QA: N/A

Nevada Test Site
Probable Maximum Flood Study
Part of U.S Geological Survey Flood Potential and Debris Hazard Study
Yucca Mountain Site
For U. S. Department of Energy Office of Civilian Radioactive Waste Management

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Authority

The U. S. Geological Survey (USGS), as part of the Yucca Mountain Project (YMP), is conducting studies at Yucca Mountain, Nevada. The purposes of these studies are to provide hydrologic and geologic information to evaluate the suitability of Yucca Mountain for development as a high-level nuclear waste repository, and to evaluate the ability of the mined geologic disposal system (MGDS) to isolate the waste in compliance with regulatory requirements. In particular, the project is designed to acquire information necessary for the Department of Energy (DOE) to demonstrate in its environmental impact statement (EIS) and license application whether the MGDS will meet the requirements of federal regulations 10 CFR Part 60, 10 CFR Part 960, and 40 CFR Part 191 [1]*.

Complete study plans for this part of the project were prepared by the USGS and approved by the DOE in August and September of 1990. The U. S. Bureau of Reclamation (Reclamation) was selected by the USGS as a contractor to provide probable maximum flood (PMF) magnitudes and associated inundation maps for preliminary engineering design of the surface facilities at Yucca Mountain. These PMF peak flow estimates are necessary for successful waste repository design and construction. The PMF technique was chosen for two reasons: (1) this technique complies with ANSI requirements that PMF technology be used in the design of nuclear related facilities (ANSI/ANS, 1981 [2]), and (2) the PMF analysis has become a commonly used technology to predict a "worst possible case" flood scenario. This Reclamation PMF study fulfills part 3.1.3.1.2 of the approved USGS study plan [1].

Study Site Description

The site of concern is located in southern Nevada, approximately 120 miles northwest of Las Vegas. A general location and base map is presented on Figure 1. The primary purpose of the site is to provide deep underground storage for nuclear waste materials. To support this activity, certain surface facilities are required; including large buildings referred to as the central surface facilities, and several supporting shaft locations. In accordance with the American Nuclear Society Standards ANSI/ANS-2.8-1981 [2], these facilities need to be designed for PMF discharges.

The precise location of the surface facilities is still uncertain, pending the results of several ongoing geologic investigations related to many faults in

* Numbers in [] refer to references given at the end of the report

the area. For purposes of this study PMF values were needed for, Mid Valley Wash in the area east of the Exile Hill (where the proposed central surface facilities will be located), Drill Hole Wash, Coyote Wash, and three small washes located approximately 1½ miles southwest of Exile Hill. These washes are referred to in this report as the Boundary Ridge Portal 1, 2, and 3 Washes. The data in Table 1 lists the individual sites studied and assigns a site description code for ease of reference on the maps and tables in the remainder of this report. The location of these areas and the associated drainage boundaries are shown on Figure 2. A larger scale version of this map was used for all basin measurements and is with the back-up material on file in the Reclamation Denver Office Flood Section.

Recommended PMF Peaks

Table 2 presents the recommended PMF peaks resulting from this study.

Previous Flood Studies and Related Data

Reclamation in conjunction with the USGS prepared a PMF study for preliminary site characterization studies in 1986 [3]. Because quality assurance procedures for software documentation were not in place at the time, and because some of the areas of interest have changed, the results of the 1986 study do not meet current needs. Certain descriptive and historical data from that report still apply and are repeated in this study.

The USGS has established a gauging network for rainfall and for runoff in the larger streams. The USGS has also prepared a report on the flood potential of Fortymile Wash and its principle tributaries, in the area of the Nevada Test Site [4]. Data from all of these sources have been made available for preparation of this study and are presented later in this report.

Basin Characteristics

The surface facilities described are located in the Department of Energy Nevada Test Site region between Fortymile Wash and Yucca Mountain, the western edge of the Nevada Test Site reservation. The channels studied are generally small tributaries to the larger Fortymile Wash. The prominent topographic feature of interest is Exile Hill located immediately to the west of the proposed central surface facilities.

The drainage areas of interest are characterized by small, well established channels, in deep canyons with few plants of any kind except in flat areas near the channel bottoms. After the channels leave the canyons, they flow into flatter alluvial fans, tend to meander more, and in many places become braided channels. The plants that do exist are small desert varieties of sage, cactus, and creosote brush, generally 1-to-2 feet high. Channel bottoms are sandy, gravel laden and very steep in the upper reaches. Some of the surface facilities are proposed to be located on hillsides and alluvial fans above potential flood plains in these channels.

The surface of the hillsides in the upper reaches of Coyote Wash, Drill Hole Wash, and in the Boundary Ridge Portal area, are predominately armored with a

thin layer of fractured igneous rocks. These surface rocks are characterized by nearly flat 6-to-12 inch diameter pieces separated by fractures. The near surface soil under the rock surface at the base of the hills is a fine sand and silt material. This soil is believed to be a very thin layer over bedrock on the hillsides. During the field inspection on December 2, 1985, the soil under the rock layer near the southern base of Exile Hill was examined. The soils were moist and slick following two cloudy and rainy days, which had left 1-to-2 inches of rain in the rain gauges nearby. The near surface soils under these conditions appeared to be nearly saturated and formed tight clay like lumps when compressed. The conclusion of this examination was that after saturation by the first inch or two of rainfall, the soil would not allow much additional infiltration, consequently a relatively low constant loss rate should be applied after a fairly large initial loss for PMF computations. A field investigation was again performed on May 29-30, 1991. This time the area was extremely dry, and the fine silty sandy soils investigated contained no moisture.

The overall steepness and lack of dense surface vegetation in the area also led to the conclusion that extremely short lag times would be required for PMF computations. It was also noted that during times of high flows, large quantities of sand, silt and other natural debris could be carried in the steep narrow channels.

Probable Maximum Storm (PMS) Study

For this PMF study, probable maximum precipitation (PMP) values were obtained for a local storm (thunderstorm) PMP event. These values were determined from the National Weather Services's Hydrometeorological Report No. 49 (HMR 49) [5]. This report covers the area of concern and represents the current standard of practice for Federal agencies such as Reclamation and the U. S. Army Corps of Engineers (COE) involved in preparing PMF studies in the Colorado River and Great Basin drainages. This report is also specifically referenced in the ANSI Standards [2], as being applicable for nuclear plant and facility PMF designs.

Procedures for obtaining the appropriate PMP values are outlined in the HMR 49 Report. Figures 3 through 7 represent the computations and results of the PMP portion of this study. Because all of the basins studied are small and close together, only one reading of the PMP index maps was required. The maps used to read index values for PMP computations using HMR 49 are at such a scale that the basins used in this study would be indistinguishable if plotted separately. A central location to all of the basins was then selected for the purpose of obtaining index values from the HMR 49 maps and figures. This location has the following coordinates:

Latitude	36° 52′ 30" N.
Longitude	116° 26′ 48" W.

Only a local storm (thunderstorm) PMP event is considered in this PMF study. The previous PMF study [3] for the site confirmed that the local storms produced peaks about 10 times larger than general storms in the area and the associated volumes for the local storms also range from 1.5 to 2.0 times larger than for the general storms. This is due to the much more intense rainfall during the short duration local storm which allows for a much smaller percentage of the total

rainfall to be lost due to infiltration. The local storm PMF for these small basins will produce the most severe condition for which designs should be considered. Reclamation practice, when using HMR 49 local storm PMP, is to assume no large antecedent rainfall events have occurred in the area for several days prior to the PMP. This local storm PMP is considered to be an isolated event.

In computing the local storm PMP, a small adjustment is needed to account for reductions in intensity due to drainage area size. Three areal size adjustments were used in this study. For the Mid Valley Wash, an area adjustment based on 4 square miles was used, for Drill Hole wash, an area adjustment for 2.4 square miles was used, and no adjustment for area size on any of the remaining four washes was possible since the area adjustment does not exist for areas less than 1.0 square mile. Figure 7, taken from HMR 49, shows the magnitude of the area adjustment for the various basin sizes considered in this study.

Figure 8 shows the arranged incremental depth versus time plots generated in this procedure for the different basins studied. The arranged increments conform to the prescribed procedure in HMR 49, placing the peak increment of rain in the first 15 minutes immediately following the end of the second full hour of precipitation in a six hour local storm. The fifteen minute incremental value arrangement from the HMR 49 procedure was further expanded to give uniform incremental values at three minute time intervals, within the prescribed 15 minute arrangement, for all basins in this study. The three minute time interval was necessary to produce accurate representations of unit hydrographs for these small basins in the flood computations. The results of the local storm PMP computations are shown in table 3. This table shows the individual increments of basin average rainfall used for input to the rainfall-runoff models at three minute unit durations.

Some concern was expressed early in the previous study as to whether or not HMR 49 values for thunderstorm events were large enough to cover some of the exceptional thunderstorm events that have occurred since the HMR 49 report was first published in September 1977. Of particular interest was a thunderstorm event in 1981, in which 7 inches of precipitation was measured in less than 1 hour near Overton and Moapa. This was followed by other major flood events in March 1983 and March 1984 [6]. By way of comparison, the 1-hour total precipitation value for the thunderstorm PMP event used in this study is 10.3 inches, which adequately covers the largest of the historic storms in the area of concern. The HMR 49 report will be updated at some future time, and extremely large events such as those in 1981, 1983, and 1984, will be incorporated to the extent possible. At the present time, HMR 49 represents the most authoritative source of information regarding PMP in the Great Basin area.

Climatological Change

Disposal of nuclear waste at the Nevada Test Site involves materials which will be potentially dangerous for thousands of years in the future; therefore, some thought as to the effect of climatic change on PMP and PMF estimates is needed for this project. Estimates of PMP are traditionally determined by methods and procedures based on historical meteorological data. It is assumed that previous climate fluctuations effecting such estimates will remain relatively stable into

the future, resulting in negligible changes to future calculations of PMP. Recently, several studies have indicated that the earth's atmosphere may be experiencing some effects of climatic change. Presently, clear proof of the direction this climatic change will take and, just as important, its consequences on the estimation of extreme rainfall and runoff potential, have not been completely examined [7].

Such studies, if they were to be undertaken, would require several years to complete by competent hydrometeorologists. Until such information becomes available, present projections of PMP will remain the most reliable estimates of extreme rainfall potential for present and future use.

Dimensionless Graphs

Reclamation uses a unit hydrograph approach to develop hydrographs from excess precipitation representing PMF conditions. The unit hydrograph is defined as the hydrograph of storm runoff at a given point that will result from an isolated event of rainfall excess occurring within a unit of time and spread in a uniform average depth pattern over the contributing drainage area [8]. To derive a unit hydrograph, an appropriate dimensionless graph is selected. Dimensionless graphs computed from observed flood events have been computed and successfully applied by Reclamation and the U. S. Army Corps of Engineers (COE) for hundreds of locations in the western United States.

In this area of southern Nevada, few recording stream gauges have been in place long enough to provide sufficient information to compute an appropriate dimensionless graph. After consultation with the Los Angeles District, COE [9], a dimensionless S-Graph originally developed from flood reconstitution from New River near Rock Springs, Arizona, and New River at New River, Arizona, was selected. Two flood events used to develop this Phoenix Mountain S-graph occured in December, 1967, and September, 1970 [10]. This COE S-Graph is an alternative form of the Reclamation dimensionless graph. This S-Graph in its original form is presented in Reference [10]. The graph was converted to the dimensionless graph form required for use in the Reclamation flood hydrology computer program FHAR, by doing a numerical differentiation of the S-Graph at 2-percent intervals along the lag axis. The resulting ordinates were then multiplied by 1200 to obtain the correct volume units on the vertical axis. The final form of the Phoenix Mountain dimensionless graph as used in this study is shown on Figure 9 and in Table 4. This dimensionless graph is believed to be the most appropriate for use in the Nevada Test Site area, based on the relevant experience of flood hydrologists in both Reclamation and COE.

Basin Parameters and Lag Time Computations

For this study, the following lag equation was used:

$$lag = C\left[\frac{L*Lca}{\sqrt{S}}\right]^{0.33}$$

Where L = longest channel length in miles
Lca = longest channel length from the point of collection to a point opposite the centroid of the area in miles
S = slope of the longest channel in ft/mi
C = a coefficient based on the hydrologic efficiency of the basin

This theoretical lag equation is based on the results of many historic flood observations and flood reconstitutions by Reclamation and COE. The development of this equation is described in Reclamation "Unitgraph Procedures" [8], which is in turn referenced in the ANSI Standards [2].

After the sites of interest (Table 1) had been identified and located on appropriate size enlargements of USGS 7-1/2 minute quadrangle maps (Figure 2), the basin parameters of drainage area, L, Lca and S were determined using digital planimetering equipment available at the Reclamation Denver Office. Figures 10 to 16 show the results of this operation for the 7 individual basins identified in this study.

The selection of C values for this study used information gained from previous experience in computing PMF estimates for sites with historic large flows [11]. Two of the largest recorded thunderstorm events in the area of the Nevada Test Site were studied. On September 14, 1974, a flood peak of 76,000 ft^3/s was estimated from a 22.8 square mile drainage area in Eldorado Canyon in southern Nevada, and on August 8, 1971, Bronco Creek near Wikieup, Arizona, experienced a flood peak estimated at 73,500 ft^3/s from 19.0 square miles of drainage area. In both of these basins, C values of 0.5 produced PMF peaks only 31 and 26 percent higher than the published historic flood peaks. A C value of 0.5 can typically be used to represent a steep desert foothill basin subject to flash flood conditions during intense thunderstorms, and was selected for all basins in this study. Table 5 presents a summary of the measured basin parameters and computed lag times for the individual basins of this study.

Retention Rates

Retention rates were selected on the basis of observations made during the field inspection trips of December 2, 1985 and May 28-29, 1991. Also recorded rainfall and runoff data collected by the USGS [6] for a thunderstorm event at the test site on July 19, 1985 provided essential information. Figure 1 shows the locations of eight rain gauges in place during that event. Table 6 summarizes the observations made following the event. Although the data is somewhat limited, it does imply that 1-to-2 inches of rainfall is required before any runoff occurs. It also seems to indicate that almost all of the rainfall

contributes following the initial losses. To be extremely conservative a constant loss rate of zero could have been selected, but it is common practice in flood hydrology rainfall-runoff calculations to reserve a zero constant loss rate for unquestionably impervious surfaces such as paved parking lots and rooftops. In this site, some of the rainfall does infiltrate through cracks in the surface material, as was verified during the field inspection following a 2-day period of light to moderate rainfall. A loss rate of 0.05 inches per hour was selected for constant losses and used throughout the remainder of the study. This is an extremely low value and represents the lowest infiltration rate typically applied to natural ground in Reclamation flood studies.

A sensitivity test was run for the thunderstorm event to test the difference between 1 and 2 inches of initial loss in the basins under consideration. Table 7 lists the results of this sensitivity test. As was anticipated, the peak and volume of the hydrographs all decrease by about 8 percent when the initial loss is increased from 1 to 2 inches. This is a reasonable result when the very short lag times are considered. With this result, and the data for the July 19, 1985, storm which shows one instance of slight runoff after nearly 1 inch of precipitation, an initial loss rate of 1 inch was selected for the remaining analysis of the thunderstorm event.

Probable Maximum Flood Computations

Using the computed lag times shown in Table 5, unit durations of 3 minutes for the various basins of Table 1 were calculated using the empirical relationship unit duration $\leq$Lag / 5.5. For all but the two smallest basins this computed unit duration ensured at least five points are generated on the rising limb of the unit hydrograph derived by applying the lag times to the Phoenix Mountain dimensionless graph. For the two smallest basins, smaller time units could have been used, but it is unreasonable to assume that rainfall distributions for anything less than a 3 minute unit duration have any meaning. The computations would only have been complicated, and not improved, by using even smaller time increments. Using the appropriate lag times, unit durations, and basin areas, the dimensionless graph was then converted to a unit hydrograph for each basin using the FHAR (Reclamation) rainfall-runoff model.

The total precipitation shown in Table 3 (dependent on the drainage basin size) is arranged in a design sequence. These arranged increments conform to the prescribed procedure in HMR 49, placing the peak increment of rain in the first 15 minutes immediately following the end of the second full hour of precipitation in a six hour local storm. The fifteen minute incremental value arrangement from the HMR 49 procedure was further expanded to give uniform incremental values at three minute time intervals for all basins in this study.

The selected loss rates were then subtracted from the design storm arrangement to produce a sequence of excess rainfall increments. Each of these excess rainfall increments were then applied to the computed unit hydrograph for each basin. The resulting hydrographs for each excess precipitation interval were then summed up to form the final PMF hydrograph for each basin. No base flow was considered in these small desert basins.

Table 8 provides a summary of the PMF peaks and volumes produced for the sites involved in this study. Figures 17 to 23 show plots of the local storm PMF's for the different basins and storm conditions. The individual hydrograph values at three minute unit durations are tabulated in Appendix A - FHAR output, Tables 1 through 7.

To satisfy the needs of the software quality assurance program, separate calculations were made, to check the FHAR output, using independently developed software. In this case the COE HEC-1 program, with a preprocessor program known as LAPRE1X was used. The HEC-1 program is one of the most widely known and distributed software packages for doing rainfall-runoff calculations in the world. The LAPRE1X program was developed by the Los Angles District of the COE, to convert dimensionless graph input to unit hydrograph ordinates for direct input to the HEC-1 program. The use of the LAPRE1X preprocessor makes it possible to input basin parameters to the HEC-1 program in the same fashion as in the Reclamation FHAR program. Table 8 also presents the results of the two programs. In general the two programs give nearly identical results. The differences that do exist are believed to occur because of differences in various curve fitting routines imbedded in each code. This comparison verifies the correctness of the FHAR computations for this study. The HEC1 and LAPREIX input and output are presented in Appendix B of this report.

Envelope Curves

Two sources of data are available to attempt to draw envelope curves of maximum experienced flood events for comparison with the PMF peaks calculated for the Nevada Test Site. First, 12 local gauge sites were selected by the USGS [4] with peak discharge data generally available from the mid 1960's to about 1980. Table 9 lists the gauging stations and provides updated peak flow information obtained through the USGS WATSTORE system. The maximum peak discharges in Table 9 are current through 1991. These data are plotted on Figure 24. The second set of peak discharges available for comparison is also presented by the USGS [4]. These values come from earlier publications and represent maximum experienced discharges in the five surrounding states. Table 10 lists these regional data. This information was plotted by the USGS and an envelope curve drawn. This curve was termed "'Boundary' Curve of Regional Maximum Discharges." This regional curve is reproduced on Figure 24. The study by the USGS used this "regional maximum" curve to estimate discharges for analysis of potential flow velocities and depths in the Nevada Test Site area. The USGS recognizes the peak flows from this curve might be different than the PMF peaks produced by the Reclamation approach, which is based on the Hydrometeorological Report series for determining PMP. It is also evident that both methods produce nearly identical peak flows for these small basins.

Reclamation recognizes the value of such historic information and uses it to check the validity of PMF peak estimates. By plotting the PMF peaks along with the recorded historic information (Figure 24), it can be seen that all of the PMF peaks do exceed the regional maximum curve. This exceedance is anticipated and is in full agreement with the ANSI definition of a PMF [2]. No rules have been set as to how far above an envelope curve a PMF peak should be. The actual amount of exceedance depends largely on the size of the region used for comparison.

In this study, it is noted that the thunderstorm PMF peaks are quite close to the "regional maximum discharge curve." This is to be expected since the curve encompasses data from five states. Based on this curve, the thunderstorm PMF peaks produced in this study are judged to be reasonable for the design of the surface facilities intended.

Sediment and Debris Transport

The PMF peaks and hydrographs prepared in this study represent clear water flows. Reclamation does not commonly include additional sediment and debris with PMF flows. It is recognized that potential sediment and debris loads could represent a substantial portion of the PMF or any other large flows at this site. Additional work by competent hydraulic engineers and sedimentation specialists may be necessary to add to the PMF peaks and volumes presented in this report to account for such sediment or debris flows. Research related to this subject is ongoing as part of the USGS study plan [1] for this project. It is anticipated that some addition to these PMF peaks may be applied to account for potential sediment and debris loads at this site.

Frequency Curves

No frequency-discharge information was requested in this study and none are presented. Should such information become necessary, the equation presented by the USGS [4] based on a regional analysis of the 12 nearby gauge records, appears to represent a reasonable approach for estimating the 100-year discharge in the area. The data which served as a basis for this equation should be updated and revisions to the equation presented made if necessary prior to any design work. Research related to this subject is also ongoing as part of the USGS study plan [1] for this project.

Recommendations

The clear water thunderstorm PMF peaks presented in Table 2 are recommended for the basis of design of flood protection works at the Nevada Nuclear Waste Site facility. Some additional flow may be needed to account for sediment and debris loads during a PMF.

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Table 1

Nevada Test Site - Site Descriptions for PMF Study

Site Designation	Description
MVW1	Mid Valley Wash 1 - Downstream Location
MVW2	Mid Valley Wash 2 - Upstream Location
DHW	Drill Hole Wash
CW1	Coyote Wash
BRP1	Boundary Ridge Portal Wash 1
BRP2	Boundary Ridge Portal Wash 2
BRP3	Boundary Ridge Portal Wash 3

Table 2

Recommended Clear Water Local Storm PMF Peaks for Nevada Test Site Inundation Study

Site Designation	PMF Peak (ft^3/s)
MVW1	33500
MVW2	33000
DHW1	21000
CW1	3300
BRP1	3580
BRP2	360
BRP3	1370

Table 3
HMR 49 Local Storm Probable Maximum Precipitaion
Individual time increments of PMP for Nevada Test Site Drainages

Time hours	MVW STORM (inches)	DHW STORM (inches)	COY STORM BRP STORM (inches)	Time hours	MVW STORM (inches)	DHW STORM (inches)	COY STORM BRP STORM (inches)
0.05	0.0225	0.0210	0.0205	2.05	1.1900	1.2880	1.4000
0.10	0.0225	0.0210	0.0205	2.10	1.1900	1.2880	1.4000
0.15	0.0225	0.0210	0.0205	2.15	1.1900	1.2880	1.4000
0.20	0.0225	0.0210	0.0205	2.20	1.1900	1.2880	1.4000
0.25	0.0225	0.0210	0.0205	2.25	1.1900	1.2880	1.4000
0.30	0.0225	0.0210	0.0205	2.30	0.3700	0.3780	0.3720
0.35	0.0225	0.0210	0.0205	2.35	0.3700	0.3780	0.3720
0.40	0.0225	0.0210	0.0205	2.40	0.3700	0.3780	0.3720
0.45	0.0225	0.0210	0.0205	2.45	0.3700	0.3780	0.3720
0.50	0.0225	0.0210	0.0205	2.50	0.3700	0.3780	0.3720
0.55	0.0225	0.0210	0.0205	2.55	0.1720	0.1740	0.1640
0.60	0.0225	0.0210	0.0205	2.60	0.1720	0.1740	0.1640
0.65	0.0225	0.0210	0.0205	2.65	0.1720	0.1740	0.1640
0.70	0.0225	0.0210	0.0205	2.70	0.1720	0.1740	0.1640
0.75	0.0225	0.0210	0.0205	2.75	0.1720	0.1740	0.1640
0.80	0.0225	0.0210	0.0205	2.80	0.1420	0.1380	0.1240
0.85	0.0225	0.0210	0.0205	2.85	0.1420	0.1380	0.1240
0.90	0.0225	0.0210	0.0205	2.90	0.1420	0.1380	0.1240
0.95	0.0225	0.0210	0.0205	2.95	0.1420	0.1380	0.1240
1.00	0.0225	0.0210	0.0205	3.00	0.1420	0.1380	0.1240
1.05	0.0365	0.0355	0.0360	3.05	0.0810	0.0805	0.0825
1.10	0.0365	0.0355	0.0360	3.10	0.0810	0.0805	0.0825
1.15	0.0365	0.0355	0.0360	3.15	0.0810	0.0805	0.0825
1.20	0.0365	0.0355	0.0360	3.20	0.0810	0.0805	0.0825
1.25	0.0365	0.0355	0.0360	3.25	0.0810	0.0805	0.0825
1.30	0.0365	0.0355	0.0360	3.30	0.0810	0.0805	0.0825
1.35	0.0365	0.0355	0.0360	3.35	0.0810	0.0805	0.0825
1.40	0.0365	0.0355	0.0360	3.40	0.0810	0.0805	0.0825
1.45	0.0365	0.0355	0.0360	3.45	0.0810	0.0805	0.0825
1.50	0.0365	0.0355	0.0360	3.50	0.0810	0.0805	0.0825
1.55	0.0365	0.0355	0.0360	3.55	0.0810	0.0805	0.0825
1.60	0.0365	0.0355	0.0360	3.60	0.0810	0.0805	0.0825
1.65	0.0365	0.0355	0.0360	3.65	0.0810	0.0805	0.0825
1.70	0.0365	0.0355	0.0360	3.70	0.0810	0.0805	0.0825
1.75	0.0365	0.0355	0.0360	3.75	0.0810	0.0805	0.0825
1.80	0.0365	0.0355	0.0360	3.80	0.0810	0.0805	0.0825
1.85	0.0365	0.0355	0.0360	3.85	0.0810	0.0805	0.0825
1.90	0.0365	0.0355	0.0360	3.90	0.0810	0.0805	0.0825
1.95	0.0365	0.0355	0.0360	3.95	0.0810	0.0805	0.0825
2.00	0.0365	0.0355	0.0360	4.00	0.0810	0.0805	0.0825

Table 3 (cont)
HMR 49 Local Storm Probable Maximum Precipitaion
Individual time increments of PMP for Nevada Test Site Drainages

Time hours	MVW STORM (inches)	DHW STORM (inches)	COY STORM BRP STORM (inches)	Time hours	MVW STORM (inches)	DHW STORM (inches)	COY STORM BRP STORM (inches)
4.05	0.0320	0.0315	0.0310	5.05	0.0135	0.0115	0.0105
4.10	0.0320	0.0315	0.0310	5.10	0.0135	0.0115	0.0105
4.15	0.0320	0.0315	0.0310	5.15	0.0135	0.0115	0.0105
4.20	0.0320	0.0315	0.0310	5.20	0.0135	0.0115	0.0105
4.25	0.0320	0.0315	0.0310	5.25	0.0135	0.0115	0.0105
4.30	0.0320	0.0315	0.0310	5.30	0.0135	0.0115	0.0105
4.35	0.0320	0.0315	0.0310	5.35	0.0135	0.0115	0.0105
4.40	0.0320	0.0315	0.0310	5.40	0.0135	0.0115	0.0105
4.45	0.0320	0.0315	0.0310	5.45	0.0135	0.0115	0.0105
4.50	0.0320	0.0315	0.0310	5.50	0.0135	0.0115	0.0105
4.55	0.0320	0.0315	0.0310	5.55	0.0135	0.0115	0.0105
4.60	0.0320	0.0315	0.0310	5.60	0.0135	0.0115	0.0105
4.65	0.0320	0.0315	0.0310	5.65	0.0135	0.0115	0.0105
4.70	0.0320	0.0315	0.0310	5.70	0.0135	0.0115	0.0105
4.75	0.0320	0.0315	0.0310	5.75	0.0135	0.0115	0.0105
4.80	0.0320	0.0315	0.0310	5.80	0.0135	0.0115	0.0105
4.85	0.0320	0.0315	0.0310	5.85	0.0135	0.0115	0.0105
4.90	0.0320	0.0315	0.0310	5.90	0.0135	0.0115	0.0105
4.95	0.0320	0.0315	0.0310	5.95	0.0135	0.0115	0.0105
5.00	0.0320	0.0315	0.0310	6.00	0.0135	0.0115	0.0105
				TOTALS	13.08	13.49	13.91

Table 4
Phoenix Mountains Dimensionless Graph
Ordinates at 2% of (Lag + D/2) intervals

%(Lag+D/2)	Ordinate	%(Lag+D/2)	Ordinate	%(Lag+D/2)	Ordinate	%(Lag+D/2)	Ordinate	%(Lag+D/2)	Ordinate
2	2.0609	98	15.9716	194	4.8342	290	1.5365	386	0.3988
4	2.0967	100	15.2006	196	4.7066	292	1.5039	388	0.3844
6	2.1685	102	14.5968	198	4.5819	294	1.4716	390	0.3704
8	2.2761	104	14.0629	200	4.4602	296	1.4398	392	0.3567
10	2.4196	106	13.5746	202	4.3414	298	1.4083	394	0.3434
12	2.5989	108	13.1319	204	4.2256	300	1.3772	396	0.3306
14	2.8141	110	12.7348	206	4.1127	302	1.3465	398	0.3180
16	3.0652	112	12.3833	208	4.0028	304	1.3162	400	0.3059
18	3.3522	114	12.0774	210	3.8958	306	1.2862	402	0.2941
20	3.6750	116	11.8171	212	3.7918	308	1.2566	404	0.2828
22	4.0337	118	11.6024	214	3.6907	310	1.2274	406	0.2718
24	4.4283	120	11.4310	216	3.5926	312	1.1986	408	0.2612
26	4.8587	122	11.2733	218	3.4975	314	1.1702	410	0.2509
28	5.3250	124	11.1098	220	3.4052	316	1.1421	412	0.2411
30	5.8272	126	10.9400	222	3.3160	318	1.1144	414	0.2316
32	6.3652	128	10.7639	224	3.2297	320	1.0871	416	0.2225
34	6.9391	130	10.5816	226	3.1463	322	1.0602	418	0.2137
36	7.5489	132	10.3929	228	3.0658	324	1.0336	420	0.2054
38	8.1946	134	10.1980	230	2.9876	326	1.0075	422	0.1974
40	8.8761	136	9.9968	232	2.9116	328	0.9817	424	0.1899
42	9.5935	138	9.7893	234	2.8378	330	0.9563	426	0.1827
44	10.3467	140	9.5755	236	2.7662	332	0.9312	428	0.1758
46	11.1359	142	9.3554	238	2.6968	334	0.9066	430	0.1694
48	11.9399	144	9.1318	240	2.6297	336	0.8823	432	0.1633
50	12.6751	146	8.9113	242	2.5647	338	0.8584	434	0.1576
52	13.3204	148	8.6951	244	2.5020	340	0.8349	436	0.1523
54	13.8760	150	8.4831	246	2.4414	342	0.8118	438	0.1474
56	14.3417	152	8.2754	248	2.3831	344	0.7890	440	0.1428
58	14.7211	154	8.0720	250	2.3270	346	0.7667	442	0.1387
60	15.0675	156	7.8729	252	2.2731	348	0.7447	444	0.1349
62	15.4219	158	7.6780	254	2.2214	350	0.7230	446	0.1315
64	15.7845	160	7.4874	256	2.1719	352	0.7018	448	0.1284
66	16.1277	162	7.3011	258	2.1246	354	0.6810	450	0.1258
68	16.4205	164	7.1191	260	2.0795	356	0.6605	452	0.1235
70	16.6735	166	6.9413	262	2.0366	358	0.6404	454	0.1216
72	17.1725	168	6.7678	264	1.9960	360	0.6207	456	0.1201
74	18.2037	170	6.5986	266	1.9575	362	0.6013	458	0.1189
76	19.7792	172	6.4336	268	1.9203	364	0.5824	460	0.1182
78	21.8495	174	6.2729	270	1.8835	366	0.5638	462	0.1178
80	23.6708	176	6.1157	272	1.8471	368	0.5456		
82	24.6706	178	5.9615	274	1.8110	370	0.5277		
84	24.8340	180	5.8103	276	1.7754	372	0.5103		
86	24.1611	182	5.6620	278	1.7401	374	0.4932		
88	22.6890	184	5.5167	280	1.7052	376	0.4766		
90	20.9712	186	5.3743	282	1.6707	378	0.4602		
92	19.4340	188	5.2348	284	1.6366	380	0.4443		
94	18.0883	190	5.0984	286	1.6028	382	0.4288		
96	16.9342	192	4.9648	288	1.5695	384	0.4136		

Table 5

Nevada Test Site
Basin Parameter and Lag Time Computation Summary

Basin Designation	Area (sq.mi.)	L (mi)	Lca (mi)	Elevations Top (ft)	Elevations Bottom (ft)	S (ft/mi)	Local Storm C	Basin Factor $\left(L*Lca/\sqrt{S}\right)^{0.33}$	Lag (hr)
MVW1	4.45	4.49	2.11	5580	3645	430.96	0.5	0.772	0.386
MVW2	4.07	3.95	1.71	5580	3715	472.15	0.5	0.680	0.340
DHW1	2.40	3.69	1.68	5610	4038	426.02	0.5	0.672	0.336
CW1	0.23	1.07	0.50	4838	4080	708.41	0.5	0.275	0.138
BRP1	0.24	0.63	0.35	3910	3758	241.27	0.5	0.246	0.123
BRP2	0.02	0.30	0.14	4220	3840	1226.67	0.5	0.109	0.054
BRP3	0.08	0.41	0.21	4170	3840	804.88	0.5	0.148	0.074

TABLE 6

Rainfall Runoff Observations for July 19, 1985 Storm
(Data from USGS)

Ref.	Rainfall Location	Gage	Date	Precipitation (in)	Runoff Observation
1	Top of Exile Hill	Recording	7-19-85	0.9	No flow nearby
2	East Trib. to Drill Hole Wash	Plastic	7-19-85	0.98	Slight runoff in channel following rain in afternoon
3	East Trib. to Coyote Wash	Plastic	7-19-85	2.4	Rain in afternoon resulted in heavy flow in channel
4	NE Trib. to U/S Busted Butte Wash	Plastic	7-19-85	3	Rain in afternoon resulted in heavy channel flow
5	Busted Butte Wash near Forty Mile Wash	Plastic	7-19-85	0.5	Rainfall in afternoon produced no local inflow. 94 ft^3/s was measured from upstream runoff
6	Yucca Mountain	-	7-19-85	0.75-1.0	Rainfall along the top of Yucca Mountain in the afternoon. No runoff came from top of the ridge.
7	Yucca Wash	Plastic	7-18-85 to 7-20-85	1.8	Cumulative rainfall for 3 days. Runoff not reported
8	Forty Mile Wash	Plastic	7-19-85	0.5	17 ft^3/s from upstream no local inflow

