	948.5	(RUNOFF)
67.02	368.3	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 3.96 SQ.MI.

HRS								
17.40 CFS	.32	.68	.98	1.20	2.86	8.36	16.51	23.09
19.00 CFS	25.53	25.74	26.49	27.58	28.48	28.78	28.99	29.66
20.60 CFS	31	31	32	54	134	249	345	376
22.20 CFS	390	436	504	559	580	603	688	809
23.80 CFS	910	944	983	1108	1296	1446	1502	1508
25.40 CFS	1531	1564	1592	1599	1576	1500	1386	1295
27.00 CFS	1261	1250	1208	1149	1099	1084	1097	1143
28.60 CFS	1211	1265	1280	1212	949	579	270	171
30.20 CFS	158	130	88	54	42	39	29	15
31.80 CFS	3.95	.25	2.97	12.39	26.46	37.82	43.08	60.32
33.40 CFS	124	214	288	313	318	333	354	372
35.00 CFS	377	370	346	312	284	274	269	255
36.60 CFS	234	216	211	212	217	224	230	232
38.20 CFS	239	264	299	329	338	331	307	272
39.80 CFS	243	233	250	309	395	466	487	471
41.40 CFS	419	341	278	255	250	230	201	178
43.00 CFS	172	188	240	318	382	405	391	341
44.60 CFS	270	211	192	178	135	71	19	0
46.20 CFS	0	0	0	0	2	28	114	243
47.80 CFS	346	384	382	372	358	346	341	317
49.40 CFS	241	126	34	0	0	0	0	0
51.00 CFS	0	9	38	81	116	132	187	400
52.60 CFS	698	946	1027	1027	1018	1005	994	986
54.20 CFS	930	719	420	173	89	83	73	59
55.80 CFS	47	45	64	134	234	316	345	354
57.40 CFS	384	428	463	474	460	411	339	281
59.00 CFS	260	258	253	246	240	237	221	167
60.60 CFS	88	24	0	62	282	604	869	948
62.20 CFS	884	669	352	95	0	6	26	55
63.80 CFS	79.09	86.42	83.58	73.90	59.39	47.71	43.31	40.53

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65.40 CFS	30	16	4	2	27	109	233	332
67.00 CFS	368	345	259	136	33	1	0	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 18231 CFS-HRS; 1506.6 ACRE-FEET.

OPERATION REACH XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.72	1491.8	3.55
29.49	1220.2	3.34
35.81	328.9	2.36
39.76	299.0	2.30
41.76	401.3	2.50
44.74	330.6	2.36
49.51	316.1	2.33
54.54	896.7	3.08
58.73	402.7	2.50
62.74	621.9	2.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 18232 CFS-HRS; 1506.7 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.32	1426.1	4.38
29.71	1215.6	4.09
36.52	305.5	2.30
40.27	284.2	2.23
42.26	369.2	2.52
45.20	305.8	2.30
49.97	286.6	2.24
55.01	809.8	3.52
59.26	369.4	2.52
63.23	499.3	2.85

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 18231 CFS-HRS; 1506.6 ACRE-FEET.

OPERATION REACH XSECTION 25

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TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.32	1426.1	2.76
29.71	1215.6	2.53
36.52	305.5	1.18
40.27	284.2	1.13
42.26	369.2	1.30
45.20	305.8	1.18
49.97	286.6	1.14
55.01	809.8	2.02
59.26	369.4	1.31
63.23	499.3	1.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 18231 CFS-HRS; 1506.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
25.94	609.6	(RUNOFF)
28.91	559.3	(RUNOFF)
34.93	167.7	(RUNOFF)
40.95	221.7	(RUNOFF)
43.95	185.4	(RUNOFF)
48.05	177.4	(RUNOFF)
53.08	480.6	(RUNOFF)
57.93	224.8	(RUNOFF)

61.95	453.4	(RUNOFF)
66.94	176.2	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 2.02 SQ.MI.

HRS								
21.00	CFS	.00	1.89	9.04	18.20	23.82	24.91	32.76	58.21
22.60	CFS	92	113	115	127	169	224	258	263
24.20	CFS	284	353	444	501	508	516	546	584
25.80	CFS	607	609	601	573	538	515	512	508
27.40	CFS	491	470	457	456	465	493	530	553
29.00	CFS	555	517	377	197	86	73	68	53
30.60	CFS	32.62	19.84	18.34	16.87	11.56	4.73	.51	.09
32.20	CFS	2	7	14	18	19	28	63	107
33.80	CFS	135	139	141	149	160	167	167	164
35.40	CFS	151	134	123	122	119	112	101	95
37.00	CFS	94	95	98	102	104	104	108	122
38.60	CFS	140	151	152	148	135	117	107	106
40.20	CFS	116	148	192	218	221	213	182	144
41.80	CFS	119	116	113	102	88	79	78	87
43.40	CFS	118	158	182	185	177	149	113	91
45.00	CFS	88.04	80.71	55.46	22.92	2.63	.00	.00	.00
46.60	CFS	0	0	1	15	66	131	172	177
48.20	CFS	176	170	163	159	158	145	99	41

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TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
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49.80	CFS	4.77	.00	.00	.00	.00	.00	.19	5.20
51.40	CFS	22	44	58	61	96	216	373	468
53.00	CFS	480	478	474	468	465	463	428	307
54.60	CFS	149	52	41	39	33	26	21	21
56.20	CFS	33	73	127	159	163	168	186	209
57.80	CFS	223	224	216	187	149	126	123	122
59.40	CFS	119	116	113	112	103	71	29	3
61.00	CFS	2	41	169	335	440	452	415	285
62.60	CFS	115	13	0	4	15	31	40	41
64.20	CFS	39.63	33.71	25.97	21.28	20.61	18.83	12.98	5.40
65.80	CFS	1	1	15	65	131	171	175	160
67.40	CFS	110	46	5	0				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 7441 CFS-HRS; 615.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.19	1931.8	(NULL)
28.57	1813.0	(NULL)
41.07	496.8	(NULL)
42.15	482.1	(NULL)
54.20	1045.6	(NULL)
54.96	850.8	(NULL)
58.25	486.0	(NULL)
59.22	491.0	(NULL)
61.98	616.2	(NULL)
63.29	505.4	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 5.98 SQ.MI.

