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FINAL
MASTER DRAINAGE STUDY
THE VILLAGES AT DESERT HILLS

Prepared For:
Del Webb Corporation

For Submittal to:
Maricopa County

Prepared By:
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3.0 LOCATION/DESCRIPTION/CONCEPT

The 5,661 acre Villages at Desert Hills, mixed use project is located within the unincorporated area of Northern Maricopa County. The site is located along Interstate 17 (I-17) between the City of Phoenix (south) and community of New River (north). **Plate 1** is a regional vicinity map for the site.

The project boundaries are irregular and the site is split by I-17 as shown on plate 2- property boundary. The eastern portion is bordered by I-17 on the west, 7th Avenue on the east, and Honda Bow Road on the north. The majority of the properties southern boundary runs along the Desert Hills Drive alignment, although a portion of the site adjacent to the I-17 extends south of Desert Hills Drive, one mile.

The western portion of the property extends north one mile and south 1/2 mile from the Honda Bow Road alignment.

Drainage Setting:

The Villages at Desert Hills project is traversed by three major flood plain areas. On the west, west of the freeway, the area is bisected by the New River Flood Plain. The flow in New River is very braided in the reach through the Villages at Desert Hills project, which flows north to south.

A portion of the area immediately West of the freeway drains south and enters the eastern portion of the Villages at Desert Hills under the freeway. This drains to the outfall of Deadman Wash.

The area east of the freeway is characterized by two distinct tributary/floodplain systems. Deadman Wash consists of various tributaries extending through the majority of the area. The outfall for the system is a dual bridge crossing the freeway from east to west in the southwesterly quadrant of the Village at Desert Hills. Approximately half of the Deadman tributary has been mapped through the project.

On the far east side of the Villages at Desert Hills, Skunk Creek runs from north to south, isolating the far southeast area of the project site. The reach of Skunk Creek through this project is being mapped and reanalyzed, with more accurate topography. The study results will be incorporated in a future Maricopa County remapping of the flood plain up and down stream of the Villages at Desert Hills.

Drainage Concept:

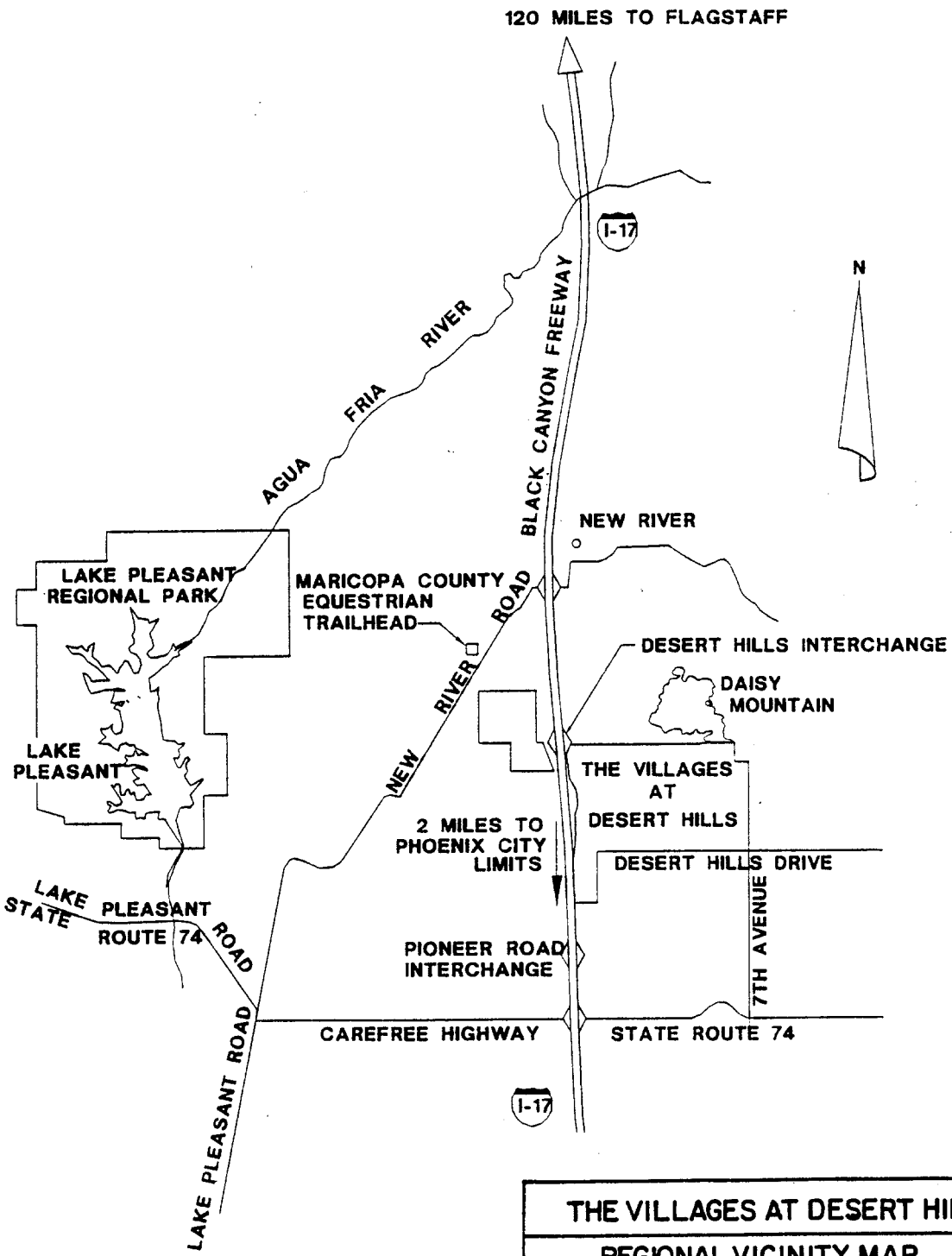
The Villages at Desert Hills project is being planned as an environmentally sensitive project that will incorporate cutting edge concepts for flood control and environmental impacts. The project will integrate ecological resources with transportation and open space amenities. The following concepts will be carried forward:

- Off site flows will enter and depart in substantially the same manner as under pre-development conditions.

- Onsite Detention Facilities will be designed in accordance with Maricopa Counties Drainage Design manual. The project outfalls to one of three regional drains, New River, Skunk Creek, or Deadman Wash. Regional drains are defined by the Flood Control District of Maricopa County as rivers or washes that serve watershed areas generally greater that 10 square miles. According to the *Uniform Drainage Policies and Standards of Maricopa County, Arizona* detention storage may be waived if the runoff can be directly carried to a regional drain. Based on this parameter and discussions on prior projects with the FCDMC, detention will not be necessary for the onsite area that is directly tributary to New River (420 ac.) and Skunk Creek

The Villages at Desert Hills

AREA VICINITY MAP



THE VILLAGES AT DESERT HILLS			
REGIONAL VICINITY MAP			
SCALE ———	JOB NO. EA1474.1	DATE Nov1995	PLATE 1

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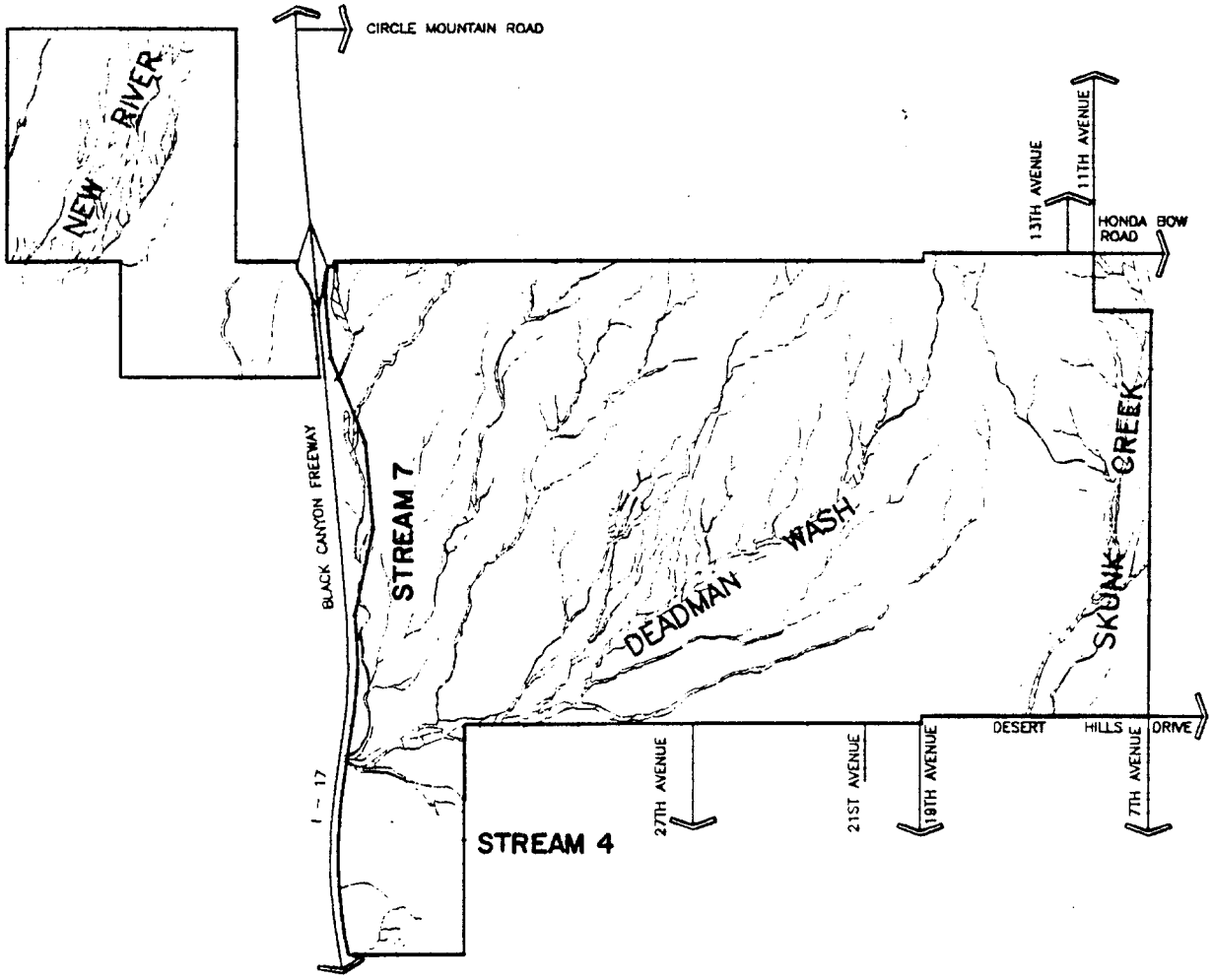

THE VILLAGES AT DESERT HILLS			
PROPERTY BOUNDARY/MAJOR WASHES			
SCALE —	JOB NO. 1474.1	DATE FEB 1996	PLATE 2
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(580 ac). However, detention will be necessary on the Deadman Wash Tributary (4030 ac) and smaller sub-tributaries to New River and Skunk Creek not draining directly to the washes (630 ac.), to reduce the post- development peak flow such that it is equal to or less than the existing peak flow.