Reference number refers to locations on Plate 1

TABLE 7

Nevada Test Site
Local Storm PMF

SENSITIVITY TEST RESULTS OF INITIAL LOSS VALUE

Site	PEAK COMPARISON				VOLUME COMPARISON			
	1 In Loss ft^3/s	2 In Loss ft^3/s	Difference ft^3/s	%	1 In Loss Ac-Ft	1 In Loss Ac-Ft	Difference Ac-Ft	%
MVW1	33542	30594	2948	8.8	2814	2590	224	8.0
MVW2	33036	29963	3073	9.3	2574	2360	214	8.3
OHW1	20986	19120	1866	8.9	1571	1444	127	8.1
CW1	3302	3109	193	5.8	156	144	12	7.7
BRP1	3580	3312	268	7.5	162	151	11	6.8
BRP23	355	348	7	2.0	14	12	2	14.3
BRP3	1369	1323	46	3.4	54	50	4	7.4

Table 8

Summary of Clear Water PMF Peaks, Time to Peak, and Hydrograph Volumes
Comparisons of FHAR and HEC-1 Results for Nevada Test Site

Basin	Peaks (Ft^3/s)		Time to Peak (Min)		Volume (Ac-Ft)	
	FHAR	HEC-1	FHAR	HEC-1	FHAR	HEC-1
MVW1	33542	33782	150	153	2814	2815
MVW2	33036	33229	147	150	2574	2575
DHW1	20986	21041	147	150	1571	1571
CW1	3302	3434	138	141	156	156
BRP1	3580	3703	135	141	162	162
BRP2	355	358	135	138	14	14
BRP3	1369	1397	135	138	54	54

TABLE 9

Peak Flows for Selected Gaging Stations Near Nevada Test Site
(Data from USGS WATSTOR System)

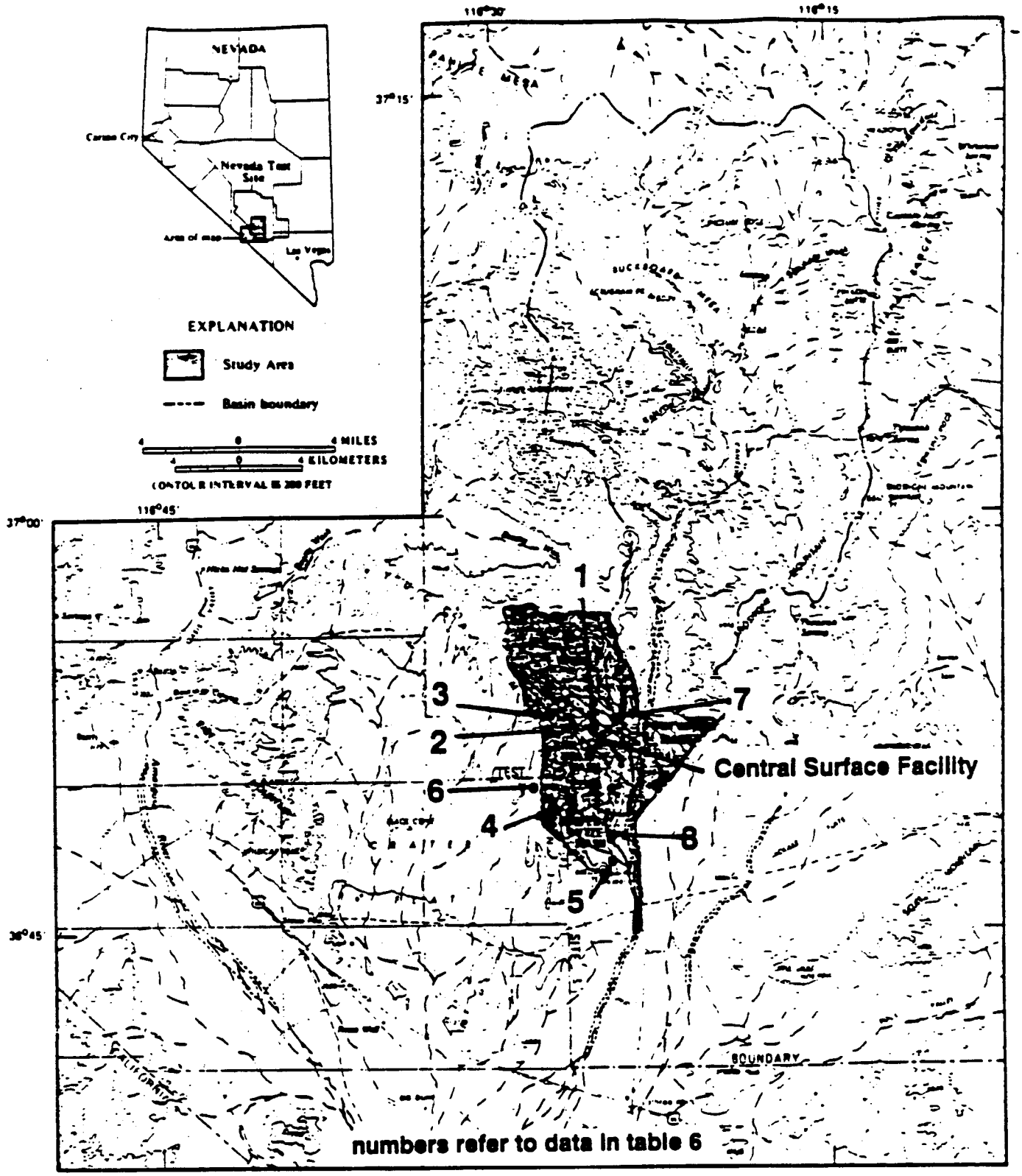
No.	Station Name Location	Station Number	Drainage Area (mi^2)	Peak Discharge (ft^3/s)	Date
1	Penoyer Valley Tributary near Tempiute, NV	10247860	1.48	130	8-06-68
2	Indian Springs Valley Tributary near Indian Springs NV	10248490	29.00	497	8-14-72
3	Amargosa River Tributary near Mercury, NV	10251270	110.00	3430	8-01-68
4	Amargosa River Tributary No. 1 near Johnnie, NV	10251271	2.21	350	8-04-70
5	Amargosa River Tributary No. 2 near Johnnie, NV	10251272	2.49	125	8-01-68
6	Amargosa River near Beatty, NV	10251220	470.00	16000	2-24-69
7	Sarcobatus Flat Tributary near Springdale, NV	10249050	37.10	63	9-09-80
8	Palmetto Wash Tributary near Lida, NV	10249850	4.73	193	7- -69
9	Stonewall Flat Tributary near Goldfield, NV	10248970	0.53	150	6-16-69
10	Big Smoky Valley Tributary near Blair Junction, NV	10249680	11.40	330	8-14-84
11	San Antonio Wash Tributary near Tonopah, NV	10249135	3.42	660	8-13-72
12	Salsbury Wash near Tonopah, NV	10249180	56.00	340	3-27-69

TABLE 10

Peak Discharge at Seven Selected Sites in Arizona, California, Nevada, New Mexico, and Utah

Site Designation	Location	Drainage area (mi^2)	Date	Peak Flow (ft^3/s)	Ft^3/s per mi^2
AZ1	Bronco Creek near Wickieup, Az	19.00	8-18-71	73,500	3870
AZ2	San Pedro River at Charleston, AZ	1219.00	9-28-26	98,000	80
CA1	Arch Creek near Earp, CA	1.52	8-19-71	7,160	4710
NV1	Lahonton Reservoir Tributary No. 3 near Silver Springs, NV	0.22	7-20-71	1,680	7640
NV2	Eldorado Canyon, Southern Nevada	22.80	9-14-74	76,000	3300
NM1	El Rancho Arroyo near Pojoaque, NM	6.70	8-22-52	44,000	6570
UT1	Little Pinto Creek Tributary near Old Iron Town, UT	0.30	8-11-64	2,630	8770

FIGURES



Base from U.S. Geological Survey
Goldfield 1:250,000, 1962, and
Death Valley 1:250,000, 1966

FIGURE 1 GENERAL LOCATION MAP
AND LOCATION OF RAIN GAUGES
DURING THE JULY 19, 1985 STORM

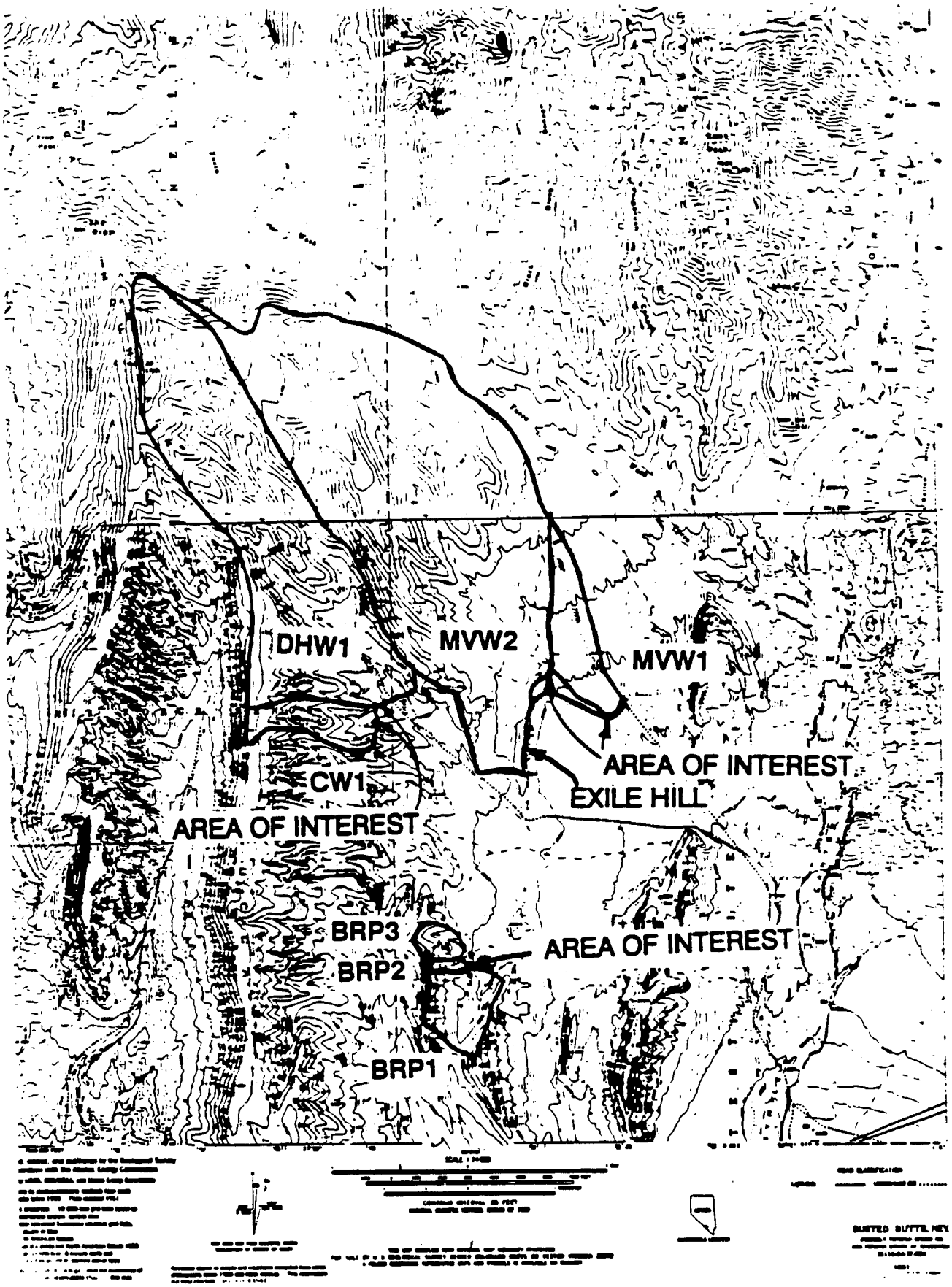


FIGURE 2 NEVADA TEST SITE
BASIN LOCATION AND DRAINAGE BOUNDARY MAP
PMF DETERMINATIONS

NEVADA TEST SITE

LAT = 36 52 30 N

LONG = 116 26 48 W

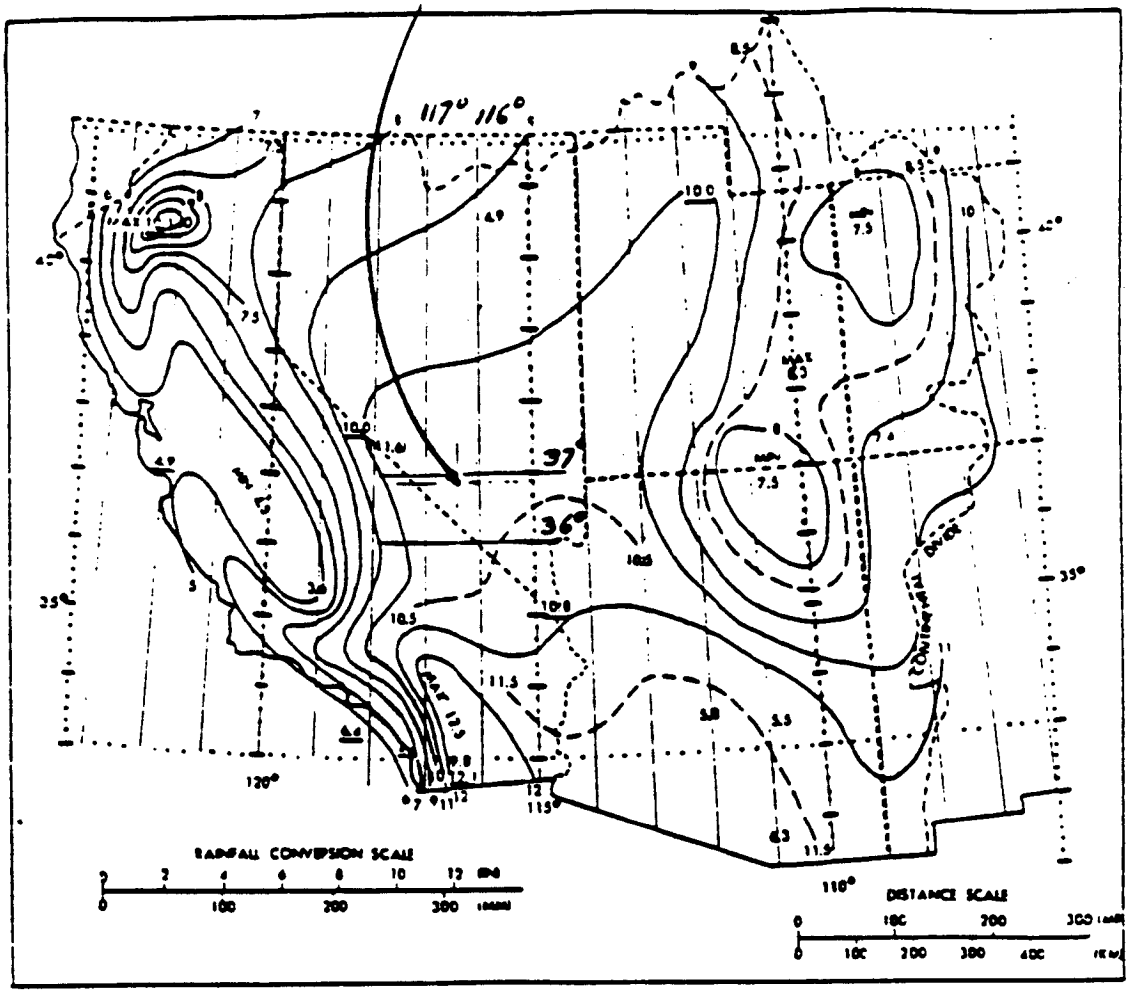
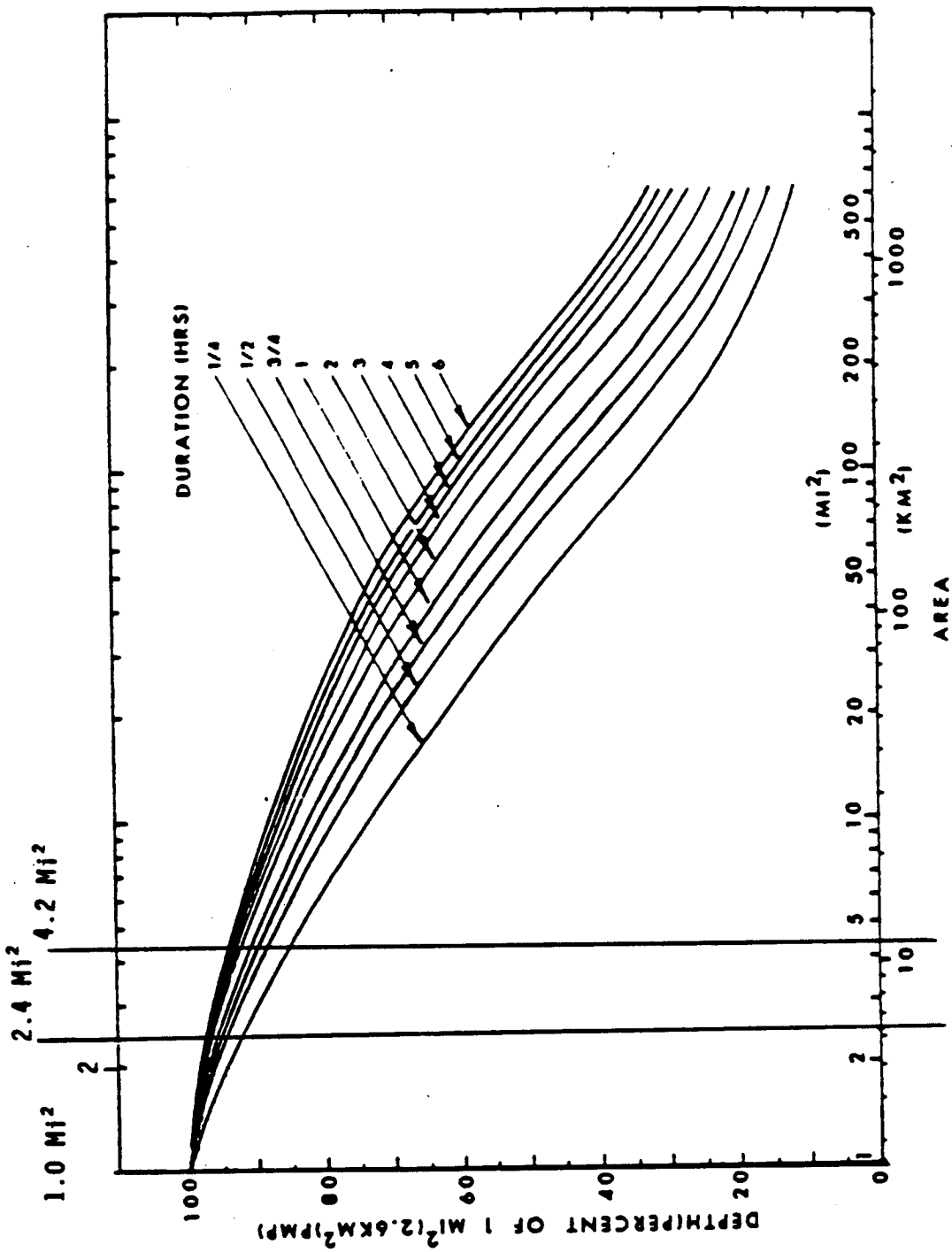


Figure 4.5--Local-storm PMP for 1 mi^2 (2.6 km^2) 1 hr. Directly applicable for locations between sea level and 5000 ft (1524 m). Elevation adjustment must be applied for locations above 5000 ft.

LOCAL STORM PMP INDEX MAP

Fig 4.5 HMR 49 [reprinted 1984]

FIGURE 3 HMR 49 LOCAL STORM PMP INDEX MAP SHOWING NEVADA TEST SITE LOCATION



Adopted depth-area relations for local-storm PMP.

Fig 4.9 HMR 49 (reprinted 1984)

FIGURE 4 HMR 49 ADOPTED DEPTH-AREA RELATIONS FOR LOCAL STORM PMP

Table 6.3A.—Local-storm PMP computation, Colorado River, Great Basin and California drainages. For drainage average depth PMP. Go to table 6.3B if areal variation is required.

Drainage NEVADA TEST SITE - MID VALLEY WASH Area 4.2 mi^2 ~~(km^2)~~
Latitude 36°52'30" Longitude 116°26'96" ~~Minimum~~ AVG. Elevation 4417 ft ~~(m)~~

Steps correspond to those in sec. 6.3A.

1. Average 1-hr 1-mi^2 (2.6-km^2) PMP for drainage [fig. 4.5]. 10.3 in. ~~(mm)~~

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

   b. Multiply step 1 by step 2a. 10.3 in. ~~(mm)~~

3. Average 6/1-hr ratio for drainage [fig. 4.7]. 1.35

	Duration (hr)								
	1/4	1/2	3/4	1	2	3	4	5	6
4. Durational variation for 6/1-hr ratio of step 3 [table 4.4].	68	86	94	100	116	123	129	133	135 %
5. 1-mi^2 (2.6-km^2) PMP for indicated durations [step 2b X step 4].	7.00	8.86	9.68	10.30	11.95	12.67	13.29	13.70	13.91 in. (mm)
6. Areal reduction [fig. 4.9].	85	88	89.5	91.0	92	92.5	93	93.5	94 %
7. Areal reduced PMP [steps 5 X 6].	5.95	7.80	8.66	9.37	10.99	11.72	12.36	12.81	13.08 in. (mm)
8. Incremental PMP [successive subtraction in step 7].				9.37	1.62	0.73	0.64	0.45	0.27 in. (mm)
	5.95	1.85	0.86	0.71	} 15-min. increments				
9. Time sequence of incremental PMP according to:									
Hourly increments [table 4.7].				0.45	0.73	9.37	1.62	0.64	0.27 in. ~~(mm)~~
Four largest 15-min. increments [table 4.8].				5.95	1.85	0.86	0.71		in. (mm)

FIGURE 5 HMR 49 LOCAL STORM PMP COMPUTATIONS
4.0 SQUARE MILE DRAINAGE AREA

Table 6.3A.—Local-storm PMP computation, Colorado River, Great Basin and California drainages. For drainage average depth PMP. Go to table 6.3B if areal variation is required.

Drainage NEVADA TEST SITE - DRILL HOLE WASH Area 2.4 mi^2 (~~km^2~~)
Latitude 36°52'30" Longitude 116°26'45" ~~Minimum~~ AVG Elevation 4820 ft (~~m~~)

Steps correspond to those in sec. 6.3A.

1. Average 1-hr 1-mi^2 (2.6-km^2) PMP for drainage [fig. 4.5]. 10.3 in. (~~mm~~)

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

   b. Multiply step 1 by step 2a. 10.3 in. (~~mm~~)

3. Average 6/1-hr ratio for drainage [fig. 4.7]. 1.35

	Duration (hr)								
	1/4	1/2	3/4	1	2	3	4	5	6
4. Durational variation for 6/1-hr ratio of step 3 [table 4.4].	68	86	94	100	116	123	129	133	135 %
5. 1-mi^2 (2.6-km^2) PMP for indicated durations [step 2b X step 4].	7.00	8.86	9.68	10.30	11.95	12.67	13.29	13.70	13.91 in. (~~mm~~)
6. Areal reduction [fig. 4.9].	92	94	95	96	96.2	96.4	96.6	96.8	97.0 %
7. Areal reduced PMP [steps 5 X 6].	6.44	8.33	9.20	9.89	11.50	12.21	12.84	13.26	13.49 in. (~~mm~~)
8. Incremental PMP [successive subtraction in step 7].	6.44	1.89	0.87	0.69	1.61	0.71	0.63	0.42	0.23 in. (~~mm~~)

6.44 1.89 0.87 0.69 } 15-min. increments

9. Time sequence of incremental PMP according to:

   Hourly increments [table 4.7]. 0.42 0.71 9.89 1.61 0.63 0.23 in. (~~mm~~)

   Four largest 15-min. increments [table 4.8]. 6.44 1.89 0.87 0.69 in. (~~mm~~)

FIGURE 6 HMR 49 LOCAL STORM PMP COMPUTATIONS
2.4 SQUARE MILE DRAINAGE AREA

Table 6.3A.—Local-storm PMP computation, Colorado River, Great Basin and California drainages. For drainage average depth PMP. Go to table 6.3B if areal variation is required.

Drainage NEVADA TEST SITE COYOTE WASH (BOUNDARY RIDGE WASHES) Area < 1.0 mi^2 ~~km^2~~

Latitude 36°52'30" Longitude 116°26'48" ~~Minimum~~ AVG Elevation <4000 ft ~~m~~

Steps correspond to those in sec. 6.3A.

1. Average 1-hr 1-mi^2 (2.6-km^2) PMP for drainage [fig. 4.5]. 10.3 in. ~~mm~~

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

   b. Multiply step 1 by step 2a. 10.3 in. ~~mm~~

3. Average 6/1-hr ratio for drainage [fig. 4.7]. 1.35

	Duration (hr)								
	1/4	1/2	3/4	1	2	3	4	5	6
4. Durational variation for 6/1-hr ratio of step 3 [table 4.4].	68	86	94	100	116	123	129	133	135 %
5. 1-mi^2 (2.6-km^2) PMP for indicated durations [step 2b X step 4].	7.00	8.86	9.68	10.3	11.93	12.67	13.29	13.70	13.91 in. ~~mm~~
6. Areal reduction [fig. 4.9].	100	102	100	102	102	102	102	102	102 %
7. Areal reduced PMP [steps 5 X 6].	7.00	8.86	9.68	10.30	11.95	12.67	13.29	13.70	13.91 in. ~~mm~~
8. Incremental PMP [successive subtraction in step 7].	10.30	1.65	0.72	0.62	0.41	0.21 in. ~~mm~~			
	7.00	1.86	0.82	0.62 } 15-min. increments					
9. Time sequence of incremental PMP according to:									
Hourly increments [table 4.7].	0.41	0.72	10.30	1.65	0.62	0.21 in. ~~mm~~			
Four largest 15-min. increments [table 4.8].	7.00	1.86	0.82	0.62 in. ~~mm~~					