HRS									
18.60	CFS	.30	.54	1.20	2.60	4.75	7.32	9.97	12.53
20.20	CFS	14.94	17.17	19.16	20.91	22.45	25.74	34.16	44.50
21.80	CFS	53	62	89	145	214	273	314	368
23.40	CFS	455	554	630	679	751	878	1028	1145
25.00	CFS	1216	1298	1413	1541	1650	1732	1797	1836
26.60	CFS	1859	1886	1918	1932	1916	1885	1855	1831
28.20	CFS	1813	1809	1813	1806	1784	1731	1587	1410
29.80	CFS	1300	1270	1213	1111	983	858	747	643
31.40	CFS	543	452	374	311	258	216	184	155

33.00 CFS	130	119	140	174	196	200	214	242
34.60 CFS	279	314	342	366	379	386	397	412
36.20 CFS	420	417	407	398	393	387	381	375
37.80 CFS	368	360	357	366	380	390	392	392
39.40 CFS	387	380	379	386	400	432	471	494
41.00 CFS	497	496	483	466	463	477	482	469
42.60 CFS	446	425	410	402	414	436	444	437
44.20 CFS	428	408	387	380	389	386	357	315
45.80 CFS	282	262	240	213	184	156	130	122

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TR20 ------------------------------------------------------------------ SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                     PAGE  16
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47.40 CFS	153	202	231	233	243	263	289	320
49.00 CFS	353	369	348	309	286	286	278	257
50.60 CFS	228	197	167	144	137	137	134	126
52.20 CFS	156	276	438	545	584	639	718	811
53.80 CFS	907	998	1046	995	895	843	850	832
55.40 CFS	776	696	612	534	473	447	442	426
57.00 CFS	394	381	395	425	453	472	485	481
58.60 CFS	469	469	484	491	486	474	461	447
60.20 CFS	425	381	327	289	274	292	394	531
61.80 CFS	610	616	606	537	447	425	474	503
63.40 CFS	500	475	433	381	331	285	244	212
65.00 CFS	189	167	144	121	103	91	93	132
66.60 CFS	188	220	224	221	197	165	158	177
68.20 CFS	188	183	168	149	128	108	90	74
69.80 CFS	60.43	48.90	39.33	31.47	25.07	19.90	15.74	12.42
71.40 CFS	9.78	7.68	6.02	4.71	3.68	2.87	2.24	1.74
73.00 CFS	1.36	1.05	.82	.63	.49			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.65 WATERSHED INCHES; 25673 CFS-HRS; 2121.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.22	3461.6	(NULL)
28.79	3241.4	(NULL)
41.11	933.3	(NULL)
42.20	851.7	(NULL)
43.96	812.9	(NULL)
54.24	1970.9	(NULL)
58.31	909.2	(NULL)
59.27	869.8	(NULL)
62.08	1251.1	(NULL)
63.36	836.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 8.72 SQ.MI.

HRS								
18.60 CFS	.43	.75	1.58	3.48	6.68	10.85	15.31	19.67
20.20 CFS	23.75	27.51	30.89	33.84	36.41	40.58	54.94	85.35
21.80 CFS	117	139	173	254	383	511	599	681
23.40 CFS	814	1001	1174	1284	1388	1575	1861	2133
25.00 CFS	2296	2422	2596	2816	3025	3181	3296	3366
26.60 CFS	3387	3397	3433	3461	3444	3382	3310	3258
28.20 CFS	3220	3206	3226	3241	3221	3152	2945	2578
29.80 CFS	2249	2113	2037	1888	1675	1448	1249	1072
31.40 CFS	904	747	610	499	410	341	290	249
33.00 CFS	211	189	214	290	363	393	412	455
34.60 CFS	520	587	642	685	711	717	722	740
36.20 CFS	757	755	735	711	697	686	676	667
37.80 CFS	657	645	638	648	678	708	719	722

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TR20 ------------------------------------------------------------------ SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST
16:35:43                    PASS   1   JOB NO.   1                     PAGE  17
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39.40 CFS	715	696	681	684	703	750	833	905
41.00 CFS	930	931	912	867	833	838	852	838
42.60 CFS	796	750	716	697	709	760	807	812
44.20 CFS	798	769	718	679	678	682	644	564
45.80 CFS	483	434	398	355	307	259	215	191
47.40 CFS	228	334	435	470	483	511	551	598
49.00 CFS	652	689	669	584	500	473	463	433
50.60 CFS	386	333	281	237	218	227	238	233
52.20 CFS	260	428	753	1055	1195	1278	1398	1546
53.80 CFS	1705	1860	1968	1924	1700	1485	1423	1406
55.40 CFS	1326	1195	1046	906	791	733	740	751
57.00 CFS	722	692	706	764	830	876	904	906
58.60 CFS	873	845	853	869	866	846	821	796
60.20 CFS	764	697	591	495	447	455	590	885
61.80 CFS	1155	1243	1234	1137	922	754	762	823
63.40 CFS	835	807	748	665	577	496	421	359
65.00 CFS	316	281	245	204	168	144	141	194
66.60 CFS	310	415	453	454	421	342	280	284
68.20 CFS	309	308	287	254	218	183	151	123
69.80 CFS	99.17	79.28	62.95	49.71	39.08	30.60	23.88	18.59
71.40 CFS	14.43	11.18	8.65	6.68	5.15	3.97	3.05	2.35
73.00 CFS	1.80	1.38	1.06	.81	.62	.48		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
8.19 WATERSHED INCHES; 46069 CFS-HRS; 3807.2 ACRE-FEET.