- Additional on site runoff will be detained in individual subdivision basins and released at pre-development flow rates, based on a 100 year storm frequency. The 100 year - 2 hour storm volume will not be used as the detention standard. Volumes may exceed or be lower than the 100 year - 2 hour storm. Offsite flows will, however, not exceed pre-development flow rates.

- Detention basins will be designed as a flow thru system to sustain downstream habitat areas, and maintain existing sediment discharge characteristics. Exceptions to this policy are in commercial, multi-use and golf course basins, where first flush flows will be retained and filtered with constructed biological communities to remove potential contaminants prior to release to the channel systems.

- The major channel flood plain systems will be retained. Modifications will be made to enhance and add to the natural floura and fauna communities, as recommended by the biologic consultants. Minor systems within individual subdivisions will be retained or supplemented by constructed open channel systems, designed to supply new communities of native species.

- Basins and road/wash crossings will be designed as multipurpose facilities. Basins will be deeper than the normal 3' standard and will be used as open space and recreational amenities. Special safety considerations will be evaluated where basin depths exceed 3 feet. It is recommended that the side slopes not exceed 4H to IV on man made slopes. Culverts other than those proposed as part of the trail/path system or as wildlife corridor crossings will be grated on both ends. Channels will incorporate trail systems; road culverts (at trail crossings) will be designed as underpasses with low-flow, flow capabilities, for continual use during minor storm events.

- Street drains and detention along east-west arterial and collector streets will incorporate revegetated linear basins and dikes, bleeding into the channel system. No major underground storm drain is anticipated. The project will create a constructed habitat supplied by water generated from up stream subdivisions and off site high flows.

  Channel analysis will account for maintenance of existing wildlife communities in channels, as opposed to providing for considerable trimming and clearing.

- Stock Tanks will be eliminated. Present volume of storage in the tanks is as follows:

Location	Storage Volume
SE sec24	1.3 ac-ft
NE sec14	18.4 ac-ft
NW sec15	2.3 ac-ft
Site TOTAL	22 ac-ft

On site detention facilities will increase the storage capacity of the site such that there is no increase in flow from the project over pre-development conditions.

- Channels will use natural wash alignments. The threads or low flow portions of the natural wash system will be preserved as low flow areas to maintain the existing vegetation. Overbank flows will in some cases be modified to have more capacity and be revegetated with native landscaping integrated with the golf courses, to serve as an open space amenity. The

overbanks will also serve as a location for the constructed pathway system throughout the project.

Drainage Plan:

- A master drainage concept for each parcel is included in the Master Drainage Plan. Future work will include site specific applications of the drainage concepts.

- Detention basins which are intercepting off site and natural channel flows will be designed to allow the low flows in the thread of the stream to bypass unimpeded through the basin, thus preserving the sediment balance in the existing stream system.

- Basins in the upper reaches of the Villages at Desert Hills are oversized to reduce flows and allow parcels in the lower (southern) areas to drain without detention entirely. The detention volumes associated with each phase are tabulated in the Master Drainage Study.

- Channel crossections and culvert crossings are sized for the 100 year peak runoff. Where trail crossings intersect roadways the wash crossings are designed as underpasses with a minimum of 10 feet of clearance and an additional 2 to 3 feet of low flow and wildlife channel incorporated.

- Basins may be formed by either dikes or excavation and those along roadways will be designed to eliminate elevated roadways above housing areas on the lower side of the road. Where ever possible, roadways will be depressed 2' to 3' and will use dikes on both sides for drainage control and to reduce noise and visual intrusion into adjacent residential neighborhoods. Commercial area roadways will be at grade.

- Basins upstream and site facilities are phased to coincide with development benefiting adjacent areas. The existing drainage systems in undeveloped areas will remain as is until development, i.e., mass grading will not take place on the whole site.

- Golf courses will be designed to be internally drained to dead storage outfalls with native plants used as biofilters. Adequate new native habitat areas to golf courses will be used as off site flow areas and native wildlife enhancement areas. Water for these areas will be supplemented by effluent and may be used as natural effluent recharge areas.

- Wash/Street Crossings for 100 year all weather access crossings will be designed to pass the 100 year storm and where possible will be used as pedestrian/trail underpasses. The underpass will have a low flow separation from the pathway for nuisance water flows. All weather access crossings will incorporate where possible box culverts or CMP arches with sufficient head room for use as underpasses. All building sites will have a 100 year all weather access. The 100 year access route for the arterial streets are shown on the Master Drainage Plan (**Plate 8**).

  The streets will be designed to carry runoff from the 10-year storm between curbs. Additionally, the 100-year flow should be carried within the right-of- way at 0.3 feet above the curb and the finished floor elevations should be above the 100-year storm, in accordance with the *Uniform Drainage Policies and Standards for Maricopa County, Arizona*. When street capacities are exceeded, excess flow will be removed from the road and put in an open channel.

  Several crossings on the Master Drainage Plan will be designed for less than the 100 year storm capacity. These crossings will be designed with low flow culverts to be stable for overtopping by the 100 year strom. Dip sections will not be allowed on any arterial streets. The wet crossings are shown on the Master Plan.

Preliminary arterial street culverts are detailed in **Appendix C** of the report "Calculations and Data". In addition the culverts are shown on the Master Drainage Plan. These culverts are subject to revision with final road design plans.
It is proposed that local flows will be accommodated in a local system and will be addressed at the detailed design phase of the site specific development.

- A detailed hydraulic analysis of channels, road crossings, street flows, detention facilities, and the final design of improvements around them, are beyond the scope of this report. When evaluated for the final design, they will be based on generally accepted engineering practices and in accordance with drainage and floodplain regulations of the Flood Control District of Maricopa County.

- NPDES standards will be adhered to for construction activities and; a wetlands type treatment is proposed for inlets into area detention basins, and outlets from commercial areas and golf course areas. This will reduce the effects of pollutants such as silt, petroleum hydrocarbons, fertilizers, and pesticides on downstream receiving waters.

The purpose of this report is to present a Final Master Drainage Plan. In addition, this report will establish drainage parameters for site planning of the Villages at Desert Hills. Within this report is presented a detailed hydrologic and conceptual hydraulic analysis of the project drainage system. This includes a preliminary plan showing general direction of storm water runoff and how the onsite and offsite drainage will be handled. This Master Drainage Report (MDR) is intended to provide drainage information to satisfy the needs of all of the governmental agencies. The results of detailed hydrologic and hydraulic analysis of the major washes for existing conditions is included in this report based on prior studies by the county for New River, Skunk Creek, and Deadman Wash. The washes will be reanalyzed with development reflecting the new flow rates from the hydrologic analysis in this report.

4.0 HYDROLOGY

4.1 Watershed Characteristics

The majority of The Villages at Desert Hills is located in the Deadman Wash Watershed. A number of tributary washes flow through the property to concentrate a 12.9 square mile watershed known as Deadman Wash at the Interstate 17 bridge, the outfall from the site. New River crosses the northwest corner of the property, and Skunk Creek runs along the eastern boundary of the property, with small portions of the site tributary to New River (650 ac) and Skunk Creek (980 ac).

The watershed consists of mountains, hills, valleys, washes, and alluvial plains, with slopes ranging form 1% to greater than 30%. Presently, the majority of the land within the upstream watershed is natural desert. The general direction of drainage within the watershed is from the northeast to the southwest although eastern portions of the site also drain to the southeast.

The tributary is divided into two sections by Interstate 17 and a number of stock tanks have been constructed on site. The area east of I-17, shows the effects of a major fire which damaged much of the native vegetation.

There are two separate rainfall seasons in this portion of Arizona. The first occurs during the winter months from November to March when the area is subjected to occasional storms of low intensity and longer duration's. There can be periods of a month or more when practically no precipitation occurs. The hydrologically more important rainfall period occurs during June, July, August, and September when Arizona is subjected to intense thunderstorm activity whose moisture supply normally originates in the Gulf of Mexico and along Mexico's west coast. These thunderstorms are extremely volatile in intensity and limited aerially.

Natural vegetation varies in density across the site. The natural vegetation is thicker near alluvial washes and generally consists of creosote brush, cactus, scattered mesquite and Palo Verde trees. Annual grasses and forbs occur after winter rains.

Generally, runoff occurs only during and immediately following heavy precipitation. Consequently, all natural washes flow intermittently occasionally throughout the year.

As noted earlier, three watercourses cross the site, Deadman Wash, New River, and Skunk Creek. The hydraulic characteristics of each drainage course is described in the following paragraphs.

New River

New River crosses the northwest portion of the site, collecting 650 acres of areas onsite. The floodplain varies from about 1500 feet to 2000 feet wide within the site and carries a 100-year flow of about 33,400 cfs. According to the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and Incorporated Areas., Map numbers 04013C0370E and 04013C0760E (Maps Revised: September 28, 1989). The New River floodplain within the property is in zone "AE". Zone "AE" is defined by FEMA as "Special flood hazard areas inundated by 100-year flood, base flood elevations determined".

Skunk Creek

Skunk Creek runs along the eastern boundary of the site, collecting 980 acres of onsite runoff. The floodplain width within the site varies from about 800 feet to 2000 feet. The 100-year flow in Skunk Creek is about 28,000 cfs. According to the FIRM for Maricopa County, Arizona and Incorporated Areas, Map number 04013C0780D (Effective date: April 15, 1988), the Skunk Creek floodplain within the property is in Zone "A3". Zone "A3" is defined by FEMA as "Areas of 100-year floods; base flood elevations and flood hazard factors determined".

Deadman Wash

Numerous small tributaries that form Deadman Wash enter the site along the northern boundary. These washes flow through the property in a southwesterly direction, collecting approximately 3800 acres east of I-17 and approximately 260 acres west of the freeway. At the southwest corner of the site, these washes have a total tributary of 12.9 square miles. Deadman Wash leaves the property through a bridge under Interstate 17, the outfall of the majority of the site.

Hydrology for Skunk Creek and New River is not re-analyzed in this report. Hydrology for Deadman Wash is however included and re-analyzed for the effects this project will have on downstream areas, and to generate peak flows for future design of crossings and setting minimum elevations for finish floors.

4.2 Methodology

The watershed hydrology was developed utilizing procedures and methodologies described in the Hydrologic Design Manual for Maricopa County, Arizona (Manual), by Flood Control District of Maricopa County. The hydrologic analysis was performed using the U.S. Army Corps of Engineers' (USCE) HEC-1 computer program, version 4.0, dated September, 1990, as implemented by Haestad Methods, Inc. Peak discharges for the 100-year 6-hour storm were determined for the existing land use conditions in the watershed, as well as for proposed fully developed conditions.

Point precipitation values were obtained from isopluvial maps for Maricopa County published in the Drainage Design Manual. The rainfall distributions used were the rainfall patterns and distributions presented in the Manual for the 6-hour duration storm. Rainfall losses were estimated using the Green and Ampt infiltration equation with soil texture, vegetation cover, and land use information. Hydrographs were routed through the watershed using normal depth channel routing and reservoir storage routing.