FIGURE 7 HMR 49 LOCAL STORM PMP COMPUTATIONS
< 1.0 SQUARE MILE DRAINAGE AREA

33

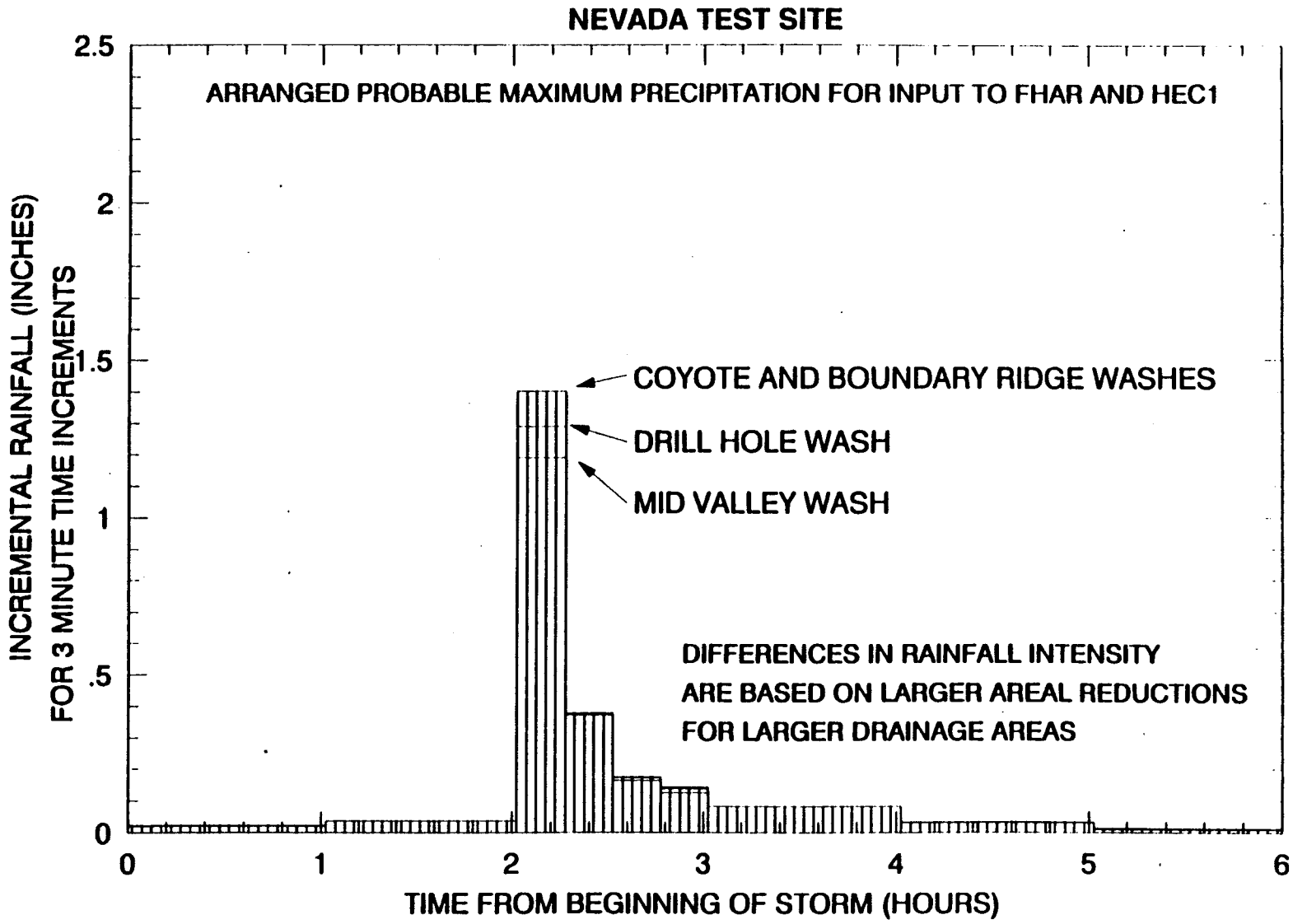


FIGURE 8 HYDROMETEOROLOGICAL REPORT 49
LOCAL STORM PRECIPITATION DISTRIBUTION

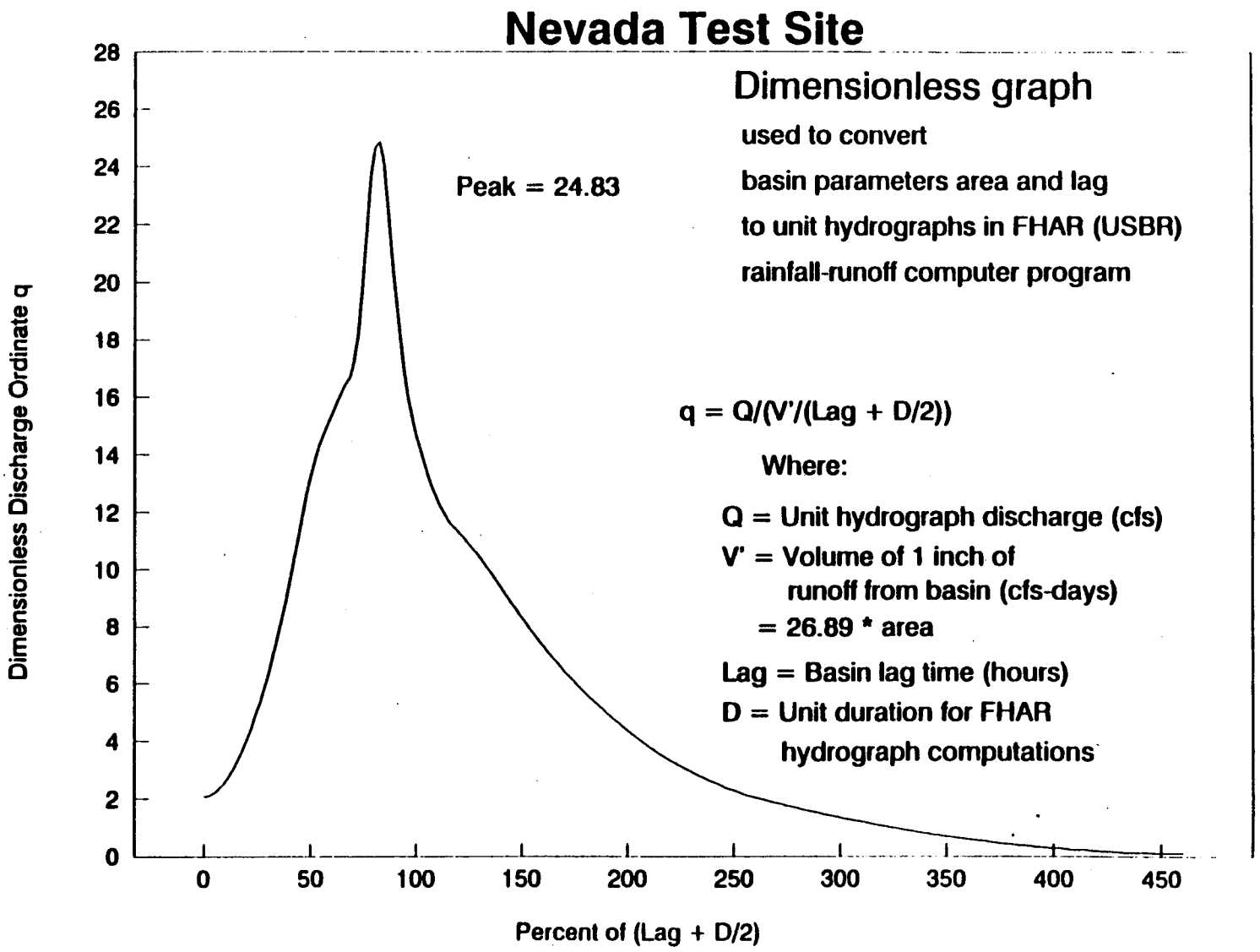
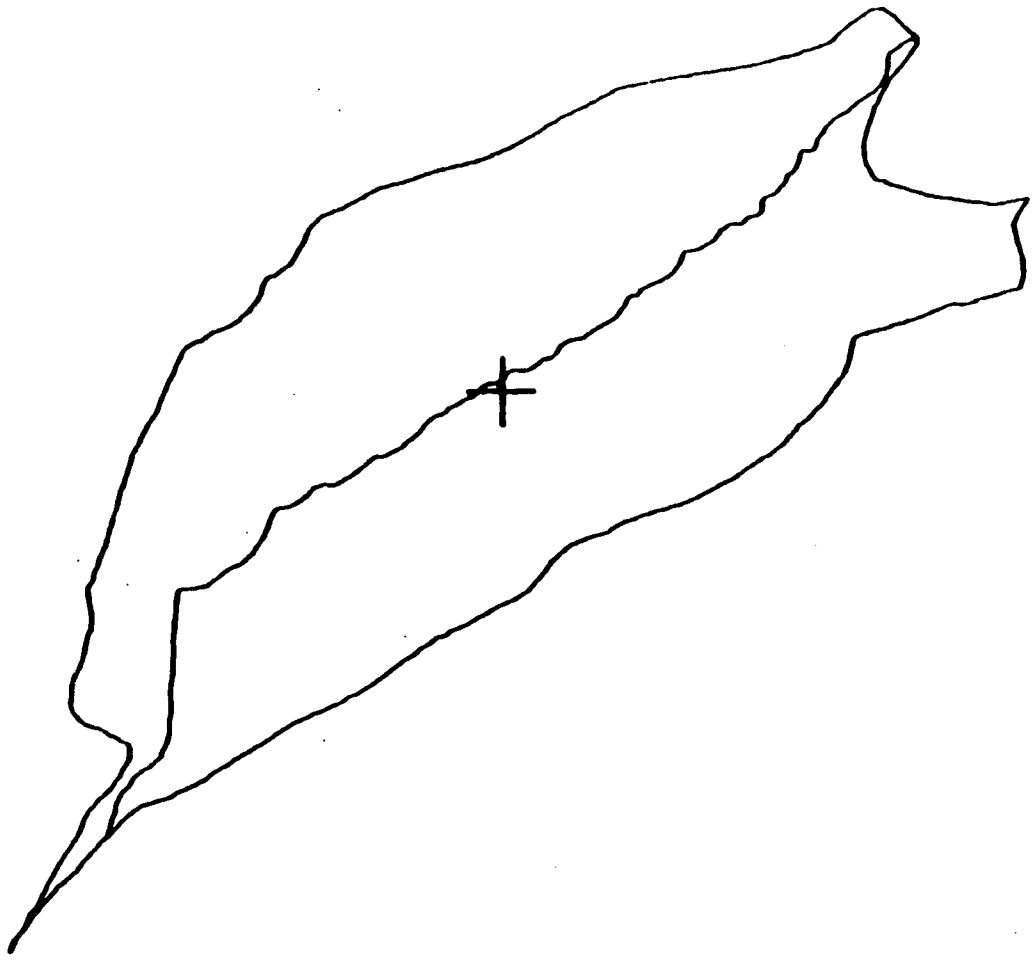
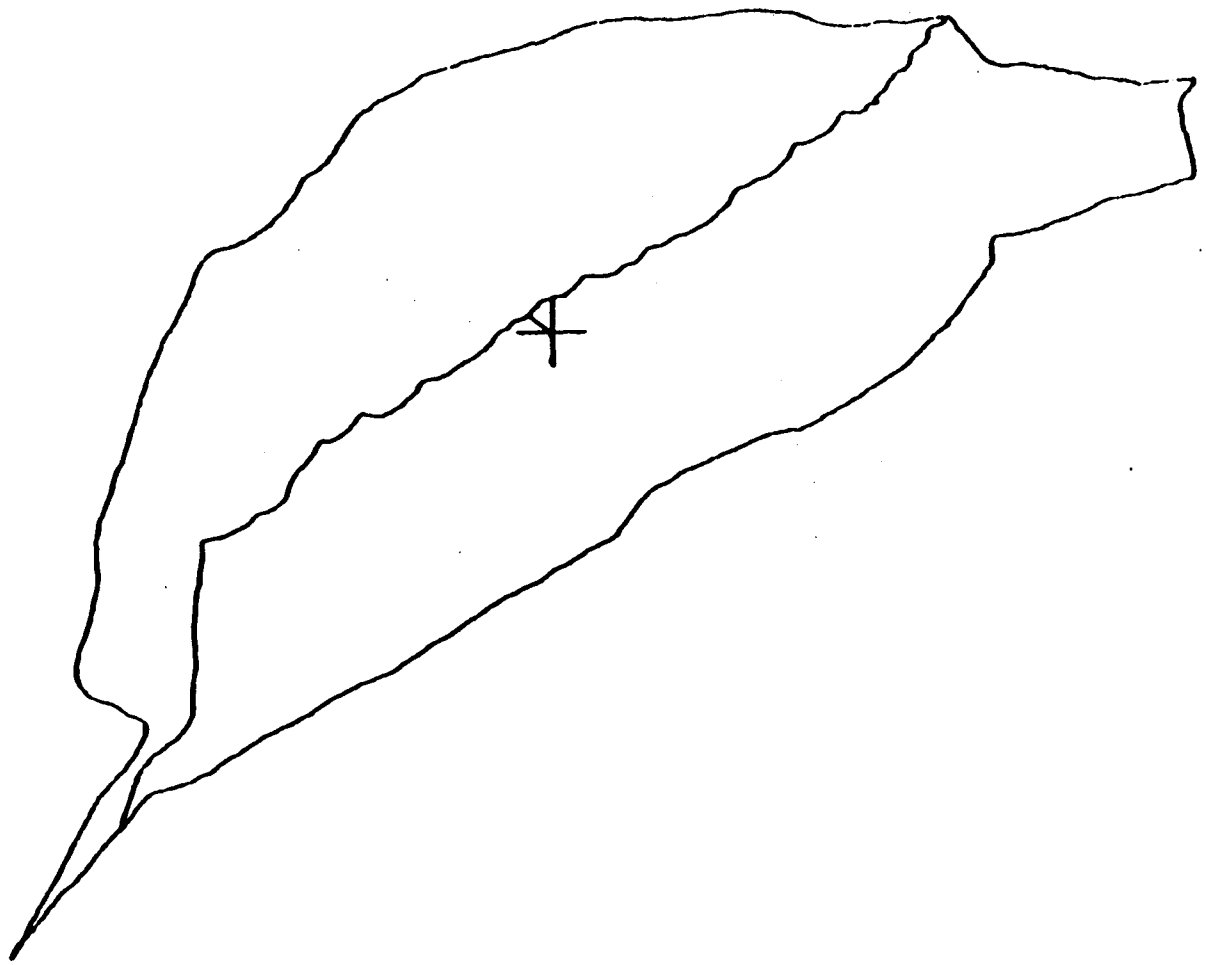


FIGURE 9 PHOENIX MOUNTAIN DIMENSIONLESS GRAPH



AREA = 4.45 SQUARE MILES 12-JUN-91 02:22:31
TOTAL LENGTH OF STREAM = 4.49 MILES
LENGTH OF STREAM DOWNSTREAM OF CENT. = 2.11 MILES

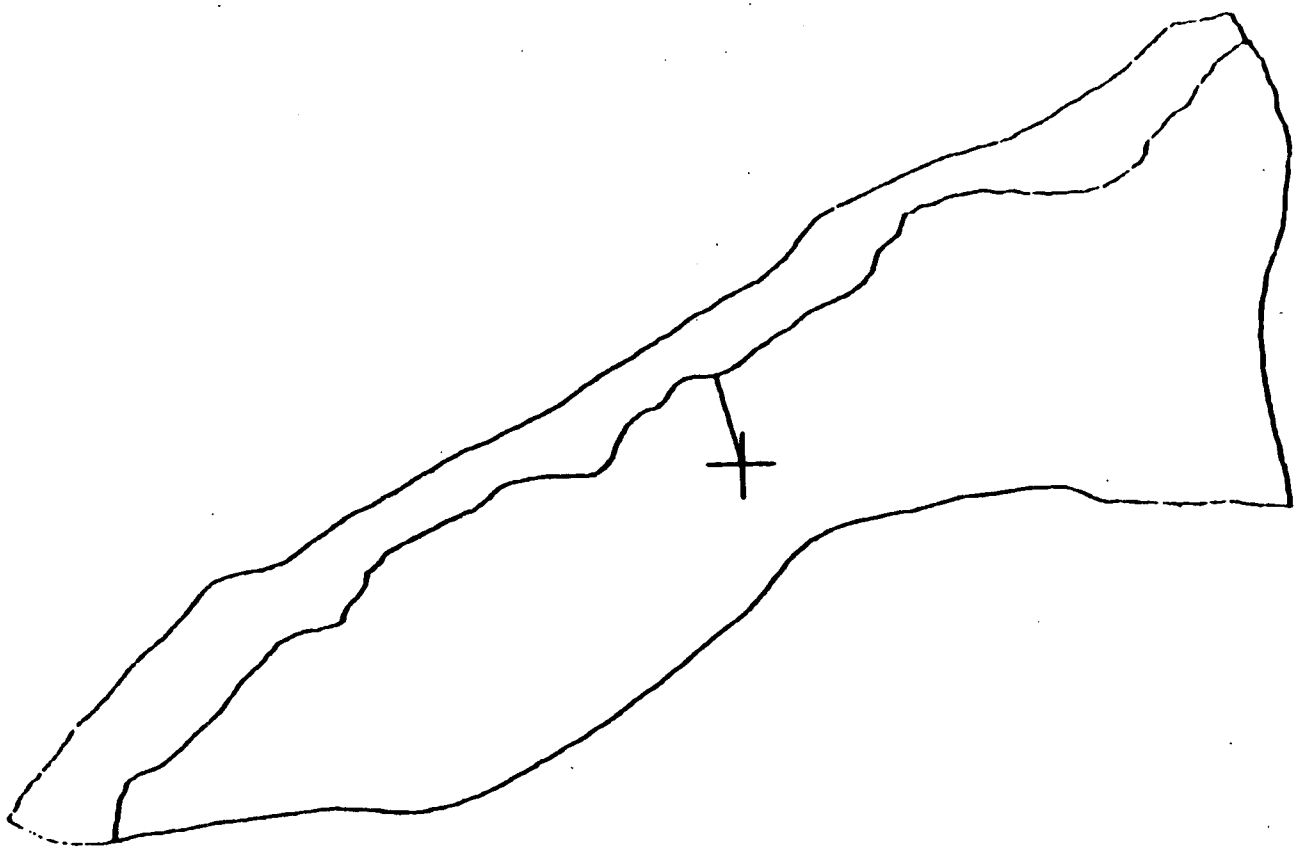
FIGURE 10 BASIN AREA, L, LCA MEASUREMENT
MID VALLEY WASH 1 - DOWNSTREAM LOCATION



AREA = 4.07 SQUARE MILES 12-JUN-91 02:27:04
TOTAL LENGTH OF STREAM = 3.95 MILES
LENGTH OF STREAM DOWNSTREAM OF CENT. = 1.71 MILES

27

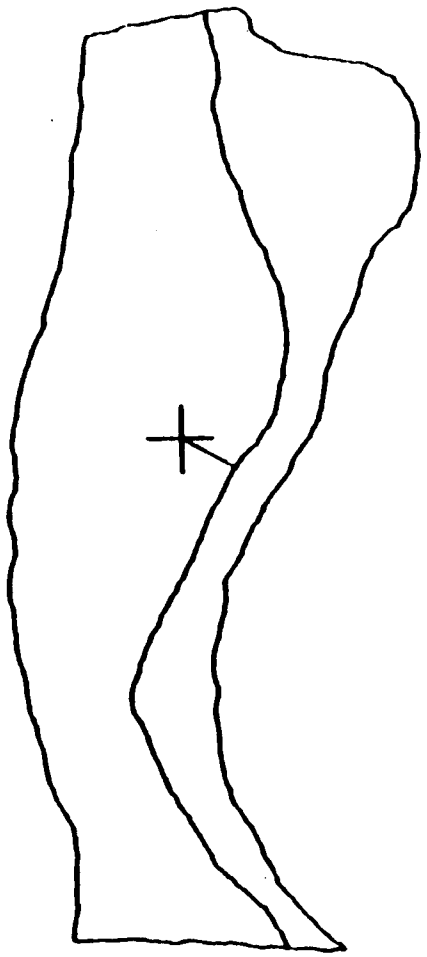
FIGURE 11 BASIN AREA, L, LCA MEASUREMENT
MID VALLEY WASH 2 - UPSTREAM LOCATION



AREA = 2.40 SQUARE MILES 12-JUN-91 02:14:40
TOTAL LENGTH OF STREAM = 3.69 MILES
LENGTH OF STREAM DOWNSTREAM OF CENT. = 1.68 MILES

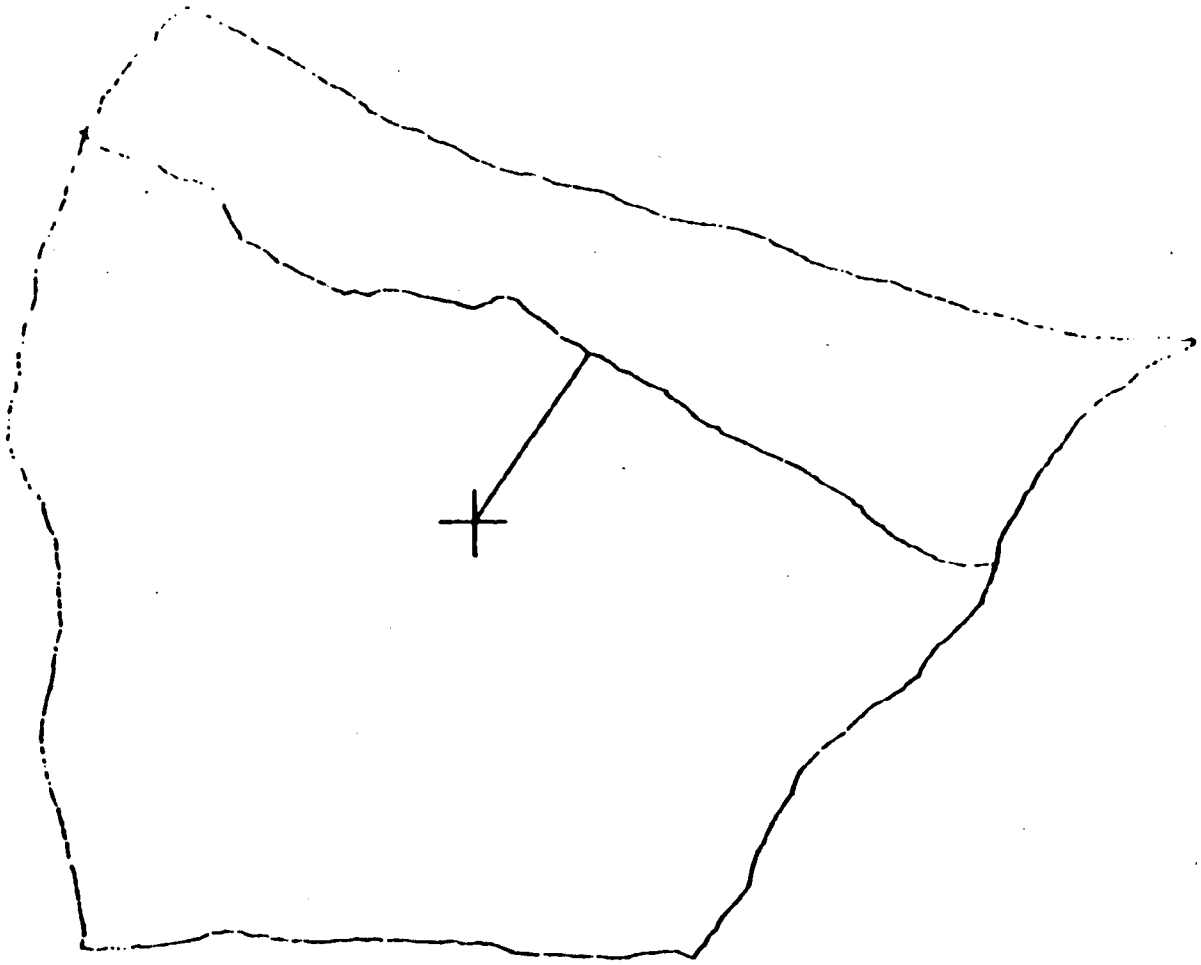
38

FIGURE 12 BASIN AREA, L, LCA MEASUREMENT
DRILL HOLE WASH LOCATION



AREA = 0.23 SQUARE MILES 12-JUN-91 02:11:08
TOTAL LENGTH OF STREAM = 1.07 MILES
LENGTH OF STREAM DOWNSTREAM OF CENT. = 0.50 MILES

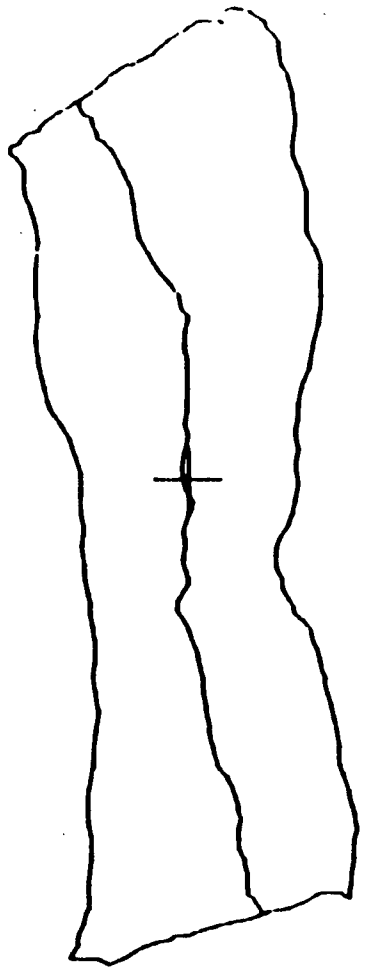
FIGURE 13 BASIN AREA, L, LCA MEASUREMENT
COYOTE WASH LOCATION



AREA = 0.24 SQUARE MILES 12-JUN-91 02:02:51
TOTAL LENGTH OF STREAM = 0.63 MILES
LENGTH OF STREAM DOWNSTREAM OF CENT. = 0.35 MILES

04

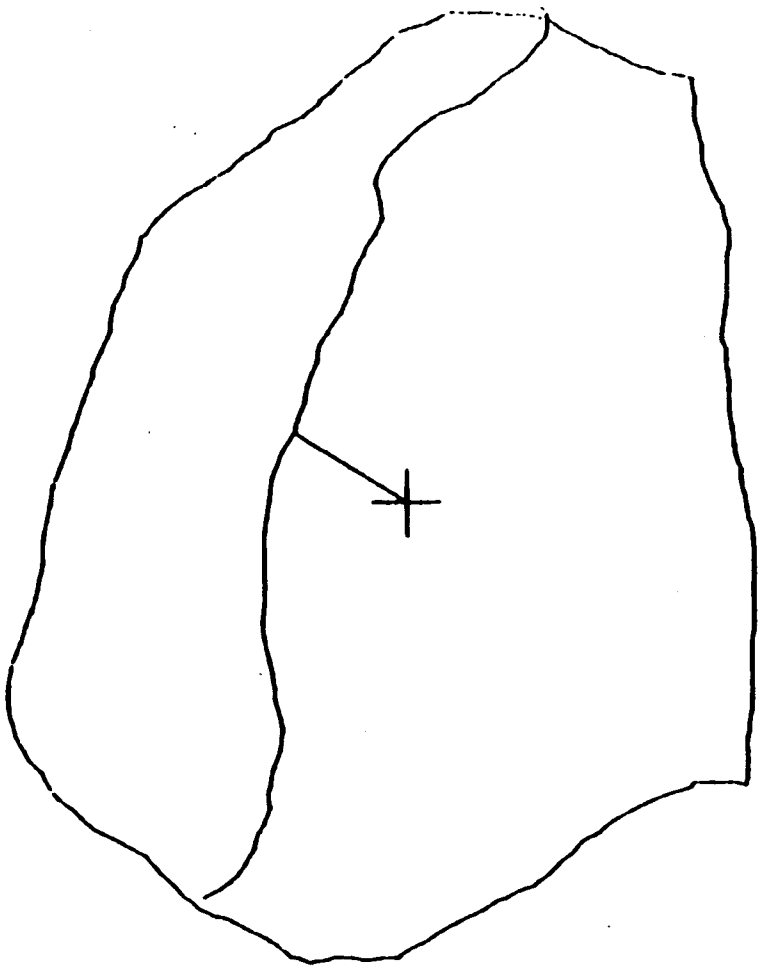
FIGURE 14 BASIN AREA, L, LCA MEASUREMENT
BOUNDARY RIDGE WASH 1 LOCATION



AREA = 0.02 SQUARE MILES 12-JUN-91 02:05:32
TOTAL LENGTH OF STREAM = 0.30 MILES
LENGTH OF STREAM DOWNSTREAM OF CENT. = 0.14 MILES

14

FIGURE 15 BASIN AREA, L, LCA MEASUREMENT
BOUNDARY RIDGE WASH 2 LOCATION



AREA = 0.08 SQUARE MILES 12-JUN-91 02:08:00
TOTAL LENGTH OF STREAM = 0.41 MILES
LENGTH OF STREAM DOWNSTREAM OF CENT. = 0.21 MILES