OPERATION DIVERT XSECTION 35
OUTPUT #1 HYDROGRAPH

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.22	3461.6	(DIVERT)
28.79	3241.4	(DIVERT)
41.11	933.3	(DIVERT)
42.20	851.7	(DIVERT)
43.96	812.9	(DIVERT)
54.24	1970.9	(DIVERT)
58.31	909.2	(DIVERT)
59.27	869.8	(DIVERT)
62.08	1251.1	(DIVERT)
63.36	836.1	(DIVERT)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 7.17 SQ.MI.

HRS								
18.60 CFS	.43	.75	1.58	3.48	6.68	10.85	15.31	19.67
20.20 CFS	23.75	27.51	30.89	33.84	36.41	40.58	54.94	85.35
21.80 CFS	117	139	173	254	383	511	599	681
23.40 CFS	814	1001	1174	1284	1388	1575	1861	2133
25.00 CFS	2296	2422	2596	2816	3025	3181	3296	3366
26.60 CFS	3387	3397	3433	3461	3444	3382	3310	3258
28.20 CFS	3220	3206	3226	3241	3221	3152	2945	2578

29.80 CFS	2249	2113	2037	1888	1675	1448	1249	1072
31.40 CFS	904	747	610	499	410	341	290	249
33.00 CFS	211	189	214	290	363	393	412	455
34.60 CFS	520	587	642	685	711	717	722	740
36.20 CFS	757	755	735	711	697	686	676	667
37.80 CFS	657	645	638	648	678	708	719	722
39.40 CFS	715	696	681	684	703	750	833	905
41.00 CFS	930	931	912	867	833	838	852	838
42.60 CFS	796	750	716	697	709	760	807	812
44.20 CFS	798	769	718	679	678	682	644	564
45.80 CFS	483	434	398	355	307	259	215	191
47.40 CFS	228	334	435	470	483	511	551	598
49.00 CFS	652	689	669	584	500	473	463	433

50.60 CFS	386	333	281	237	218	227	238	233
52.20 CFS	260	428	753	1055	1195	1278	1398	1546
53.80 CFS	1705	1860	1968	1924	1700	1485	1423	1406
55.40 CFS	1326	1195	1046	906	791	733	740	751
57.00 CFS	722	692	706	764	830	876	904	906
58.60 CFS	873	845	853	869	866	846	821	796
60.20 CFS	764	697	591	495	447	455	590	885
61.80 CFS	1155	1243	1234	1137	922	754	762	823
63.40 CFS	835	807	748	665	577	496	421	359
65.00 CFS	316	281	245	204	168	144	141	194
66.60 CFS	310	415	453	454	421	342	280	284
68.20 CFS	309	308	287	254	218	183	151	123
69.80 CFS	99.17	79.28	62.95	49.71	39.08	30.60	23.38	18.59
71.40 CFS	14.43	11.18	8.65	6.68	5.15	3.97	3.05	2.35
73.00 CFS	1.80	1.38	1.06	.81	.62	.48		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.96 WATERSHED INCHES; 46069 CFS-HRS; 3807.2 ACRE-FEET.

OUTPUT #2 DIVERTED HYDROGRAPH (XSECTION 199)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.96 WATERSHED INCHES; 299 CFS-HRS; 3807.2 ACRE-FEET.

OPERATION REACH XSECTION 45

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TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
16:35:43 PASS 1 JOB NO. 1 PAGE 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
27.44	3458.0	4.45
29.00	3239.0	4.28
41.35	931.2	2.15
42.40	850.0	2.03
44.20	810.9	1.97
54.47	1958.2	3.27
58.53	906.8	2.11
59.49	868.1	2.06
62.31	1241.1	2.51
63.59	832.9	2.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.96 WATERSHED INCHES; 46069 CFS-HRS; 3807.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
25.70	607.0	(RUNOFF)
28.70	487.0	(RUNOFF)
34.70	143.6	(RUNOFF)
40.70	184.9	(RUNOFF)
43.70	155.0	(RUNOFF)
47.70	148.4	(RUNOFF)
52.70	396.6	(RUNOFF)
53.70	375.4	(RUNOFF)
57.70	180.1	(RUNOFF)
61.70	367.8	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 1.50 SQ.MI.

HRS								
18.00 CFS	.42	2.77	8.30	9.67	9.67	9.67	9.98	10.72
19.60 CFS	10.90	10.90	10.90	11.19	11.87	12.04	12.04	12.41
21.20 CFS	45	123	142	142	142	162	208	219
22.80 CFS	219	220	255	336	357	357	358	412
24.40 CFS	537	569	569	569	579	601	606	606

26.00 CFS	606	573	497	478	478	478	460	420
27.60 CFS	410	410	410	430	475	487	487	485
29.20 CFS	375	127	63	63	63	51	23	16
30.80 CFS	15.83	15.75	11.66	2.40	.00	.00	.07	4.17
32.40 CFS	13	16	16	16	43	103	119	119
34.00 CFS	119	125	139	143	143	143	133	110
35.60 CFS	104	104	104	97	83	80	80	80
37.20 CFS	82	87	88	88	88	88	122	128
38.80 CFS	128	128	118	94	88	88	88	113
40.40 CFS	171	185	185	185	162	110	97	97
42.00 CFS	97	88	69	64	64	65	87	140
43.60 CFS	153	153	153	133	85	73	73	73
45.20 CFS	54.19	10.82	.00	.00	.00	.00	.00	.00

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TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
16:35:43 PASS 1 JOB NO. 1 PAGE 20

46.80 CFS	0	1	38	124	146	146	146	142
48.40 CFS	132	130	130	129	96	19	0	0
50.00 CFS	.00	.00	.00	.00	.00	.25	12.82	41.50
51.60 CFS	49	49	50	139	340	390	390	390
53.20 CFS	386	377	375	375	373	285	84	33
54.80 CFS	32.68	32.60	28.35	18.80	16.34	16.34	16.87	46.63
56.40 CFS	114	131	131	131	144	173	180	180
58.00 CFS	180	158	111	98	98	98	96	91
59.60 CFS	90.15	90.15	89.89	66.53	13.46	.00	.00	.84
61.20 CFS	94.20	307.47	361.09	361.09	360.49	267.37	53.25	.00
62.80 CFS	.00	.03	8.48	28.06	32.86	32.86	32.86	28.65
64.40 CFS	18.82	16.43	16.43	16.42	12.22	2.40	.00	.00
66.00 CFS	.24	35.87	119.18	139.73	139.73	139.40	103.87	20.62
67.60 CFS	.00							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 6906 CFS-HRS; 570.7 ACRE-FEET.