4.3 Parameter Estimation

4.3.1 Drainage Area Boundaries

- The project watershed is located in the northeastern part of Maricopa County, Arizona. The study watershed area for the Deadman Wash tributary in the Villages at Desert Hills is approximately 12.92 square miles. Refer to **Plate 3 - Drainage Basin Map** for the watershed boundary. The watershed is bounded on the west by New River, on the north by Daisy Mountain, on the east by Skunk Creek, and on the south by the I-17 bridge. Daisy Mountain located in the northeast corner of the watershed, is the headwater of Deadman Wash and provides the highest elevation at 3,176 feet above mean sea level (msl).

The watershed is predominantly desert and undeveloped lands. The section of the watershed east of I-17 is characterized as very rugged mountainous terrain and flatter downstream floodplains. Stream channels are well-defined in the immediate mountain and hill slope areas. There is some

existing residential development between Desert Hills Drive and Irvine Road which consists of single family lots in excess of 1 acre in size.
The west section of the watershed is predominantly desert terrain with scattered mountains and hills. Stream channels in mountain areas are generally well-defined and become braided where the slope decreases. The flow pattern in this west section is characterized as a shallow widespread overland flow during major events.

The delineation of drainage sub-basins was accomplished using the current U.S. Geological Survey (USGS) 7.5 Minute Series topographic quadrangle maps at a scale of 1" = 2,000' with contour intervals of 20' or 40'. The four USGS quadrangle maps used, in clockwise order, are Daisy Mountain, New River SE, Biscuit Flat, and New River. In addition, aerial photographs, existing topographic maps, and the current SCS soils maps were also utilized in drainage area delineation.

Special considerations were given to delineation of the sub basins in order to provide discharge values at the major roadway crossings and for future development or improvement needs.

The watershed was sub-divided by Erie & Associates, Inc., into 136 drainage basins for existing condition modeling and 144 for proposed condition modeling. In addition, several of the subareas onsite are further subdivided in the post development model, for analysis of the project effects and future condition design runs.

The watershed boundaries and calculated areas match the Deadman Wash FIS. Some sub areas in the FIS are truncated at the project boundaries to obtain flow rate information entering or leaving the site.

4.3.2 Physical Parameters

Physical parameters include sub-basin parameters, Clark Unit Hydrograph Method Parameters, Green-Ampt loss parameters, reach routing parameters, and storage routing parameters. The following sub-sections describe the procedures and assumptions to obtain required parameters for the HEC-1 modeling.

4.3.2.1 Sub-Basin Parameters

The sub-basin parameters include a number of necessary pertinent data to obtain Clark Method Hydrology such as concentration times, storage coefficients, and Green-Ampt parameters. The following segments describe how these parameters are estimated for the hydrologic analysis.

Drainage Sub-Basins

The drainage sub-basins were delineated based on USGS 7.5 Minute Series quadrangle maps at a scale of 1" = 2,000' with 40' or 20' contour intervals and were supplemented by 2' contour interval mapping on site. Each sub-basin was delineated to concentrate precipitation excess at a common downstream concentration point. The area of each sub-basin is presented in **Table 1**.

Soils Parameters

Soil textures were obtained from the "Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona," prepared by U.S. Department of Agriculture, Soil Conservation Service, dated April 1986. The SCS source was used to identify 17 soil map units in the study watershed. **Table 2** contains a summary of soils map units descriptions in the watershed. Soil map units in the study watershed are presented on **Plate 4A - Soils Map**. **Plate 4B - Drainage Basins/Soils Map** illustrates both the drainage basins and soil type boundaries. The dominant soil in the watershed is **Carefree Cobbly Clay Loam**. Rock outcrop areas are scattered in the north end of the watershed.

Refer to the soil/geology section of the Development Master Plan for a more detailed discussion of the soils that comprise The Villages at Desert Hills.

Soil maps were obtained from the Soil Conservation Service for the hydrologic analysis. Areas of soil map units for each drainage sub-area were calculated by overlaying the drainage area boundaries and the SCS soil layers.

TABLE - 1 BASIN DRAIN AREA SUMMARY

SUB-BASIN I.D.	DRAINAGE AREA (SQ.MI.)	SUB-BASIN I.D.	DRAINAGE AREA (SQ.MI.)	SUB-BASIN I.D.	DRAINAGE AREA (SQ. MI.)
1A1	0.0786	8A	0.443	20A13	0.019
1A2	0.406	10A1	0.142	20A14	0.015
1A3	0.119	10A2	0.015	20A15	0.036
2A1	0.368	10B	0.371	20A16	0.071
2A2	0.0371	10C1	0.142	20A17	0.022
2B1	0.133	10C2	0.205	20A18	0.087
2B2	0.0122	10C3	0.149	20A19	0.057
2C1	0.363	10D1	0.061	20A20	0.054
2C2	0.513	10D2	0.096	20A21	0.024
3A1	0.112	'10E1	0.106	20A22	0.013
3A2	0.0271	'10E2	0.372	20A23	0.01
3B1	0.0159	'10E3	0.075	20A24	0.111
3B2	0.242	10F	0.078	20A25	0.029
3C	0.112	10G	0.138	20A26	0.121
3D1	0.117	10H	0.082	20A27	0.0133
3D2	0.031	10I	0.182	20A28	0.0167
3D3	0.207	10J	0.0749	20A30	0.0389
4B	0.262	8D	0.037	20A34	0.064
4D	0.199	4A1	0.0289	20A32	0.0337
4E1	0.122	4A2	0.0356	30A1	0.318
4E2	0.05	4A3	0.2385	30A2	0.084
5A	0.482	4C1	0.0423	30A3	0.097
5B	0.063	4C2	0.6507	30A4	0.029
5C	0.046	10H1*	0.022	40A1	0.046
5D	0.096	10H2*	0.06	40A2	0.011
'5E	0.061	10K1	0.01	40A3	0.038
5F1	0.081	10K2	0.0078	40A4	0.049
5F2	0.289	10K3	0.0133	40A5	0.076
5G1	0.129	10K4	0.026	40A6	0.147
5G2	0.273	10K5	0.0156	40A7	0.049
6A	0.503	10K6	0.0356	40A8	0.091
6B1	0.065	10K7	0.026	8B1	0.235
6B2	0.125	10L1	0.1101	8B2	0.029
7A1	0.548	10L2	0.2313	8B3	0.016
7A2	0.583	20A1	0.007	8C1	0.021
7A3	0.273	20A2	0.018	8C2	0.26
7A4	0.234	20A3	0.069	8C3	0.502
7A5	0.455	20A4	0.052	10I	0.182
7B	0.042	20A5	0.066	10J2	0.849
7C	0.047	20A6	0.035	10K8	0.164
7D	0.033	20A7	0.0039	10L3	0.072
7E	0.092	20A8	0.0106	10M	0.336
7F1	0.028	20A9	0.025	10N	0.073
7F2	0.029	20A10	0.035	10P	0.775
7G	0.073	20A11	0.038	10O	0.119
7H	0.162	20A12	0.04	9B	0.696
10Q	0.329	9A	0.975	20A24*	0.049
5F21*	0.146	5G21*	0.211	20A25*	0.016
5F22*	0.068	5G22*	0.062	20A26*	0.026
5F23*	0.032	20A33*	0.058	20A19*	0.039
5F24*	0.053	20A36*	0.158	20A20*	0.028

* Sub-basins used in proposed condition modeling or modified from existing conditions

TABLE 2 SOILS SUMMARY

No.	Map Unit No.	Soil Name
1	3	ANTHO-CARIZO-MARIPO COMPLEX
2	10	BRIOS-CARIZO COMPLEX
3	12	CAREFREE COBBLY CLAY LOAM
4	13	CAREFREE-BEARDSLEY COMPLEX
5	18	CHERIONI-ROCK OUTCROP COMPLEX
6	44	EBON VERY GRAVELLY LOAM
7	52	GACHADO-LOAMITAS-ROCK OUTCROP COMPLEX
8	68	GUNSIGHT-CIPRIANO COMPLEX
9	75	MOHALL LOAM
10	98	PINAMT-TREMANT COMPLEX
11	100	QUILOTOSA-VIAVA-ROCK OUTCROP COMPLEX
12	109	SCHENCO-ROCK OUTCROP COMPLEX
13	110	SUNCITY-CIPRIANO COMPLEX
14	112	TREMANT GRAVELLY SANDY LOAMS
15	113	TREMANT GRAVELLY LOAMS
16	118	TREMANT-RILLITO COMPLEX
17	123	VIAVA VERY GRAVELLY LOAM

Land Use Characteristics

In order to determine the surface retention loss for each sub-basin, the limits of land use (or surface) characteristics must be identified. Three major land use characteristics identified for the watershed are desert and rangeland, hill slope, and mountain. Engineering judgment was used to delineate the limits of three different land use characteristics. The judgment was based upon examination of soil and slope conditions using the SCS soil surveys, aerial photographs, USGS quadrangle maps, and field observations.

The hillslope areas were designated where the slope ranges between 5 and 15 percent and the percent impervious value is greater than zero. The mountain areas were assigned where the slope is greater than 10 percent or considerable bare-rock surface is presented. The scattered development in the watershed was designated as desert and rangeland because the effects of the impervious area for these developments are minimal and were assumed to be negligible. In addition on the project on site retention will limit runoff to at or below existing conditions.

Limits of these land use characteristics are presented on **Plate 5-Drainage Sub-Basin Land Use Map**. The surface retention loss (or initial abstraction, IA) values for desert and rangeland, hillslope and mountain were obtained from Table 4.1 in the manual. This IA value is one of five required parameters for use of the Green-Ampt infiltration equation. The composite IA value for each sub-basin was obtained from computing the estimated percentage of the sub-basin area for each surface characteristic. The values used were:

Land Use Characteristics	IA (inches)
Desert and Rangeland	**0.35**
Hillslope	**0.15**
Mountain	**0.25**

Proposed condition modifications are included in section 4.3.2.3 following.

Field Reconnaissance and Surveys

Field reconnaissance was conducted to verify conditions of the watershed, typical channel geometry, stream bed materials, split flow locations, and conditions of existing structures. Photographs were taken at locations to estimate Manning's n values, and vegetation cover density for channels and floodplains. Several stock tanks, were also inspected. Field surveys were also performed to obtain as-built data for existing structures and critical routing reaches for hydrologic analysis. The conclusions of field reconnaissance and surveys will be discussed in the subsequent sections where they are applied.

Vegetation

An average vegetation cover density in percent was estimated for each surface characteristic based on the aerial contact prints, photographs and field observations. The average vegetation cover density used for various existing land use characteristics were:

Land Use Characteristic	Vegetation Cover (%)
Desert and Rangeland	**25**
Hillslope	**40**
Mountain	**50**

The value of the hydraulic conductivity, XKSAT, for each soil map unit in the sub-basin was then adjusted for the effects of vegetation cover. Refer to **Green-Ampt Parameters** for details.