FIGURE 16 BASIN AREA, L, LCA MEASUREMENT
BOUNDARY RIDGE WASH 3 LOCATION

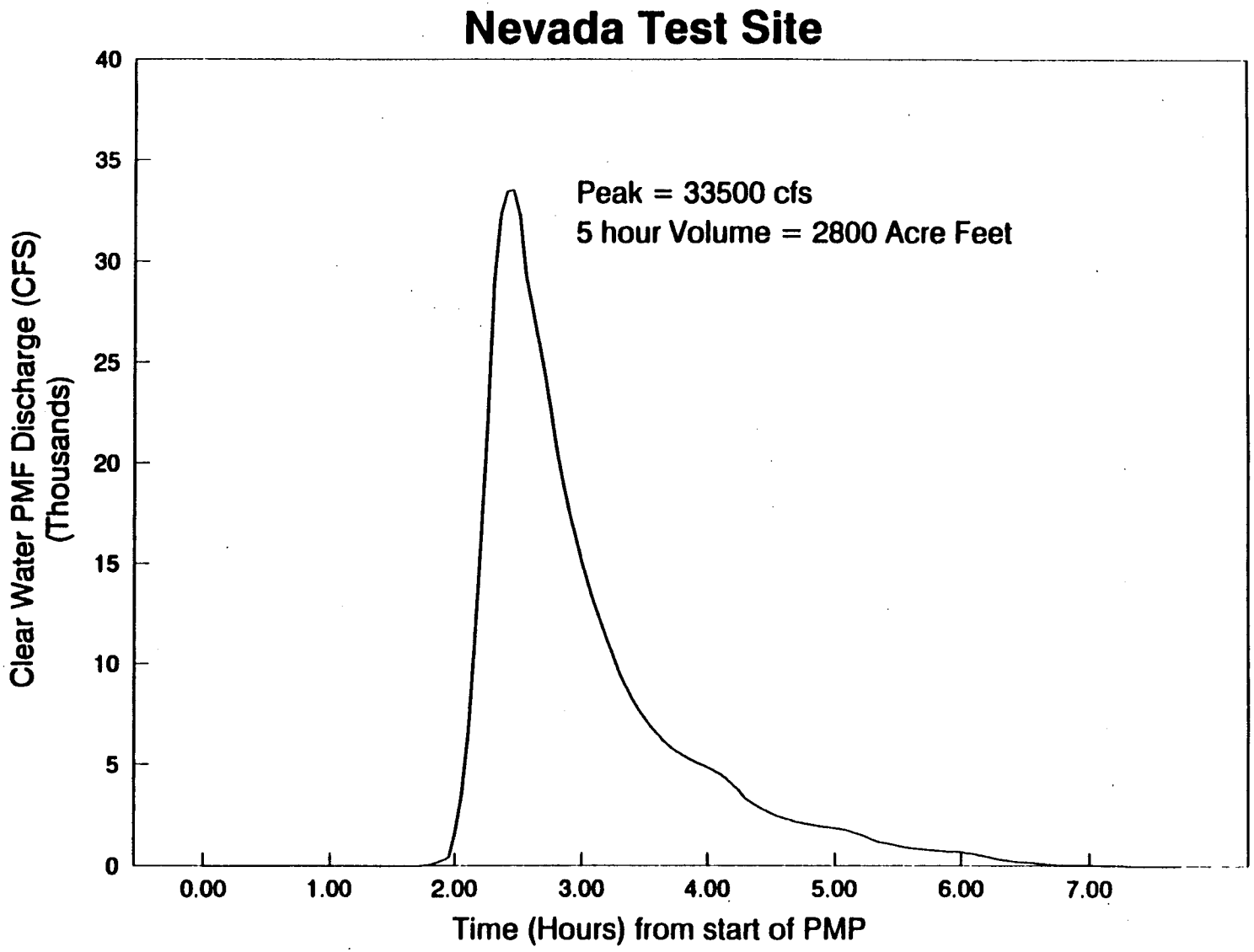


Figure 17 PMF Hydrograph

MID VALLEY WASH 1 - DOWNSTREAM LOCATION

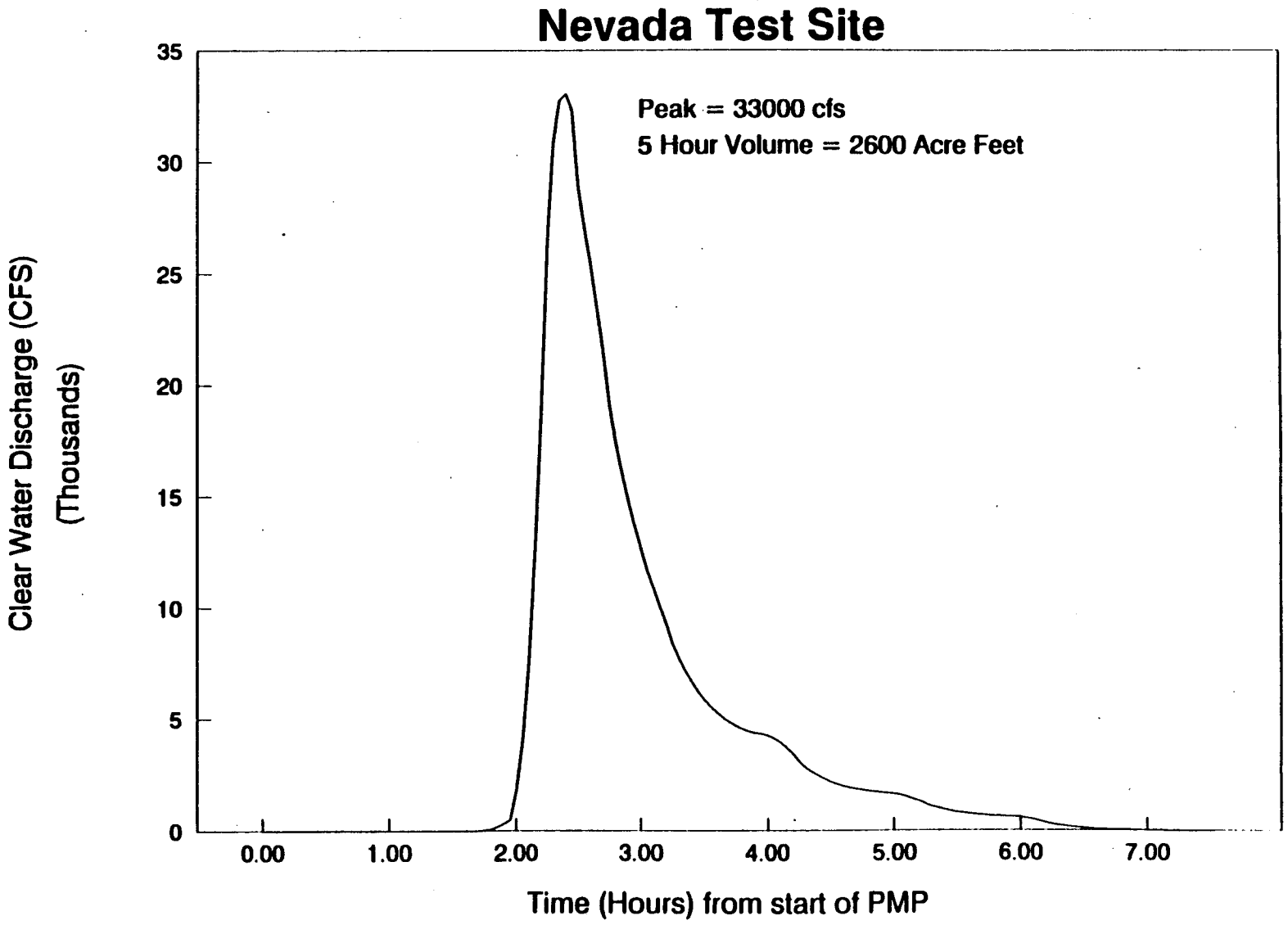


FIGURE 18 PMF HYDROGRAPH
MID VALLEY WASH 2 - UPSTREAM LOCATION

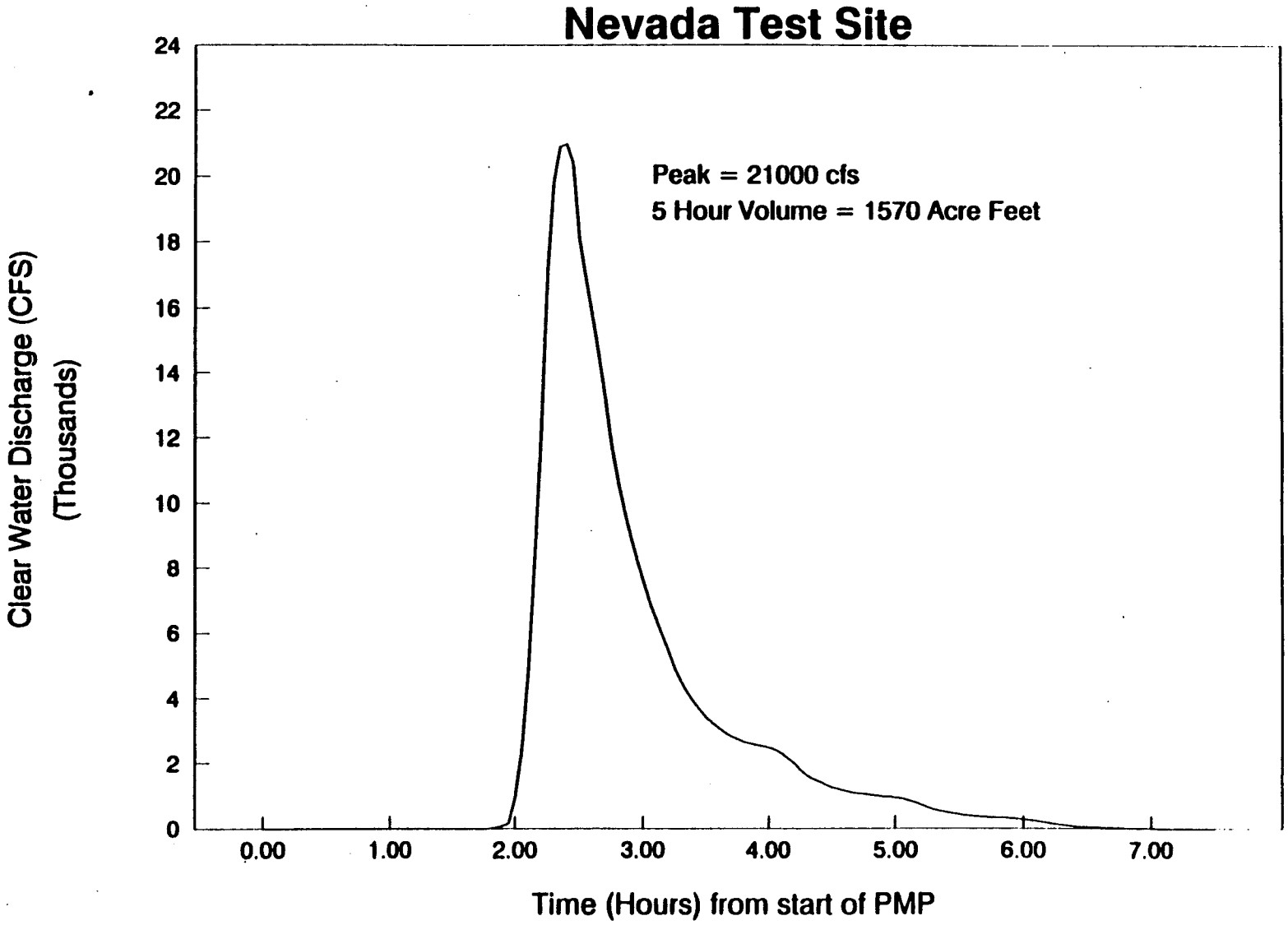


FIGURE 19 PMF HYDROGRAPH
DRILL HOLE WASH LOCATION

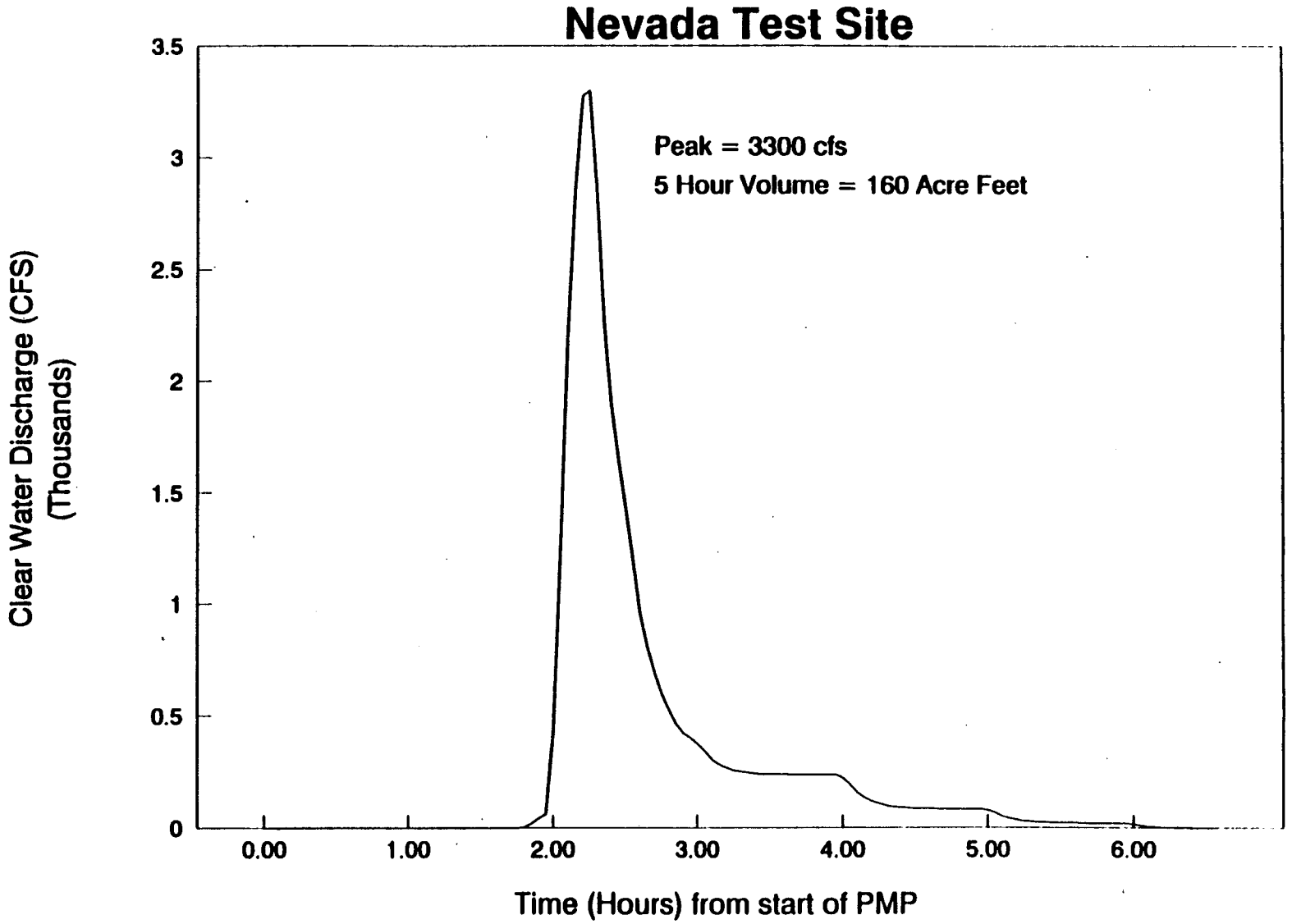


FIGURE 20 PMF HYDROGRAPH
COYOTE WASH LOCATION

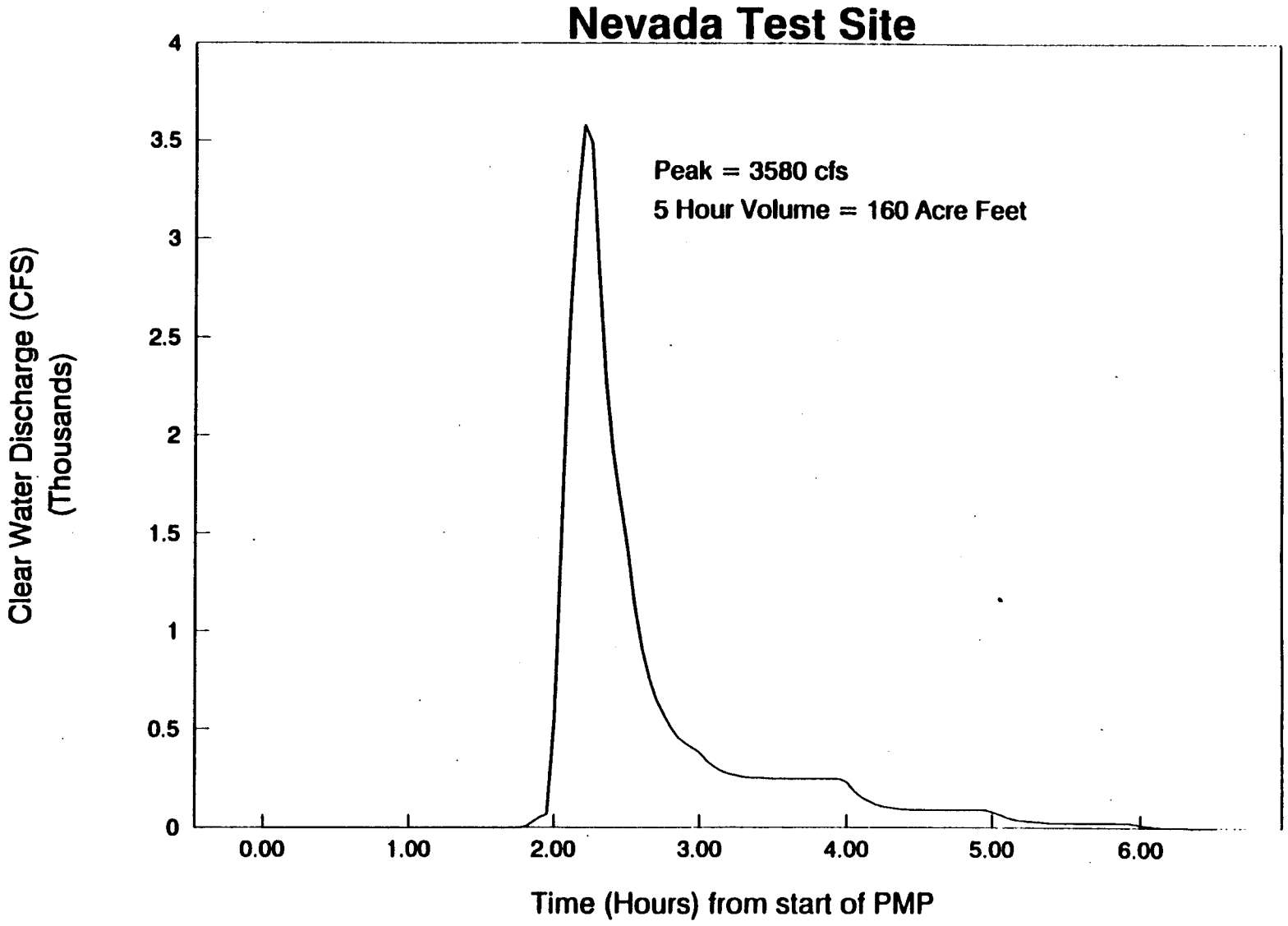


FIGURE 21 PMF HYDROGRAPH
BOUNDARY RIDGE PORTAL WASH 1 LOCATION

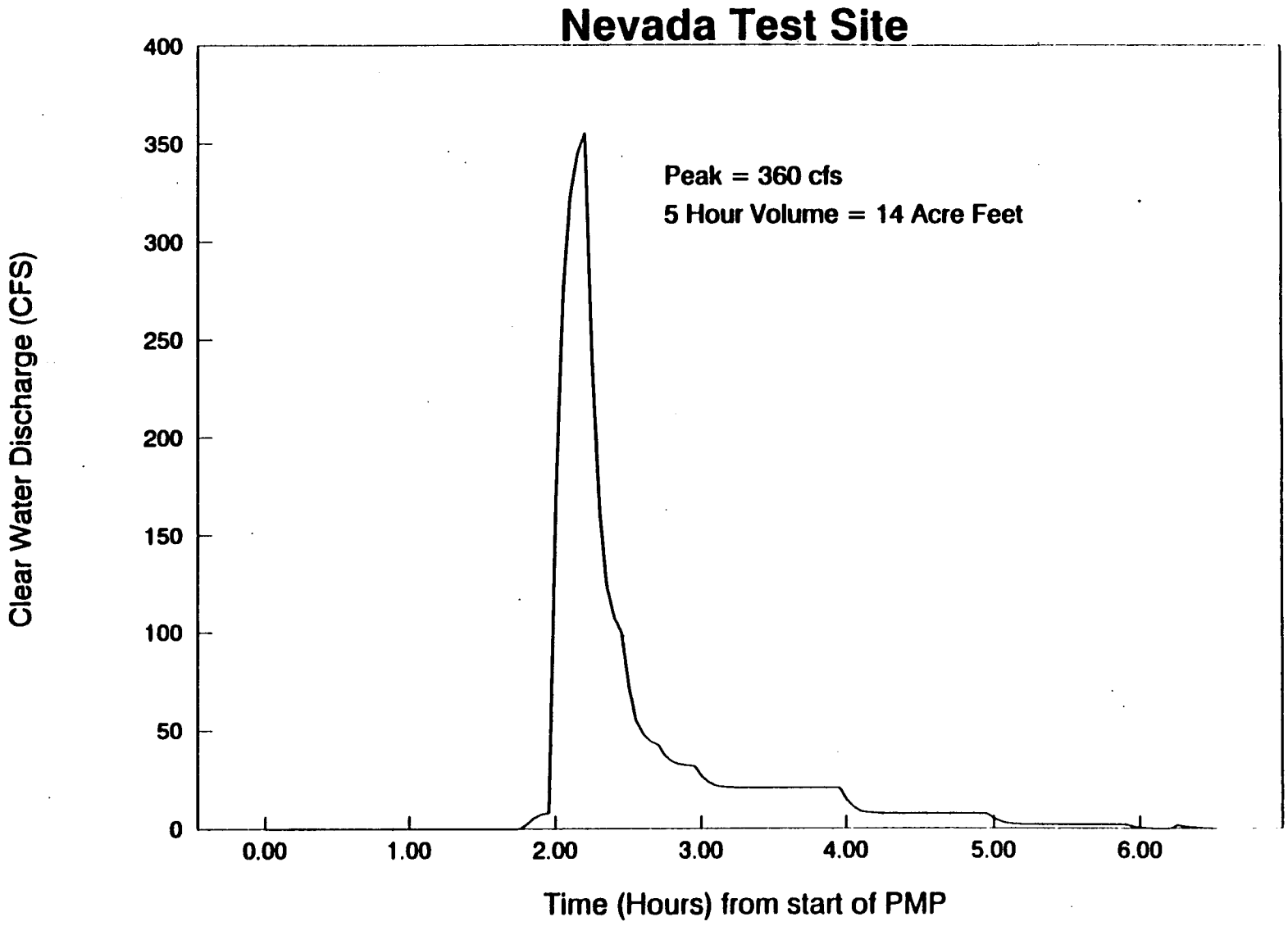


FIGURE 22 PMF HYDROGRAPH
BOUNDARY RIDGE PORTAL WASH 2 LOCATION

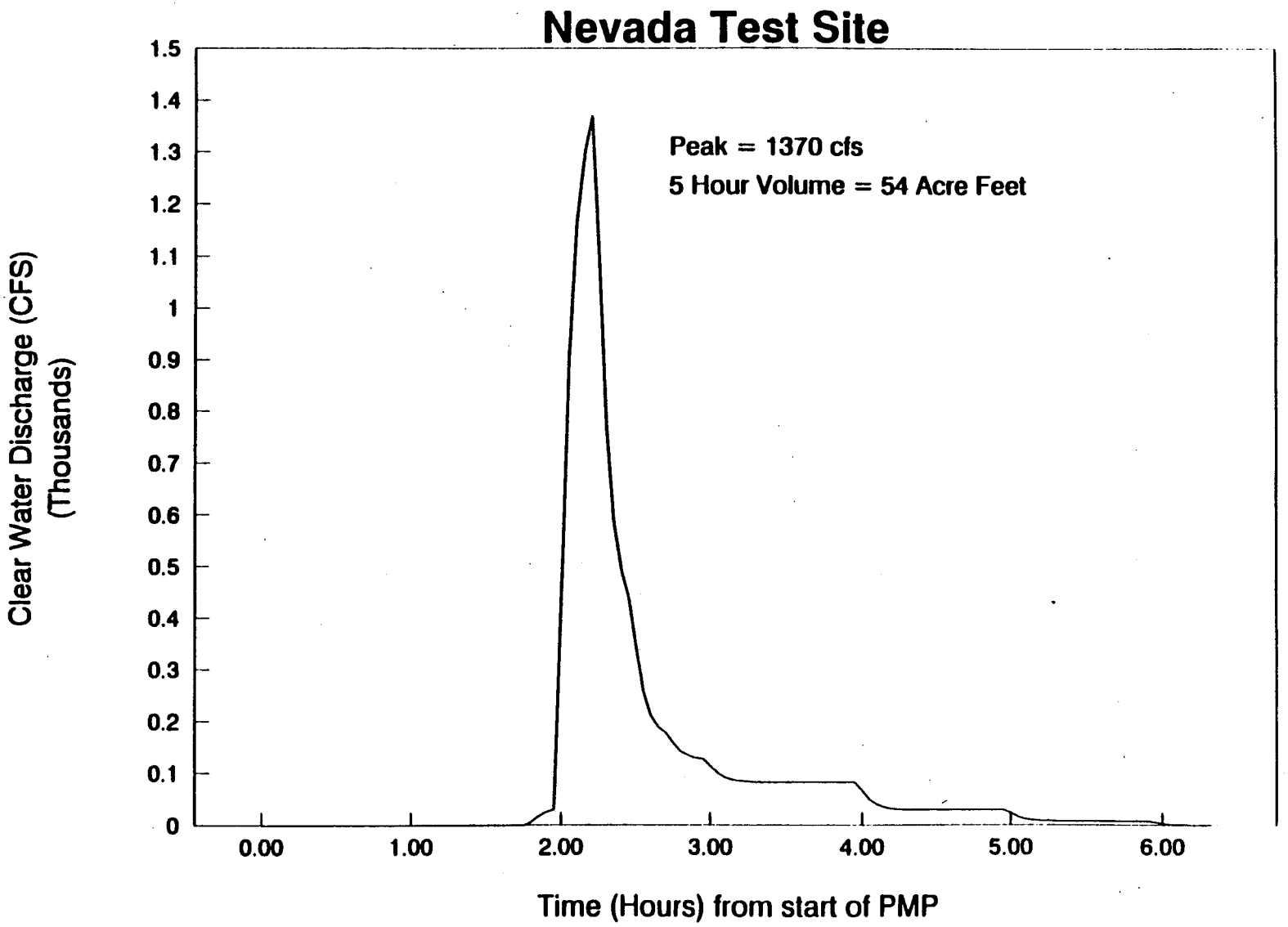


FIGURE 23 PMF HYDROGRAPH
BOUNDARY RIDGE PORTAL WASH 3 LOCATION

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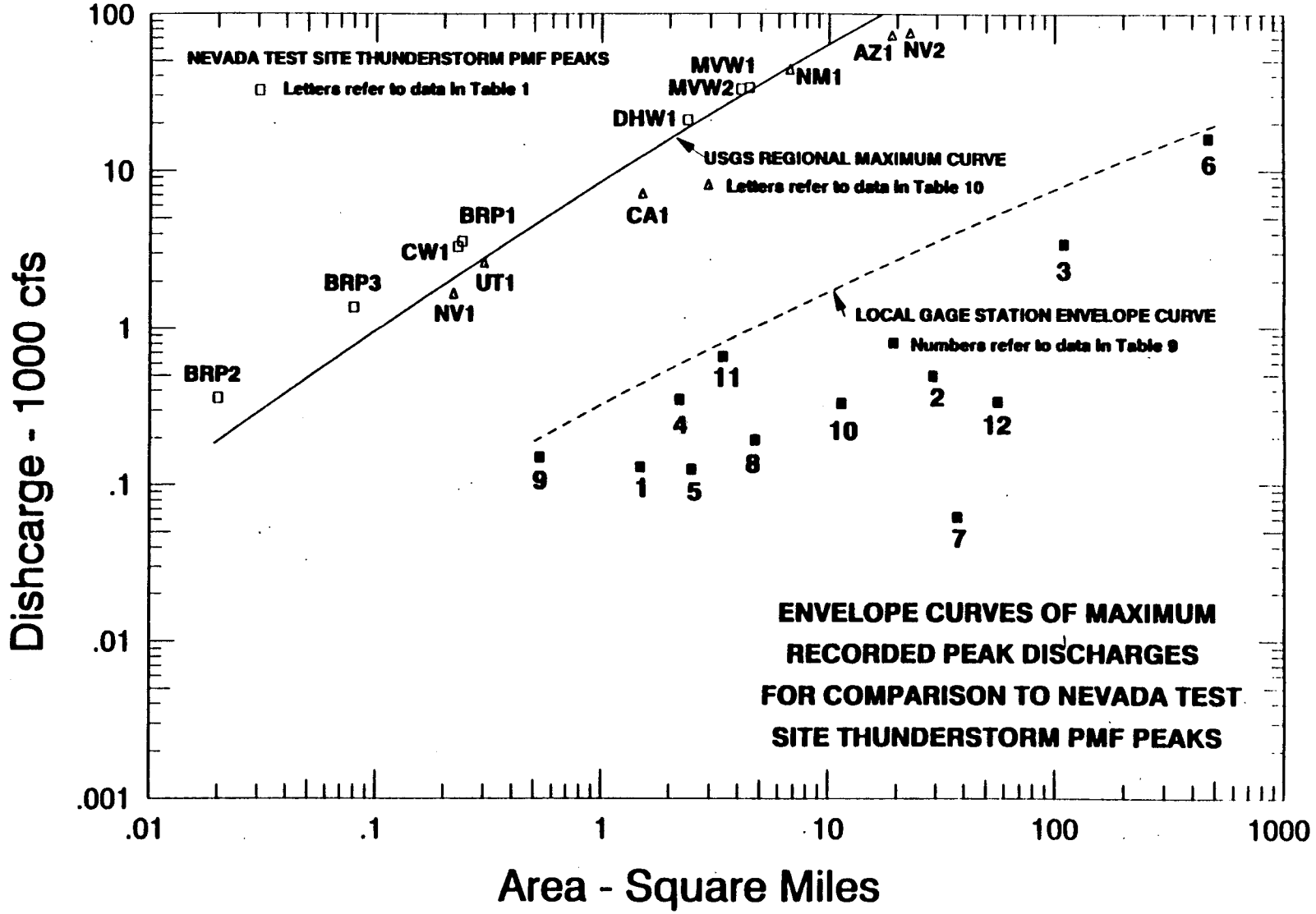

FIGURE 24 ENVELOPE CURVES
MAXIMUM PEAK DISCHARGES

APPENDIX A
FHAR INPUT/OUTPUT

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 1
~~Page 1~~

NEVADA TEST SITE
MID VALLEY WASH 1 DOWNSTREAM END
MID VALLEY WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:15:37

BASIN DATA
Basin Area= 4.4500 square miles
Lag Time= .3860 hours

STORM DATA
Storm Duration= 6.00 hours
Unit Duration= 3.00 minutes

LOSS DATA
Initial Loss= 1.00 inches
Constant Loss Rate .05 inches/hour

PEAK= 33542.CFS at 150.00 hours

VOLUME
Volume of DGraph= 2380.
Volume of UGraph= 1.000 inches
Total Rainfall= 13.07 inches
Total Rainfall Excess= 11.86 inches

Volume of FGraph= 567. CFS-hours
or 2814. acre-feet
or 11.86 acre-inches/acre

FILES USED
Dimensionless Graph used: PHXSMT.DGF
PHOENIX MOUNTAINS
Storm File used: MVW.STM
Output File used: MVW1.FHG

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

NEVADA TEST SITE
MID VALLEY WASH 1 DOWNSTREAM END
MID VALLEY WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:15:37

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
3.00	.023	.023	.000	832.	0.
6.00	.023	.023	.000	1448.	0.
9.00	.023	.023	.000	2454.	0.
12.00	.023	.023	.000	3787.	0.
15.00	.023	.023	.000	4572.	0.
18.00	.023	.023	.000	5551.	0.
21.00	.023	.023	.000	6862.	0.
24.00	.023	.023	.000	4533.	0.
27.00	.023	.023	.000	3661.	0.
30.00	.023	.023	.000	3270.	0.
33.00	.023	.023	.000	2940.	0.
36.00	.023	.023	.000	2553.	0.
39.00	.023	.023	.000	2194.	0.
42.00	.023	.023	.000	1881.	0.
45.00	.023	.023	.000	1609.	0.
48.00	.023	.023	.000	1370.	0.
51.00	.023	.023	.000	1162.	0.
54.00	.023	.023	.000	987.	0.
57.00	.023	.023	.000	842.	0.
60.00	.023	.023	.000	723.	0.
63.00	.037	.037	.000	627.	0.
66.00	.037	.037	.000	555.	0.
69.00	.037	.037	.000	491.	0.
72.00	.037	.037	.000	432.	0.
75.00	.037	.037	.000	377.	0.
78.00	.037	.037	.000	326.	0.
81.00	.037	.037	.000	279.	0.
84.00	.037	.037	.000	236.	0.
87.00	.037	.037	.000	198.	0.
90.00	.037	.037	.000	163.	0.
93.00	.037	.037	.000	132.	0.
96.00	.037	.037	.000	106.	0.
99.00	.037	.037	.000	84.	0.
102.00	.037	.037	.000	66.	0.
105.00	.037	.037	.000	52.	0.
108.00	.037	.005	.032	42.	26.
111.00	.037	.003	.034	36.	74.
114.00	.037	.003	.034		155.
117.00	.037	.003	.034		281.
120.00	.037	.003	.034		435.
123.00	1.190	.002	1.188		1581.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 1
~~Page 3~~

NEVADA TEST SITE
MID VALLEY WASH 1 DOWNSTREAM END
MID VALLEY WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:15:37

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
126.00	1.190	.002	1.188		3481.
129.00	1.190	.002	1.188		6472.
132.00	1.190	.002	1.188		10967.
135.00	1.190	.002	1.188		16352.
138.00	.370	.003	.368		22170.
141.00	.370	.003	.368		28990.
144.00	.370	.003	.368		32280.
147.00	.370	.003	.368		33460.
150.00	.370	.003	.368		33540.
153.00	.172	.003	.169		32260.
156.00	.172	.003	.169		29330.
159.00	.172	.003	.169		27700.
162.00	.172	.003	.169		26140.
165.00	.172	.003	.169		24440.
168.00	.142	.003	.139		22510.
171.00	.142	.003	.139		20370.
174.00	.142	.003	.139		18754.
177.00	.142	.003	.139		17360.
180.00	.142	.003	.139		16102.
183.00	.081	.003	.079		14914.
186.00	.081	.003	.079		13811.
189.00	.081	.003	.079		12857.
192.00	.081	.003	.079		11958.
195.00	.081	.003	.079		11110.
198.00	.081	.003	.079		10279.
201.00	.081	.003	.079		9424.
204.00	.081	.003	.079		8758.
207.00	.081	.003	.079		8188.
210.00	.081	.003	.079		7677.
213.00	.081	.003	.079		7220.
216.00	.081	.003	.079		6814.
219.00	.081	.003	.079		6456.
222.00	.081	.003	.079		6145.
225.00	.081	.003	.079		5877.
228.00	.081	.003	.079		5649.
231.00	.081	.003	.079		5461.
234.00	.081	.003	.079		5271.
237.00	.081	.003	.079		5113.
240.00	.081	.003	.079		4983.
243.00	.032	.003	.030		4834.
246.00	.032	.003	.030		4670.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 1
~~Page 4~~

NEVADA TEST SITE
MID VALLEY WASH 1 DOWNSTREAM END
MID VALLEY WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:15:37

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
249.00	.032	.003	.030		4496.
252.00	.032	.003	.030		4265.
255.00	.032	.003	.030		4003.
258.00	.032	.003	.030		3699.
261.00	.032	.003	.030		3335.
264.00	.032	.003	.030		3096.
267.00	.032	.003	.030		2903.
270.00	.032	.003	.030		2731.
273.00	.032	.003	.030		2578.
276.00	.032	.003	.030		2445.
279.00	.032	.003	.030		2332.
282.00	.032	.003	.030		2236.
285.00	.032	.003	.030		2154.
288.00	.032	.003	.030		2084.
291.00	.032	.003	.030		2025.
294.00	.032	.003	.030		1977.
297.00	.032	.003	.030		1936.
300.00	.032	.003	.030		1900.
303.00	.014	.003	.011		1854.
306.00	.014	.003	.011		1800.
309.00	.014	.003	.011		1731.
312.00	.014	.003	.011		1639.
315.00	.014	.003	.011		1536.
318.00	.014	.003	.011		1418.
321.00	.014	.003	.011		1277.
324.00	.014	.003	.011		1182.
327.00	.014	.003	.011		1104.
330.00	.014	.003	.011		1036.
333.00	.014	.003	.011		975.
336.00	.014	.003	.011		923.
339.00	.014	.003	.011		878.
342.00	.014	.003	.011		840.
345.00	.014	.003	.011		807.
348.00	.014	.003	.011		780.
351.00	.014	.003	.011		757.
354.00	.014	.003	.011		739.
357.00	.014	.003	.011		723.
360.00					700.
363.00					673.
366.00					636.
369.00					585.

NEVADA TEST SITE
MID VALLEY WASH 1 DOWNSTREAM END
MID VALLEY WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:15:37

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
372.00					527.
375.00					459.
378.00					377.
381.00					322.
384.00					277.
387.00					238.
390.00					202.
393.00					172.
396.00					146.
399.00					123.
402.00					105.
405.00					89.
408.00					75.
411.00					63.
414.00					54.
417.00					46.
420.00					39.
423.00					33.
426.00					28.
429.00					23.
432.00					19.
435.00					15.
438.00					12.
441.00					10.
444.00					7.
447.00					6.
450.00					4.
453.00					3.
456.00					2.
459.00					1.
462.00					1.
465.00					0.

NEVADA TEST SITE
MID VALLEY WASH 2 UPSTREAM END
MID VALLEY WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:24:46

BASIN DATA
Basin Area= 4.0700 square miles
Lag Time= .3400 hours

STORM DATA
Storm Duration= 6.00 hours
Unit Duration= 3.00 minutes

LOSS DATA
Initial Loss= 1.00 inches
Constant Loss Rate .05 inches/hour

PEAK= 33036.CFS at 147.00 hours

VOLUME

Volume of DGraph=	2388.	
Volume of UGraph=	1.000	inches
Total Rainfall=	13.07	inches
Total Rainfall Excess=	11.86	inches
Volume of FGraph=	519.	CFS-hours
or	2574.	acre-feet
or	11.86	acre-inches/acre

FILES USED
Dimensionless Graph used: PHXSMT.DGF
PHOENIX MOUNTAINS
Storm File used: MVW2.STM
Output File used: MVW2.FHG

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 2
~~Page 2~~

NEVADA TEST SITE
MID VALLEY WASH 2 UPSTREAM END
MID VALLEY WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:24:46

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
3.00	.023	.023	.000	912.	0.
6.00	.023	.023	.000	1709.	0.
9.00	.023	.023	.000	3014.	0.
12.00	.023	.023	.000	4370.	0.
15.00	.023	.023	.000	5050.	0.
18.00	.023	.023	.000	7476.	0.
21.00	.023	.023	.000	4827.	0.
24.00	.023	.023	.000	3752.	0.
27.00	.023	.023	.000	3315.	0.
30.00	.023	.023	.000	2918.	0.
33.00	.023	.023	.000	2473.	0.
36.00	.023	.023	.000	2082.	0.
39.00	.023	.023	.000	1749.	0.
42.00	.023	.023	.000	1461.	0.
45.00	.023	.023	.000	1215.	0.
48.00	.023	.023	.000	1010.	0.
51.00	.023	.023	.000	846.	0.
54.00	.023	.023	.000	713.	0.
57.00	.023	.023	.000	612.	0.
60.00	.023	.023	.000	535.	0.
63.00	.037	.037	.000	465.	0.
66.00	.037	.037	.000	399.	0.
69.00	.037	.037	.000	340.	0.
72.00	.037	.037	.000	285.	0.
75.00	.037	.037	.000	236.	0.
78.00	.037	.037	.000	192.	0.
81.00	.037	.037	.000	154.	0.
84.00	.037	.037	.000	121.	0.
87.00	.037	.037	.000	94.	0.
90.00	.037	.037	.000	71.	0.
93.00	.037	.037	.000	54.	0.
96.00	.037	.037	.000	43.	0.
99.00	.037	.037	.000	37.	0.
102.00	.037	.037	.000		0.
105.00	.037	.037	.000		0.
108.00	.037	.005	.032		29.
111.00	.037	.003	.034		85.
114.00	.037	.003	.034		185.
117.00	.037	.003	.034		330.
120.00	.037	.003	.034		500.
123.00	1.190	.002	1.188		1800.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 2
~~Page 3~~

NEVADA TEST SITE
MID VALLEY WASH 2 UPSTREAM END
MID VALLEY WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:24:46

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
126.00	1.190	.002	1.188		3942.
129.00	1.190	.002	1.188		7549.
132.00	1.190	.002	1.188		12703.
135.00	1.190	.002	1.188		18628.
138.00	.370	.003	.368		26590.
141.00	.370	.003	.368		30830.
144.00	.370	.003	.368		32740.
147.00	.370	.003	.368		33040.
150.00	.370	.003	.368		32300.
153.00	.172	.003	.169		28880.
156.00	.172	.003	.169		27010.
159.00	.172	.003	.169		25380.
162.00	.172	.003	.169		23500.
165.00	.172	.003	.169		21530.
168.00	.142	.003	.139		19177.
171.00	.142	.003	.139		17452.
174.00	.142	.003	.139		16019.
177.00	.142	.003	.139		14749.
180.00	.142	.003	.139		13649.
183.00	.081	.003	.079		12594.
186.00	.081	.003	.079		11705.
189.00	.081	.003	.079		10874.
192.00	.081	.003	.079		10049.
195.00	.081	.003	.079		9249.
198.00	.081	.003	.079		8361.
201.00	.081	.003	.079		7689.
204.00	.081	.003	.079		7129.
207.00	.081	.003	.079		6636.
210.00	.081	.003	.079		6204.
213.00	.081	.003	.079		5835.
216.00	.081	.003	.079		5527.
219.00	.081	.003	.079		5274.
222.00	.081	.003	.079		5034.
225.00	.081	.003	.079		4838.
228.00	.081	.003	.079		4680.
231.00	.081	.003	.079		4551.
234.00	.081	.003	.079		4443.
237.00	.081	.003	.079		4379.
240.00	.081	.003	.079		4325.
243.00	.032	.003	.030		4236.
246.00	.032	.003	.030		4114.

FLOOD HYDROGRAPH ANALYSIS

NEVADA TEST SITE
MID VALLEY WASH 2 UPSTREAM END
MID VALLEY WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:24:46

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
249.00	.032	.003	.030		3935.
252.00	.032	.003	.030		3701.
255.00	.032	.003	.030		3437.
258.00	.032	.003	.030		3057.
261.00	.032	.003	.030		2810.
264.00	.032	.003	.030		2617.
267.00	.032	.003	.030		2449.
270.00	.032	.003	.030		2302.
273.00	.032	.003	.030		2177.
276.00	.032	.003	.030		2073.
279.00	.032	.003	.030		1985.
282.00	.032	.003	.030		1913.
285.00	.032	.003	.030		1854.
288.00	.032	.003	.030		1804.
291.00	.032	.003	.030		1763.
294.00	.032	.003	.030		1728.
297.00	.032	.003	.030		1698.
300.00	.032	.003	.030		1672.
303.00	.014	.003	.011		1632.
306.00	.014	.003	.011		1581.
309.00	.014	.003	.011		1509.
312.00	.014	.003	.011		1414.
315.00	.014	.003	.011		1309.
318.00	.014	.003	.011		1161.
321.00	.014	.003	.011		1064.
324.00	.014	.003	.011		989.
327.00	.014	.003	.011		923.
330.00	.014	.003	.011		865.
333.00	.014	.003	.011		817.
336.00	.014	.003	.011		776.
339.00	.014	.003	.011		742.
342.00	.014	.003	.011		715.
345.00	.014	.003	.011		693.
348.00	.014	.003	.011		674.
351.00	.014	.003	.011		658.
354.00	.014	.003	.011		645.
357.00	.014	.003	.011		634.
360.00					614.
363.00					587.
366.00					546.
369.00					492.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 2
~~Page 5~~

NEVADA TEST SITE
MID VALLEY WASH 2 UPSTREAM END
MID VALLEY WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:24:46

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
					431.
372.00					344.
375.00					288.
378.00					243.
381.00					205.
384.00					171.
387.00					142.
390.00					118.
393.00					98.
396.00					82.
399.00					68.
402.00					57.
405.00					48.
408.00					40.
411.00					33.
414.00					27.
417.00					22.
420.00					18.
423.00					14.
426.00					11.
429.00					8.
432.00					6.
435.00					5.
438.00					3.
441.00					2.
444.00					

5 JUL 0448	97	.03	.00	.03	29.	*	5 JUL 0948	197	.00	.00	.00	0.
5 JUL 0451	98	.03	.00	.03	29.	*	5 JUL 0951	198	.00	.00	.00	0.
5 JUL 0454	99	.03	.00	.03	29.	*	5 JUL 0954	199	.00	.00	.00	0.
5 JUL 0457	100	.03	.00	.03	29.	*	5 JUL 0957	200	.00	.00	.00	0.
						*						

TOTAL RAINFALL = 13.91, TOTAL LOSS = 1.21, TOTAL EXCESS = 12.70

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	9.95-HR
(CFS)	(HR)					
		(CFS)				
1397.	2.25		109.	66.	66.	66.
		(INCHES)	12.694	12.694	12.694	12.694
		(AC-FT)	54.	54.	54.	54.