OPERATION REACH XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.22	588.2	3.78
29.13	473.5	3.58
35.29	133.8	2.54
39.29	119.0	2.46
41.29	164.5	2.70
44.29	135.1	2.54
49.11	128.7	2.51
54.13	366.5	3.33
58.26	164.8	2.70
62.28	283.1	3.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 6905 CFS-HRS; 570.6 ACRE-FEET.

OPERATION REACH XSECTION 67

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TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
16:35:43 PASS 1 JOB NO. 1 PAGE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.58	575.8	3.02
29.39	462.3	2.77
35.67	128.1	1.54
39.64	114.3	1.47
41.64	154.2	1.69
44.63	126.1	1.53

49.40	124.0	1.52
54.44	351.5	2.46
58.61	155.8	1.70
62.62	243.4	2.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 6905 CFS-HRS; 570.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.88	3952.3	(NULL)
27.37	3981.5	(NULL)
29.04	3688.0	(NULL)
41.43	1078.2	(NULL)
42.33	976.8	(NULL)
54.46	2309.6	(NULL)
58.55	1062.0	(NULL)
59.39	992.8	(NULL)
62.39	1452.1	(NULL)
63.42	935.7	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 8.67 SQ.MI.

HRS								
18.40 CFS	.33	.80	2.09	3.85	6.03	9.01	13.05	17.98
20.00 CFS	23.15	28.13	32.73	36.93	40.76	44.14	47.08	51.35
21.60 CFS	69	112	164	207	257	348	489	636
23.20 CFS	747	845	988	1191	1393	1537	1663	1864
24.80 CFS	2174	2489	2705	2870	3066	3304	3535	3714
26.40 CFS	3848	3931	3951	3949	3966	3981	3956	3883
28.00 CFS	3797	3727	3674	3649	3665	3687	3679	3624
29.60 CFS	3427	3038	2645	2423	2283	2098	1854	1598
31.20 CFS	1370	1169	985	813	662	539	441	364
32.80 CFS	309	267	229	205	228	309	398	450
34.40 CFS	485	537	610	686	751	802	834	843
36.00 CFS	845	857	870	867	845	816	796	780
37.60 CFS	767	756	746	734	726	735	767	803
39.20 CFS	823	832	830	811	792	789	802	845
40.80 CFS	931	1018	1062	1078	1068	1024	981	972
42.40 CFS	975	957	910	855	812	785	790	842
44.00 CFS	899	921	920	899	848	800	786	781
45.60 CFS	739	652	556	489	440	388	334	280

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TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
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47.20 CFS	232	202	233	345	467	532	567	608
48.80 CFS	656	709	765	808	792	703	601	547
50.40 CFS	518	477	422	362	304	255	231	239
52.00 CFS	255	258	287	453	798	1156	1371	1510
53.60 CFS	1663	1834	2010	2179	2302	2274	2041	1779
55.20 CFS	1648	1580	1472	1319	1151	992	861	789
56.80 CFS	792	814	804	786	807	872	950	1010
58.40 CFS	1050	1061	1029	992	987	993	985	962
60.00 CFS	932	902	868	800	687	575	507	494
61.60 CFS	614	921	1241	1402	1452	1392	1180	974
63.20 CFS	920	936	925	882	815	727	635	548
64.80 CFS	468	400	350	312	272	229	188	159
66.40 CFS	150	198	319	445	512	537	518	441
68.00 CFS	364	345	352	343	316	278	237	198
69.60 CFS	163	132	106	85	67	53	42	33
71.20 CFS	25.34	19.70	15.28	11.83	9.14	7.05	5.43	4.18
72.80 CFS	3.22	2.47	1.89	1.45	1.11	.85	.65	.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
9.47 WATERSHED INCHES; 52975 CFS-HRS; 4377.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
25.94	1481.4	(RUNOFF)
28.91	1342.1	(RUNOFF)
34.92	401.3	(RUNOFF)
40.95	528.7	(RUNOFF)
43.95	442.7	(RUNOFF)
48.03	422.4	(RUNOFF)
53.07	1143.2	(RUNOFF)
57.92	535.0	(RUNOFF)
61.94	1078.0	(RUNOFF)
66.94	418.5	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 4.76 SQ.MI.

HRS								
21.00 CFS	0	6	29	59	76	78	98	163
22.60 CFS	246	296	303	333	437	571	649	658
24.20 CFS	708	882	1102	1233	1249	1270	1337	1423
25.80 CFS	1475	1480	1461	1388	1295	1241	1236	1223
27.40 CFS	1183	1131	1100	1097	1117	1186	1275	1328
29.00 CFS	1331	1236	893	459	201	175	163	125
30.60 CFS	76.77	47.41	43.85	40.30	27.30	10.63	.93	.16
32.20 CFS	4	17	33	43	45	71	154	261
33.80 CFS	325	331	337	358	384	399	400	391
35.40 CFS	359	319	294	291	286	266	241	227
37.00 CFS	225	227	234	243	248	249	260	293
38.60 CFS	335	361	364	355	321	279	254	253
40.20 CFS	277	357	460	521	528	506	433	339