4.3.2.2 Clark Unit Hydrograph Method Parameters

In order to compute peak discharges at concentration points and strategic locations, the Clark Unit Hydrograph method was used. The Clark method uses two numeric parameters, the time of concentration (Tc) and the storage coefficient (R), and a time area function as a graphical parameter.

The time of concentration is defined as the travel time for a floodwave to travel from the most hydraulically remote point in the watershed to the concentration point. Sub-basin concentration times were computed by the Maricopa County Flood Control District's Unit Hydrograph Procedure 1 computer program, according to the empirical equation:

$$T_c = 11.4 L^{0.50} K_b^{0.52} S^{-0.31} i^{-0.38}$$

Where T_c = Time of Concentration in hours.
L = Length of flowpath for T_c in miles.
K_b = Watershed resistance coefficient.
S = Watercourse slope (along L) in feet per mile.
i = The average rainfall excess intensity during the time T_c in inches per hour.

The watershed resistance coefficient is estimated according to the empirical equation:

$$K_b = m \log A + b$$

Where m and b = dimensionless drainage area parameters depending on land use characteristics.
A = drainage area in acres.

Engineering judgement was used to estimate the entire existing watershed as Type C, according to the *Maricopa County Drainage Design Manual*, and as comprising hilly rangeland of moderately high roughness. The equation parameters m and b were estimated to be -0.025 and 0.15 respectively. Proposed conditions are discussed in section 4.3.2.3 following.

The watercourse slope measured along the flow path length, L, was adjusted in sub-basins of greater than approximately 200 foot per mile measured slope, to reflect correct estimations of Tc in mountains. Per the County's drainage manual figure 5.4, slopes greater than 600 ft./mi. are beyond the graph parameters. Those slopes (greater than 600 ft./mi.) were adjusted by extending the graph on a straight line basis to extrapolate an adjusted slope.

The storage coefficient R represents the effect that temporary storage in the sub-basin has on the hydrograph. The empirical equation for approximating R in Maricopa County is given as:

$$R = 0.37\, T_c^{1.11} A^{-0.57} L^{0.80}$$

Where R = Storage coefficient in hours.
Tc = Time of concentration in hours.
A = Drainage area in square miles.
L = Length of flowpath in miles.

The Maricopa County Flood Control Districts Unit Hydrograph Procedure 1 computer program was also used to compute storage coefficients.

The time-area function was used to reflect the natural watershed characteristics. The graphical relation plots area contributing to downstream discharge as a percent of total area, as a function of travel time as a percent of concentration time. A dimensionless time area relation reflecting natural

watershed and urban characteristics as tabulated in the *Maricopa County Drainage Design Manual* was used throughout the entire study area, and is included in **Table 3**. The urban distribution is used for all onsite subbasins.

Table 4, lists all of the sub-basin areas, flowpath lengths, adjusted watercourse slopes, watershed resistance coefficients, concentration times, and storage coefficients for both existing and proposed conditions.

Time as a Percent of Concentration	Contributing Area as A Percent of Total Area	
	Natural	Urban
0	0	0
10	3	5
20	5	16
30	8	30
40	12	65
50	20	77
60	43	84
70	75	90
80	90	94
90	96	97
100	100	100

TABLE 3 - Dimensionless Time Area Relation

TABLE 4 SUB-BASIN DRAINAGE PARAMETERS

SUB-BASIN I.D.	DRAINAGE AREA (MI²)	LENGTH L (MI)	ADJUSTED SLOPE FT/MI	WATERSHED RESISTANCE COEFFICIENT		TIME OF CONCENTRATION Tc		STORAGE COEFFICIENT R	
				Prop. K_b	Existing	Prop. (hr)	Existing	Prop. (hr)	Existing
1A1	0.0786	0.568	211.3	0.029	0.107	0.133	.267	0.107	.231
1A2	0.406	1.705	58.65	0.025	0.09	0.333	.833	0.280	.774
1A3	0.119	1.136	70.42	0.028	0.103	0.258	.617	0.307	.806
2A1	0.368	1.288	335	-	0.0907	-	.367	-	.263
2A2	0.0371	0.625	265	0.116	0.116	0.262	.283	0.376	.410
2B1	0.133	0.606	350	-	0.102	-	.233	-	.156
2B2	0.0122	0.189	250	0.128	0.128	0.154	.150	0.151	.146
2C1	0.363	0.757	145.3	0.025	0.091	0.158	.333	0.068	.156
2C2	0.513	1.515	85.81	0.024	0.087	0.262	.650	0.171	.468
3A1	0.112	0.492	360	-	0.104	-	.200	-	.122
3A2	0.0271	0.189	211	0.119	0.119	0.158	.150	0.099	.093
3B1	0.0159	0.133	300	-	0.125	-	.133	-	.083
3B2	0.242	0.814	147.42	0.026	0.095	0.167	.350	0.096	.220
3C	0.112	0.682	265	0.028	0.104	0.133	.267	0.101	.219
3D1	0.117	0.53	132.07	0.028	0.103	0.142	.300	0.086	.199
3D2	0.031	0.284	95.97	0.032	.0117	0.125	.250	0.097	.210
3D3	0.207	1.42	95.97	0.027	0.097	0.254	.617	0.263	.703
4B	0.262	0.795	320	-	0.094	-	.267	-	.152
4D	0.199	0.928	300	-	0.097	-	300	-	.230
4E1	0.122	0.455	320	0.103	0.103	0.200	.200	0.110	.110
4E2	0.05	0.549	145.72	0.112	0.112	0.333	.333	0.373	.373
5A	0.482	1.477	320	-	0.088	-	.400	-	.277
5B	0.063	0.667	260	0.030	0.110	0.138	.283	0.143	.319
5C	0.046	0.549	315	-	0.113	-	.233	-	.263
5D	0.096	0.568	315	-	0.105	-	.233	-	.178
5E	0.061	0.303	99	0.030	0.110	0.125	.250	0.070	.150
5F1	0.081	0.511	106	0.029	0.107	0.158	.333	0.117	.268
5F2	0.298	1.326	106	-	0.093	-	.567	-	.492
5G1	0.129	0.72	131.94	0.028	0.102	0.175	.400	0.132	.331
5G2	0.273	1.458	96.02	-	0.094	-	.617	-	.613
6A	0.503	2.008	250	-	0.087	-	.533	-	.476
6B	0.065	0.53	150.94	0.030	0.110	0.142	.300	0.121	.278
6B2	0.125	0.757	118.89	0.028	0.102	0.179	.383	0.144	.334
7A1	0.548	0.985	345	-	0.086	-	.300	-	.135
7A2	0.583	1.193	318	-	0.086	-	.350	-	.181
7A3	0.273	0.985	315	-	0.094	-	317	-	.214
7A4	0.234	0.606	300	-	0.096	-	.233	-	.113
7A5	0.455	1.303	119.3	-	0.088	-	.550	-	.387
7B	0.042	0.341	58.65	-	0.114	0.154	.333	-	.282
7C	0.047	0.663	120.66	-	0.113	-	.383	-	.525
7D	0.033	0.360	111.11	0.032	0.117	0.133	.267	0.122	.263
7E	0.092	0.852	129.11	-	0.106	-	.450	-	.523
7F1	0.028	0.265	150.94	0.032	0.119	0.104	.200	0.080	.164
7F2	0.029	0.265	207	0.032	0.118	0.092	.183	0.068	.146
7G	0.073	0.663	60.33	0.030	0.108	0.213	.483	0.212	.528
7H	0.162	1.326	90.5	0.027	0.100	0.254	.633	0.286	.788

TABLE 4 SUB-BASIN DRAINAGE PARAMETERS

SUB-BASIN I.D.	DRAINAGE AREA (MI²)	LENGTH L (MI)	ADJUSTED SLOPE FT/MI	WATERSHED RESISTANCE COEFFICIENT		TIME OF CONCENTRATION Tc		STORAGE COEFFICIENT R	
				Prop. K_b	Existing	Prop. (hr)	Existing	Prop. (hr)	Existing
8A	0.443	1.629	128.91	-	0.089	-	.583	-	.478
10A1	0.142	0.492	340	-	.0101	-	0.200	-	0.107
10A2	0.015	0.114	270	0.125	0.125	0.117	0.117	0.066	0.066
10B	0.371	1.10	163.9	0.025	0.091	0.183	0.400	0.107	0.254
10C1	0.142	0.947	230	0.028	0.101	0.158	0.333	0.139	0.318
10C2	0.205	0.91	105.6	0.027	0.097	0.196	0.433	0.139	0.335
10C3	0.149	0.947	82.73	0.028	0.100	0.217	0.500	0.192	0.486
10D1	0.061	0.436	126.15	0.030	.0110	0.142	0.300	0.107	0.246
10D2	0.096	0.53	66.04	0.029	0.105	0.183	0.433	0.129	0.335
10E1	0.106	0.663	181	0.029	0.104	0.146	0.300	0.113	0.252
10E2	0.372	1.326	90.5	0.025	0.09	0.242	0.567	0.168	0.434
10E3	0.075	0.436	68.8	0.029	0.108	0.162	0.350	0.111	0.260
10F	0.078	0.492	40.65	-	0.107	-	.467	-	.385
10G	0.138	0.909	60.51	-	0.101	-	567	-	.564
10J1	0.749	0.4735	63.3	0.029	0.108	0.175	.383	0.129	.307
8D	0.037	0.265	56.6	-	0.116	-	0.317	-	.234
4A1	0.0289	0.417	49	0.032	0.118	0.183	0.400	0.211	0.501
4A2	0.0356	0.341	49	0.032	0.116	0.167	0.350	0.143	0.327
4A3	0.2385	1.345	49	-	0.095	-	767	-	0.791
4C1	0.0423	0.473	51	0.031	0.114	0.192	0.417	0.197	0.467
4C2	0.6507	01.193	51	-	0.085	-	0.650	-	0.337
10H	0.082	0.492	50.8	-	0.107	-	0.45		0.363
10K1	0.01	0.1136	345	0.035	0.130	0.083	.117	0.057	.083
10K2	0.0078	0.1515	330	0.036	0.133	0.083	.133	0.082	.139
10K3	0.133	0.2083	280	0.034	0.127	0.083	.167	0.021	.169
10K4	0.026	0.2651	315	0.046	0.119	0.104	.167	0.083	.140
10K5	0.0156	0.3030	330	0.065	0.125	0.129	.183	0.157	.232
10K6	0.0356	0.3598	335	0.059	0.116	0.133	.183	0.117	.166
10K7	0.026	0.2273	280	0.032	0.119	0.100	.150	0.085	.110
10L1	0.1101	0.5492	335	0.077	0.104	0.188	.217	0.126	.148
10L2	0.2313	0.9470	285	-	0.096	-	.317	-	.228
20A1	0.007	0.1326	390	-	0.134	-	.117	-	.115
20A2	0.018	0.1894	390	-	0.1236	-	.133	-	.103
20A3	0.069	0.4072	340	0.109	0.109	0.200	.200	0.139	.139
20A4	0.052	0.6818	325	0.048	0.1119	0.171	.267	0.207	.339
20A5	0.066	0.6061	330	0.052	0.1093	0.171	.267	0.164	.269
20A6	0.035	0.3409	350	0.116	0.1161	0.188	.183	0.165	.161
20A7	0.0039	0.0947	320	0.140	0.1400	0.112	.117	0.117	.122
20A8	0.0106	0.1894	350	0.129	0.1293	0.146	.150	0.154	.159
20A9	0.025	0.3598	355	0.120	0.1196	0.196	.183	0.219	.203
20A10	0.035	0.4167	350	0.116	0.1161	0.208	.200	0.218	.208
20A11	0.038	0.5114	340	0.115	0.1154	0.229	.200	0.272	.277
20A12	0.04	0.3788	184.8	0.031	0.1148	0.117	.217	0.098	.195
20A13	0.019	0.2936	119.2	0.033	0.1229	0.125	.250	0.132	.285
20A14	0.015	0.3409	132.0	0.034	0.1256	0.133	.267	0.183	.395
20A15	0.036	0.2841	290	0.031	0.1158	0.092	.167	0.063	.123
20A16	0.071	0.4545	88	0.030	0.1085	0.158	.333	0.115	.263