CUMULATIVE AREA = .08 SQ MI

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	MVW1	33782.	2.50	5678.	3424.	3424.	4.45		
HYDROGRAPH AT	MVW2	33229.	2.45	5192.	3131.	3131.	4.07		
HYDROGRAPH AT	DHW1	21041.	2.45	3168.	1910.	1910.	2.40		
HYDROGRAPH AT	CW1	3434.	2.30	314.	189.	189.	.23		
HYDROGRAPH AT	BRW1	3703.	2.30	328.	198.	198.	.24		
HYDROGRAPH AT	BRW2	358.	2.25	27.	16.	16.	.02		
HYDROGRAPH AT	BRW	1397.	2.25	109.	66.	66.	.08		

** NORMAL END OF HEC-1 ***

NEVADA TEST SITE
DRILL HOLE WASH
DRILL HOLE WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:29:47

BASIN DATA
Basin Area= 2.4000 square miles
Lag Time= .3360 hours

STORM DATA
Storm Duration= 6.00 hours
Unit Duration= 3.00 minutes

LOSS DATA
Initial Loss= 1.00 inches
Constant Loss Rate .05 inches/hour

PEAK= 20986.CFS at 147.00 hours

VOLUME
Volume of DGraph= 2385.
Volume of UGraph= 1.000 inches
Total Rainfall= 13.48 inches
Total Rainfall Excess= 12.27 inches

Volume of FGraph= 317. CFS-hours
or 1571. acre-feet
or 12.27 acre-inches/acre

FILES USED
Dimensionless Graph used: PHXSMT.DGF
PHOENIX MOUNTAINS
Storm File used: DHW.STM
Output File used: DHW.FHG

NEVADA TEST SITE
DRILL HOLE WASH
DRILL HOLE WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:29:47

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
3.00	.021	.021	.000	548.	0.
6.00	.021	.021	.000	1034.	0.
9.00	.021	.021	.000	1830.	0.
12.00	.021	.021	.000	2629.	0.
15.00	.021	.021	.000	3046.	0.
18.00	.021	.021	.000	4420.	0.
21.00	.021	.021	.000	2803.	0.
24.00	.021	.021	.000	2204.	0.
27.00	.021	.021	.000	1958.	0.
30.00	.021	.021	.000	1713.	0.
33.00	.021	.021	.000	1446.	0.
36.00	.021	.021	.000	1214.	0.
39.00	.021	.021	.000	1018.	0.
42.00	.021	.021	.000	848.	0.
45.00	.021	.021	.000	703.	0.
48.00	.021	.021	.000	584.	0.
51.00	.021	.021	.000	488.	0.
54.00	.021	.021	.000	412.	0.
57.00	.021	.021	.000	355.	0.
60.00	.021	.021	.000	310.	0.
63.00	.036	.036	.000	268.	0.
66.00	.036	.036	.000	229.	0.
69.00	.036	.036	.000	194.	0.
72.00	.036	.036	.000	162.	0.
75.00	.036	.036	.000	133.	0.
78.00	.036	.036	.000	108.	0.
81.00	.036	.036	.000	86.	0.
84.00	.036	.036	.000	67.	0.
87.00	.036	.036	.000	51.	0.
90.00	.036	.036	.000	39.	0.
93.00	.036	.036	.000	30.	0.
96.00	.036	.036	.000	24.	0.
99.00	.036	.036	.000	21.	0.
102.00	.036	.036	.000		0.
105.00	.036	.036	.000		0.
108.00	.036	.036	.000		0.
111.00	.036	.014	.022		12.
114.00	.036	.003	.033		41.
117.00	.036	.003	.033		92.
120.00	.036	.003	.033		170.
123.00	1.288	.002	1.286		952.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

NEVADA TEST SITE
DRILL HOLE WASH
DRILL HOLE WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:29:47

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
126.00	1.288	.002	1.286		2378.
129.00	1.288	.002	1.286		4781.
132.00	1.288	.002	1.286		8153.
135.00	1.288	.002	1.286		12035.
138.00	.378	.003	.376		17133.
141.00	.378	.003	.376		19753.
144.00	.378	.003	.376		20890.
147.00	.378	.003	.376		20990.
150.00	.378	.003	.376		20390.
153.00	.174	.003	.172		18091.
156.00	.174	.003	.172		16871.
159.00	.174	.003	.172		15783.
162.00	.174	.003	.172		14542.
165.00	.174	.003	.172		13255.
168.00	.138	.003	.136		11760.
171.00	.138	.003	.136		10667.
174.00	.138	.003	.136		9749.
177.00	.138	.003	.136		8935.
180.00	.138	.003	.136		8230.
183.00	.081	.003	.078		7554.
186.00	.081	.003	.078		6993.
189.00	.081	.003	.078		6472.
192.00	.081	.003	.078		5959.
195.00	.081	.003	.078		5466.
198.00	.081	.003	.078		4934.
201.00	.081	.003	.078		4529.
204.00	.081	.003	.078		4189.
207.00	.081	.003	.078		3891.
210.00	.081	.003	.078		3631.
213.00	.081	.003	.078		3412.
216.00	.081	.003	.078		3229.
219.00	.081	.003	.078		3082.
222.00	.081	.003	.078		2941.
225.00	.081	.003	.078		2827.
228.00	.081	.003	.078		2735.
231.00	.081	.003	.078		2659.
234.00	.081	.003	.078		2595.
237.00	.081	.003	.078		2558.
240.00	.081	.003	.078		2528.
243.00	.032	.003	.029		2476.
246.00	.032	.003	.029		2404.

NEVADA TEST SITE
DRILL HOLE WASH
DRILL HOLE WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:29:47

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
249.00	.032	.003	.029		2296.
252.00	.032	.003	.029		2156.
255.00	.032	.003	.029		1998.
258.00	.032	.003	.029		1774.
261.00	.032	.003	.029		1631.
264.00	.032	.003	.029		1518.
267.00	.032	.003	.029		1420.
270.00	.032	.003	.029		1333.
273.00	.032	.003	.029		1261.
276.00	.032	.003	.029		1200.
279.00	.032	.003	.029		1149.
282.00	.032	.003	.029		1107.
285.00	.032	.003	.029		1073.
288.00	.032	.003	.029		1044.
291.00	.032	.003	.029		1020.
294.00	.032	.003	.029		1000.
297.00	.032	.003	.029		983.
300.00	.032	.003	.029		968.
303.00	.012	.003	.009		943.
306.00	.012	.003	.009		912.
309.00	.012	.003	.009		865.
312.00	.012	.003	.009		805.
315.00	.012	.003	.009		737.
318.00	.012	.003	.009		644.
321.00	.012	.003	.009		584.
324.00	.012	.003	.009		536.
327.00	.012	.003	.009		494.
330.00	.012	.003	.009		458.
333.00	.012	.003	.009		428.
336.00	.012	.003	.009		402.
339.00	.012	.003	.009		381.
342.00	.012	.003	.009		364.
345.00	.012	.003	.009		350.
348.00	.012	.003	.009		338.
351.00	.012	.003	.009		329.
354.00	.012	.003	.009		320.
357.00	.012	.003	.009		313.
360.00					302.
363.00					287.
366.00					266.
369.00					239.

NEVADA TEST SITE
DRILL HOLE WASH
DRILL HOLE WASH HMR 49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:29:47

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
372.00					208.
375.00					166.
378.00					138.
381.00					117.
384.00					98.
387.00					81.
390.00					68.
393.00					56.
396.00					46.
399.00					38.
402.00					32.
405.00					27.
408.00					22.
411.00					19.
414.00					16.
417.00					13.
420.00					10.
423.00					8.
426.00					6.
429.00					5.
432.00					4.
435.00					3.
438.00					2.
441.00					1.
444.00					1.
447.00					1.
450.00					0.
453.00					0.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

NEVADA TEST SITE
COYOTE WASH
COYOTE WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:35:18

BASIN DATA
Basin Area= .2300 square miles
Lag Time= .1380 hours

STORM DATA
Storm Duration= 6.00 hours
Unit Duration= 3.00 minutes

LOSS DATA
Initial Loss= 1.00 inches
Constant Loss Rate .05 inches/hour

PEAK= 3302.CFS at 138.00 hours

VOLUME
Volume of DGraph= 2314.
Volume of UGraph= 1.000 inches
Total Rainfall= 13.90 inches
Total Rainfall Excess= 12.69 inches

Volume of FGraph= 31. CFS-hours
or 156. acre-feet
or 12.69 acre-inches/acre

FILES USED
Dimensionless Graph used: PHXSMT.DGF
PHOENIX MOUNTAINS
Storm File used: COY.STM
Output File used: COY.FHG

NEVADA TEST SITE
COYOTE WASH
COYOTE WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:35:18

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
3.00	.021	.021	.000	258.	0.
6.00	.021	.021	.000	617.	0.
9.00	.021	.021	.000	711.	0.
12.00	.021	.021	.000	435.	0.
15.00	.021	.021	.000	312.	0.
18.00	.021	.021	.000	211.	0.
21.00	.021	.021	.000	140.	0.
24.00	.021	.021	.000	94.	0.
27.00	.021	.021	.000	68.	0.
30.00	.021	.021	.000	49.	0.
33.00	.021	.021	.000	33.	0.
36.00	.021	.021	.000	21.	0.
39.00	.021	.021	.000	12.	0.
42.00	.021	.021	.000	6.	0.
45.00	.021	.021	.000		0.
48.00	.021	.021	.000		0.
51.00	.021	.021	.000		0.
54.00	.021	.021	.000		0.
57.00	.021	.021	.000		0.
60.00	.021	.021	.000		0.
63.00	.036	.036	.000		0.
66.00	.036	.036	.000		0.
69.00	.036	.036	.000		0.
72.00	.036	.036	.000		0.
75.00	.036	.036	.000		0.
78.00	.036	.036	.000		0.
81.00	.036	.036	.000		0.
84.00	.036	.036	.000		0.
87.00	.036	.036	.000		0.
90.00	.036	.036	.000		0.
93.00	.036	.036	.000		0.
96.00	.036	.036	.000		0.
99.00	.036	.036	.000		0.
102.00	.036	.036	.000		0.
105.00	.036	.036	.000		0.
108.00	.036	.036	.000		0.
111.00	.036	.016	.020		5.
114.00	.036	.003	.033		21.
117.00	.036	.003	.033		44.
120.00	.036	.003	.033		62.
123.00	1.400	.002	1.398		426.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

NEVADA TEST SITE
COYOTE WASH
COYOTE WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:35:18

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
126.00	1.400	.002	1.398		1275.
129.00	1.400	.002	1.398		2251.
132.00	1.400	.002	1.398		2848.
135.00	1.400	.002	1.398		3277.
138.00	.372	.003	.370		3302.
141.00	.372	.003	.370		2860.
144.00	.372	.003	.370		2259.
147.00	.372	.003	.370		1906.
150.00	.372	.003	.370		1652.
153.00	.164	.003	.162		1426.
156.00	.164	.003	.162		1182.
159.00	.164	.003	.162		953.
162.00	.164	.003	.162		801.
165.00	.164	.003	.162		686.
168.00	.124	.003	.122		598.
171.00	.124	.003	.122		522.
174.00	.124	.003	.122		462.
177.00	.124	.003	.122		424.
180.00	.124	.003	.122		401.
183.00	.083	.003	.080		375.
186.00	.083	.003	.080		340.
189.00	.083	.003	.080		304.
192.00	.083	.003	.080		282.
195.00	.083	.003	.080		267.
198.00	.083	.003	.080		257.
201.00	.083	.003	.080		250.
204.00	.083	.003	.080		246.
207.00	.083	.003	.080		243.
210.00	.083	.003	.080		241.
213.00	.083	.003	.080		239.
216.00	.083	.003	.080		238.
219.00	.083	.003	.080		238.
222.00	.083	.003	.080		238.
225.00	.083	.003	.080		238.
228.00	.083	.003	.080		238.
231.00	.083	.003	.080		238.
234.00	.083	.003	.080		238.
237.00	.083	.003	.080		238.
240.00	.083	.003	.080		238.
243.00	.031	.003	.028		224.
246.00	.031	.003	.028		192.

NEVADA TEST SITE
COYOTE WASH
COYOTE WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:35:18

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
249.00	.031	.003	.028		156.
252.00	.031	.003	.028		133.
255.00	.031	.003	.028		117.
258.00	.031	.003	.028		106.
261.00	.031	.003	.028		99.
264.00	.031	.003	.028		94.
267.00	.031	.003	.028		91.
270.00	.031	.003	.028		88.
273.00	.031	.003	.028		87.
276.00	.031	.003	.028		86.
279.00	.031	.003	.028		85.
282.00	.031	.003	.028		85.
285.00	.031	.003	.028		85.
288.00	.031	.003	.028		85.
291.00	.031	.003	.028		85.
294.00	.031	.003	.028		85.
297.00	.031	.003	.028		85.
300.00	.031	.003	.028		85.
303.00	.011	.003	.008		79.
306.00	.011	.003	.008		67.
309.00	.011	.003	.008		52.
312.00	.011	.003	.008		43.
315.00	.011	.003	.008		37.
318.00	.011	.003	.008		32.
321.00	.011	.003	.008		30.
324.00	.011	.003	.008		28.
327.00	.011	.003	.008		26.
330.00	.011	.003	.008		25.
333.00	.011	.003	.008		25.
336.00	.011	.003	.008		24.
339.00	.011	.003	.008		24.
342.00	.011	.003	.008		24.
345.00	.011	.003	.008		24.
348.00	.011	.003	.008		24.
351.00	.011	.003	.008		24.
354.00	.011	.003	.008		24.
357.00	.011	.003	.008		24.
360.00					22.
363.00					17.
366.00					11.
369.00					8.

NEVADA TEST SITE
COYOTE WASH
COYOTE WASH HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:35:18

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
372.00					5.
375.00					3.
378.00					2.
381.00					2.
384.00					1.
387.00					1.
390.00					0.
393.00					0.
396.00					0.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 5
~~Page~~ 1

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 1
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:56:23

BASIN DATA
Basin Area= .2400 square miles
Lag Time= .1230 hours

STORM DATA
Storm Duration= 6.00 hours
Unit Duration= 3.00 minutes

LOSS DATA
Initial Loss= 1.00 inches
Constant Loss Rate .05 inches/hour

PEAK= 3580.CFS at 135.00 hours

VOLUME
Volume of DGraph= 2245.
Volume of UGraph= 1.000 inches
Total Rainfall= 13.90 inches
Total Rainfall Excess= 12.69 inches

Volume of FGraph= 33. CFS-hours
or 162. acre-feet
or 12.69 acre-inches/acre

FILES USED
Dimensionless Graph used: PHXSMT.DGF
PHOENIX MOUNTAINS
Storm File used: BRP1.STM
Output File used: Not Saved

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 1
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:56:23

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
3.00	.021	.021	.000	349.	0.
6.00	.021	.021	.000	774.	0.
9.00	.021	.021	.000	663.	0.
12.00	.021	.021	.000	461.	0.
15.00	.021	.021	.000	304.	0.
18.00	.021	.021	.000	195.	0.
21.00	.021	.021	.000	125.	0.
24.00	.021	.021	.000	86.	0.
27.00	.021	.021	.000	60.	0.
30.00	.021	.021	.000	39.	0.
33.00	.021	.021	.000	23.	0.
36.00	.021	.021	.000	12.	0.
39.00	.021	.021	.000	7.	0.
42.00	.021	.021	.000		0.
45.00	.021	.021	.000		0.
48.00	.021	.021	.000		0.
51.00	.021	.021	.000		0.
54.00	.021	.021	.000		0.
57.00	.021	.021	.000		0.
60.00	.021	.021	.000		0.
63.00	.036	.036	.000		0.
66.00	.036	.036	.000		0.
69.00	.036	.036	.000		0.
72.00	.036	.036	.000		0.
75.00	.036	.036	.000		0.
78.00	.036	.036	.000		0.
81.00	.036	.036	.000		0.
84.00	.036	.036	.000		0.
87.00	.036	.036	.000		0.
90.00	.036	.036	.000		0.
93.00	.036	.036	.000		0.
96.00	.036	.036	.000		0.
99.00	.036	.036	.000		0.
102.00	.036	.036	.000		0.
105.00	.036	.036	.000		0.
108.00	.036	.036	.000		0.
111.00	.036	.016	.020		7.
114.00	.036	.003	.033		28.
117.00	.036	.003	.033		51.
120.00	.036	.003	.033		69.
123.00	1.400	.002	1.398		557.

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 1
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:56:23

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
126.00	1.400	.002	1.398		1621.
129.00	1.400	.002	1.398		2531.
132.00	1.400	.002	1.398		3163.
135.00	1.400	.002	1.398		3580.
138.00	.372	.003	.370		3489.
141.00	.372	.003	.370		2864.
144.00	.372	.003	.370		2300.
147.00	.372	.003	.370		1909.
150.00	.372	.003	.370		1649.
153.00	.164	.003	.162		1408.
156.00	.164	.003	.162		1135.
159.00	.164	.003	.162		918.
162.00	.164	.003	.162		761.
165.00	.164	.003	.162		657.
168.00	.124	.003	.122		579.
171.00	.124	.003	.122		509.
174.00	.124	.003	.122		458.
177.00	.124	.003	.122		427.
180.00	.124	.003	.122		407.
183.00	.083	.003	.080		380.
186.00	.083	.003	.080		340.
189.00	.083	.003	.080		308.
192.00	.083	.003	.080		286.
195.00	.083	.003	.080		272.
198.00	.083	.003	.080		263.
201.00	.083	.003	.080		258.
204.00	.083	.003	.080		254.
207.00	.083	.003	.080		251.
210.00	.083	.003	.080		250.
213.00	.083	.003	.080		249.
216.00	.083	.003	.080		248.
219.00	.083	.003	.080		248.
222.00	.083	.003	.080		248.
225.00	.083	.003	.080		248.
228.00	.083	.003	.080		248.
231.00	.083	.003	.080		248.
234.00	.083	.003	.080		248.
237.00	.083	.003	.080		248.
240.00	.083	.003	.080		248.
243.00	.031	.003	.028		230.
246.00	.031	.003	.028		190.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 1
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:56:23

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
249.00	.031	.003	.028		156.
252.00	.031	.003	.028		132.
255.00	.031	.003	.028		116.
258.00	.031	.003	.028		106.
261.00	.031	.003	.028		100.
264.00	.031	.003	.028		96.
267.00	.031	.003	.028		92.
270.00	.031	.003	.028		90.
273.00	.031	.003	.028		89.
276.00	.031	.003	.028		89.
279.00	.031	.003	.028		88.
282.00	.031	.003	.028		88.
285.00	.031	.003	.028		88.
288.00	.031	.003	.028		88.
291.00	.031	.003	.028		88.
294.00	.031	.003	.028		88.
297.00	.031	.003	.028		88.
300.00	.031	.003	.028		88.
303.00	.011	.003	.008		81.
306.00	.011	.003	.008		65.
309.00	.011	.003	.008		52.
312.00	.011	.003	.008		42.
315.00	.011	.003	.008		36.
318.00	.011	.003	.008		32.
321.00	.011	.003	.008		29.
324.00	.011	.003	.008		28.
327.00	.011	.003	.008		26.
330.00	.011	.003	.008		26.
333.00	.011	.003	.008		25.
336.00	.011	.003	.008		25.
339.00	.011	.003	.008		25.
342.00	.011	.003	.008		25.
345.00	.011	.003	.008		25.
348.00	.011	.003	.008		25.
351.00	.011	.003	.008		25.
354.00	.011	.003	.008		25.
357.00	.011	.003	.008		25.
360.00					22.
363.00					16.
366.00					10.
369.00					7.

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 1
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:56:23

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
372.00					4.
375.00					3.
378.00					2.
381.00					1.
384.00					1.
387.00					0.
390.00					0.
393.00					0.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 2
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

BASIN DATA
Basin Area= .0200 square miles
Lag Time= .0540 hours

STORM DATA
Storm Duration= 6.00 hours
Unit Duration= 3.00 minutes

LOSS DATA
Initial Loss= 1.00 inches
Constant Loss Rate .05 inches/hour

PEAK= 355.CFS at 135.00 hours

VOLUME
Volume of DGraph= 2251.
Volume of UGraph= 1.000 inches
Total Rainfall= 13.90 inches
Total Rainfall Excess= 12.69 inches

Volume of FGraph= 3. CFS-hours
or 14. acre-feet
or 12.71 acre-inches/acre

FILES USED
Dimensionless Graph used: PHXSMT.DGF
PHOENIX MOUNTAINS
Storm File used: BRP2.STM
Output File used: BRP2.FHG

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 6
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NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 2
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
3.00	.021	.021	.000	116.	0.
6.00	.021	.021	.000	78.	0.
9.00	.021	.021	.000	36.	0.
12.00	.021	.021	.000	16.	0.
15.00	.021	.021	.000	8.	0.
18.00	.021	.021	.000	3.	0.
21.00	.021	.021	.000	1.	0.
24.00	.021	.021	.000		0.
27.00	.021	.021	.000		0.
30.00	.021	.021	.000		0.
33.00	.021	.021	.000		0.
36.00	.021	.021	.000		0.
39.00	.021	.021	.000		0.
42.00	.021	.021	.000		0.
45.00	.021	.021	.000		0.
48.00	.021	.021	.000		0.
51.00	.021	.021	.000		0.
54.00	.021	.021	.000		0.
57.00	.021	.021	.000		0.
60.00	.021	.021	.000		0.
63.00	.036	.036	.000		0.
66.00	.036	.036	.000		0.
69.00	.036	.036	.000		0.
72.00	.036	.036	.000		0.
75.00	.036	.036	.000		0.
78.00	.036	.036	.000		0.
81.00	.036	.036	.000		0.
84.00	.036	.036	.000		0.
87.00	.036	.036	.000		0.
90.00	.036	.036	.000		0.
93.00	.036	.036	.000		0.
96.00	.036	.036	.000		0.
99.00	.036	.036	.000		0.
102.00	.036	.036	.000		0.
105.00	.036	.036	.000		0.
108.00	.036	.036	.000		0.
111.00	.036	.016	.020		2.
114.00	.036	.003	.033		5.
117.00	.036	.003	.033		7.
120.00	.036	.003	.033		8.
123.00	1.400	.002	1.398		167.

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 2
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
126.00	1.400	.002	1.398		273.
129.00	1.400	.002	1.398		323.
132.00	1.400	.002	1.398		344.
135.00	1.400	.002	1.398		355.
138.00	.372	.003	.370		240.
141.00	.372	.003	.370		161.
144.00	.372	.003	.370		124.
147.00	.372	.003	.370		108.
150.00	.372	.003	.370		100.
153.00	.164	.003	.162		72.
156.00	.164	.003	.162		55.
159.00	.164	.003	.162		48.
162.00	.164	.003	.162		44.
165.00	.164	.003	.162		43.
168.00	.124	.003	.122		37.
171.00	.124	.003	.122		34.
174.00	.124	.003	.122		32.
177.00	.124	.003	.122		32.
180.00	.124	.003	.122		32.
183.00	.083	.003	.080		27.
186.00	.083	.003	.080		23.
189.00	.083	.003	.080		22.
192.00	.083	.003	.080		21.
195.00	.083	.003	.080		21.
198.00	.083	.003	.080		21.
201.00	.083	.003	.080		21.
204.00	.083	.003	.080		21.
207.00	.083	.003	.080		21.
210.00	.083	.003	.080		21.
213.00	.083	.003	.080		21.
216.00	.083	.003	.080		21.
219.00	.083	.003	.080		21.
222.00	.083	.003	.080		21.
225.00	.083	.003	.080		21.
228.00	.083	.003	.080		21.
231.00	.083	.003	.080		21.
234.00	.083	.003	.080		21.
237.00	.083	.003	.080		21.
240.00	.083	.003	.080		21.
243.00	.031	.003	.028		15.
246.00	.031	.003	.028		11.

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 2
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
249.00	.031	.003	.028		9.
252.00	.031	.003	.028		8.
255.00	.031	.003	.028		8.
258.00	.031	.003	.028		7.
261.00	.031	.003	.028		7.
264.00	.031	.003	.028		7.
267.00	.031	.003	.028		7.
270.00	.031	.003	.028		7.
273.00	.031	.003	.028		7.
276.00	.031	.003	.028		7.
279.00	.031	.003	.028		7.
282.00	.031	.003	.028		7.
285.00	.031	.003	.028		7.
288.00	.031	.003	.028		7.
291.00	.031	.003	.028		7.
294.00	.031	.003	.028		7.
297.00	.031	.003	.028		7.
300.00	.031	.003	.028		7.
303.00	.011	.003	.008		5.
306.00	.011	.003	.008		3.
309.00	.011	.003	.008		3.
312.00	.011	.003	.008		2.
315.00	.011	.003	.008		2.
318.00	.011	.003	.008		2.
321.00	.011	.003	.008		2.
324.00	.011	.003	.008		2.
327.00	.011	.003	.008		2.
330.00	.011	.003	.008		2.
333.00	.011	.003	.008		2.
336.00	.011	.003	.008		2.
339.00	.011	.003	.008		2.
342.00	.011	.003	.008		2.
345.00	.011	.003	.008		2.
348.00	.011	.003	.008		2.
351.00	.011	.003	.008		2.
354.00	.011	.003	.008		2.
357.00	.011	.003	.008		2.
360.00					1.
363.00					1.
366.00					0.
369.00					0.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 2
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
					0.
372.00					0.
375.00					

'GRAPH
'ersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 3
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

BASIN DATA
Basin Area= .0800 square miles
Lag Time= .0740 hours

:TORM DATA
Storm Duration= 6.00 hours
Unit Duration= 3.00 minutes

LOSS DATA
Initial Loss= 1.00 inches
Constant Loss Rate .05 inches/hour

EAK= 1369.CFS at 135.00 hours

OLUME
Volume of DGraph= 2258.
Volume of UGraph= 1.000 inches
Total Rainfall= 13.90 inches
Total Rainfall Excess= 12.69 inches

Volume of FGraph= 11. CFS-hours
or 54. acre-feet
or 12.69 acre-inches/acre

ILES USED
Dimensionless Graph used: PHXSMT.DGF
PHOENIX MOUNTAINS
Storm File used: BRP3.STM
Output File used: BRP3.FHG

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 7
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NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 3
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
3.00	.021	.021	.000	311.	0.
6.00	.021	.021	.000	331.	0.
9.00	.021	.021	.000	188.	0.
12.00	.021	.021	.000	98.	0.
15.00	.021	.021	.000	51.	0.
18.00	.021	.021	.000	30.	0.
21.00	.021	.021	.000	15.	0.
24.00	.021	.021	.000	6.	0.
27.00	.021	.021	.000	3.	0.
30.00	.021	.021	.000		0.
33.00	.021	.021	.000		0.
36.00	.021	.021	.000		0.
39.00	.021	.021	.000		0.
42.00	.021	.021	.000		0.
45.00	.021	.021	.000		0.
48.00	.021	.021	.000		0.
51.00	.021	.021	.000		0.
54.00	.021	.021	.000		0.
57.00	.021	.021	.000		0.
60.00	.021	.021	.000		0.
63.00	.036	.036	.000		0.
66.00	.036	.036	.000		0.
69.00	.036	.036	.000		0.
72.00	.036	.036	.000		0.
75.00	.036	.036	.000		0.
78.00	.036	.036	.000		0.
81.00	.036	.036	.000		0.
84.00	.036	.036	.000		0.
87.00	.036	.036	.000		0.
90.00	.036	.036	.000		0.
93.00	.036	.036	.000		0.
96.00	.036	.036	.000		0.
99.00	.036	.036	.000		0.
102.00	.036	.036	.000		0.
105.00	.036	.036	.000		0.
108.00	.036	.036	.000		0.
111.00	.036	.016	.020		6.
114.00	.036	.003	.033		17.
117.00	.036	.003	.033		25.
120.00	.036	.003	.033		30.
123.00	1.400	.002	1.398		457.

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 3
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
126.00	1.400	.002	1.398		909.
129.00	1.400	.002	1.398		1166.
132.00	1.400	.002	1.398		1299.
135.00	1.400	.002	1.398		1369.
138.00	.372	.003	.370		1090.
141.00	.372	.003	.370		771.
144.00	.372	.003	.370		587.
147.00	.372	.003	.370		490.
150.00	.372	.003	.370		438.
153.00	.164	.003	.162		342.
156.00	.164	.003	.162		257.
159.00	.164	.003	.162		212.
162.00	.164	.003	.162		189.
165.00	.164	.003	.162		178.
168.00	.124	.003	.122		159.
171.00	.124	.003	.122		143.
174.00	.124	.003	.122		134.
177.00	.124	.003	.122		130.
180.00	.124	.003	.122		128.
183.00	.083	.003	.080		114.
186.00	.083	.003	.080		99.
189.00	.083	.003	.080		91.
192.00	.083	.003	.080		87.
195.00	.083	.003	.080		85.
198.00	.083	.003	.080		84.
201.00	.083	.003	.080		83.
204.00	.083	.003	.080		83.
207.00	.083	.003	.080		83.
210.00	.083	.003	.080		83.
213.00	.083	.003	.080		83.
216.00	.083	.003	.080		83.
219.00	.083	.003	.080		83.
222.00	.083	.003	.080		83.
225.00	.083	.003	.080		83.
228.00	.083	.003	.080		83.
231.00	.083	.003	.080		83.
234.00	.083	.003	.080		83.
237.00	.083	.003	.080		83.
240.00	.083	.003	.080		83.
243.00	.031	.003	.028		67.
246.00	.031	.003	.028		50.

FGRAPH
VersNo= 4.12

FLOOD HYDROGRAPH ANALYSIS

Table 7
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NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 3
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
249.00	.031	.003	.028		40.
252.00	.031	.003	.028		35.
255.00	.031	.003	.028		32.
258.00	.031	.003	.028		31.
261.00	.031	.003	.028		30.
264.00	.031	.003	.028		30.
267.00	.031	.003	.028		29.
270.00	.031	.003	.028		29.
273.00	.031	.003	.028		29.
276.00	.031	.003	.028		29.
279.00	.031	.003	.028		29.
282.00	.031	.003	.028		29.
285.00	.031	.003	.028		29.
288.00	.031	.003	.028		29.
291.00	.031	.003	.028		29.
294.00	.031	.003	.028		29.
297.00	.031	.003	.028		29.
300.00	.031	.003	.028		29.
303.00	.011	.003	.008		23.
306.00	.011	.003	.008		16.
309.00	.011	.003	.008		12.
312.00	.011	.003	.008		10.
315.00	.011	.003	.008		9.
318.00	.011	.003	.008		9.
321.00	.011	.003	.008		8.
324.00	.011	.003	.008		8.
327.00	.011	.003	.008		8.
330.00	.011	.003	.008		8.
333.00	.011	.003	.008		8.
336.00	.011	.003	.008		8.
339.00	.011	.003	.008		8.
342.00	.011	.003	.008		8.
345.00	.011	.003	.008		8.
348.00	.011	.003	.008		8.
351.00	.011	.003	.008		8.
354.00	.011	.003	.008		8.
357.00	.011	.003	.008		8.
360.00					6.
363.00					3.
366.00					2.
369.00					1.

NEVADA TEST SITE
BOUNDARY RIDGE PORTAL WASH 3
BOUNDARY RIDGE PORTAL HMR49 LOCAL STORM ARRANGEMENT
KLB 07/09/91 13:41:07

TIME minutes	RAIN inches	LOSS inches	EXCESS inches	UNITGRAPH cfs	HYDROGRAPH cfs
372.00					0.
375.00					0.
378.00					0.
381.00					0.