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TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
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41.80 CFS	282	277	270	243	208	188	187	210
43.40 CFS	284	378	436	442	423	354	267	215
45.00 CFS	210	191	130	52	6	0	0	0
46.60 CFS	0	0	0	33	160	320	414	422
48.20 CFS	418	405	388	378	376	344	234	91
49.80 CFS	7.78	.00	.00	.00	.00	.00	.72	13.29
51.40 CFS	54	107	138	143	221	521	900	1121
53.00 CFS	1142	1138	1128	1114	1106	1101	1014	721
54.60 CFS	343	116	96	93	78	60	49	50
56.20 CFS	80	178	303	378	387	399	443	498
57.80 CFS	531	533	512	442	352	298	292	290
59.40 CFS	283	274	269	268	247	166	65	5
61.00 CFS	5	101	411	808	1048	1073	983	668
62.60 CFS	260	22	0	9	37	74	96	98
64.20 CFS	93.67	79.52	61.35	50.36	49.08	45.27	30.50	11.88
65.80 CFS	1	2	39	160	314	407	417	381
67.40 CFS	259	102	8	0				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.83 WATERSHED INCHES; 17905 CFS-HRS; 1479.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.07	1148.2	(RUNOFF)
28.98	997.7	(RUNOFF)
35.06	300.0	(RUNOFF)
41.10	390.5	(RUNOFF)
44.09	325.5	(RUNOFF)
48.23	313.2	(RUNOFF)
53.27	849.6	(RUNOFF)
58.06	391.4	(RUNOFF)
62.09	776.8	(RUNOFF)
67.09	300.6	(RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
HRS MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 3.46 SQ.MI.

21.00 CFS	0	5	22	51	80	98	110	140
22.60 CFS	188	237	269	290	336	412	490	541
24.20 CFS	574	650	775	900	979	1006	1033	1075
25.80 CFS	1119	1146	1142	1108	1050	992	956	943
27.40 CFS	923	891	859	838	843	872	921	972
29.00 CFS	997	962	810	569	325	168	127	110
30.60 CFS	82.65	54.58	36.88	31.35	25.72	16.49	7.20	1.54
32.20 CFS	2	7	17	26	32	45	80	142
33.80 CFS	204	241	252	261	276	290	299	297
35.40 CFS	284	260	236	222	216	208	194	180
37.00 CFS	171	170	173	178	183	186	191	206
38.60 CFS	230	254	269	268	254	230	207	192
40.20 CFS	199	233	292	352	386	386	353	301

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TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
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41.80 CFS	249	214	204	192	173	153	142	149
43.40 CFS	182	235	288	322	321	292	244	195
45.00 CFS	163	148	122	78	34	7	0	0
46.60 CFS	0	0	0	17	68	158	249	302
48.20 CFS	313	307	298	288	282	266	220	140
49.80 CFS	59.80	10.68	.00	.00	.00	.00	.38	5.84
51.40 CFS	24	53	83	104	146	271	479	689
53.00 CFS	818	847	842	835	827	821	781	659
54.60 CFS	445	228	100	70	63	54	44	38
56.20 CFS	49	91	162	233	278	293	311	342
57.80 CFS	372	390	386	355	306	255	223	215
59.40 CFS	212	207	202	198	188	153	99	44
61.00 CFS	8	41	171	400	630	763	755	616
62.60 CFS	397	176	32	4	16	36	57	70
64.20 CFS	70.69	64.47	54.41	44.27	37.72	34.32	28.17	18.15
65.80 CFS	8	2	17	68	155	243	295	293
67.40 CFS	239	154	68	11	0			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 13669 CFS-HRS; 1129.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.02	2626.7	(NULL)
28.94	2336.9	(NULL)
34.99	699.7	(NULL)
41.03	914.7	(NULL)
44.03	764.3	(NULL)
48.15	732.0	(NULL)
53.23	1986.1	(NULL)
57.99	923.5	(NULL)
62.02	1838.1	(NULL)
67.02	712.1	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
HRS MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 8.22 SQ.MI.

21.00 CFS	0	11	51	109	156	177	209	303
22.60 CFS	434	532	572	623	772	983	1139	1199
24.20 CFS	1282	1532	1876	2133	2229	2276	2369	2498
25.80 CFS	2594	2627	2603	2496	2346	2233	2192	2166
27.40 CFS	2105	2022	1959	1935	1960	2058	2196	2300
29.00 CFS	2329	2198	1703	1027	527	343	290	236
30.60 CFS	159	102	81	72	53	27	8	2
32.20 CFS	6	24	50	69	78	115	234	402
33.80 CFS	529	573	589	619	660	689	700	688
35.40 CFS	643	579	531	513	502	474	435	407
37.00 CFS	397	397	407	421	431	436	451	499
38.60 CFS	565	615	632	623	575	509	461	444

40.20 CFS	476	591	752	873	914	892	786	640

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41.80 CFS	531	492	473	435	381	341	329	359
43.40 CFS	466	613	724	763	744	646	510	410
45.00 CFS	373	340	252	130	39	7	0	0
46.60 CFS	0	0	0	50	228	478	663	725
48.20 CFS	731	712	686	667	658	610	453	231
49.80 CFS	67.58	10.68	.00	.00	.00	.00	1.10	19.13
51.40 CFS	78	159	221	247	366	792	1379	1810
53.00 CFS	1959	1986	1970	1949	1933	1921	1795	1380
54.60 CFS	788	344	196	162	142	114	93	88
56.20 CFS	130	269	464	611	665	692	754	840
57.80 CFS	903	923	898	797	658	554	515	505
59.40 CFS	495	481	471	467	435	320	164	49
61.00 CFS	13	142	582	1208	1679	1836	1738	1283
62.60 CFS	657	198	32	13	53	110	153	168
64.20 CFS	164	144	116	95	87	80	59	30
65.80 CFS	9	4	55	228	469	650	711	673
67.40 CFS	498	257	77	11	0			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.95 WATERSHED INCHES; 31574 CFS-HRS; 2609.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
26.36	6346.3	(NULL)
28.95	6021.2	(NULL)
35.33	1446.9	(NULL)
39.14	1448.2	(NULL)
41.14	1958.8	(NULL)
44.10	1676.5	(NULL)
49.12	1386.6	(NULL)
54.13	3997.1	(NULL)
58.17	1908.3	(NULL)
62.13	3171.7	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
HRS MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 16.89 SQ.MI.