TABLE 4 SUB-BASIN TABLE DRAINAGE PARAMETERS

SUB-BASIN I.D.	DRAINAGE AREA (MI²)	LENGTH L (MI)	ADJUSTED SLOPE FT/MI	WATERSHED RESISTANCE COEFFICIENT Prop. K_b	Existing	TIME OF CONCENTRATION Tc Prop. (hr)	Existing	STORAGE COEFFICIENT R Prop. (hr)	Existing
20A17	0.022	0.2841	105.6	0.033	0.1212	0.121	.250	0.114	.256
20A18	0.087	0.8901	106.7	0.029	0.1064	0.200	.450	0.227	.559
20A19	0.057	0.606	82.5	-	0.1110	-	.400	-	.459
20A20	0.054	0.4924	81.2	-	0.1115	-	.350	-	.346
20A21	0.024	0.4167	84.0	0.033	0.1201	0.158	.333	0.199	.455
20A22	0.013	0.2273	88.0	0.034	0.1272	0.117	.233	0.124	.267
20A23	0.01	0.1136	88.0	0.035	0.1298	0.083	.167	0.057	.123
20A24	0.111	0.7576	52.8	-	0.1037	-	.533	-	.516
20A25	0.029	0.4735	50.7	-	0.1183	-	.433	-	.605
20A26	0.121	1.3447	66.9	-	0.1027	-	.717	-	1.080
20A27	0.0133	0.2841	71.1	-	0.1268	-	.317	-	.443
20A28	0.0167	0.2462	71.1	0.034	0.124	0.138	.283	0.137	.306
20A30	0.0389	0.5492	58.1	0.031	0.115	0.200	.450	0.244	.601
20A32	0.318	0.3409	62.6	0.032	0.117	0.154	.333	0.135	.319
30A1	0.084	1.610	90.1	-	0.092	-	.650	-	.645
30A2	0.097	.076	91.74	-	0.107	-	.433	-	.482
30A3	0.029	0.5871	68.1	0.029	0.105	0.192	.417	0.146	.346
30A4	0.046	0.2462	81.2	0.032	0.118	0.121	.233	0.087	.180
40A1	0.011	0.3788	105.6	-	0.113	-	.283	-	.243
40A2	0.038	0.2273	105.6	0.035	0.129	0.112	.217	0.131	.271
40A3	0.049	0.4356	105.6	-	0.115	-	.300	-	.323
40A4	0.011	0.5682	105.6	0.031	0.113	0.167	.350	0.180	.410
40A5	0.076	0.5682	60.3	-	0.108	-	.433	-	.404
40A6	0.147	0.9470	84.5	0.028	0.100	0.217	.500	0.193	.490
40A7	0.049	0.625	105.6	0.031	0.113	0.175	.383	0.205	.489
40A8	0.091	0.5682	70.4	0.029	0.106	0.183	.400	0.140	.334
8B1	0.235	0.9848	82.7	-	0.095	-	0.500	-	0.387
8B2	0.029	0.3409	88.0	0.032	0.118	0.138	0.283	0.130	0.290
8B3	0.016	0.2651	105.6	0.034	0.125	0.117	0.233	0.124	0.269
8C1	0.021	0.2273	88.0	0.033	0.122	0.117	0.217	0.094	0.187
8C2	0.26	0.5682	105.6	0.026	0.094	0.154	0.317	0.064	0.142
8C3	0.502	1.515	128.9	-	0.087	-	0.233	-	0.269
10I	0.182	1.250	76	-	0.098	-	0.667	-	0.745
10J2	0.849	1.894	71.3	-	0.082	-	0.767	-	0.504
10K8	0.164	0.928	26.9	-	0.100	-	0.917	-	0.887
10L3	0.072	0.492	101.5	-	0.108	-	0.350	-	0.294
10M	0.336	0.966	29.5	-	0.092	-	0.300	-	0.176
10N	0.073	0.814	61.4	-	0.108	-	0.617	-	0.816
10P	0.775	1.837	209.6	-	0.083	-	0.533	-	0.346
100	0.119	0.890	84.3	-	0.103	-	0.550	-	0.584
10Q	0.329	1.288	300.0	-	0.092	-	0.367	-	0.280
9A	0.957	2.405	60.3	-	0.08	-	0.967	-	0.729
9B1	0.696	1.761	51.1	-	0.084	-	0.850	-	0.597
10H1*	0.022	0.152	50.8	0.033	-	0.112	-	0.065	-
10H2*	0.060	0.492	50.8	0.030	-	0.196	-	0.170	-
8D1*	0.021	0.152	56.6	0.033	-	0.112	-	0.065	-
8D2*	0.016	0.189	56.6	0.034	-	0.125	-	0.104	-
5F21*	0.146	0.663	106	0.028	-	0.171	-	0.112	-
5F22*	0.068	0.379	106	0.030	-	0.133	-	0.084	-

5F23*	0.032	0.474	106	0.032	-	0.158	-	0.188	-

TABLE 4 SUB-BASIN DRAINAGE PARAMETERS

SUB-BASIN I.D.	DRAINAGE AREA (MI²)	LENGTH L (MI)	ADJUSTED SLOPE FT/MI	WATERSHED RESISTANCE COEFFICIENT		TIME OF CONCENTRATION Tc		STORAGE COEFFICIENT R	
				Prop. K_b	Existing	Prop. (hr)	Existing	Prop. (hr)	Existing
5F24*	0.053	0.284	106	0.030	-	0.117	-	0.067	-
5G21*	0.211	0.852	96	0.027	-	0.196	-	0.129	-
5G22*	0.062	0.663	96	0.030	-	0.183	-	0.198	-
20A33*	0.058	0.379	67	0.030	-	0.154	-	0.108	-
20A36*	0.158	0.758	66.9	0.027	-	0.208	-	0.149	-
20A19*	0.039	0.474	70.2	0.031	-	0.175	-	0.187	-
20A20*	0.028	0.284	75.5	0.032	-	0.133	-	0.111	-
20A24*	0.049	0.474	31.5	0.031	-	0.221	-	0.212	-
20A25*	0.016	0.227	81.3	0.034	-	0.121	-	0.113	-
20A26*	0.026	0.341	45.9	0.032	-	0.171	-	0.177	-

*Sub-basins used in proposed condition modeling or modified from existing conditions.

4.3.2.3 Green-Ampt Loss Parameters

Rainfall losses were estimated using the Green-Ampt infiltration equation. The three Green-Ampt infiltration equation parameters are volumetric moisture deficit (DTHETA), wetting front suction (PSIF), and hydraulic conductivity at natural saturation (XKSAT). These parameters are functions of soil characteristics, ground surface characteristics, and land management practices.

The hydraulic conductivity for each sub-basin was areally weighted based on all of the soil components in each sub-basin. The composite value was determined based on the following equation.

$$\overline{XKSAT} = \text{ANTILOG}\left[\frac{\Sigma A_i \log XKSAT}{A_T}\right]$$

Where $\overline{XKSAT}$ = Composite Subarea Hydraulic Conductivity in inches per hour.

$\overline{XKSAT_i}$ = Hydraulic Conductivity of a Soil Component in inches per hour.

A_i = Planar Area of a Soil Component.

A_T = Planar Area of Entire Sub-Basin.

Values of these parameters are estimated based on the soil characteristics for bare ground conditions. The effect of ground cover will generally increase the infiltration rate. The areally weighted hydraulic conductivity, XKSAT, should be adjusted for the vegetation. The composite hydraulic conductivities were then adjusted for the vegetation cover percentages listed previously, by the following equation:

$$\overline{XKSAT_{ADJ}} = \left[\frac{V_c - 10}{90} + 1.0\right] \overline{XKSAT}$$

Where V_c = Vegetation Cover Percentage as Mentioned previously.

Vegetation cover percentages were aerially averaged in sub-basins comprising more than one vegetation cover percentage. The influence of land management practices, such as various tillages, results in changes to soil porosity. However, the Manual recommended that no adjustments of these parameters should be made for the influence of land management within Maricopa County.

The adjusted composite hydraulic conductivity was then used to estimate the volumetric moisture deficit (DTHETA), and the wetting front suction (PSIF) according to the log-log plot of capillary suction and volumetric moisture deficit as a function of hydraulic conductivity, included in the *Maricopa County Drainage Design Manual.* Since no irrigated land is within the existing study area, the "dry condition" was assumed, to select the DTHETA value for different soil textures. The proposed conditions modify the DTHETA values to the "normal condition" in golf course areas.

The application of the Green-Ampt infiltration equation to the HEC-1 model requires the estimation of two additional parameters. They are the initial abstraction, IA, and percent impervious of the sub-basin area, RTIMP. The parameter RTIMP represents only the percent of rock outcrop in the sub-basin since the effects of urban developments were assumed to be negligible for the existing land use condition program. Initial abstraction values were areally weighted according to the values listed previously. Percent impervious values were taken from the 1992 Deadman Wash study performed by Howard Needles Tammen and Bergendoff. **Table 5** lists the loss parameters for the

sub-basins, as used in the existing land use condition program. Proposed condition changes to RTIMP and IA are discussed in the "Proposed Land Use Condition" methodology, section 4.3.2.3.