APPENDIX B
LAPREIX INPUT
HEC1 INPUT/OUTPUT

```
ID     NEVADA TEST SITE
ID     HEC1 RUN TO CHECK AND VERIFY FHAR OUTPUT FOR PMF STUDIES
ID     JULY 1991
IT     3  5JUL91       0     200
KK  MVW1 MID VALLEY WASH 1 - DOWNSTREAM LOCATION
BA  4.45
PB     0
PI0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225
PI0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225
PI0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365
PI0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365
PI1.1900  1.1900  1.1900  1.1900  1.1900  0.3700  0.3700  0.3700  0.3700  0.3700
PI0.1720  0.1720  0.1720  0.1720  0.1720  0.1420  0.1420  0.1420  0.1420  0.1420
PI0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810
PI0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810
PI0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320
PI0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320
PI0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135
PI0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135
LU  1.0    0.05
$U  4.49    2.11  430.96  0.0228      16
KK  MVW2 MID VALLEY WASH 2 - UPSTREAM LOCATION
BA  4.07
$U  3.95    1.71  472.15  0.0232      16
KK  DHW1 DRILL HOLE WASH
BA  2.40
PB     0
PI0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210
PI0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210
PI0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355
PI0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355
PI1.2880  1.2880  1.2880  1.2880  1.2880  0.3780  0.3780  0.3780  0.3780  0.3780
PI0.1740  0.1740  0.1740  0.1740  0.1740  0.1380  0.1380  0.1380  0.1380  0.1380
PI0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805
PI0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805
PI0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315
PI0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315
PI0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115
PI0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115
LU  1.0    0.05
$U  3.69    1.68  426.02  0.0235      16
KK   CW1 COYOTE WASH
BA  0.23
PB     0
PI0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205
PI0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205
PI0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360
PI0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360
PI1.4000  1.4000  1.4000  1.4000  1.4000  0.3720  0.3720  0.3720  0.3720  0.3720
PI0.1640  0.1640  0.1640  0.1640  0.1640  0.1240  0.1240  0.1240  0.1240  0.1240
PI0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825
PI0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825
PI0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310
PI0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310
PI0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105
PI0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105
LU  1.0    0.05
$U  1.07     0.5  708.41  0.0274      16
```

```
KK  BRW1 BOUNDRY RIDGE PORTAL WASH 1
BA  0.24
LU   1.0    0.05
$U  0.63    0.35  241.27  0.0278      16
KK  BRW2 BOUNDRY RIDGE PORTAL WASH 2
BA  0.02
LU   1.0    0.05
$U  0.30    0.14  226.67  0.0315      16
KK   BRW3 BOUNDRY RIDGE PORTAL WASH 3
BA  0.08
LU   1.0    0.05
$U  0.41    0.21  804.88  0.0301      16
ZZ
```

```
ID     NEVADA TEST SITE
ID     HEC1 RUN TO CHECK AND VERIFY FHAR OUTPUT FOR PMF STUDIES
ID     JULY 1991
IT     3  5JUL91       0     200
KK  MVW1 MID VALLEY WASH 1 - DOWNSTREAM LOCATION
BA  4.45
PB     0
PI0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225
PI0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225
PI0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365
PI0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365
PI1.1900  1.1900  1.1900  1.1900  0.3700  0.3700  0.3700  0.3700  0.3700
PI0.1720  0.1720  0.1720  0.1720  0.1720  0.1420  0.1420  0.1420  0.1420  0.1420
PI0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810
PI0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810
PI0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320
PI0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320
PI0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135
PI0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135
LU   1.0    0.05
KM UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
UI  615.    766.   2051.   3289.   4188.   4929.   6703.   5619.   3987.   3499.
UI 3084.   2729.   2382.   1999.   1607.   1460.   1327.   1070.    866.    765.
UI  673.    577.    471.    465.    301.    301.    301.    261.    118.    118.
UI  118.    118.    118.    118.    118.    118.    118.     62.
KK  MVW2 MID VALLEY WASH 2 - UPSTREAM LOCATION
BA  4.07
KM UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
UI  639.   1067.   2494.   3953.   4822.   6366.   6253.   4130.   3567.   3103.
UI 2667.   2245.   1790.   1530.   1384.   1091.    850.    750.    685.    490.
UI  490.    326.    313.    313.    204.    122.    123.    122.    123.    123.
UI  122.    123.    122.      0.
KK  DHW1 DRILL HOLE WASH
BA  2.40
PB     0
PI0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210
PI0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210
PI0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355
PI0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355
PI1.2880  1.2880  1.2880  1.2880  1.2880  0.3780  0.3780  0.3780  0.3780  0.3780
PI0.1740  0.1740  0.1740  0.1740  0.1740  0.1380  0.1380  0.1380  0.1380  0.1380
PI0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805
PI0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805
PI0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315
PI0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315
PI0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115
PI0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115
LU   1.0    0.05
KM UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
UI  377.    630.   1471.   2332.   2844.   3757.   3685.   2435.   2103.   1830.
UI 1573.   1323.   1055.    902.    816.    643.    501.    442.    404.    289.
UI  289.    192.    184.    184.    120.     72.     72.     72.     72.     72.
UI  72.3    72.3    71.9
KK   CW1 COYOTE WASH
BA  0.23
PB     0
PI0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205
PI0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205
```

```
PI0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360
PI0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360
PI1.4000  1.4000  1.4000  1.4000  1.4000  0.3720  0.3720  0.3720  0.3720  0.3720
PI0.1640  0.1640  0.1640  0.1640  0.1640  0.1240  0.1240  0.1240  0.1240  0.1240
PI0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825
PI0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825
PI0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310
PI0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310
PI0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105
PI0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105
LU  1.0    0.05
KM UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
UI  144.    530.    822.    492.    346.    221.    146.     96.     61.     42.
UI  21.5    16.6    16.6    12.7
KK  BRW1 BOUNDRY RIDGE PORTAL WASH 1
BA  0.24
LU   1.0    0.05
KM UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
UI  195.    700.    877.    499.    314.    202.    120.     73.     50.     21.
UI  19.5    19.5     4.7
KK  BRW2 BOUNDRY RIDGE PORTAL WASH 2
BA  0.02
LU   1.0    0.05
KM UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
UI  98.4   106.3    35.5    12.5     3.7     1.5
KK   BRW3 BOUNDRY RIDGE PORTAL WASH 3
BA  0.08
LU   1.0    0.05
KM UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
UI  203.    448.    209.     96.     43.     18.     11.      4.
ZZ
```

****

FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) -FEB 1,1985

U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616

****

THIS HEC-1 VERSION CONTAINS ALL OPTIONS EXCEPT ECONOMICS, AND THE NUMBER OF PLANS ARE REDUCED TO 3

HEC-1 INPUT

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

    1         ID      NEVADA TEST SITE
    2         ID      HEC1 RUN TO CHECK AND VERIFY FHAR OUTPUT FOR PMF STUDIES
    3         ID      JULY 1991
    4         IT      3  5JUL91       0     200

    5         KK    MVW1 MID VALLEY WASH 1 - DOWNSTREAM LOCATION
    6         BA    4.45
    7         PB       0
    8         PI  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225
    9         PI  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225  0.0225
   10         PI  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365
   11         PI  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365  0.0365
   12         PI  1.1900  1.1900  1.1900  1.1900  1.1900  0.3700  0.3700  0.3700  0.3700  0.3700
   13         PI  0.1720  0.1720  0.1720  0.1720  0.1720  0.1420  0.1420  0.1420  0.1420  0.1420
   14         PI  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810
   15         PI  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810  0.0810
   16         PI  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320
   17         PI  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320  0.0320
   18         PI  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135
   19         PI  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135  0.0135
   20         LU    1.0    0.05
   21         KM   UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
   22         UI   615.    766.   2051.   3289.   4188.   4929.   6703.   5619.   3987.   3499.
   23         UI  3084.   2729.   2382.   1999.   1607.   1460.   1327.   1070.    866.    765.
   24         UI   673.    577.    471.    465.    301.    301.    301.    261.    118.    118.
   25         UI   118.    118.    118.    118.    118.    118.    118.     62.

   26         KK   MVW2 MID VALLEY WASH 2 - UPSTREAM LOCATION
   27         BA   4.07
   28         KM   UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
   29         UI   639.   1067.   2494.   3953.   4822.   6366.   6253.   4130.   3567.   3103.
   30         UI  2667.   2245.   1790.   1530.   1384.   1091.    850.    750.    685.    490.
   31         UI   490.    326.    313.    313.    204.    122.    123.    122.    123.    123.
   32         UI   122.    123.    122.      0.

   33         KK   DHW1 DRILL HOLE WASH
   34         BA   2.40
   35         PB       0
   36         PI  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210
```