18.40 CFS	.33	.80	2.09	3.85	6.03	9.01	13.05	17.98
20.00 CFS	23	28	33	37	41	44	58	102
21.60 CFS	178	268	340	415	560	782	1021	1208
23.20 CFS	1370	1618	1971	2330	2592	2818	3195	3741
24.80 CFS	4307	4717	4981	5239	5564	5897	6161	6318
26.40 CFS	6344	6276	6184	6140	6132	6086	5978	5842
28.00 CFS	5732	5687	5732	5846	5965	6016	5877	5326
29.60 CFS	4454	3565	2988	2713	2519	2257	1956	1679
31.20 CFS	1441	1223	1012	821	664	545	465	414
32.80 CFS	378	344	344	439	631	838	971	1039
34.40 CFS	1104	1196	1299	1386	1439	1445	1413	1374
36.00 CFS	1358	1359	1344	1302	1251	1213	1193	1188
37.60 CFS	1188	1187	1181	1185	1224	1300	1382	1435

1

39.20 CFS	1446	1407	1339	1272	1236	1265	1393	1597
40.80 CFS	1804	1932	1954	1864	1708	1556	1473	1446
42.40 CFS	1410	1338	1251	1184	1171	1250	1403	1566
44.00 CFS	1663	1665	1566	1409	1258	1173	1126	1033
45.60 CFS	870	691	563	489	440	388	334	281
47.20 CFS	282	431	712	1008	1192	1263	1279	1294
48.80 CFS	1323	1366	1375	1261	1024	770	612	547

50.40 CFS	518	477	422	363	323	333	391	460
52.00 CFS	502	624	1079	1832	2608	3115	3356	3480
53.60 CFS	3611	3766	3931	3974	3682	3062	2385	1975
55.20 CFS	1811	1722	1586	1413	1239	1122	1129	1253
56.80 CFS	1403	1480	1496	1541	1647	1774	1873	1907
58.40 CFS	1847	1719	1583	1508	1492	1488	1467	1433
60.00 CFS	1398	1337	1138	964	736	588	649	1077
61.60 CFS	1822	2599	3077	3141	2735	2049	1378	1006
63.20 CFS	933	989	1035	1035	983	892	779	664
64.80 CFS	563	487	430	370	303	238	192	215
66.40 CFS	378	667	970	1157	1185	1035	775	517
68.00 CFS	375	345	352	343	316	278	237	198
69.60 CFS	163	132	106	85	67	53	42	33
71.20 CFS	25.34	19.70	15.28	11.83	9.14	7.05	5.43	4.18
72.80 CFS	3.22	2.47	1.89	1.45	1.11	.85	.65	.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.76 WATERSHED INCHES; 84549 CFS-HRS; **6987.1 ACRE-FEET.**

--- XSECTION 76, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
31.53	1095.8	1210.56
36.87	1239.3	1210.60
39.68	1314.7	1210.63
41.74	1609.6	1210.71
44.51	1484.5	1210.68
49.54	1096.1	1210.56
54.59	3115.4	1211.07
58.62	1709.9	1210.74
62.62	2020.0	1210.83
67.60	776.7	1210.45

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1
MAIN TIME INCREMENT = .200 hr, DRAINAGE AREA = 16.89 SQ.MI.

HRS								
19.80 CFS	.00	.01	.01	.01	.01	.02	.02	.03
21.40 CFS	.03	.04	.06	.09	.12	.17	.22	.30
23.00 CFS	.40	.51	.64	.80	.83	.86	.89	.92
24.60 CFS	.97	1.01	1.06	1.12	1.17	1.23	1.30	1.36
26.20 CFS	1.43	1.50	1.55	1.59	1.63	1.68	1.72	1.76
27.80 CFS	1.79	1.83	1.87	1.90	1.95	1.99	2.04	2.08

1
TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
16:35:43 PASS 1 JOB NO. 1 PAGE 27

29.40 CFS	2	2	2	124	302	528	709	846
31.00 CFS	966	1050	1090	1094	1069	1022	963	898
32.60 CFS	849	805	762	721	689	674	680	702
34.20 CFS	731	764	802	846	898	971	1038	1093
35.80 CFS	1136	1168	1195	1217	1232	1239	1238	1233
37.40 CFS	1227	1221	1217	1212	1208	1207	1215	1233
39.00 CFS	1258	1284	1304	1314	1313	1304	1297	1301
40.60 CFS	1329	1381	1450	1520	1575	1605	1609	1596
42.20 CFS	1576	1555	1530	1496	1457	1417	1388	1379
43.80 CFS	1394	1425	1459	1481	1482	1461	1426	1387
45.40 CFS	1343	1288	1216	1132	1047	964	886	835
47.00 CFS	783	734	697	685	702	741	788	835
48.60 CFS	879	938	995	1049	1087	1095	1067	1013
50.20 CFS	952	893	852	812	771	730	690	658
51.80 CFS	635	620	615	638	718	864	1138	1435
53.40 CFS	1716	2002	2325	2616	2872	3054	3115	3040
55.00 CFS	2876	2688	2512	2348	2185	2021	1870	1765
56.60 CFS	1684	1633	1606	1589	1579	1581	1600	1631
58.20 CFS	1668	1698	1710	1701	1679	1654	1631	1609
59.80 CFS	1586	1562	1535	1496	1436	1353	1255	1165
61.40 CFS	1122	1169	1316	1532	1755	1931	2019	1961