TABLE-5 LOSS PARAMETER SUMMARY

SUB-BASIN I.D.	IA (in)	DTHETA	PSIF inches	XKSAT adj.	RTIMP %	IA* (in)	DTHETA*	RTIMP* (%)
1A1	0.35	0.24	9.8	0.037	0.00	0.3	0.24	15
1A2	0.35	0.25	9.4	0.042	0.00	0.25	0.229	30
1A3	0.35	0.185	11.5	0.018	0.00	0.30	0.185	5
2A1	0.25	0.35	4	0.396	31.14	0.25	0.35	31.14
2A2	0.217	0.37	5.4	0.0197	31.14	0.217	0.37	31.14
2B1	0.247	0.35	4	0.4	28.99	0.247	0.35	28.99
2B2	0.15	0.25	9.6	0.04	28.99	0.15	0.25	28.99
2C1	0.339	0.165	12	0.013	0.96	0.285	0.132	16.00
2C2	0.35	0.29	8.4	0.06	0.96	0.26	0.274	25
3A1	0.1967	0.35	4	0.409	29.33	0.1967	0.35	29.33
3A2	0.15	0.37	5.2	0.208	29.33	0.15	0.37	29.33
3B1	0.15	0.35	3.7	0.465	6.00	0.15	0.35	6.00
3B2	0.324	0.24	10	0.035	6.00	0.295	0.211	13.5
3C	0.27	0.35	7.5	0.123	7.34	0.27	0.326	17.5
3D1	0.35	0.16	12.5	0.012	0.012	0.255	0.464	27.5
3D2	0.35	0.16	12.5	0.012	0.012	0.273	0.143	18.75
3D3	0.35	0.23	10	0.031	0.012	0.24	0.166	30
4B	0.275	0.28	8.28	0.091	8.44	0.27	0.28	8.44
4D	0.27	0.33	7.7	0.116	6.47	0.27	0.33	6.47
4E1	0.303	0.37	5.9	0.205	5.77	0.25	0.37	45
4E2	0.314	0.35	4.6	0.293	5.77	0.25	0.35	45
5A	0.24	0.35	3.77	0.400	29.57	0.24	0.35	29.57
5B	0.3	0.35	7.5	0.121	8.97	0.295	0.327	14
5C	0.33	0.33	7.78	0.106	8.36	0.33	0.33	8.36
5D	0.33	0.4	6.6	0.177	7.83	0.33	0.40	7.83
5E	0.35	0.39	5.67	0.21	0.00	0.28	0.39	21
5F1	0.35	0.4	6	0.146	0.20	0.26	0.376	25
5F2	0.35	0.32	7.8	0.073	0.20	0.267	0.32	25.75
5G1	0.35	0.35	3.9	0.43	0.00	0.25	0.35	30
5G2	0.35	0.21	11	0.024	0.00	0.275	0.21	25
6A	0.3	0.35	3.55	0.314	26.05	0.3	0.35	26.05
6B1	0.35	0.28	8.8	0.054	0.00	0.265	0.28	22.5
6B2	0.35	0.26	9.2	0.045	0.00	0.27	0.233	29
7A1	0.215	0.35	3.7	0.492	27.66	0.215	0.35	27.66
7A2	0.267	0.35	3.8	0.443	27.66	0.267	0.35	27.66
7A3	0.211	0.35	4.3	0.325	27.66	0.211	0.35	27.66
7A4	0.34	0.35	4.7	0.272	27.66	0.34	0.35	27.66
7A5	0.35	0.39	5.9	0.162	27.66	0.35	0.39	27.66
7B	0.35	0.25	10.1	0.035	0.00	0.1	0.25	80
7C	0.35	0.33	7.78	0.105	0.00	0.35	0.33	0.00
7D	0.35	0.15	12.4	0.012	0.00	0.1	0.15	80
7E	0.35	0.39	6.78	0.163	2.93	0.35	0.39	2.93
7F1	0.35	0.36	6.8	0.11	0.00	0.7	0.36	80
7F2	0.35	0.215	10.5	0.027	0.00	0.1	0.215	80
7G	0.35	0.25	8.2	0.047	0.00	0.1	0.25	5

** Sub-basins used in proposed condition modeling or modified from existing condition
* Developed Conditions

TABLE-5 LOSS PARAMETER SUMMARY

SUB-BASIN I.D.	IA (in)	DTHETA	PSIF inches	XKSAT adj.	RTIMP %	IA* (in)	DTHETA*	RTIMP* (%)
7H	0.35	0.25	8.4	0.058	0.00	0.28	0.25	21
8A	0.35	0.250	8.6	0.07	0.00	0.35	0.25	0
10A1	0.25	0.35	3.9	0.423	32.13	0.25	0.35	32.13
10A2	0.195	0.37	5.4	0.2	32.13	0.195	0.37	32.13
10B	0.34	0.2	9.4	0.023	0.50	0.295	0.187	15.0
10C1	0.342	0.185	11.5	0.0176	0.01	0.271	0.169	22
10C2	0.35	0.225	10	0.031	0.01	0.25	0.225	30
10C3	0.35	0.18	11.5	0.016	0.01	0.257	0.158	26.25
10D1	0.35	0.35	3.8	0.43	0.00	0.25	0.35	30
10D2	0.35	0.35	4.6	0.281	0.00	0.253	0.35	28.75
10E1	0.35	0.185	11.5	0.018	0.00	0.3	0.185	15
10E2	0.35	0.195	11	0.021	0.00	0.273	0.15	18.75
10E3	0.35	0.265	9	0.048	0.00	0.265	0.265	22.5
10F	0.35	0.25	8.2	0.047	0.00	0.318	0.25	4.6
4A1	0.35	0.16	12	0.0117	0.00	0.25	0.16	30
4A2	0.35	0.16	12	0.0117	0.00	0.3	0.16	5
4A3	0.35	0.16	12	0.0117	0.00	0.35	0.16	0
4C1	0.35	0.16	12	0.0117	0.48	0.3	0.16	5
4C2	0.323	0.16	12	0.012	0.48	0.323	0.16	0.48
10H	0.34	0.35	3.5	0.29	1.54	0	0	0
10J	0.35	0.16	12	0.0117	0.00	0.20	0.16	42.5
10K1	0.194	0.35	3.8	0.45	7.22	0.194	0.35	45
10K2	0.244	0.35	3.75	0.462	7.22	0.244	0.35	45
10K3	0.23	0.35	3.7	0.466	7.22	0.23	0.35	45
10K4	0.242	0.35	3.7	0.444	7.22	0.242	0.35	45
10K5	0.254	0.35	3.85	0.43	7.22	0.254	0.35	45
10K6	0.23	0.35	4	0.391	7.22	0.23	0.35	45
10K7	0.308	0.39	6.2	0.136	7.22	0.25	0.39	45
10L1	0.212	0.39	6.2	0.138	11.24	0.212	0.39	45
10L2	0.19	0.37	5.4	0.198	11.24	0.19	0.37	11.24
20A1	0.25	0.35	3.6	0.504	32.13	0.25	0.35	32.13
20A2	0.25	0.35	3.6	0.504	32.13	0.25	0.35	32.13
20A3	0.263	0.35	3.4	0.578	14.42	0.263	0.35	15
20A4	0.337	0.35	4.3	0.34	3.35	0.3	0.35	15
20A5	0.297	0.35	3.3	0.625	2.7	0.297	0.35	15
20A6	0.277	0.35	3.7	0.4791	19.48	0.277	0.35	15
20A7	0.33	0.35	3.8	0.428	0.5	0.3	0.35	15
20A8	0.319	0.35	3.8	0.438	0.5	0.3	0.35	15
20A9	0.291	0.35	3.7	0.466	15.68	0.291	0.35	15
20A10	0.315	0.35	3.6	0.486	3.3	0.3	0.35	15
20A11	0.327	0.35	3.9	0.412	10	0.3	0.35	15
20A12	0.35	0.23	10	0.0315	0.5	0.3	0.23	15
20A13	0.35	0.22	10.5	0.281	0.5	0.3	0.22	15
20A14	0.35	0.35	4.2	0.344	0.5	0.3	0.35	15

** Sub-basins used in proposed condition modeling or modified from existing condition
* Developed Conditions

TABLE-5 LOSS PARAMETER SUMMARY

SUB-BASIN I.D.	IA sq. mi.	DTHETA inches	PSIF	XKSAT adj.	RTIMP %	IA* (in)	DTHETA*	RTIMP* (%)
20A15	0.322	0.36	5	0.243	0.5	0.3	0.36	15
20A16	0.35	0.33	7.4	0.087	0.5	0.3	0.33	15
20A17	0.35	0.32	7.6	0.082	0.5	0.25	0.32	30
20A18	0.35	0.21	10.7	0.025	0	0.21	0.21	25.5
20A19	0.35	0.16	12	0.0117	0	0.25	0.16	30
20A20	0.35	0.16	12	0.0117	0	0.25	0.16	30
20A21	0.35	0.16	12	0.0117	0	0.25	0.16	30
20A22	0.35	0.16	12	0.0117	0	0.25	0.16	30
20A23	0.35	0.16	12	0.0117	0	0.3	0.16	5
20A24	0.35	0.16	12	0.0117	0	0.275	0.16	17.5
20A25	0.35	0.16	12	0.0117	0	0.3	0.16	5
20A26	0.35	0.17	12	0.015	0	0.3	0.17	5
20A27	0.35	0.35	3.7	0.46	0	0.35	0.35	0
20A28	0.35	0.35	3.7	0.445	0	0.3	0.35	5
20A29	0.35	0.3	8	0.071	0	0.35	0.3	0
20A30	0.35	0.24	9.8	0.036	0	0.35	0.24	5
20A31	0.35	0.16	12	0.0117	0	0.35	0.16	0
20A32	0.35	0.29	8.2	0.065	0	0.35	0.24	5
30A1	0.35	0.15	12.5	0.01	0	0.35	0.15	0
30A2	0.35	0.15	12.5	0.01	0	0.35	0.15	0
30A3	0.35	0.285	8.4	0.061	0	0.30	0.285	5
30A4	0.35	0.15	12.5	0.01	0	0.30	0.15	5
40A1	0.35	0.16	12	0.0117	0	0.35	0.16	0
40A2	0.35	0.16	12	0.0117	0	0.25	0.16	30
40A3	0.35	0.18	11.75	0.016	0	0.35	0.18	0
40A4	0.35	0.18	11.75	0.016	0	0.25	0.18	30
40A5	0.35	0.24	10	0.035	0	0.35	0.24	0
40A6	0.35	0.19	11.5	0.02	0	0.25	0.19	30
40A7	0.35	0.16	12	0.0117	0	0.25	0.16	30
40A8	0.35	0.16	12	0.0117	0	0.25	0.16	30
8B1	0.35	0.16	12	0.0117	0	0.35	0.16	0
8B2	0.35	0.16	12	0.0117	0	0.25	0.16	30
8B3	0.35	0.16	12	0.0117	0	0.15	0.16	55
8C1	0.35	0.16	12	0.0117	0.29	0.25	0.16	30
8C2	0.35	0.16	12	0.0117	0.29	0.16	0.16	51
8C3	0.35	0.215	10.5	0.027	0.29	0.35	0.215	0.29
10I	0.32	0.35	7.5	0.12	5.53	0.32	0.35	5.53
10J2	0.35	0.16	12	0.0117	2.47	0.35	0.16	2.47
10K8	0.32	0.35	5	0.24	7.22	0.32	0.35	7.22
10L3	0.35	0.35	5	0.244	11.24	0.35	0.35	11.24
10M	0.3	0.36	3.81	0.29	9.69	0.3	0.36	9.69
10N	0.35	0.40	6.29	0.19	0	0.35	0.40	0
10P	0.28	0.35	7.5	0.13	7.5	0.28	0.35	7.5
10O	0.35	0.40	6.29	0.19	0	0.35	0.40	0
10Q	0.26	0.36	4.12	0.29	9.61	0.26	0.36	9.61
10R	0.35	0.25	10.10	0.04	0	0.35	0.25	0
9A	0.31	0.20	9.40	0.02	3.58	0.31	0.20	3.58