```
37        PI  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210  0.0210
38        PI  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355
39        PI  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355  0.0355
40        PI  1.2880  1.2880  1.2880  1.2880  1.2880  0.3780  0.3780  0.3780  0.3780  0.3780
41        PI  0.1740  0.1740  0.1740  0.1740  0.1740  0.1380  0.1380  0.1380  0.1380  0.1380
42        PI  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805
43        PI  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805  0.0805
44        PI  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315
45        PI  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315  0.0315
46        PI  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115
47        PI  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115  0.0115
48        LU    1.0    0.05
49        KM   UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
50        UI    377.    630.   1471.   2332.   2844.   3757.   3685.   2435.   2103.   1830.
51        UI   1573.   1323.   1055.    902.    816.    643.    501.    442.    404.    289.
52        UI    289.    192.    184.    184.    120.     72.     72.     72.     72.     72.
```



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

53        UI    72.3    72.3    71.9

54        KK     CW1 COYOTE WASH
55        BA    0.23
56        PB       0
57        PI  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205
58        PI  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205  0.0205
59        PI  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360
60        PI  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360  0.0360
61        PI  1.4000  1.4000  1.4000  1.4000  1.4000  0.3720  0.3720  0.3720  0.3720  0.3720
62        PI  0.1640  0.1640  0.1640  0.1640  0.1640  0.1240  0.1240  0.1240  0.1240  0.1240
63        PI  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825
64        PI  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825  0.0825
65        PI  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310
66        PI  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310  0.0310
67        PI  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105
68        PI  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105  0.0105
69        LU    1.0    0.05
70        KM   UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
71        UI    144.    530.    822.    492.    346.    221.    146.     96.     61.     42.
72        UI   21.5    16.6    16.6    12.7

73        KK    BRW1 BOUNDRY RIDGE PORTAL WASH 1
74        BA    0.24
75        LU    1.0    0.05
76        KM   UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
77        UI    195.    700.    877.    499.    314.    202.    120.     73.     50.     21.
78        UI   19.5    19.5     4.7

79        KK    BRW2 BOUNDRY RIDGE PORTAL WASH 2
80        BA    0.02
81        LU    1.0    0.05
82        KM   UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
83        UI    98.4   106.3    35.5    12.5     3.7     1.5

84        KK     BRW3 BOUNDRY RIDGE PORTAL WASH 3
85        BA    0.08
86        LU    1.0    0.05
87        KM   UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH
88        UI   -203.    448.    209.     96.     43.     18.     11.      4.
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89 ZZ

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FLOOD HYDROGRAPH PACKAGE HEC-1 (IBM XT 512K VERSION) -FEB 1,1985
U.S. ARMY CORPS OF ENGINEERS, THE HYDROLOGIC ENGINEERING CENTER, 609 SECOND STREET, DAVIS, CA. 95616
****

NEVADA TEST SITE
HEC1 RUN TO CHECK AND VERIFY FHAR OUTPUT FOR PMF STUDIES
JULY 1991

IT HYDROGRAPH TIME DATA

NMIN	3	MINUTES IN COMPUTATION INTERVAL
IDATE	5JUL91	STARTING DATE
ITIME	0000	STARTING TIME
NQ	200	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	5JUL91	ENDING DATE
NDTIME	0957	ENDING TIME

COMPUTATION INTERVAL .05 HOURS
TOTAL TIME BASE 9.95 HOURS

ENGLISH UNITS

** ***

****
* *
KK * MVW1 * MID VALLEY WASH 1 - DOWNSTREAM LOCATION
* *
****

UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH

SUBBASIN RUNOFF DATA

BA SUBBASIN CHARACTERISTICS
TAREA 4.45 SUBBASIN AREA

PRECIPITATION DATA

7 PB STORM 13.08 BASIN TOTAL PRECIPITATION

PI INCREMENTAL PRECIPITATION PATTERN

.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
1.19	1.19	1.19	1.19	1.19	.37	.37	.37	.37	.37
.17	.17	.17	.17	.17	.14	.14	.14	.14	.14
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01

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20 LU          UNIFORM LOSS RATE
                    STRTL        1.00  INITIAL LOSS
                    CNSTL         .05  UNIFORM LOSS RATE
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

   UI          INPUT UNITGRAPH,  38 ORDINATES,  VOLUME = 1.00
                615.0    766.0   2051.0   3289.0   4188.0   4929.0   6703.0   5619.0   3987.0   3499.0
               3084.0   2729.0   2382.0   1999.0   1607.0   1460.0   1327.0   1070.0    866.0    765.0
                673.0    577.0    471.0    465.0    301.0    301.0    301.0    261.0    118.0    118.0
                118.0    118.0    118.0    118.0    118.0    118.0    118.0     62.0
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HYDROGRAPH AT STATION MVW1

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DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
5 JUL 0000	1	.00	.00	.00	0.	5 JUL 0500	101	.03	.00	.03	1913.
5 JUL 0003	2	.02	.02	.00	0.	5 JUL 0503	102	.01	.00	.01	1868.
5 JUL 0006	3	.02	.02	.00	0.	5 JUL 0506	103	.01	.00	.01	1826.
5 JUL 0009	4	.02	.02	.00	0.	5 JUL 0509	104	.01	.00	.01	1765.
5 JUL 0012	5	.02	.02	.00	0.	5 JUL 0512	105	.01	.00	.01	1681.
5 JUL 0015	6	.02	.02	.00	0.	5 JUL 0515	106	.01	.00	.01	1589.
5 JUL 0018	7	.02	.02	.00	0.	5 JUL 0518	107	.01	.00	.01	1483.
5 JUL 0021	8	.02	.02	.00	0.	5 JUL 0521	108	.01	.00	.01	1344.
5 JUL 0024	9	.02	.02	.00	0.	5 JUL 0524	109	.01	.00	.01	1228.
5 JUL 0027	10	.02	.02	.00	0.	5 JUL 0527	110	.01	.00	.01	1148.
5 JUL 0030	11	.02	.02	.00	0.	5 JUL 0530	111	.01	.00	.01	1078.
5 JUL 0033	12	.02	.02	.00	0.	5 JUL 0533	112	.01	.00	.01	1015.
5 JUL 0036	13	.02	.02	.00	0.	5 JUL 0536	113	.01	.00	.01	959.
5 JUL 0039	14	.02	.02	.00	0.	5 JUL 0539	114	.01	.00	.01	909.
5 JUL 0042	15	.02	.02	.00	0.	5 JUL 0542	115	.01	.00	.01	866.
5 JUL 0045	16	.02	.02	.00	0.	5 JUL 0545	116	.01	.00	.01	830.
5 JUL 0048	17	.02	.02	.00	0.	5 JUL 0548	117	.01	.00	.01	798.
5 JUL 0051	18	.02	.02	.00	0.	5 JUL 0551	118	.01	.00	.01	767.
5 JUL 0054	19	.02	.02	.00	0.	5 JUL 0554	119	.01	.00	.01	744.
5 JUL 0057	20	.02	.02	.00	0.	5 JUL 0557	120	.01	.00	.01	728.
5 JUL 0100	21	.02	.02	.00	0.	5 JUL 0600	121	.01	.00	.01	714.
5 JUL 0103	22	.04	.04	.00	0.	5 JUL 0603	122	.00	.00	.00	695.
5 JUL 0106	23	.04	.04	.00	0.	5 JUL 0606	123	.00	.00	.00	676.
5 JUL 0109	24	.04	.04	.00	0.	5 JUL 0609	124	.00	.00	.00	645.
5 JUL 0112	25	.04	.04	.00	0.	5 JUL 0612	125	.00	.00	.00	600.
5 JUL 0115	26	.04	.04	.00	0.	5 JUL 0615	126	.00	.00	.00	548.
5 JUL 0118	27	.04	.04	.00	0.	5 JUL 0618	127	.00	.00	.00	488.
5 JUL 0121	28	.04	.04	.00	0.	5 JUL 0621	128	.00	.00	.00	409.
5 JUL 0124	29	.04	.04	.00	0.	5 JUL 0624	129	.00	.00	.00	343.
5 JUL 0127	30	.04	.04	.00	0.	5 JUL 0627	130	.00	.00	.00	296.
5 JUL 0130	31	.04	.04	.00	0.	5 JUL 0630	131	.00	.00	.00	256.
5 JUL 0133	32	.04	.04	.00	0.	5 JUL 0633	132	.00	.00	.00	220.
5 JUL 0136	33	.04	.04	.00	0.	5 JUL 0636	133	.00	.00	.00	188.
5 JUL 0139	34	.04	.04	.00	0.	5 JUL 0639	134	.00	.00	.00	159.
5 JUL 0142	35	.04	.04	.00	0.	5 JUL 0642	135	.00	.00	.00	135.
5 JUL 0145	36	.04	.04	.00	0.	5 JUL 0645	136	.00	.00	.00	115.
5 JUL 0148	37	.04	.00	.03	19.	5 JUL 0648	137	.00	.00	.00	97.
5 JUL 0151	38	.04	.00	.03	45.	5 JUL 0651	138	.00	.00	.00	80.

5 JUL 0154	39	.04	.00	.03	112.	*	5 JUL 0654	139	.00	.00	.00	67
5 JUL 0157	40	.04	.00	.03	221.	*	5 JUL 0657	140	.00	.00	.00	58
5 JUL 0200	41	.04	.00	.03	361.	*	5 JUL 0700	141	.00	.00	.00	49
5 JUL 0203	42	1.19	.00	1.19	1236.	*	5 JUL 0703	142	.00	.00	.00	42
5 JUL 0206	43	1.19	.00	1.19	2344.	*	5 JUL 0706	143	.00	.00	.00	35
5 JUL 0209	44	1.19	.00	1.19	4903.	*	5 JUL 0709	144	.00	.00	.00	30
5 JUL 0212	45	1.19	.00	1.19	8836.	*	5 JUL 0712	145	.00	.00	.00	25
5 JUL 0215	46	1.19	.00	1.19	13787.	*	5 JUL 0715	146	.00	.00	.00	22
5 JUL 0218	47	.37	.00	.37	19074.	*	5 JUL 0718	147	.00	.00	.00	19
5 JUL 0221	48	.37	.00	.37	26272.	*	5 JUL 0721	148	.00	.00	.00	15
5 JUL 0224	49	.37	.00	.37	31153.	*	5 JUL 0724	149	.00	.00	.00	12
5 JUL 0227	50	.37	.00	.37	33124.	*	5 JUL 0727	150	.00	.00	.00	11
5 JUL 0230	51	.37	.00	.37	33782.	*	5 JUL 0730	151	.00	.00	.00	10
5 JUL 0233	52	.17	.00	.17	33226.	*	5 JUL 0733	152	.00	.00	.00	8
5 JUL 0236	53	.17	.00	.17	30771.	*	5 JUL 0736	153	.00	.00	.00	7
5 JUL 0239	54	.17	.00	.17	28542.	*	5 JUL 0739	154	.00	.00	.00	6
5 JUL 0242	55	.17	.00	.17	26957.	*	5 JUL 0742	155	.00	.00	.00	5
5 JUL 0245	56	.17	.00	.17	25138.	*	5 JUL 0745	156	.00	.00	.00	3
5 JUL 0248	57	.14	.00	.14	23322.	*	5 JUL 0748	157	.00	.00	.00	2
5 JUL 0251	58	.14	.00	.14	21285.	*	5 JUL 0751	158	.00	.00	.00	1
5 JUL 0254	59	.14	.00	.14	19408.	*	5 JUL 0754	159	.00	.00	.00	0
5 JUL 0257	60	.14	.00	.14	17896.	*	5 JUL 0757	160	.00	.00	.00	0
5 JUL 0300	61	.14	.00	.14	16652.	*	5 JUL 0800	161	.00	.00	.00	0
5 JUL 0303	62	.08	.00	.08	15446.	*	5 JUL 0803	162	.00	.00	.00	0
5 JUL 0306	63	.08	.00	.08	14245.	*	5 JUL 0806	163	.00	.00	.00	0
5 JUL 0309	64	.08	.00	.08	13155.	*	5 JUL 0809	164	.00	.00	.00	0
5 JUL 0312	65	.08	.00	.08	12269.	*	5 JUL 0812	165	.00	.00	.00	0
5 JUL 0315	66	.08	.00	.08	11315.	*	5 JUL 0815	166	.00	.00	.00	0
5 JUL 0318	67	.08	.00	.08	10432.	*	5 JUL 0818	167	.00	.00	.00	0
5 JUL 0321	68	.08	.00	.08	9556.	*	5 JUL 0821	168	.00	.00	.00	0
5 JUL 0324	69	.08	.00	.08	8849.	*	5 JUL 0824	169	.00	.00	.00	0
5 JUL 0327	70	.08	.00	.08	8133.	*	5 JUL 0827	170	.00	.00	.00	0
5 JUL 0330	71	.08	.00	.08	7614.	*	5 JUL 0830	171	.00	.00	.00	0
5 JUL 0333	72	.08	.00	.08	7142.	*	5 JUL 0833	172	.00	.00	.00	0
5 JUL 0336	73	.08	.00	.08	6714.	*	5 JUL 0836	173	.00	.00	.00	0
5 JUL 0339	74	.08	.00	.08	6368.	*	5 JUL 0839	174	.00	.00	.00	0
5 JUL 0342	75	.08	.00	.08	6168.	*	5 JUL 0842	175	.00	.00	.00	0
5 JUL 0345	76	.08	.00	.08	6026.	*	5 JUL 0845	176	.00	.00	.00	0
5 JUL 0348	77	.08	.00	.08	5897.	*	5 JUL 0848	177	.00	.00	.00	0
5 JUL 0351	78	.08	.00	.08	5778.	*	5 JUL 0851	178	.00	.00	.00	0
5 JUL 0354	79	.08	.00	.08	5622.	*	5 JUL 0854	179	.00	.00	.00	0
5 JUL 0357	80	.08	.00	.08	5435.	*	5 JUL 0857	180	.00	.00	.00	0
5 JUL 0400	81	.08	.00	.08	5259.	*	5 JUL 0900	181	.00	.00	.00	0
5 JUL 0403	82	.03	.00	.03	5059.	*	5 JUL 0903	182	.00	.00	.00	0
5 JUL 0406	83	.03	.00	.03	4857.	*	5 JUL 0906	183	.00	.00	.00	0
5 JUL 0409	84	.03	.00	.03	4646.	*	5 JUL 0909	184	.00	.00	.00	0
5 JUL 0412	85	.03	.00	.03	4429.	*	5 JUL 0912	185	.00	.00	.00	0
5 JUL 0415	86	.03	.00	.03	4179.	*	5 JUL 0915	186	.00	.00	.00	0
5 JUL 0418	87	.03	.00	.03	3892.	*	5 JUL 0918	187	.00	.00	.00	0
5 JUL 0421	88	.03	.00	.03	3518.	*	5 JUL 0921	188	.00	.00	.00	0
5 JUL 0424	89	.03	.00	.03	3211.	*	5 JUL 0924	189	.00	.00	.00	0
5 JUL 0427	90	.03	.00	.03	3005.	*	5 JUL 0927	190	.00	.00	.00	0
5 JUL 0430	91	.03	.00	.03	2823.	*	5 JUL 0930	191	.00	.00	.00	0
5 JUL 0433	92	.03	.00	.03	2661.	*	5 JUL 0933	192	.00	.00	.00	0
5 JUL 0436	93	.03	.00	.03	2517.	*	5 JUL 0936	193	.00	.00	.00	0
5 JUL 0439	94	.03	.00	.03	2391.	*	5 JUL 0939	194	.00	.00	.00	0
5 JUL 0442	95	.03	.00	.03	2286.	*	5 JUL 0942	195	.00	.00	.00	0
5 JUL 0445	96	.03	.00	.03	2200.	*	5 JUL 0945	196	.00	.00	.00	0
5 JUL 0448	97	.03	.00	.03	2121.	*	5 JUL 0948	197	.00	.00	.00	0
5 JUL 0451	98	.03	.00	.03	2049.	*	5 JUL 0951	198	.00	.00	.00	0

5 JUL 0454	99	.03	.00	.03	1993.	*	5 JUL 0954	199	.00	.00	.00	0.
5 JUL 0457	100	.03	.00	.03	1950.	*	5 JUL 0957	200	.00	.00	.00	0.
						*						

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

TOTAL RAINFALL = 13.08, TOTAL LOSS = 1.21, TOTAL EXCESS = 11.87

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	9.95-HR
(CFS)	(HR)				
		(CFS)			
33782.	2.50	5678.	3424.	3424.	3424.
		(INCHES) 11.862	11.862	11.862	11.862
		(AC-FT) 2815.	2815.	2815.	2815.

CUMULATIVE AREA = 4.45 SQ MI

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*            *
26 KK  *   MVW2   *    MID VALLEY WASH 2 - UPSTREAM LOCATION
*            *
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UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH

SUBBASIN RUNOFF DATA

27 BA SUBBASIN CHARACTERISTICS
TAREA 4.07 SUBBASIN AREA

PRECIPITATION DATA

BB STORM 13.08 BASIN TOTAL PRECIPITATION

BI INCREMENTAL PRECIPITATION PATTERN

.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
1.19	1.19	1.19	1.19	1.19	.37	.37	.37	.37	.37
.17	.17	.17	.17	.17	.14	.14	.14	.14	.14
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01

20 U UNIFORM LOSS RATE
STRTL 1.00 INITIAL LOSS
CNSTL .05 UNIFORM LOSS RATE
RTIMP .00 PERCENT IMPERVIOUS AREA

27 UI INPUT UNITGRAPH, 33 ORDINATES, VOLUME = 1.00

639.0	1067.0	2494.0	3953.0	4822.0	6366.0	6253.0	4130.0	3567.0	3103.0

2667.0	2245.0	1790.0	1530.0	1384.0	1091.0	850.0	750.0	685.0	490.0
490.0	326.0	313.0	313.0	204.0	122.0	123.0	122.0	123.0	123.0
122.0	123.0	122.0							

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HYDROGRAPH AT STATION MVW2

DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
5 JUL 0000	1	.00	.00	.00	0.	5 JUL 0500	101	.03	.00	.03	1677.
5 JUL 0003	2	.02	.02	.00	0.	5 JUL 0503	102	.01	.00	.01	1642.
5 JUL 0006	3	.02	.02	.00	0.	5 JUL 0506	103	.01	.00	.01	1606.
5 JUL 0009	4	.02	.02	.00	0.	5 JUL 0509	104	.01	.00	.01	1544.
5 JUL 0012	5	.02	.02	.00	0.	5 JUL 0512	105	.01	.00	.01	1456.
5 JUL 0015	6	.02	.02	.00	0.	5 JUL 0515	106	.01	.00	.01	1357.
5 JUL 0018	7	.02	.02	.00	0.	5 JUL 0518	107	.01	.00	.01	1233.
5 JUL 0021	8	.02	.02	.00	0.	5 JUL 0521	108	.01	.00	.01	1111.
5 JUL 0024	9	.02	.02	.00	0.	5 JUL 0524	109	.01	.00	.01	1029.
5 JUL 0027	10	.02	.02	.00	0.	5 JUL 0527	110	.01	.00	.01	957.
5 JUL 0030	11	.02	.02	.00	0.	5 JUL 0530	111	.01	.00	.01	894.
5 JUL 0033	12	.02	.02	.00	0.	5 JUL 0533	112	.01	.00	.01	838.
5 JUL 0036	13	.02	.02	.00	0.	5 JUL 0536	113	.01	.00	.01	791.
5 JUL 0039	14	.02	.02	.00	0.	5 JUL 0539	114	.01	.00	.01	752.
5 JUL 0042	15	.02	.02	.00	0.	5 JUL 0542	115	.01	.00	.01	723.
5 JUL 0045	16	.02	.02	.00	0.	5 JUL 0545	116	.01	.00	.01	698.
5 JUL 0048	17	.02	.02	.00	0.	5 JUL 0548	117	.01	.00	.01	677.
5 JUL 0051	18	.02	.02	.00	0.	5 JUL 0551	118	.01	.00	.01	662.
5 JUL 0054	19	.02	.02	.00	0.	5 JUL 0554	119	.01	.00	.01	648.
5 JUL 0057	20	.02	.02	.00	0.	5 JUL 0557	120	.01	.00	.01	635.
5 JUL 0100	21	.02	.02	.00	0.	5 JUL 0600	121	.01	.00	.01	626.
5 JUL 0103	22	.04	.04	.00	0.	5 JUL 0603	122	.00	.00	.00	610.
5 JUL 0106	23	.04	.04	.00	0.	5 JUL 0606	123	.00	.00	.00	592.
5 JUL 0109	24	.04	.04	.00	0.	5 JUL 0609	124	.00	.00	.00	559.
5 JUL 0112	25	.04	.04	.00	0.	5 JUL 0612	125	.00	.00	.00	510.
5 JUL 0115	26	.04	.04	.00	0.	5 JUL 0615	126	.00	.00	.00	453.
5 JUL 0118	27	.04	.04	.00	0.	5 JUL 0618	127	.00	.00	.00	381.
5 JUL 0121	28	.04	.04	.00	0.	5 JUL 0621	128	.00	.00	.00	310.
5 JUL 0124	29	.04	.04	.00	0.	5 JUL 0624	129	.00	.00	.00	262.
5 JUL 0127	30	.04	.04	.00	0.	5 JUL 0627	130	.00	.00	.00	220.
5 JUL 0130	31	.04	.04	.00	0.	5 JUL 0630	131	.00	.00	.00	184.
5 JUL 0133	32	.04	.04	.00	0.	5 JUL 0633	132	.00	.00	.00	152.
5 JUL 0136	33	.04	.04	.00	0.	5 JUL 0636	133	.00	.00	.00	125.
5 JUL 0139	34	.04	.04	.00	0.	5 JUL 0639	134	.00	.00	.00	103.
5 JUL 0142	35	.04	.04	.00	0.	5 JUL 0642	135	.00	.00	.00	87.
5 JUL 0145	36	.04	.04	.00	0.	5 JUL 0645	136	.00	.00	.00	71.
5 JUL 0148	37	.04	.00	.03	20.	5 JUL 0648	137	.00	.00	.00	59.
5 JUL 0151	38	.04	.00	.03	56.	5 JUL 0651	138	.00	.00	.00	50.
5 JUL 0154	39	.04	.00	.03	137.	5 JUL 0654	139	.00	.00	.00	42.
5 JUL 0157	40	.04	.00	.03	268.	5 JUL 0657	140	.00	.00	.00	34.
5 JUL 0200	41	.04	.00	.03	430.	5 JUL 0700	141	.00	.00	.00	29.
5 JUL 0203	42	1.19	.00	1.19	1380.	5 JUL 0703	142	.00	.00	.00	23.
5 JUL 0206	43	1.19	.00	1.19	2824.	5 JUL 0706	143	.00	.00	.00	20.
5 JUL 0209	44	1.19	.00	1.19	5846.	5 JUL 0709	144	.00	.00	.00	16.
5 JUL 0212	45	1.19	.00	1.19	10528.	5 JUL 0712	145	.00	.00	.00	13.
5 JUL 0215	46	1.19	.00	1.19	16197.	5 JUL 0715	146	.00	.00	.00	11.

5 JUL 0218	47	.37	.00	.37	23108.	*	5 JUL 0718	147	.00	.00	.00	9.
5 JUL 0221	48	.37	.00	.37	29523.	*	5 JUL 0721	148	.00	.00	.00	8.
5 JUL 0224	49	.37	.00	.37	32304.	*	5 JUL 0724	149	.00	.00	.00	7
5 JUL 0227	50	.37	.00	.37	33229.	*	5 JUL 0727	150	.00	.00	.00	5.
5 JUL 0230	51	.37	.00	.37	32902.	*	5 JUL 0730	151	.00	.00	.00	4.
5 JUL 0233	52	.17	.00	.17	30670.	*	5 JUL 0733	152	.00	.00	.00	3.
5 JUL 0236	53	.17	.00	.17	27950.	*	5 JUL 0736	153	.00	.00	.00	1.
5 JUL 0239	54	.17	.00	.17	26160.	*	5 JUL 0739	154	.00	.00	.00	0.
5 JUL 0242	55	.17	.00	.17	24241.	*	5 JUL 0742	155	.00	.00	.00	0.
5 JUL 0245	56	.17	.00	.17	22355.	*	5 JUL 0745	156	.00	.00	.00	0.
5 JUL 0248	57	.14	.00	.14	20164.	*	5 JUL 0748	157	.00	.00	.00	0.
5 JUL 0251	58	.14	.00	.14	18045.	*	5 JUL 0751	158	.00	.00	.00	0.
5 JUL 0254	59	.14	.00	.14	16560.	*	5 JUL 0754	159	.00	.00	.00	0.
5 JUL 0257	60	.14	.00	.14	15281.	*	5 JUL 0757	160	.00	.00	.00	0.
5 JUL 0300	61	.14	.00	.14	13960.	*	5 JUL 0800	161	.00	.00	.00	0.
5 JUL 0303	62	.08	.00	.08	12877.	*	5 JUL 0803	162	.00	.00	.00	0.
5 JUL 0306	63	.08	.00	.08	11863.	*	5 JUL 0806	163	.00	.00	.00	0.
5 JUL 0309	64	.08	.00	.08	10982.	*	5 JUL 0809	164	.00	.00	.00	0.
5 JUL 0312	65	.08	.00	.08	10135.	*	5 JUL 0812	165	.00	.00	.00	0.
5 JUL 0315	66	.08	.00	.08	9311.	*	5 JUL 0815	166	.00	.00	.00	0.
5 JUL 0318	67	.08	.00	.08	8370.	*	5 JUL 0818	167	.00	.00	.00	0.
5 JUL 0321	68	.08	.00	.08	7632.	*	5 JUL 0821	168	.00	.00	.00	0.
5 JUL 0324	69	.08	.00	.08	7066.	*	5 JUL 0824	169	.00	.00	.00	0.
5 JUL 0327	70	.08	.00	.08	6552.	*	5 JUL 0827	170	.00	.00	.00	0.
5 JUL 0330	71	.08	.00	.08	6199.	*	5 JUL 0830	171	.00	.00	.00	0.
5 JUL 0333	72	.08	.00	.08	5947.	*	5 JUL 0833	172	.00	.00	.00	0.
5 JUL 0336	73	.08	.00	.08	5761.	*	5 JUL 0836	173	.00	.00	.00	0.
5 JUL 0339	74	.08	.00	.08	5608.	*	5 JUL 0839	174	.00	.00	.00	0.
5 JUL 0342	75	.08	.00	.08	5332.	*	5 JUL 0842	175	.00	.00	.00	0.
5 JUL 0345	76	.08	.00	.08	5091.	*	5 JUL 0845	176	.00	.00	.00	0.
5 JUL 0348	77	.08	.00	.08	4886.	*	5 JUL 0848	177	.00	.00	.00	0.
5 JUL 0351	78	.08	.00	.08	4699.	*	5 JUL 0851	178	.00	.00	.00	0.
5 JUL 0354	79	.08	.00	.08	4520.	*	5 JUL 0854	179	.00	.00	.00	0.
5 JUL 0357	80	.08	.00	.08	4444.	*	5 JUL 0857	180	.00	.00	.00	0.
5 JUL 0400	81	.08	.00	.08	4384.	*	5 JUL 0900	181	.00	.00	.00	0.
5 JUL 0403	82	.03	.00	.03	4295.	*	5 JUL 0903	182	.00	.00	.00	0.
5 JUL 0406	83	.03	.00	.03	4194.	*	5 JUL 0906	183	.00	.00	.00	0.
5 JUL 0409	84	.03	.00	.03	4025.	*	5 JUL 0909	184	.00	.00	.00	0.
5 JUL 0412	85	.03	.00	.03	3809.	*	5 JUL 0912	185	.00	.00	.00	0.
5 JUL 0415	86	.03	.00	.03	3556.	*	5 JUL 0915	186	.00	.00	.00	0.
5 JUL 0418	87	.03	.00	.03	3233.	*	5 JUL 0918	187	.00	.00	.00	0.
5 JUL 0421	88	.03	.00	.03	2916.	*	5 JUL 0921	188	.00	.00	.00	0.
5 JUL 0424	89	.03	.00	.03	2702.	*	5 JUL 0924	189	.00	.00	.00	0.
5 JUL 0427	90	.03	.00	.03	2520.	*	5 JUL 0927	190	.00	.00	.00	0.
5 JUL 0430	91	.03	.00	.03	2360.	*	5 JUL 0930	191	.00	.00	.00	0.
5 JUL 0433	92	.03	.00	.03	2222.	*	5 JUL 0933	192	.00	.00	.00	0.
5 JUL 0436	93	.03	.00	.03	2105.	*	5 JUL 0936	193	.00	.00	.00	0.
5 JUL 0439	94	.03	.00	.03	2010.	*	5 JUL 0939	194	.00	.00	.00	0.
5 JUL 0442	95	.03	.00	.03	1935.	*	5 JUL 0942	195	.00	.00	.00	0.
5 JUL 0445	96	.03	.00	.03	1867.	*	5 JUL 0945	196	.00	.00	.00	0.
5 JUL 0448	97	.03	.00	.03	1813.	*	5 JUL 0948	197	.00	.00	.00	0.
5 JUL 0451	98	.03	.00	.03	1772.	*	5 JUL 0951	198	.00	.00	.00	0.
5 JUL 0454	99	.03	.00	.03	1735.	*	5 JUL 0954	199	.00	.00	.00	0.
5 JUL 0457	100	.03	.00	.03	1701.	*	5 JUL 0957	200	.00	.00	.00	0.
						*						

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OTAL RAINFALL = 13.08, TOTAL LOSS = 1.21, TOTAL EXCESS = 11.87

100

PE''' FLOW TIME -- MAXIMUM AVERAGE FLOW

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                                        6-HR        24-HR        72-HR       9.95-HR
   (CFS)        (HR)
                              (CFS)
  3229.         2.45                     5192.        3131.        3131.        3131.
                            (INCHES)    11.861       11.861       11.861       11.861
                             (AC-FT)     2575.        2575.        2575.        2575.

                            CUMULATIVE AREA =     4.07 SQ MI
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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               *            *
  3 KK         *    DHW1    *     DRILL HOLE WASH
               *            *
               **************
                         UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH

                  SUBBASIN RUNOFF DATA

  3. BA             SUBBASIN CHARACTERISTICS
                         TAREA          2.40  SUBBASIN AREA

                    PRECIPITATION DATA

  3  PB                  STORM        13.49  BASIN TOTAL PRECIPITATION

  36 PI               INCREMENTAL PRECIPITATION PATTERN
                         .02      .02      .02      .02      .02      .02      .02      .02      .02      .02
                         .02      .02      .02      .02      .02      .02      .02      .02      .02      .02
                         .04      .04      .04      .04      .04      .04      .04      .04      .04      .04
                         .04      .04      .04      .04      .04      .04      .04      .04      .04      .04
                        1.29     1.29     1.29     1.29     1.29      .38      .38      .38      .38      .38
                         .17      .17      .17      .17      .17      .14      .14      .14      .14      .14
                         .08      .08      .08      .08      .08      .08      .08      .08      .08      .08
                         .08      .08      .08      .08      .08      .08      .08      .08      .08      .08
                         .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
                         .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
                         .01      .01      .01      .01      .01      .01      .01      .01      .01      .01
                         .01      .01      .01      .01      .01      .01      .01      .01      .01      .01

  48 LU             UNIFORM LOSS RATE
                         STRTL          1.00  INITIAL LOSS
                         CNSTL           .05  UNIFORM LOSS RATE
                         RTIMP           .00  PERCENT IMPERVIOUS AREA

  4  UI             INPUT UNITGRAPH,  33 ORDINATES,  VOLUME = 1.00
                     377.0    630.0   1471.0   2332.0   2844.0   3757.0   3685.0   2435.0   2103.0   1830.0
                    1573.0   1323.0   1055.0    902.0    816.0    643.0    501.0    442.0    404.0    289.0
                     289.0    192.0    184.0    184.0    120.0     72.0     72.0     72.0     72.0     72.0
                      72.3     72.3     71.9

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HYDROGRAPH AT STATION DHW1

DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
5 JUL 0000	1	.00	.00	.00	0.	5 JUL 0500	101	.03	.00	.03	973.
5 JUL 0003	2	.02	.02	.00	0.	5 JUL 0503	102	.01	.00	.01	952.
5 JUL 0006	3	.02	.02	.00	0.	5 JUL 0506	103	.01	.00	.01	930.
5 JUL 0009	4	.02	.02	.00	0.	5 JUL 0509	104	.01	.00	.01	891.
5 JUL 0012	5	.02	.02	.00	0.	5 JUL 0512	105	.01	.00	.01	836.
5 JUL 0015	6	.02	.02	.00	0.	5 JUL 0515	106	.01	.00	.01	773.
5 JUL 0018	7	.02	.02	.00	0.	5 JUL 0518	107	.01	.00	.01	694.
5 JUL 0021	8	.02	.02	.00	0.	5 JUL 0521	108	.01	.00	.01	617.
5 JUL 0024	9	.02	.02	.00	0.	5 JUL 0524	109	.01	.00	.01	565.
5 JUL 0027	10	.02	.02	.00	0.	5 JUL 0527	110	.01	.00	.01	519.
5 JUL 0030	11	.02	.02	.00	0.	5 JUL 0530	111	.01	.00	.01	479.
5 JUL 0033	12	.02	.02	.00	0.	5 JUL 0533	112	.01	.00	.01	444.
5 JUL 0036	13	.02	.02	.00	0.	5 JUL 0536	113	.01	.00	.01	414.
5 JUL 0039	14	.02	.02	.00	0.	5 JUL 0539	114	.01	.00	.01	389.
5 JUL 0042	15	.02	.02	.00	0.	5 JUL 0542	115	.01	.00	.01	371.
5 JUL 0045	16	.02	.02	.00	0.	5 JUL 0545	116	.01	.00	.01	355.
5 JUL 0048	17	.02	.02	.00	0.	5 JUL 0548	117	.01	.00	.01	342.
5 JUL 0051	18	.02	.02	.00	0.	5 JUL 0551	118	.01	.00	.01	332.
5 JUL 0054	19	.02	.02	.00	0.	5 JUL 0554	119	.01	.00	.01	323.
5 JUL 0057	20	.02	.02	.00	0.	5 JUL 0557	120	.01	.00	.01	315.
5 JUL 0100	21	.02	.02	.00	0.	5 JUL 0600	121	.01	.00	.01	310.
5 JUL 0103	22	.04	.04	.00	0.	5 JUL 0603	122	.00	.00	.00	300.
5 JUL 0106	23	.04	.04	.00	0.	5 JUL 0606	123	.00	.00	.00	291.
5 JUL 0109	24	.04	.04	.00	0.	5 JUL 0609	124	.00	.00	.00	274.
5 JUL 0112	25	.04	.04	.00	0.	5 JUL 0612	125	.00	.00	.00	249.
5 JUL 0115	26	.04	.04	.00	0.	5 JUL 0615	126	.00	.00	.00	221.
5 JUL 0118	27	.04	.04	.00	0.	5 JUL 0618	127	.00	.00	.00	186.
5 JUL 0121	28	.04	.04	.00	0.	5 JUL 0621	128	.00	.00	.00	151.
5 JUL 0124	29	.04	.04	.00	0.	5 JUL 0624	129	.00	.00	.00	128.
5 JUL 0127	30	.04	.04	.00	0.	5 JUL 0627	130	.00	.00	.00	108.
5 JUL 0130	31	.04	.04	.00	0.	5 JUL 0630	131	.00	.00	.00	90.
5 JUL 0133	32	.04	.04	.00	0.	5 JUL 0633	132	.00	.00	.00	74.
5 JUL 0136	33	.04	.04	.00	0.	5 JUL 0636	133	.00	.00	.00	61.
5 JUL 0139	34	.04	.04	.00	0.	5 JUL 0639	134	.00	.00	.00	50.
5 JUL 0142	35	.04	.04	.00	0.	5 JUL 0642	135	.00	.00	.00	42.
5 JUL 0145	36	.04	.04	.00	0.	5 JUL 0645	136	.00	.00	.00	34.
5 JUL 0148	37	.04	.04	.00	0.	5 JUL 0648	137	.00	.00	.00	29.
5 JUL 0151	38	.04	.01	.02	8.	5 JUL 0651	138	.00	.00	.00	24.
5 JUL 0154	39	.04	.00	.03	26.	5 JUL 0654	139	.00	.00	.00	20.
5 JUL 0157	40	.04	.00	.03	65.	5 JUL 0657	140	.00	.00	.00	17.
5 JUL 0200	41	.04	.00	.03	133.	5 JUL 0700	141	.00	.00	.00	14.
5 JUL 0203	42	1.29	.00	1.29	693.	5 JUL 0703	142	.00	.00	.00	11.
5 JUL 0206	43	1.29	.00	1.29	1596.	5 JUL 0706	143	.00	.00	.00	10.
5 JUL 0209	44	1.29	.00	1.29	3561.	5 JUL 0709	144	.00	.00	.00	8.
5 JUL 0212	45	1.29	.00	1.29	6576.	5 JUL 0712	145	.00	.00	.00	6.
5 JUL 0215	46	1.29	.00	1.29	10211.	5 JUL 0715	146	.00	.00	.00	5.
5 JUL 0218	47	.38	.00	.38	14637.	5 JUL 0718	147	.00	.00	.00	5.
5 JUL 0221	48	.38	.00	.38	18734.	5 JUL 0721	148	.00	.00	.00	4.
5 JUL 0224	49	.38	.00	.38	20492.	5 JUL 0724	149	.00	.00	.00	3.
5 JUL 0227	50	.38	.00	.38	21041.	5 JUL 0727	150	.00	.00	.00	3.
5 JUL 0230	51	.38	.00	.38	20777.	5 JUL 0730	151	.00	.00	.00	2.
5 JUL 0233	52	.17	.00	.17	19279.	5 JUL 0733	152	.00	.00	.00	1.
5 JUL 0236	53	.17	.00	.17	17478.	5 JUL 0736	153	.00	.00	.00	1.
5 JUL 0239	54	.17	.00	.17	16301.	5 JUL 0739	154	.00	.00	.00	0.

5 JUL 0242	55	.17	.00	.17	15057.	*	5 JUL 0742	155	.00	.00	.00	0.
5 JUL 0245	56	.17	.00	.17	13847.	*	5 JUL 0745	156	.00	.00	.00	0.
5 JUL 0248	57	.14	.00	.14	12452.	*	5 JUL 0748	157	.00	.00	.00	0.
5 JUL 0251	58	.14	.00	.14	11110.	*	5 JUL 0751	158	.00	.00	.00	0.
5 JUL 0254	59	.14	.00	.14	10162.	*	5 JUL 0754	159	.00	.00	.00	0
5 JUL 0257	60	.14	.00	.14	9340.	*	5 JUL 0757	160	.00	.00	.00	0.
5 JUL 0300	61	.14	.00	.14	8490.	*	5 JUL 0800	161	.00	.00	.00	0.
5 JUL 0303	62	.08	.00	.08	7794.	*	5 JUL 0803	162	.00	.00	.00	0.
5 JUL 0306	63	.08	.00	.08	7142.	*	5 JUL 0806	163	.00	.00	.00	0.
5 JUL 0309	64	.08	.00	.08	6585.	*	5 JUL 0809	164	.00	.00	.00	0.
5 JUL 0312	65	.08	.00	.08	6057.	*	5 JUL 0812	165	.00	.00	.00	0.
5 JUL 0315	66	.08	.00	.08	5551.	*	5 JUL 0815	166	.00	.00	.00	0.
5 JUL 0318	67	.08	.00	.08	4976.	*	5 JUL 0818	167	.00	.00	.00	0.
5 JUL 0321	68	.08	.00	.08	4532.	*	5 JUL 0821	168	.00	.00	.00	0.
5 JUL 0324	69	.08	.00	.08	4189.	*	5 JUL 0824	169	.00	.00	.00	0.
5 JUL 0327	70	.08	.00	.08	3879.	*	5 JUL 0827	170	.00	.00	.00	0.
5 JUL 0330	71	.08	.00	.08	3667.	*	5 JUL 0830	171	.00	.00	.00	0.
5 JUL 0333	72	.08	.00	.08	3519.	*	5 JUL 0833	172	.00	.00	.00	0.
5 JUL 0336	73	.08	.00	.08	3411.	*	5 JUL 0836	173	.00	.00	.00	0.
5 JUL 0339	74	.08	.00	.08	3322.	*	5 JUL 0839	174	.00	.00	.00	0.
5 JUL 0342	75	.08	.00	.08	3152.	*	5 JUL 0842	175	.00	.00	.00	0.
5 JUL 0345	76	.08	.00	.08	3005.	*	5 JUL 0845	176	.00	.00	.00	0.
5 JUL 0348	77	.08	.00	.08	2877.	*	5 JUL 0848	177	.00	.00	.00	0.
5 JUL 0351	78	.08	.00	.08	2761.	*	5 JUL 0851	178	.00	.00	.00	0.
5 JUL 0354	79	.08	.00	.08	2649.	*	5 JUL 0854	179	.00	.00	.00	0.
5 JUL 0357	80	.08	.00	.08	2604.	*	5 JUL 0857	180	.00	.00	.00	0.
5 JUL 0400	81	.08	.00	.08	2568.	*	5 JUL 0900	181	.00	.00	.00	0.
5 JUL 0403	82	.03	.00	.03	2516.	*	5 JUL 0903	182	.00	.00	.00	0.
5 JUL 0406	83	.03	.00	.03	2457.	*	5 JUL 0906	183	.00	.00	.00	0.
5 JUL 0409	84	.03	.00	.03	2357.	*	5 JUL 0909	184	.00	.00	.00	0.
5 JUL 0412	85	.03	.00	.03	2229.	*	5 JUL 0912	185	.00	.00	.00	0.
5 JUL 0415	86	.03	.00	.03	2081.	*	5 JUL 0915	186	.00	.00	.00	0.
5 JUL 0418	87	.03	.00	.03	1890.	*	5 JUL 0918	187	.00	.00	.00	0.
5 JUL 0421	88	.03	.00	.03	1702.	*	5 JUL 0921	188	.00	.00	.00	0.
5 JUL 0424	89	.03	.00	.03	1576.	*	5 JUL 0924	189	.00	.00	.00	0.
5 JUL 0427	90	.03	.00	.03	1469.	*	5 JUL 0927	190	.00	.00	.00	0.
5 JUL 0430	91	.03	.00	.03	1375.	*	5 JUL 0930	191	.00	.00	.00	0.
5 JUL 0433	92	.03	.00	.03	1294.	*	5 JUL 0933	192	.00	.00	.00	0.
5 JUL 0436	93	.03	.00	.03	1225.	*	5 JUL 0936	193	.00	.00	.00	0.
5 JUL 0439	94	.03	.00	.03	1169.	*	5 JUL 0939	194	.00	.00	.00	0.
5 JUL 0442	95	.03	.00	.03	1125.	*	5 JUL 0942	195	.00	.00	.00	0.
5 JUL 0445	96	.03	.00	.03	1085.	*	5 JUL 0945	196	.00	.00	.00	0.
5 JUL 0448	97	.03	.00	.03	1054.	*	5 JUL 0948	197	.00	.00	.00	0.
5 JUL 0451	98	.03	.00	.03	1029.	*	5 JUL 0951	198	.00	.00	.00	0.
5 JUL 0454	99	.03	.00	.03	1007.	*	5 JUL 0954	199	.00	.00	.00	0.
5 JUL 0457	100	.03	.00	.03	988.	*	5 JUL 0957	200	.00	.00	.00	0.
						*						

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TOTAL RAINFALL = 13.49, TOTAL LOSS = 1.21, TOTAL EXCESS = 12.28

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	9.95-HR
(CFS)	(HR)					
		(CFS)				
21041.	2.45		3168.	1910.	1910.	1910.
		(INCHES)	12.274	12.274	12.274	12.274
		(AC-FT)	1571.	1571.	1571.	1571.