63.00 CFS	1836	1713	1607	1522	1453	1390	1326	1257
64.60 CFS	1181	1100	1019	940	870	818	764	711
66.20 CFS	661	626	616	635	677	725	763	777
67.80 CFS	764	733	697	663	632	602	572	542
69.40 CFS	510	478	446	414	383	353	324	297
71.00 CFS	272	248	226	206	195	186	178	170
72.60 CFS	163	155	148	142	135	129	123	117
74.20 CFS	112	107	102	97	93	89	84	81
75.80 CFS	76.85	73.31	69.93	66.71	63.64	60.70	57.91	55.24
77.40 CFS	52.69	50.26	47.95	45.74	43.63	41.62	39.70	37.87
79.00 CFS	36.12	34.46	32.87	31.36	29.91	28.53	27.22	25.96
80.60 CFS	24.77	23.62	22.53	21.50	20.51	19.56	18.66	17.80
82.20 CFS	16.98	16.20	15.45	14.74	14.06	13.41	12.79	12.20
83.80 CFS	11.64	11.10	10.59	10.10	9.64	9.19	8.77	8.36
85.40 CFS	7.98	7.61	7.26	6.93	6.61	6.30	6.01	5.73
87.00 CFS	5.47	5.22	4.98	4.75	4.53	4.32	4.12	3.93
88.60 CFS	3.75	3.58	3.41	3.26	3.11	2.96	2.83	2.69
90.20 CFS	2.57	2.45	2.34	2.23	2.20	2.20	2.20	2.20
91.80 CFS	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
93.40 CFS	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
95.00 CFS	2.20	2.20	2.20	2.20	2.20	2.20	2.20	2.20
96.60 CFS	2.20							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.64 WATERSHED INCHES; 50560 CFS-HRS; 4178.3 ACRE-FEET.

--- STRUCTURE 1, ALTERNATE 1, STORM 1, HYDROGRAPH ADDED TO READHD FILE ---

1
TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
16:35:43 PASS 2 JOB NO. 1 PAGE 28

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

1
TR20 ---------- SCS -
spf1951 WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS VERSION
07/24/98 General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT 2.04TEST
16:35:43 SUMMARY, JOB NO. 1 PAGE 29

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

RAINFALL OF 8.61 inches AND 67.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 1, ARC 2
MAIN TIME INCREMENT .200 HOURS

ALTERNATE 1 STORM 1

XSECTION 1	RUNOFF	2.45	7.13	---	25.94	990	404.1
XSECTION 5	REACH	2.45	7.13	3.71	26.63	945	385.7
XSECTION 10	REACH	2.45	7.13	5.38	27.19	903	368.6
XSECTION 2	RUNOFF	2.34	6.04	---	25.90	766	327.4
XSECTION 12	ADDHYD	4.79	6.60	---	26.28	1534	320.3
XSECTION 12	DIVERT	2.74	11.53	---	26.28	1534	559.9
XSECTION 200	DIVERT	2.05	11.53	---	.00	0	.0
XSECTION 20	REACH	2.74	11.54	4.60	26.48	1533	559.5
XSECTION 25	REACH	2.74	11.54	2.88	26.48	1533	559.5
XSECTION 3	RUNOFF	3.96	7.13	---	25.95	1600	404.0

XSECTION	30	REACH	3.96	7.13	3.55	26.72	1492	376.8
XSECTION	5	REACH	3.96	7.13	4.38	27.32	1426	360.1
XSECTION	25	REACH	3.96	7.13	2.76	27.32	1426	360.1
XSECTION	4	RUNOFF	2.02	5.71	---	25.94	610	302.0
XSECTION	34	ADDHYD	5.98	6.65	---	27.19	1932	323.1
XSECTION	35	ADDHYD	8.72	8.19	---	27.22	3462	397.0
XSECTION	35	DIVERT	7.17	9.96	---	27.22	3462	482.8
XSECTION	199	DIVERT	1.55	9.96	---	.00	0	.0
XSECTION	45	REACH	7.17	9.96	4.45	27.44	3458	482.3
XSECTION	6	RUNOFF	1.50	7.13	---	25.70	607	404.7
XSECTION	60	REACH	1.50	7.13	3.78	26.22	588	392.0
XSECTION	67	REACH	1.50	7.13	3.02	26.58	576	384.0
XSECTION	64	ADDHYD	8.67	9.47	---	27.37	3982	459.3
XSECTION	5	RUNOFF	4.76	5.83	---	25.94	1481	311.1
XSECTION	7	RUNOFF	3.46	6.12	---	26.07	1148	331.8
XSECTION	75	ADDHYD	8.22	5.95	---	26.02	2627	319.6
XSECTION	**76**	**ADDHYD**	**16.89**	**7.76**	**---**	**26.36**	**6346**	**375.7**
STRUCTURE	1	RESVOR	16.89	4.64	1211.07	54.59	3115	184.4

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

			HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
		FLOOD	INFLOW		OUTFLOW		Q-A EQ.			PEAK	ATT-
XSEC ID	REACH LENGTH (FT)	PLAIN LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	RATIO Q/I (Q*)	KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 1											
5	9100		989	26.0	945	26.6	.67	1.27	.034	.955	.28
10	9100		945	26.6	903	27.2	.95	1.24	.030	.956	.30
20	3332		1531	26.2	1530	26.4	.12	1.67	.001	.999	.97?
25	1950		1530	26.4	1530	26.4	.046	1.75	.000	1.000	1.00?
30	8865		1599	26.0	1490	26.8	.93	1.17	.052	.932	.23
5	8865		1490	26.8	1425	27.4	.73	1.26	.028	.957	.30
25	1950		1425	27.4	1425	27.4	.046	1.75	.000	1.000	1.00?
45	4200		3461	27.2	3457	27.4	.045	1.73	.001	.999	.87?
60	7540		606	25.6	588	26.2	.93	1.22	.032	.970	.30
67	5140		588	26.2	576	26.6	.57	1.30	.016	.979	.42