** Sub-basins used in proposed condition modeling or modified from existing condition
* Developed Conditions

TABLE-5 LOSS PARAMETER SUMMARY

SUB-BASIN I.D.	IA sq. mi.	DTHETA inches	PSIF	XKSAT adj.	RTIMP %	IA* (in)	DTHETA*	RTIMP* (%)
9B	0.35	0.20	9.40	0.02	0	0.35	0.2	0
5F21**	0.146	0	9.6	0.04	0	0.27	0.22	25.75
5F22**	0.068	0	8.00	0.07	0	0.25	0.30	45.00
5F23**	0.032	0	3.80	0.43	0	0.25	0.35	30.00
5F24**	0.053	0	6.40	0.13	0	0.10	0.38	80.00
20A19**	0.039	0	12.00	0.01	0	0.25	0.16	30.00
5G21**	0.211	0	11.50	0.02	0	0.28	0.13	25.00
5G22**	0.062	0	11.50	0.07	0	0.26	0.18	35.00
20A33**	0.058	0	12.00	0.01	0	0.30	0.16	30.00
20A36**	0.158	0	12.00	0.01	0	0.25	0.16	30.00
20A20**	0.028	0	12.00	0.01	0	0.25	0.16	30.00
20A24**	0.049	0	12.00	0.01	0	0.35	0.16	5.00
20A25**	0.016	0	12.00	0.01	0	0.30	0.16	5.00
20A26**	0.026	0	12.00	0.01	0	0.30	0.17	5.00
10H1**	0.022	0	4.10	0.37	0	0.17	0.35	64.25
10H2**	0.060	0	4.40	0.31	0	0.25	0.35	45.00

** Sub-basins used in proposed condition modeling or modified from existing condition
* Developed Conditions

HEC-1 Model Set-Up

The outputs of program **MCUHP1** were edited and assembled in the order shown on **Plates 6 - A&B Existing and Proposed development HEC-1 Model Schematic. Plates 6 A&B** were developed from **Plate 8** Drainage Basin Master Plan to describe the HEC-1 model logic for runoff hydrograph generation, hydrograph combinations, reach routing, storage routing, and diversion components. The HEC-1 simulation proceeds downstream until a concentration point is reached. All flood hydrographs above this point are computed and routed to this point. The hydrographs are combined to a concentration point down stream of I-17 to show the effects of development.

The HEC-1 model uses the JD and PC cards to simulate the rainfall depths, aerial reduction, and rainfall distributions. Hence, only the BA, LG, and UI records from the sub-basin MCUHP1 output remained in the HEC-1 models.

Reach Routing Parameters

Flood routing of the runoff hydrographs was performed using the normal depth storage-outflow channel routing option in HEC-1. Refer to **Plate 6A** for the HEC-1 model schematic for the existing routing logic. **Plate 6B** illustrates the proposed fully developed condition routing logic.

Normal Depth Channel Routing

Channel routing introduces time lag and peak flow attenuation of the flood hydrographs. The peak flow attenuation is accomplished through flow volume reduction from channel storage and outflow data computed based on channel characteristics. These channel characteristics include cross-section data, Manning's roughness coefficient, length and slope of the routing reach. The normal depth channel routing uses an eight-point cross section which is representative for the routing reach. Channel storage is computed from the product of cross sectional area and reach length. Outflow is calculated from the normal depth using Manning's equation. It should be noted that the routing proceeds on an independent reach basis from upstream to downstream and backwater or tailwater effects are not considered.

Reach Cross Sections

The routing cross sections were developed from field surveys, aerial photographs, topographic maps, and field photographs. These cross sections are selected to represent average conditions in the routing reaches. Four cross sections were used in the study area and are graphically illustrated on **Plate 4B**. An incised natural channel crossection was used in the upper reaches of the tributary. A broad shallow natural crossection is used in the lower reaches. A triangular section is used along the frontage road in the south area of the project. Routing along the roadways on the proposed condition is accomplished with a trapezoidal cross section, 4' deep channel with 5HtoIV side slopes and a 20 foot bottom. This will be landscaped with native vegetation. The channel extends along the entire length of the northern most portion of the all weather access road from sub-basin 7A5 east to sub-basin 1A1. It also extends along the east boundary of 20A36, south and west along the road (4A1, 1A2, 10E2) up to sub-basin 10C3. Concentration points at which culverts are to be constructed include 6B1, 5F1, 3D1, 2C1, and 10B.

Manning's n Values

Manning's n values for routing reaches were obtained based on field estimates, aerial photographs, and field photographs. Coefficients for both over bank and channel were estimated at 0.05 based on engineering judgment. **Table 6** shows the routing reach physical data including lengths, slopes, and Manning's n values.

The 0.05 friction factor may be low for some upper areas of the watershed, however the results are considered reasonably conservative if some trimming of fire occurs. The proposed condition is unchanged from the existing condition because, per the drainage concept (sec. 3.0) existing threads of washes are to remain undisturbed or will be revegetated with native materials.

TABLE 6 - ROUTING REACH DATA

REACH	SUB-BASIN	LENGTH	SLOPE		MANNINGS n's	
I.D.	I.D.	(ft)	(ft/ft)	n_L	n	n_R
R10A2	10A2	900	0.033	0.05	0.05	0.05
R10B	10B	5800	0.031	0.05	0.05	0.05
R10C31	10C3	5000	0.015	0.05	0.05	0.05
R10C2	10C2	4300	0.0186	0.05	0.05	0.05
R10C32	10C3	500	0.02	0.05	0.05	0.05
R10D21	10D2	2650	0.0132	0.05	0.05	0.05
R10D22	10D2	2700	0.0148	0.05	0.05	0.05
R10E2	10E2	7100	0.0176	0.05	0.05	0.05
R10E3	10E3	2400	0.0104	0.05	0.05	0.05
R1A2	1A2	9000	0.011	0.05	0.05	0.05
R1A3	1A3	3000	0.013	0.05	0.05	0.05
R10F	10F	2500	0.008	0.05	0.05	0.05
R2A2	2A2	1300	0.0385	0.05	0.05	0.05
R2B2	2B2	800	0.0625	0.05	0.05	0.05
R2C1	2C1	4000	0.0275	0.05	0.05	0.05
R2C2	2C2	8000	0.0163	0.05	0.05	0.05
R10G	10G	900	0.0055	0.05	0.05	0.05
R3A2	3A2	1000	0.04	0.05	0.05	0.05
R3B21	3B2	3900	0.0205	0.05	0.05	0.05
R3B22	3B2	4300	0.0279	0.05	0.05	0.05
R3D1	3D1	1500	0.0133	0.05	0.05	0.05
R3D2	3D2	1400	0.0143	0.05	0.05	0.05
R3D3	3D3	5600	0.0134	0.05	0.05	0.05
R10H	10H	2600	0.0096	0.05	0.05	0.05
R4A2	4A2	1000	0.0093	0.05	0.05	0.05
R4A3	4A3	7100	0.0093	0.05	0.05	0.05
R4C21	4C2	3850	0.0052	0.05	0.05	0.05
R4C22	4C2	5300	0.0104	0.05	0.05	0.05
R4D	4D	900	0.0167	0.05	0.05	0.05
R4E1	4E1	1100	0.0045	0.05	0.05	0.05
R4E2	4E2	2000	0.0125	0.05	0.05	0.05
R5E	5E	1600	0.0188	0.05	0.05	0.05
R5B	5B	2900	0.0224	0.05	0.05	0.05
R5F1	5F1	2100	0.0143	0.05	0.05	0.05
R5F2	5F2	7600	0.0131	0.05	0.05	0.05
R5G2	5G2	6900	0.0159	0.05	0.05	0.05
R6B1	6B1	2100	0.0143	0.05	0.05	0.05
R6B2	6B2	4600	0.0120	0.05	0.05	0.05
R7A2	7A2	4600	0.0348	0.05	0.05	0.05
R7A41	7A4	2500	0.02	0.05	0.05	0.05
R7A42	7A4	2100	0.0167	0.05	0.05	0.05
R7A5	7A5	6300	0.0135	0.05	0.05	0.05
R7B	7B	1800	0.0111	0.05	0.05	0.05
R7D	7D	1900	0.0.211	0.05	0.05	0.05
R7F1	7F1	900	0.0222	0.05	0.05	0.05
R7F2	7F2	1200	0.0292	0.05	0.05	0.05
R7G	7G	3500	0.0114	0.05	0.05	0.05
R7H	7H	5100	0.0108	0.05	0.05	0.05

TABLE - 6 ROUTING REACH DATA

REACH	SUB-BASIN	LENGTH	SLOPE		MANNINGS n's	
I.D.	I.D.	(ft)	(ft/ft)	n_L	n_c	n_R
R8C31	8C3	500	0.0009	0.05	0.05	0.05
R8B1	8B1	3100	0.0097	0.05	0.05	0.05
R8B31	8B3	500	0.0143	0.05	0.05	0.05
R8B32	8B3	500	0.02	0.05	0.05	0.05
R8C21	8C2	2200	0.02	0.05	0.05	0.05
R8C22	8C2	2700	0.02	0.05	0.05	0.05
R8C32	8C3	8000	0.02	0.05	0.05	0.05
R8D	8D	1400	0.0107	0.05	0.05	0.05
R10K2	10K2	500	0.01	0.05	0.05	0.05
R10K3	10K3	300	0.01	0.05	0.05	0.05
R10K4	10K4	450	0.01	0.05	0.05	0.05
R10K5	10K5	300	0.01	0.05	0.05	0.05
R10K6	10K6	400	0.01	0.05	0.05	0.05
R20A31	20A3	1700	0.062	0.05	0.05	0.05
R20A32	20A3	1700	0.073	0.05	0.05	0.05
R20A4	20A4	2600	0.029	0.05	0.05	0.05
20A161	20A16	2200	0.014	0.05	0.05	0.05
20A162	20A16	900	0.017	0.05	0.05	0.05
R30A3	30A3	3200	0.0125	0.05	0.05	0.05
R30A4	30A4	900	0.022	0.05	0.05	0.05
R20A11	20A11	400	0.0375	0.05	0.05	0.05
R20A12	20A12	700	0.021	0.05	0.05	0.05
R40A2	40A2	1000	0.02	0.05	0.05	0.05
R40A4	40A4	3000	0.02	0.05	0.05	0.05
R40A6	40A6	5000	0.02	0.05	0.05	0.05
R40A8	40A8	3000	0.02	0.05	0.05	0.05
R20A28	20A28	1000	0.02	0.05	0.05	0.05
R10I	10I	1000	0.005	0.05	0.055	0.07
R10J2	10J2	1000	0.0135	0.07	0.055	0.07
R10K81	10K8	4800	0.0052	0.08	0.065	0.08
R10K82	10K8	2600	0.0096	0.08	0.065	0.08
R10L3	10L3	2600	0.192	0.08	0.065	0.08
R10M	10M	1500	0.01	0.07	0.045	0.07
R10N	10N	2400	0.0083	0.07	0.055	0.07
R10Q	10Q	6700	0.0067	0.08	0.065	0.08
R9B	9B	9300	0.0097	0.08	0.065	0.08
R10R	10R	600	0.0083	0.08	0.065	0.08
R8D1*	8D1*	600	0.0107	0.05	0.05	0.05
R8D2*	8D2*	800	0.0107	0.05	0.05	0.05
R10H21*	10H2*	2600	0.0096	0.05	0.05	0.05
R10H22*	10H2*	2000	0.0096	0.05	0.05	0.05
R5F11*	5F1	2100	0.0143	0.05	0.05	0.05
R5F12*	5F1	700	0.02	0.05	0.05	0.05
R5F21*	5F21*	7600	0.0131	0.05	0.05	0.05
R7H1*	7H	4000	0.0108	0.05	0.05	0.05
R7H2*	7H	5100	0.0108	0.05	0.05	0.05
R5G221*	5F24*	1200	0.02	0.05	0.05	0.05
R5G222*	5F24*	1200	0.02	0.05	0.05	0.05
R1A21*	1A2	9000	0.011	0.05	0.05	0.05
R1A22*	1A2	3000	0.009	0.05	0.05	0.05
R10B1*	10B	5800	0.031	0.05	0.05	0.05
R10B2*	10B	1500	0.027	0.05	0.05	0.05
R4A1	4A1	1200	0.009	0.05	0.05	0.05