CUMULATIVE AREA = 2.40 SQ MI

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              *            *
     KK       *     CW1    *      COYOTE WASH
              *            *
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UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH

SUBBASIN RUNOFF DATA

BA SUBBASIN CHARACTERISTICS

TAREA .23 SUBBASIN AREA

PRECIPITATION DATA

56 PB STORM 13.91 BASIN TOTAL PRECIPITATION

PI INCREMENTAL PRECIPITATION PATTERN

.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
1.40	1.40	1.40	1.40	1.40	.37	.37	.37	.37	.37
.16	.16	.16	.16	.16	.12	.12	.12	.12	.12
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01

LU UNIFORM LOSS RATE

STRTL 1.00 INITIAL LOSS

CNSTL .05 UNIFORM LOSS RATE

RTIMP .00 PERCENT IMPERVIOUS AREA

69 UI INPUT UNITGRAPH, 14 ORDINATES, VOLUME = 1.00

144.0	530.0	822.0	492.0	346.0	221.0	146.0	96.0	61.0	42.0
21.5	16.6	16.6	12.7						

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HYDROGRAPH AT STATION CW1

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DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
5 JUL 0000	1	.00	.00	.00	0.	*	5 JUL 0500	101	.03	.00	.03	85.
5 JUL 0003	2	.02	.02	.00	0.	*	5 JUL 0503	102	.01	.00	.01	82.
5 JUL 0006	3	.02	.02	.00	0.	*	5 JUL 0506	103	.01	.00	.01	71.
5 JUL 0009	4	.02	.02	.00	0.	*	5 JUL 0509	104	.01	.00	.01	54.

5 JUL 0012	5	.02	.02	.00	0.	*	5 JUL 0512	105	.01	.00	.01	44.
5 JUL 0015	6	.02	.02	.00	0.	*	5 JUL 0515	106	.01	.00	.01	37.
5 JUL 0018	7	.02	.02	.00	0.	*	5 JUL 0518	107	.01	.00	.01	32.
5 JUL 0021	8	.02	.02	.00	0.	*	5 JUL 0521	108	.01	.00	.01	29.
5 JUL 0024	9	.02	.02	.00	0.	*	5 JUL 0524	109	.01	.00	.01	27.
5 JUL 0027	10	.02	.02	.00	0.	*	5 JUL 0527	110	.01	.00	.01	26.
5 JUL 0030	11	.02	.02	.00	0.	*	5 JUL 0530	111	.01	.00	.01	25.
5 JUL 0033	12	.02	.02	.00	0.	*	5 JUL 0533	112	.01	.00	.01	25.
5 JUL 0036	13	.02	.02	.00	0.	*	5 JUL 0536	113	.01	.00	.01	24.
5 JUL 0039	14	.02	.02	.00	0.	*	5 JUL 0539	114	.01	.00	.01	24.
5 JUL 0042	15	.02	.02	.00	0.	*	5 JUL 0542	115	.01	.00	.01	24.
5 JUL 0045	16	.02	.02	.00	0.	*	5 JUL 0545	116	.01	.00	.01	24.
5 JUL 0048	17	.02	.02	.00	0.	*	5 JUL 0548	117	.01	.00	.01	24.
5 JUL 0051	18	.02	.02	.00	0.	*	5 JUL 0551	118	.01	.00	.01	24.
5 JUL 0054	19	.02	.02	.00	0.	*	5 JUL 0554	119	.01	.00	.01	24.
5 JUL 0057	20	.02	.02	.00	0.	*	5 JUL 0557	120	.01	.00	.01	24.
5 JUL 0100	21	.02	.02	.00	0.	*	5 JUL 0600	121	.01	.00	.01	24.
5 JUL 0103	22	.04	.04	.00	0.	*	5 JUL 0603	122	.00	.00	.00	23.
5 JUL 0106	23	.04	.04	.00	0.	*	5 JUL 0606	123	.00	.00	.00	18.
5 JUL 0109	24	.04	.04	.00	0.	*	5 JUL 0609	124	.00	.00	.00	12.
5 JUL 0112	25	.04	.04	.00	0.	*	5 JUL 0612	125	.00	.00	.00	8.
5 JUL 0115	26	.04	.04	.00	0.	*	5 JUL 0615	126	.00	.00	.00	5.
5 JUL 0118	27	.04	.04	.00	0.	*	5 JUL 0618	127	.00	.00	.00	3.
5 JUL 0121	28	.04	.04	.00	0.	*	5 JUL 0621	128	.00	.00	.00	2.
5 JUL 0124	29	.04	.04	.00	0.	*	5 JUL 0624	129	.00	.00	.00	1.
5 JUL 0127	30	.04	.04	.00	0.	*	5 JUL 0627	130	.00	.00	.00	1.
5 JUL 0130	31	.04	.04	.00	0.	*	5 JUL 0630	131	.00	.00	.00	1.
5 JUL 0133	32	.04	.04	.00	0.	*	5 JUL 0633	132	.00	.00	.00	0.
5 JUL 0136	33	.04	.04	.00	0.	*	5 JUL 0636	133	.00	.00	.00	0.
5 JUL 0139	34	.04	.04	.00	0.	*	5 JUL 0639	134	.00	.00	.00	0.
5 JUL 0142	35	.04	.04	.00	0.	*	5 JUL 0642	135	.00	.00	.00	0.
5 JUL 0145	36	.04	.04	.00	0.	*	5 JUL 0645	136	.00	.00	.00	0.
5 JUL 0148	37	.04	.04	.00	0.	*	5 JUL 0648	137	.00	.00	.00	0.
5 JUL 0151	38	.04	.02	.02	3.	*	5 JUL 0651	138	.00	.00	.00	0.
5 JUL 0154	39	.04	.00	.03	16.	*	5 JUL 0654	139	.00	.00	.00	0.
5 JUL 0157	40	.04	.00	.03	39.	*	5 JUL 0657	140	.00	.00	.00	0.
5 JUL 0200	41	.04	.00	.03	60.	*	5 JUL 0700	141	.00	.00	.00	0.
5 JUL 0203	42	1.40	.00	1.40	270.	*	5 JUL 0703	142	.00	.00	.00	0.
5 JUL 0206	43	1.40	.00	1.40	1002.	*	5 JUL 0706	143	.00	.00	.00	0.
5 JUL 0209	44	1.40	.00	1.40	2129.	*	5 JUL 0709	144	.00	.00	.00	0.
5 JUL 0212	45	1.40	.00	1.40	2804.	*	5 JUL 0712	145	.00	.00	.00	0.
5 JUL 0215	46	1.40	.00	1.40	3279.	*	5 JUL 0715	146	.00	.00	.00	0.
5 JUL 0218	47	.37	.00	.37	3434.	*	5 JUL 0718	147	.00	.00	.00	0.
5 JUL 0221	48	.37	.00	.37	3089.	*	5 JUL 0721	148	.00	.00	.00	0.
5 JUL 0224	49	.37	.00	.37	2375.	*	5 JUL 0724	149	.00	.00	.00	0.
5 JUL 0227	50	.37	.00	.37	1953.	*	5 JUL 0727	150	.00	.00	.00	0.
5 JUL 0230	51	.37	.00	.37	1655.	*	5 JUL 0730	151	.00	.00	.00	0.
5 JUL 0233	52	.16	.00	.16	1428.	*	5 JUL 0733	152	.00	.00	.00	0.
5 JUL 0236	53	.16	.00	.16	1190.	*	5 JUL 0736	153	.00	.00	.00	0.
5 JUL 0239	54	.16	.00	.16	943.	*	5 JUL 0739	154	.00	.00	.00	0.
5 JUL 0242	55	.16	.00	.16	795.	*	5 JUL 0742	155	.00	.00	.00	0.
5 JUL 0245	56	.16	.00	.16	680.	*	5 JUL 0745	156	.00	.00	.00	0.
5 JUL 0248	57	.12	.00	.12	606.	*	5 JUL 0748	157	.00	.00	.00	0.
5 JUL 0251	58	.12	.00	.12	538.	*	5 JUL 0751	158	.00	.00	.00	0.
5 JUL 0254	59	.12	.00	.12	468.	*	5 JUL 0754	159	.00	.00	.00	0.
5 JUL 0257	60	.12	.00	.12	422.	*	5 JUL 0757	160	.00	.00	.00	0.
5 JUL 0300	61	.12	.00	.12	400.	*	5 JUL 0800	161	.00	.00	.00	0.
5 JUL 0303	62	.08	.00	.08	381.	*	5 JUL 0803	162	.00	.00	.00	0.
5 JUL 0306	63	.08	.00	.08	349.	*	5 JUL 0806	163	.00	.00	.00	0.
5 JUL 0309	64	.08	.00	.08	308.	*	5 JUL 0809	164	.00	.00	.00	0.

5 JUL 0312	65	.08	.00	.08	282.	*	5 JUL 0812	165	.00	.00	.00	0.
5 JUL 0315	66	.08	.00	.08	266.	*	5 JUL 0815	166	.00	.00	.00	0.
5 JUL 0318	67	.08	.00	.08	256.	*	5 JUL 0818	167	.00	.00	.00	0.
5 JUL 0321	68	.08	.00	.08	250.	*	5 JUL 0821	168	.00	.00	.00	0.
5 JUL 0324	69	.08	.00	.08	245.	*	5 JUL 0824	169	.00	.00	.00	0.
5 JUL 0327	70	.08	.00	.08	242.	*	5 JUL 0827	170	.00	.00	.00	0.
5 JUL 0330	71	.08	.00	.08	240.	*	5 JUL 0830	171	.00	.00	.00	0.
5 JUL 0333	72	.08	.00	.08	239.	*	5 JUL 0833	172	.00	.00	.00	0.
5 JUL 0336	73	.08	.00	.08	239.	*	5 JUL 0836	173	.00	.00	.00	0.
5 JUL 0339	74	.08	.00	.08	238.	*	5 JUL 0839	174	.00	.00	.00	0.
5 JUL 0342	75	.08	.00	.08	237.	*	5 JUL 0842	175	.00	.00	.00	0.
5 JUL 0345	76	.08	.00	.08	237.	*	5 JUL 0845	176	.00	.00	.00	0.
5 JUL 0348	77	.08	.00	.08	237.	*	5 JUL 0848	177	.00	.00	.00	0.
5 JUL 0351	78	.08	.00	.08	237.	*	5 JUL 0851	178	.00	.00	.00	0.
5 JUL 0354	79	.08	.00	.08	237.	*	5 JUL 0854	179	.00	.00	.00	0.
5 JUL 0357	80	.08	.00	.08	237.	*	5 JUL 0857	180	.00	.00	.00	0.
5 JUL 0400	81	.08	.00	.08	237.	*	5 JUL 0900	181	.00	.00	.00	0.
5 JUL 0403	82	.03	.00	.03	230.	*	5 JUL 0903	182	.00	.00	.00	0.
5 JUL 0406	83	.03	.00	.03	203.	*	5 JUL 0906	183	.00	.00	.00	0.
5 JUL 0409	84	.03	.00	.03	160.	*	5 JUL 0909	184	.00	.00	.00	0.
5 JUL 0412	85	.03	.00	.03	135.	*	5 JUL 0912	185	.00	.00	.00	0.
5 JUL 0415	86	.03	.00	.03	117.	*	5 JUL 0915	186	.00	.00	.00	0.
5 JUL 0418	87	.03	.00	.03	106.	*	5 JUL 0918	187	.00	.00	.00	0.
5 JUL 0421	88	.03	.00	.03	98.	*	5 JUL 0921	188	.00	.00	.00	0.
5 JUL 0424	89	.03	.00	.03	93.	*	5 JUL 0924	189	.00	.00	.00	0.
5 JUL 0427	90	.03	.00	.03	90.	*	5 JUL 0927	190	.00	.00	.00	0.
5 JUL 0430	91	.03	.00	.03	88.	*	5 JUL 0930	191	.00	.00	.00	0.
5 JUL 0433	92	.03	.00	.03	87.	*	5 JUL 0933	192	.00	.00	.00	0.
5 JUL 0436	93	.03	.00	.03	86.	*	5 JUL 0936	193	.00	.00	.00	0.
5 JUL 0439	94	.03	.00	.03	85.	*	5 JUL 0939	194	.00	.00	.00	0.
5 JUL 0442	95	.03	.00	.03	85.	*	5 JUL 0942	195	.00	.00	.00	0.
5 JUL 0445	96	.03	.00	.03	85.	*	5 JUL 0945	196	.00	.00	.00	0.
5 JUL 0448	97	.03	.00	.03	85.	*	5 JUL 0948	197	.00	.00	.00	0.
5 JUL 0451	98	.03	.00	.03	85.	*	5 JUL 0951	198	.00	.00	.00	0.
5 JUL 0454	99	.03	.00	.03	85.	*	5 JUL 0954	199	.00	.00	.00	0.
5 JUL 0457	100	.03	.00	.03	85.	*	5 JUL 0957	200	.00	.00	.00	0.
						*						

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TOTAL RAINFALL = 13.91, TOTAL LOSS = 1.21, TOTAL EXCESS = 12.70

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	9.95-HR
(CFS)	(HR)					
		(CFS)				
3434.	2.30		314.	189.	189.	189.
		(INCHES)	12.696	12.696	12.696	12.696
		(AC-FT)	156.	156.	156.	156.

CUMULATIVE AREA = .23 SQ MI

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73 KK * BRW1 * --BOUNDRY RIDGE PORTAL WASH 1

UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH

SUBBASIN RUNOFF DATA

BA SUBBASIN CHARACTERISTICS
TAREA .24 SUBBASIN AREA

PRECIPITATION DATA

56 PB STORM 13.91 BASIN TOTAL PRECIPITATION

PI INCREMENTAL PRECIPITATION PATTERN

.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
1.40	1.40	1.40	1.40	1.40	.37	.37	.37	.37	.37
.16	.16	.16	.16	.16	.12	.12	.12	.12	.12
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01

7 LU UNIFORM LOSS RATE
STRTL 1.00 INITIAL LOSS
CNSTL .05 UNIFORM LOSS RATE
RTIMP .00 PERCENT IMPERVIOUS AREA

74 UI INPUT UNITGRAPH, 13 ORDINATES, VOLUME = 1.00

195.0	700.0	877.0	499.0	314.0	202.0	120.0	73.0	50.0	21.0
19.5	19.5	4.7							

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HYDROGRAPH AT STATION BRW1

DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
5 JUL 0000	1	.00	.00	.00	0.	5 JUL 0500	101	.03	.00	.03	88.
5 JUL 0003	2	.02	.02	.00	0.	5 JUL 0503	102	.01	.00	.01	84.
5 JUL 0006	3	.02	.02	.00	0.	5 JUL 0506	103	.01	.00	.01	70.
5 JUL 0009	4	.02	.02	.00	0.	5 JUL 0509	104	.01	.00	.01	52.
5 JUL 0012	5	.02	.02	.00	0.	5 JUL 0512	105	.01	.00	.01	42.
5 JUL 0015	6	.02	.02	.00	0.	5 JUL 0515	106	.01	.00	.01	35.
5 JUL 0018	7	.02	.02	.00	0.	5 JUL 0518	107	.01	.00	.01	31.
5 JUL 0021	8	.02	.02	.00	0.	5 JUL 0521	108	.01	.00	.01	29.
5 JUL 0024	9	.02	.02	.00	0.	5 JUL 0524	109	.01	.00	.01	27.
5 JUL 0027	10	.02	.02	.00	0.	5 JUL 0527	110	.01	.00	.01	26.
5 JUL 0030	11	.02	.02	.00	0.	5 JUL 0530	111	.01	.00	.01	26.
5 JUL 0033	12	.02	.02	.00	0.	5 JUL 0533	112	.01	.00	.01	25.
5 JUL 0036	13	.02	.02	.00	0.	5 JUL 0536	113	.01	.00	.01	25.
5 JUL 0039	14	.02	.02	.00	0.	5 JUL 0539	114	.01	.00	.01	25.

5 JUL 0042	15	.02	.02	.00	0.	*
5 JUL 0045	16	.02	.02	.00	0.	*
5 JUL 0048	17	.02	.02	.00	0.	*
5 JUL 0051	18	.02	.02	.00	0.	*
5 JUL 0054	19	.02	.02	.00	0.	*
5 JUL 0057	20	.02	.02	.00	0.	*
5 JUL 0100	21	.02	.02	.00	0.	*
5 JUL 0103	22	.04	.04	.00	0.	*
5 JUL 0106	23	.04	.04	.00	0.	*
5 JUL 0109	24	.04	.04	.00	0.	*
5 JUL 0112	25	.04	.04	.00	0.	*
5 JUL 0115	26	.04	.04	.00	0.	*
5 JUL 0118	27	.04	.04	.00	0.	*
5 JUL 0121	28	.04	.04	.00	0.	*
5 JUL 0124	29	.04	.04	.00	0.	*
5 JUL 0127	30	.04	.04	.00	0.	*
5 JUL 0130	31	.04	.04	.00	0.	*
5 JUL 0133	32	.04	.04	.00	0.	*
5 JUL 0136	33	.04	.04	.00	0.	*
5 JUL 0139	34	.04	.04	.00	0.	*
5 JUL 0142	35	.04	.04	.00	0.	*
5 JUL 0145	36	.04	.04	.00	0.	*
5 JUL 0148	37	.04	.04	.00	0.	*
5 JUL 0151	38	.04	.02	.02	4.	*
5 JUL 0154	39	.04	.00	.03	21.	*
5 JUL 0157	40	.04	.00	.03	48.	*
5 JUL 0200	41	.04	.00	.03	70.	*
5 JUL 0203	42	1.40	.00	1.40	348.	*
5 JUL 0206	43	1.40	.00	1.40	1312.	*
5 JUL 0209	44	1.40	.00	1.40	2513.	*
5 JUL 0212	45	1.40	.00	1.40	3197.	*
5 JUL 0215	46	1.40	.00	1.40	3627.	*
5 JUL 0218	47	.37	.00	.37	3703.	*
5 JUL 0221	48	.37	.00	.37	3148.	*
5 JUL 0224	49	.37	.00	.37	2346.	*
5 JUL 0227	50	.37	.00	.37	1902.	*
5 JUL 0230	51	.37	.00	.37	1608.	*
5 JUL 0233	52	.16	.00	.16	1386.	*
5 JUL 0236	53	.16	.00	.16	1144.	*
5 JUL 0239	54	.16	.00	.16	893.	*
5 JUL 0242	55	.16	.00	.16	738.	*
5 JUL 0245	56	.16	.00	.16	651.	*
5 JUL 0248	57	.12	.00	.12	581.	*
5 JUL 0251	58	.12	.00	.12	508.	*
5 JUL 0254	59	.12	.00	.12	453.	*
5 JUL 0257	60	.12	.00	.12	422.	*
5 JUL 0300	61	.12	.00	.12	405.	*
5 JUL 0303	62	.08	.00	.08	385.	*
5 JUL 0306	63	.08	.00	.08	347.	*
5 JUL 0309	64	.08	.00	.08	307.	*
5 JUL 0312	65	.08	.00	.08	284.	*
5 JUL 0315	66	.08	.00	.08	270.	*
5 JUL 0318	67	.08	.00	.08	261.	*
5 JUL 0321	68	.08	.00	.08	256.	*
5 JUL 0324	69	.08	.00	.08	252.	*
5 JUL 0327	70	.08	.00	.08	250.	*
5 JUL 0330	71	.08	.00	.08	249.	*
5 JUL 0333	72	.08	.00	.08	249.	*
5 JUL 0336	73	.08	.00	.08	248.	*
5 JUL 0339	74	.08	.00	.08	248.	*

5 JUL 0542	115	.01	.00	.01	25.
5 JUL 0545	116	.01	.00	.01	25.
5 JUL 0548	117	.01	.00	.01	25.
5 JUL 0551	118	.01	.00	.01	25.
5 JUL 0554	119	.01	.00	.01	25.
5 JUL 0557	120	.01	.00	.01	25.
5 JUL 0600	121	.01	.00	.01	25.
5 JUL 0603	122	.00	.00	.00	23.
5 JUL 0606	123	.00	.00	.00	18.
5 JUL 0609	124	.00	.00	.00	11.
5 JUL 0612	125	.00	.00	.00	7.
5 JUL 0615	126	.00	.00	.00	4.
5 JUL 0618	127	.00	.00	.00	2.
5 JUL 0621	128	.00	.00	.00	2.
5 JUL 0624	129	.00	.00	.00	1.
5 JUL 0627	130	.00	.00	.00	1.
5 JUL 0630	131	.00	.00	.00	0.
5 JUL 0633	132	.00	.00	.00	0.
5 JUL 0636	133	.00	.00	.00	0.
5 JUL 0639	134	.00	.00	.00	0.
5 JUL 0642	135	.00	.00	.00	0.
5 JUL 0645	136	.00	.00	.00	0.
5 JUL 0648	137	.00	.00	.00	0.
5 JUL 0651	138	.00	.00	.00	0.
5 JUL 0654	139	.00	.00	.00	0.
5 JUL 0657	140	.00	.00	.00	0.
5 JUL 0700	141	.00	.00	.00	0.
5 JUL 0703	142	.00	.00	.00	0.
5 JUL 0706	143	.00	.00	.00	0.
5 JUL 0709	144	.00	.00	.00	0.
5 JUL 0712	145	.00	.00	.00	0.
5 JUL 0715	146	.00	.00	.00	0.
5 JUL 0718	147	.00	.00	.00	0.
5 JUL 0721	148	.00	.00	.00	0.
5 JUL 0724	149	.00	.00	.00	0.
5 JUL 0727	150	.00	.00	.00	0.
5 JUL 0730	151	.00	.00	.00	0.
5 JUL 0733	152	.00	.00	.00	0.
5 JUL 0736	153	.00	.00	.00	0.
5 JUL 0739	154	.00	.00	.00	0.
5 JUL 0742	155	.00	.00	.00	0.
5 JUL 0745	156	.00	.00	.00	0.
5 JUL 0748	157	.00	.00	.00	0.
5 JUL 0751	158	.00	.00	.00	0.
5 JUL 0754	159	.00	.00	.00	0.
5 JUL 0757	160	.00	.00	.00	0.
5 JUL 0800	161	.00	.00	.00	0.
5 JUL 0803	162	.00	.00	.00	0.
5 JUL 0806	163	.00	.00	.00	0.
5 JUL 0809	164	.00	.00	.00	0.
5 JUL 0812	165	.00	.00	.00	0.
5 JUL 0815	166	.00	.00	.00	0.
5 JUL 0818	167	.00	.00	.00	0.
5 JUL 0821	168	.00	.00	.00	0.
5 JUL 0824	169	.00	.00	.00	0.
5 JUL 0827	170	.00	.00	.00	0.
5 JUL 0830	171	.00	.00	.00	0.
5 JUL 0833	172	.00	.00	.00	0.
5 JUL 0836	173	.00	.00	.00	0.
5 JUL 0839	174	.00	.00	.00	0.

5 JUL 0342	75	.08	.00	.08	248.	*	5 JUL 0842	175	.00	.00	.00	0
5 JUL 0345	76	.08	.00	.08	248.	*	5 JUL 0845	176	.00	.00	.00	0.
5 JUL 0348	77	.08	.00	.08	248.	*	5 JUL 0848	177	.00	.00	.00	0.
5 JUL 0351	78	.08	.00	.08	248.	*	5 JUL 0851	178	.00	.00	.00	0.
5 JUL 0354	79	.08	.00	.08	248.	*	5 JUL 0854	179	.00	.00	.00	0.
5 JUL 0357	80	.08	.00	.08	248.	*	5 JUL 0857	180	.00	.00	.00	0.
5 JUL 0400	81	.08	.00	.08	248.	*	5 JUL 0900	181	.00	.00	.00	0.
5 JUL 0403	82	.03	.00	.03	238.	*	5 JUL 0903	182	.00	.00	.00	0.
5 JUL 0406	83	.03	.00	.03	201.	*	5 JUL 0906	183	.00	.00	.00	0
5 JUL 0409	84	.03	.00	.03	156.	*	5 JUL 0909	184	.00	.00	.00	0.
5 JUL 0412	85	.03	.00	.03	131.	*	5 JUL 0912	185	.00	.00	.00	0.
5 JUL 0415	86	.03	.00	.03	114.	*	5 JUL 0915	186	.00	.00	.00	0.
5 JUL 0418	87	.03	.00	.03	104.	*	5 JUL 0918	187	.00	.00	.00	0.
5 JUL 0421	88	.03	.00	.03	98.	*	5 JUL 0921	188	.00	.00	.00	0.
5 JUL 0424	89	.03	.00	.03	94.	*	5 JUL 0924	189	.00	.00	.00	0.
5 JUL 0427	90	.03	.00	.03	92.	*	5 JUL 0927	190	.00	.00	.00	0.
5 JUL 0430	91	.03	.00	.03	90.	*	5 JUL 0930	191	.00	.00	.00	0.
5 JUL 0433	92	.03	.00	.03	89.	*	5 JUL 0933	192	.00	.00	.00	0.
5 JUL 0436	93	.03	.00	.03	88.	*	5 JUL 0936	193	.00	.00	.00	0.
5 JUL 0439	94	.03	.00	.03	88.	*	5 JUL 0939	194	.00	.00	.00	0.
5 JUL 0442	95	.03	.00	.03	88.	*	5 JUL 0942	195	.00	.00	.00	0.
5 JUL 0445	96	.03	.00	.03	88.	*	5 JUL 0945	196	.00	.00	.00	0.
5 JUL 0448	97	.03	.00	.03	88.	*	5 JUL 0948	197	.00	.00	.00	0.
5 JUL 0451	98	.03	.00	.03	88.	*	5 JUL 0951	198	.00	.00	.00	0.
5 JUL 0454	99	.03	.00	.03	88.	*	5 JUL 0954	199	.00	.00	.00	0.
5 JUL 0457	100	.03	.00	.03	88.	*	5 JUL 0957	200	.00	.00	.00	0.
						*						

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TOTAL RAINFALL = 13.91, TOTAL LOSS = 1.21, TOTAL EXCESS = 12.70

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	9.95-HR
FS)	(HR)					
		(CFS)				
3703.	2.30		328.	198.	198.	198.
		(INCHES)	12.689	12.689	12.689	12.689
		(AC-FT)	162.	162.	162.	162.

CUMULATIVE AREA = .24 SQ MI

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* *
7^ KK * BRW2 * BOUNDRY RIDGE PORTAL WASH 2
* *
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UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH

SUBBASIN RUNOFF DATA

8 3A SUBBASIN CHARACTERISTICS
TAREA .02 SUBBASIN AREA

PRECIPITATION DATA

56 PB STORM 13.91 BASIN TOTAL PRECIPITATION

PI INCREMENTAL PRECIPITATION PATTERN

.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
1.40	1.40	1.40	1.40	1.40	.37	.37	.37	.37	.37
.16	.16	.16	.16	.16	.12	.12	.12	.12	.12
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01

LU UNIFORM LOSS RATE

STRTL	1.00	INITIAL LOSS
CNSTL	.05	UNIFORM LOSS RATE
RTIMP	.00	PERCENT IMPERVIOUS AREA

UI INPUT UNITGRAPH, 6 ORDINATES, VOLUME = 1.00

98.4	106.3	35.5	12.5	3.7	1.5

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HYDROGRAPH AT STATION BRW2

DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
5 JUL 0000	1	.00	.00	.00	0.	5 JUL 0500	101	.03	.00	.03	7.
5 JUL 0003	2	.02	.02	.00	0.	5 JUL 0503	102	.01	.00	.01	5.
5 JUL 0006	3	.02	.02	.00	0.	5 JUL 0506	103	.01	.00	.01	3.
5 JUL 0009	4	.02	.02	.00	0.	5 JUL 0509	104	.01	.00	.01	2.
5 JUL 0012	5	.02	.02	.00	0.	5 JUL 0512	105	.01	.00	.01	2.
5 JUL 0015	6	.02	.02	.00	0.	5 JUL 0515	106	.01	.00	.01	2.
5 JUL 0018	7	.02	.02	.00	0.	5 JUL 0518	107	.01	.00	.01	2.
5 JUL 0021	8	.02	.02	.00	0.	5 JUL 0521	108	.01	.00	.01	2.
5 JUL 0024	9	.02	.02	.00	0.	5 JUL 0524	109	.01	.00	.01	2.
5 JUL 0027	10	.02	.02	.00	0.	5 JUL 0527	110	.01	.00	.01	2.
5 JUL 0030	11	.02	.02	.00	0.	5 JUL 0530	111	.01	.00	.01	2.
5 JUL 0033	12	.02	.02	.00	0.	5 JUL 0533	112	.01	.00	.01	2.
5 JUL 0036	13	.02	.02	.00	0.	5 JUL 0536	113	.01	.00	.01	2.
5 JUL 0039	14	.02	.02	.00	0.	5 JUL 0539	114	.01	.00	.01	2.
5 JUL 0042	15	.02	.02	.00	0.	5 JUL 0542	115	.01	.00	.01	2.
5 JUL 0045	16	.02	.02	.00	0.	5 JUL 0545	116	.01	.00	.01	2.
5 JUL 0048	17	.02	.02	.00	0.	5 JUL 0548	117	.01	.00	.01	2.
5 JUL 0051	18	.02	.02	.00	0.	5 JUL 0551	118	.01	.00	.01	2.
5 JUL 0054	19	.02	.02	.00	0.	5 JUL 0554	119	.01	.00	.01	2.
5 JUL 0057	20	.02	.02	.00	0.	5 JUL 0557	120	.01	.00	.01	2.
5 JUL 0100	21	.02	.02	.00	0.	5 JUL 0600	121	.01	.00	.01	2.
5 JUL 0103	22	.04	.04	.00	0.	5 JUL 0603	122	.00	.00	.00	1.
5 JUL 0106	23	.04	.04	.00	0.	5 JUL 0606	123	.00	.00	.00	0.
5 JUL 0109	24	.04	.04	.00	0.	5 JUL 0609	124	.00	.00	.00	0.
5 JUL 0112	25	.04	.04	.00	0.	5 JUL 0612	125	.00	.00	.00	0.

5 JUL 0115	26	.04	.04	.00	0.	*	5 JUL 0615	126	.00	.00	.00	0.
5 JUL 0118	27	.04	.04	.00	0.	*	5 JUL 0618	127	.00	.00	.00	0.
5 JUL 0121	28	.04	.04	.00	0.	*	5 JUL 0621	128	.00	.00	.00	0.
5 JUL 0124	29	.04	.04	.00	0.	*	5 JUL 0624	129	.00	.00	.00	0.
5 JUL 0127	30	.04	.04	.00	0.	*	5 JUL 0627	130	.00	.00	.00	0.
5 JUL 0130	31	.04	.04	.00	0.	*	5 JUL 0630	131	.00	.00	.00	0.
5 JUL 0133	32	.04	.04	.00	0.	*	5 JUL 0633	132	.00	.00	.00	0.
5 JUL 0136	33	.04	.04	.00	0.	*	5 JUL 0636	133	.00	.00	.00	0.
5 JUL 0139	34	.04	.04	.00	0.	*	5 JUL 0639	134	.00	.00	.00	0.
5 JUL 0142	35	.04	.04	.00	0.	*	5 JUL 0642	135	.00	.00	.00	0.
5 JUL 0145	36	.04	.04	.00	0.	*	5 JUL 0645	136	.00	.00	.00	0.
5 JUL 0148	37	.04	.04	.00	0.	*	5 JUL 0648	137	.00	.00	.00	0.
5 JUL 0151	38	.04	.02	.02	2.	*	5 JUL 0651	138	.00	.00	.00	0.
5 JUL 0154	39	.04	.00	.03	5.	*	5 JUL 0654	139	.00	.00	.00	0.
5 JUL 0157	40	.04	.00	.03	8.	*	5 JUL 0657	140	.00	.00	.00	0.
5 JUL 0200	41	.04	.00	.03	8.	*	5 JUL 0700	141	.00	.00	.00	0.
5 JUL 0203	42	1.40	.00	1.40	143.	*	5 JUL 0703	142	.00	.00	.00	0.
5 JUL 0206	43	1.40	.00	1.40	288.	*	5 JUL 0706	143	.00	.00	.00	0.
5 JUL 0209	44	1.40	.00	1.40	336.	*	5 JUL 0709	144	.00	.00	.00	0.
5 JUL 0212	45	1.40	.00	1.40	353.	*	5 JUL 0712	145	.00	.00	.00	0.
5 JUL 0215	46	1.40	.00	1.40	358.	*	5 JUL 0715	146	.00	.00	.00	0.
5 JUL 0218	47	.37	.00	.37	259.	*	5 JUL 0718	147	.00	.00	.00	0.
5 JUL 0221	48	.37	.00	.37	150.	*	5 JUL 0721	148	.00	.00	.00	0.
5 JUL 0224	49	.37	.00	.37	113.	*	5 JUL 0724	149	.00	.00	.00	0.
5 JUL 0227	50	.37	.00	.37	101.	*	5 JUL 0727	150	.00	.00	.00	0.
5 JUL 0230	51	.37	.00	.37	97.	*	5 JUL 0730	151	.00	.00	.00	0.
5 JUL 0233	52	.16	.00	.16	75.	*	5 JUL 0733	152	.00	.00	.00	0.
5 JUL 0236	53	.16	.00	.16	53.	*	5 JUL 0736	153	.00	.00	.00	0.
5 JUL 0239	54	.16	.00	.16	45.	*	5 JUL 0739	154	.00	.00	.00	0.
5 JUL 0242	55	.16	.00	.16	43.	*	5 JUL 0742	155	.00	.00	.00	0.
5 JUL 0245	56	.16	.00	.16	42.	*	5 JUL 0745	156	.00	.00	.00	0.
5 JUL 0248	57	.12	.00	.12	38.	*	5 JUL 0748	157	.00	.00	.00	0.
5 JUL 0251	58	.12	.00	.12	33.	*	5 JUL 0751	158	.00	.00	.00	0.
5 JUL 0254	59	.12	.00	.12	32.	*	5 JUL 0754	159	.00	.00	.00	0.
5 JUL 0257	60	.12	.00	.12	32.	*	5 JUL 0757	160	.00	.00	.00	0.
5 JUL 0300	61	.12	.00	.12	31.	*	5 JUL 0800	161	.00	.00	.00	0.
5 JUL 0303	62	.08	.00	.08	27.	*	5 JUL 0803	162	.00	.00	.00	0.
5 JUL 0306	63	.08	.00	.08	23.	*	5 JUL 0806	163	.00	.00	.00	0.
5 JUL 0309	64	.08	.00	.08	21.	*	5 JUL 0809	164	.00	.00	.00	0.
5 JUL 0312	65	.08	.00	.08	21.	*	5 JUL 0812	165	.00	.00	.00	0.
5 JUL 0315	66	.08	.00	.08	21.	*	5 JUL 0815	166	.00	.00	.00	0.
5 JUL 0318	67	.08	.00	.08	21.	*	5 JUL 0818	167	.00	.00	.00	0.
5 JUL 0321	68	.08	.00	.08	21.	*	5 JUL 0821	168	.00	.00	.00	0.
5 JUL 0324	69	.08	.00	.08	21.	*	5 JUL 0824	169	.00	.00	.00	0.
5 JUL 0327	70	.08	.00	.08	21.	*	5 JUL 0827	170	.00	.00	.00	0.
5 JUL 0330	71	.08	.00	.08	21.	*	5 JUL 0830	171	.00	.00	.00	0.
5 JUL 0333	72	.08	.00	.08	21.	*	5 JUL 0833	172	.00	.00	.00	0.
5 JUL 0336	73	.08	.00	.08	21.	*	5 JUL 0836	173	.00	.00	.00	0.
5 JUL 0339	74	.08	.00	.08	21.	*	5 JUL 0839	174	.00	.00	.00	0.
5 JUL 0342	75	.08	.00	.08	21.	*	5 JUL 0842	175	.00	.00	.00	0.
5 JUL 0345	76	.08	.00	.08	21.	*	5 JUL 0845	176	.00	.00	.00	0.
5 JUL 0348	77	.08	.00	.08	21.	*	5 JUL 0848	177	.00	.00	.00	0.
5 JUL 0351	78	.08	.00	.08	21.	*	5 JUL 0851	178	.00	.00	.00	0.
5 JUL 0354	79	.08	.00	.08	21.	*	5 JUL 0854	179	.00	.00	.00	0.
5 JUL 0357	80	.08	.00	.08	21.	*	5 JUL 0857	180	.00	.00	.00	0.
5 JUL 0400	81	.08	.00	.08	21.	*	5 JUL 0900	181	.00	.00	.00	0.
5 JUL 0403	82	.03	.00	.03	16.	*	5 JUL 0903	182	.00	.00	.00	0.
5 JUL 0406	83	.03	.00	.03	10.	*	5 JUL 0906	183	.00	.00	.00	0.
5 JUL 0409	84	.03	.00	.03	8.	*	5 JUL 0909	184	.00	.00	.00	0.
5 JUL 0412	85	.03	.00	.03	8.	*	5 JUL 0912	185	.00	.00	.00	0.

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5 JUL 0415	86	.03	.00	.03	7.	*	5 JUL 0915	186	.00	.00	.00	0.
5 JUL 0418	87	.03	.00	.03	7.	*	5 JUL 0918	187	.00	.00	.00	0.
5 JUL 0421	88	.03	.00	.03	7.	*	5 JUL 0921	188	.00	.00	.00	0.
5 JUL 0424	89	.03	.00	.03	7.	*	5 JUL 0924	189	.00	.00	.00	0.
5 JUL 0427	90	.03	.00	.03	7.	*	5 JUL 0927	190	.00	.00	.00	0.
5 JUL 0430	91	.03	.00	.03	7.	*	5 JUL 0930	191	.00	.00	.00	0.
5 JUL 0433	92	.03	.00	.03	7.	*	5 JUL 0933	192	.00	.00	.00	0.
5 JUL 0436	93	.03	.00	.03	7.	*	5 JUL 0936	193	.00	.00	.00	0.
5 JUL 0439	94	.03	.00	.03	7.	*	5 JUL 0939	194	.00	.00	.00	0.
5 JUL 0442	95	.03	.00	.03	7.	*	5 JUL 0942	195	.00	.00	.00	0.
5 JUL 0445	96	.03	.00	.03	7.	*	5 JUL 0945	196	.00	.00	.00	0.
5 JUL 0448	97	.03	.00	.03	7.	*	5 JUL 0948	197	.00	.00	.00	0.
5 JUL 0451	98	.03	.00	.03	7.	*	5 JUL 0951	198	.00	.00	.00	0.
5 JUL 0454	99	.03	.00	.03	7.	*	5 JUL 0954	199	.00	.00	.00	0.
5 JUL 0457	100	.03	.00	.03	7.	*	5 JUL 0957	200	.00	.00	.00	0.
						*						

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TOTAL RAINFALL = 13.91, TOTAL LOSS = 1.21, TOTAL EXCESS = 12.70

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	9.95-HR
		(CFS)				
358.	2.25		27.	16.	16.	16.
		(INCHES)	12.689	12.689	12.689	12.689
		(AC-FT)	14.	14.	14.	14.

CUMULATIVE AREA = .02 SQ MI

* ** ***

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* *
84 KK * BRW * 3 BOUNDRY RIDGE PORTAL WASH 3
* *
****

UHG FROM PHOENIX MOUNTAIN ARIZONA S-GRAPH

SUBBASIN RUNOFF DATA

85 BA SUBBASIN CHARACTERISTICS
TAREA .08 SUBBASIN AREA

PRECIPITATION DATA

5 PB STORM 13.91 BASIN TOTAL PRECIPITATION

57 PI INCREMENTAL PRECIPITATION PATTERN

.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
.04	.04	.04	.04	.04	.04	.04	.04	.04	.04
1.40	1.40	1.40	1.40	1.40	.37	.37	.37	.37	.37
.16	.16	.16	.16	.16	.12	.12	.12	.12	.12
.08	.08	.08	.08	.08	.08	.08	.08	.08	.08

.08	.08	.08	.08	.08	.08	.08	.08	.08	.08
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01

; LU UNIFORM LOSS RATE

STRTL	1.00	INITIAL LOSS
CNSTL	.05	UNIFORM LOSS RATE
RTIMP	.00	PERCENT IMPERVIOUS AREA

85 UI INPUT UNITGRAPH, 8 ORDINATES, VOLUME = 1.00

203.0	448.0	209.0	96.0	43.0	18.0	11.0	4.0

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HYDROGRAPH AT STATION BRW

DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA MON HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
5 JUL 0000	1	.00	.00	.00	0.	5 JUL 0500	101	.03	.00	.03	29.
5 JUL 0003	2	.02	.02	.00	0.	5 JUL 0503	102	.01	.00	.01	25.
5 JUL 0006	3	.02	.02	.00	0.	5 JUL 0506	103	.01	.00	.01	16.
5 JUL 0009	4	.02	.02	.00	0.	5 JUL 0509	104	.01	.00	.01	12.
5 JUL 0012	5	.02	.02	.00	0.	5 JUL 0512	105	.01	.00	.01	10.
5 JUL 0015	6	.02	.02	.00	0.	5 JUL 0515	106	.01	.00	.01	9.
5 JUL 0018	7	.02	.02	.00	0.	5 JUL 0518	107	.01	.00	.01	9.
5 JUL 0021	8	.02	.02	.00	0.	5 JUL 0521	108	.01	.00	.01	8.
5 JUL 0024	9	.02	.02	.00	0.	5 JUL 0524	109	.01	.00	.01	8.
5 JUL 0027	10	.02	.02	.00	0.	5 JUL 0527	110	.01	.00	.01	8.
5 JUL 0030	11	.02	.02	.00	0.	5 JUL 0530	111	.01	.00	.01	8.
5 JUL 0033	12	.02	.02	.00	0.	5 JUL 0533	112	.01	.00	.01	8.
5 JUL 0036	13	.02	.02	.00	0.	5 JUL 0536	113	.01	.00	.01	8.
5 JUL 0039	14	.02	.02	.00	0.	5 JUL 0539	114	.01	.00	.01	8.
5 JUL 0042	15	.02	.02	.00	0.	5 JUL 0542	115	.01	.00	.01	8.
5 JUL 0045	16	.02	.02	.00	0.	5 JUL 0545	116	.01	.00	.01	8.
5 JUL 0048	17	.02	.02	.00	0.	5 JUL 0548	117	.01	.00	.01	8.
5 JUL 0051	18	.02	.02	.00	0.	5 JUL 0551	118	.01	.00	.01	8.
5 JUL 0054	19	.02	.02	.00	0.	5 JUL 0554	119	.01	.00	.01	8.
5 JUL 0057	20	.02	.02	.00	0.	5 JUL 0557	120	.01	.00	.01	8.
5 JUL 0100	21	.02	.02	.00	0.	5 JUL 0600	121	.01	.00	.01	8.
5 JUL 0103	22	.04	.04	.00	0.	5 JUL 0603	122	.00	.00	.00	7.
5 JUL 0106	23	.04	.04	.00	0.	5 JUL 0606	123	.00	.00	.00	3.
5 JUL 0109	24	.04	.04	.00	0.	5 JUL 0609	124	.00	.00	.00	1.
5 JUL 0112	25	.04	.04	.00	0.	5 JUL 0612	125	.00	.00	.00	1.
5 JUL 0115	26	.04	.04	.00	0.	5 JUL 0615	126	.00	.00	.00	0.
5 JUL 0118	27	.04	.04	.00	0.	5 JUL 0618	127	.00	.00	.00	0.
5 JUL 0121	28	.04	.04	.00	0.	5 JUL 0621	128	.00	.00	.00	0.
5 JUL 0124	29	.04	.04	.00	0.	5 JUL 0624	129	.00	.00	.00	0.
5 JUL 0127	30	.04	.04	.00	0.	5 JUL 0627	130	.00	.00	.00	0.
5 JUL 0130	31	.04	.04	.00	0.	5 JUL 0630	131	.00	.00	.00	0.
5 JUL 0133	32	.04	.04	.00	0.	5 JUL 0633	132	.00	.00	.00	0.
5 JUL 0136	33	.04	.04	.00	0.	5 JUL 0636	133	.00	.00	.00	0.
5 JUL 0139	34	.04	.04	.00	0.	5 JUL 0639	134	.00	.00	.00	0.
5 JUL 0142	35	.04	.04	.00	0.	5 JUL 0642	135	.00	.00	.00	0.
5 JUL 0145	36	.04	.04	.00	0.	5 JUL 0645	136	.00	.00	.00	0.

5 JUL 0148	37	.04	.04	.00	0.	*
5 JUL 0151	38	.04	.02	.02	4.	*
5 JUL 0154	39	.04	.00	.03	16.	*
5 JUL 0157	40	.04	.00	.03	26.	*
5 JUL 0200	41	.04	.00	.03	31.	*
5 JUL 0203	42	1.40	.00	1.40	310.	*
5 JUL 0206	43	1.40	.00	1.40	922.	*
5 JUL 0209	44	1.40	.00	1.40	1207.	*
5 JUL 0212	45	1.40	.00	1.40	1339.	*
5 JUL 0215	46	1.40	.00	1.40	1397.	*
5 JUL 0218	47	.37	.00	.37	1213.	*
5 JUL 0221	48	.37	.00	.37	768.	*
5 JUL 0224	49	.37	.00	.37	558.	*
5 JUL 0227	50	.37	.00	.37	459.	*
5 JUL 0230	51	.37	.00	.37	415.	*
5 JUL 0233	52	.16	.00	.16	355.	*
5 JUL 0236	53	.16	.00	.16	250.	*
5 JUL 0239	54	.16	.00	.16	202.	*
5 JUL 0242	55	.16	.00	.16	182.	*
5 JUL 0245	56	.16	.00	.16	174.	*
5 JUL 0248	57	.12	.00	.12	162.	*
5 JUL 0251	58	.12	.00	.12	141.	*
5 JUL 0254	59	.12	.00	.12	132.	*
5 JUL 0257	60	.12	.00	.12	128.	*
5 JUL 0300	61	.12	.00	.12	127.	*
5 JUL 0303	62	.08	.00	.08	118.	*
5 JUL 0306	63	.08	.00	.08	99.	*
5 JUL 0309	64	.08	.00	.08	90.	*
5 JUL 0312	65	.08	.00	.08	86.	*
5 JUL 0315	66	.08	.00	.08	84.	*
5 JUL 0318	67	.08	.00	.08	83.	*
5 JUL 0321	68	.08	.00	.08	83.	*
5 JUL 0324	69	.08	.00	.08	83.	*
5 JUL 0327	70	.08	.00	.08	83.	*
5 JUL 0330	71	.08	.00	.08	83.	*
5 JUL 0333	72	.08	.00	.08	83.	*
5 JUL 0336	73	.08	.00	.08	83.	*
5 JUL 0339	74	.08	.00	.08	83.	*
5 JUL 0342	75	.08	.00	.08	83.	*
5 JUL 0345	76	.08	.00	.08	83.	*
5 JUL 0348	77	.08	.00	.08	83.	*
5 JUL 0351	78	.08	.00	.08	83.	*
5 JUL 0354	79	.08	.00	.08	83.	*
5 JUL 0357	80	.08	.00	.08	83.	*
5 JUL 0400	81	.08	.00	.08	83.	*
5 JUL 0403	82	.03	.00	.03	72.	*
5 JUL 0406	83	.03	.00	.03	49.	*
5 JUL 0409	84	.03	.00	.03	38.	*
5 JUL 0412	85	.03	.00	.03	33.	*
5 JUL 0415	86	.03	.00	.03	31.	*
5 JUL 0418	87	.03	.00	.03	30.	*
5 JUL 0421	88	.03	.00	.03	30.	*
5 JUL 0424	89	.03	.00	.03	29.	*
5 JUL 0427	90	.03	.00	.03	29.	*
5 JUL 0430	91	.03	.00	.03	29.	*
5 JUL 0433	92	.03	.00	.03	29.	*
5 JUL 0436	93	.03	.00	.03	29.	*
5 JUL 0439	94	.03	.00	.03	29.	*
5 JUL 0442	95	.03	.00	.03	29.	*
5 JUL 0445	96	.03	.00	.03	29.	*

5 JUL 0648	137	.00	.00	.00	0.
5 JUL 0651	138	.00	.00	.00	0.
5 JUL 0654	139	.00	.00	.00	0.
5 JUL 0657	140	.00	.00	.00	0.
5 JUL 0700	141	.00	.00	.00	0.
5 JUL 0703	142	.00	.00	.00	0.
5 JUL 0706	143	.00	.00	.00	0.
5 JUL 0709	144	.00	.00	.00	0.
5 JUL 0712	145	.00	.00	.00	0.
5 JUL 0715	146	.00	.00	.00	0.
5 JUL 0718	147	.00	.00	.00	0.
5 JUL 0721	148	.00	.00	.00	0.
5 JUL 0724	149	.00	.00	.00	0.
5 JUL 0727	150	.00	.00	.00	0.
5 JUL 0730	151	.00	.00	.00	0.
5 JUL 0733	152	.00	.00	.00	0.
5 JUL 0736	153	.00	.00	.00	0.
5 JUL 0739	154	.00	.00	.00	0.
5 JUL 0742	155	.00	.00	.00	0.
5 JUL 0745	156	.00	.00	.00	0.
5 JUL 0748	157	.00	.00	.00	0.
5 JUL 0751	158	.00	.00	.00	0.
5 JUL 0754	159	.00	.00	.00	0.
5 JUL 0757	160	.00	.00	.00	0.
5 JUL 0800	161	.00	.00	.00	0.
5 JUL 0803	162	.00	.00	.00	0.
5 JUL 0806	163	.00	.00	.00	0.
5 JUL 0809	164	.00	.00	.00	0.
5 JUL 0812	165	.00	.00	.00	0.
5 JUL 0815	166	.00	.00	.00	0.
5 JUL 0818	167	.00	.00	.00	0.
5 JUL 0821	168	.00	.00	.00	0.
5 JUL 0824	169	.00	.00	.00	0.
5 JUL 0827	170	.00	.00	.00	0.
5 JUL 0830	171	.00	.00	.00	0.
5 JUL 0833	172	.00	.00	.00	0.
5 JUL 0836	173	.00	.00	.00	0.
5 JUL 0839	174	.00	.00	.00	0.
5 JUL 0842	175	.00	.00	.00	0.
5 JUL 0845	176	.00	.00	.00	0.
5 JUL 0848	177	.00	.00	.00	0.
5 JUL 0851	178	.00	.00	.00	0.
5 JUL 0854	179	.00	.00	.00	0.
5 JUL 0857	180	.00	.00	.00	0.
5 JUL 0900	181	.00	.00	.00	0.
5 JUL 0903	182	.00	.00	.00	0.
5 JUL 0906	183	.00	.00	.00	0.
5 JUL 0909	184	.00	.00	.00	0.
5 JUL 0912	185	.00	.00	.00	0.
5 JUL 0915	186	.00	.00	.00	0.
5 JUL 0918	187	.00	.00	.00	0.
5 JUL 0921	188	.00	.00	.00	0.
5 JUL 0924	189	.00	.00	.00	0.
5 JUL 0927	190	.00	.00	.00	0.
5 JUL 0930	191	.00	.00	.00	0.
5 JUL 0933	192	.00	.00	.00	0.
5 JUL 0936	193	.00	.00	.00	0.
5 JUL 0939	194	.00	.00	.00	0.
5 JUL 0942	195	.00	.00	.00	0.
5 JUL 0945	196	.00	.00	.00	0.