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1
STRUCTURE	1	16.89	
ALTERNATE	1		3115
XSECTION	1	2.45	
ALTERNATE	1		990
XSECTION	2	2.34	
ALTERNATE	1		766
XSECTION	3	3.96	
ALTERNATE	1		1600
XSECTION	4	2.02	
ALTERNATE	1		610
XSECTION	5	4.76	
ALTERNATE	1		1481
XSECTION	6	1.50	
ALTERNATE	1		607
XSECTION	7	3.46	
ALTERNATE	1		1148
XSECTION	10	2.45	
ALTERNATE	1		903
XSECTION	12	2.74	
ALTERNATE	1		1534
XSECTION	20	2.74	
ALTERNATE	1		1533
XSECTION	25	3.96	
ALTERNATE	1		1426
XSECTION	30	3.96	
ALTERNATE	1		1492
XSECTION	34	5.98	

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

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


XSECTION   34         5.98
---------------------------
   ALTERNATE    1                 1932

XSECTION   35         7.17
---------------------------
   ALTERNATE    1                 3462

XSECTION   45         7.17
---------------------------
   ALTERNATE    1                 3458

XSECTION   60         1.50
---------------------------
   ALTERNATE    1                  588

XSECTION   64         8.67
---------------------------
   ALTERNATE    1                 3982

XSECTION   67         1.50
---------------------------
   ALTERNATE    1                  576

XSECTION   75         8.22
---------------------------
   ALTERNATE    1                 2627

XSECTION   76        16.89
---------------------------
   ALTERNATE    1                 6346

XSECTION  199         1.55
---------------------------
   ALTERNATE    1                    0

XSECTION  200         2.05
---------------------------
   ALTERNATE    1                    0
1
TR20 ------------------------------------------------------------------- SCS -
spf1951     WHITE TANK FRS #3, WATERSHED DIVIDED INTO 7 SUB-BASINS      VERSION
07/24/98  General 51 SPF, INITIAL EMPTY RESERVOIR W/100-YR SEDIMENT    2.04TEST


END OF  1 JOBS IN THIS RUN


                    SCS  TR-20,  VERSION 2.04TEST
                          spf1951   FILES

    INPUT  = spf51_1.dat                          , GIVEN DATA FILE
    OUTPUT = spf51_1.out                          , DATED 07/24/98,16:35:43

             FILES GENERATED - DATED 07/24/98,16:35:43
```

```
FILE spf51_1.TRD CONTAINS READHD INFORMATION

FILE spf51_1.TMG CONTAINS MESSAGE + WARNING INFORMATION


        TOTAL NUMBER OF WARNINGS =   2,  MESSAGES =   4

                  *** TR-20 RUN COMPLETED ***
```

6.6 TR-20 1951 Arizona SPF Runoff Hydrograph (a portion of "spf51_1.trd")

```
7 READHD 8      2                                                    XS 76 04
 7 READHD 9      18.4000       .2000     16.8877       .0000          A 1  S 1
 8                    0.          1.          2.          4.          6.
 8                    9.         13.         18.         23.         28.
 8                   33.         37.         41.         44.         58.
 8                  102.        178.        268.        340.        415.
 8                  560.        782.       1021.       1208.       1370.
 8                 1618.       1971.       2330.       2592.       2818.
 8                 3195.       3741.       4307.       4717.       4981.
 8                 5239.       5564.       5897.       6161.       6318.
 8                 6344.       6276.       6184.       6140.       6132.
 8                 6086.       5978.       5842.       5732.       5687.
 8                 5732.       5846.       5965.       6016.       5877.
 8                 5326.       4454.       3565.       2988.       2713.
 8                 2519.       2257.       1956.       1679.       1441.
 8                 1223.       1012.        821.        664.        545.
 8                  465.        414.        378.        344.        344.
 8                  439.        631.        838.        971.       1039.
 8                 1104.       1196.       1299.       1386.       1439.
 8                 1445.       1413.       1374.       1358.       1359.
 8                 1344.       1302.       1251.       1213.       1193.
 8                 1188.       1188.       1187.       1181.       1185.
 8                 1224.       1300.       1382.       1435.       1446.
 8                 1407.       1339.       1272.       1236.       1265.
 8                 1393.       1597.       1804.       1932.       1954.
 8                 1864.       1708.       1556.       1473.       1446.
 8                 1410.       1338.       1251.       1184.       1171.
 8                 1250.       1403.       1566.       1663.       1665.
 8                 1566.       1409.       1258.       1173.       1126.
 8                 1033.        870.        691.        563.        489.
 8                  440.        388.        334.        281.        282.
 8                  431.        712.       1008.       1192.       1263.
 8                 1279.       1294.       1323.       1366.       1375.
 8                 1261.       1024.        770.        612.        547.
 8                  518.        477.        422.        363.        323.
 8                  333.        391.        460.        502.        624.
 8                 1079.       1832.       2608.       3115.       3356.
 8                 3480.       3611.       3766.       3931.       3974.
 8                 3682.       3062.       2385.       1975.       1811.
 8                 1722.       1586.       1413.       1239.       1122.
 8                 1129.       1253.       1403.       1480.       1496.
 8                 1541.       1647.       1774.       1873.       1907.
 8                 1847.       1719.       1583.       1508.       1492.
 8                 1488.       1467.       1433.       1398.       1337.
 8                 1188.        964.        736.        588.        649.
 8                 1077.       1822.       2599.       3077.       3141.
 8                 2735.       2049.       1378.       1006.        933.
 8                  989.       1035.       1035.        983.        892.
 8                  779.        664.        563.        487.        430.
 8                  370.        303.        238.        192.        215.
 8                  378.        667.        970.       1157.       1185.
 8                 1035.        775.        517.        375.        345.
```

```
8                    352.        343.        316.        278.        237.
8                    198.        163.        132.        106.         85.
8                     67.         53.         42.         33.         25.
8                     20.         15.         12.          9.          7.
8                      5.          4.          3.          2.          2.
8                      1.          1.          1.          1.          0.
9 ENDTBL
```