*Sub-basins and routing operations used in proposed condition modeling.

Reach Routing Steps and Channel Hydraulics

The normal depth routing method will require the input of an appropriate reach storage routing step number (NSTPS) on the RS card. The number of steps used in each routing process was estimated by dividing the measured reach length by the product of an assumed average reach velocity and computation interval .The average reach velocity was estimated based on review of average velocities in the watershed. In general the area north of the east-west loop road east of the freeway, is steeper and a check of several washes with the Manning equation resulted in an average velocity of 6 f.p.s. to be used for the NSTPS calculation for both existing and proposed conditions. The major channels will remain undisturbed on both conditions. The areas south of this loop road and the area west of the freeway use an average velocity of 4 f.p.s. This was determined by reviewing the Deadman Wash HEC-2 FEMA analysis for average channel velocities in the reaches under study. Calculated peak flows are relatively insensitive to changes in V_{avg} for NSTPS. Therefore the selected level of accuracy for this part of the analysis is considered acceptable. The computation interval was assumed at 5 minutes. The forementioned equation is as follows:

$$NSTPS = \frac{\text{REACH LENGTH}}{V_{AVG} * NMIN}$$

All of the NSTPS values used are listed in **Table 7**.

TABLE 7 ROUTING REACH NSTPS

REACH I.D.	NSTPS	REACH I.D.	NSTPS	REACH I.D.	NSTPS
R10A2	1	R4C22	4	R10K2	1
R10B	3	R4D	1	R10K3	1
R10C31	4	R4E1	1	R10K4	1
R10C2	4	R4E2	2	R10K5	1
R10C32	1	R5E	1	R10K6	1
R10D21	2	R5B	2	R20A31	1
R10D22	2	R5F1	1	R20A32	1
R10E2	6	R5F2	6	R20A4	1
R10E3	2	R5G2	6	R20A161	1
R1A2	8	R6B1	1	R20A162	1
R1A3	3	R6B2	3	R30A3	4
R10F	2	R7A2	3	R30A4	1
R2A2	1	R7A41	1	R20A11	1
R2B2	1	R7A42	1	R20A12	1
R2C1	2	R7A5	4	R40A2	1
R2C2	7	R7B	2	R40A4	3
R10G	1	R7D	2	R40A6	4
R3A2	1	R7F1	1	R40A8	3
R3B21	2	R7F2	1	R20A28	1
R3B22	2	R7G	3	R10I	1
R3D1	1	R7H	4	R10J2	11
R3D2	1	R8C31	1	R10K81	4
R3D3	5	R8B1	3	R10K82	3
R10H	2	R8B31	1	R10L3	3
R4A2	1	R8B32	1	R10M	1
R4A3	6	R8C21	2	R10N	2
R4C21	3	R8C22	2	R10Q	7
R9B	10	R8C32	7		
R8D1*	1	R8D	1		
R8D2*	1	R10R	1		
R10H21*	2	R7H2*	4		
R10H22*	2	R5G221*	1		
R5F11*	1	R5G222*	1		
R5F12*	1	R1A21*	8		
R5F21*	6	R1A22*	3		
R7H1*	3	R10B1*	3		
		R10B2*	1		
		R4A1*	1		

*Sub-basin hydrograph routing operations used in proposed modeling.

Precipitation

The design storm specified for hydrologic analysis in this study is the 100-year 6-hour duration storm. The 6-hour rainfall distribution contains five dimensionless rainfall patterns. All dimensionless rainfall patterns were selected from Table 2.4 in the Manual for direct input to the HEC-1 models using PC cards. Each rainfall pattern is valid up to a certain drainage area size. The appropriate area size for each pattern were selected from Figure 2.17 in the Manual and entered into the HEC-1 models using JD cards. Hence, the model will select an appropriate rainfall depth for each sub-basin based upon the drainage area size.

Precipitation Data

The mean rainfall point depths were obtained from the isopluvial maps in the Manual for 2-, 5-, 10-, 25-, 50-, and 100-year return periods for 6-hour duration. The point precipitation value for the 100-year 6-hour storm is 3.43 inches.

Aerial Reduction Factors

The precipitation reduction for the 100-year 6-hour duration storm was accomplished based on the depth-area reduction curve developed from the historic storm of 1954 over the Queen Creek area. This curve was developed by the USCE and is shown on Figure 2.14 in the Manual. Table 2.2 in the Manual presents depth-area reduction factors for a 6-hour duration rainfall. The total precipitation value for each respective drainage area size was adjusted based on the reduction factors. The resulting precipitation values were entered into the HEC-1 model using the JD cards. Page 95 in **Appendix C** includes additional information on this matter.

Calibration

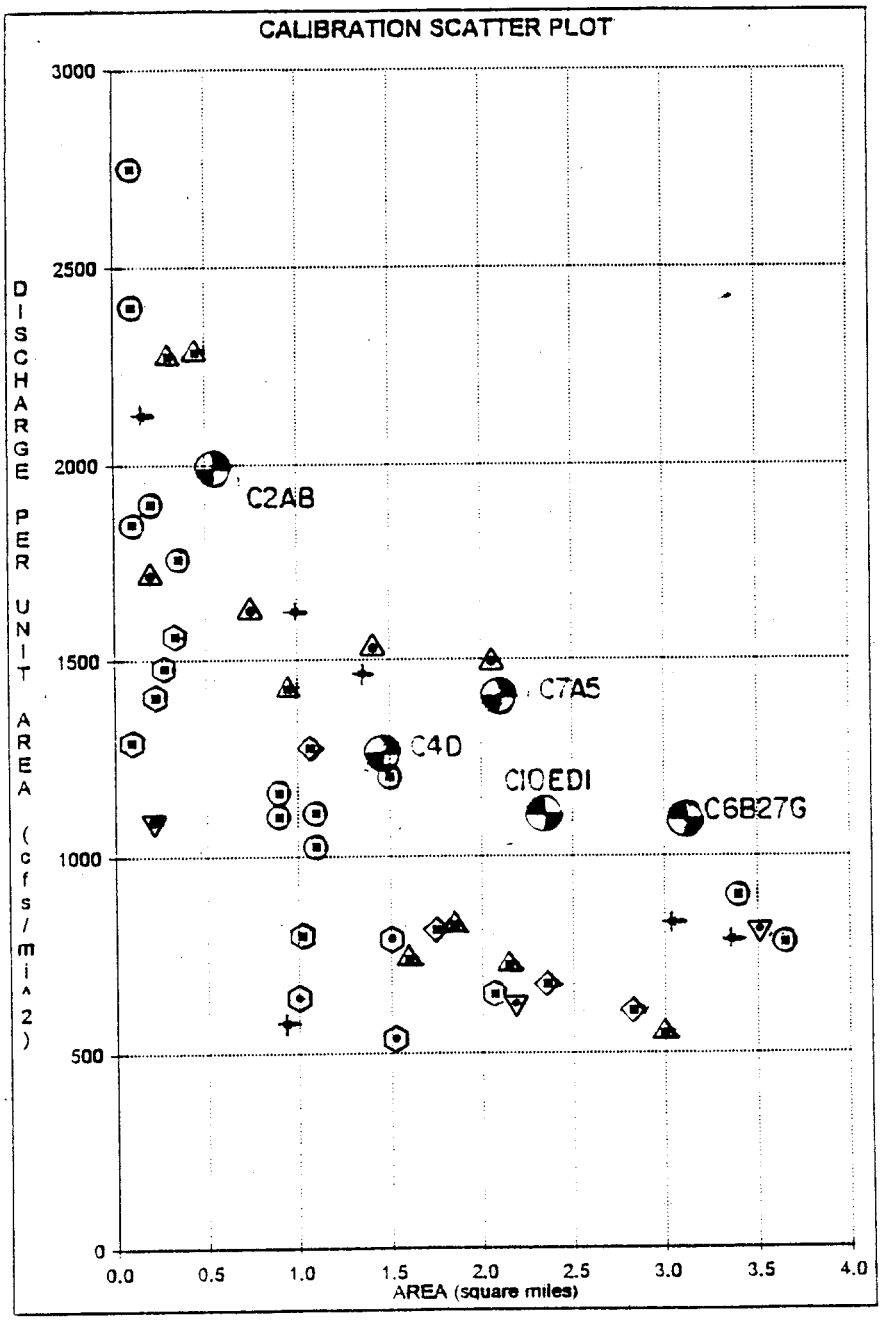
Calibration of the HEC-1 model parameters was performed by Erie & Associates, Inc., to insure that the model results are reasonable. The model calibration efforts were concentrated on peak flows, because there is not sufficient data at this time to calibrate the runoff volumes. Calibration was performed by plotting unit discharges as a function of contributing watershed area . Unit discharges were computed by dividing peak flows by watershed area contributing to the peak flow. These quotients were then plotted amongst unit discharges from other drainage studies. The scatter plot is included as **Plate 7** - Calibration Scatter Plot. A brief summary of each studies basic parameters is also included on **Plate 7**. The study results are on the high side of the calibration plots as expected. The relatively steep, fan shaped tributary will generate higher peaks than long narrow tributary's (Dove Valley, Cave Creek, Desert Ranch). In addition the existing results compare favorably with the prior FIS on Deadman Wash.

Stock Tanks

There are 4 stock tanks present in the study watershed. Some of the stock tanks were inspected during the field reconnaissance trips. It was concluded by MCFCD that these tanks will not provide any significant retention storage during a 100-year flood event due to lack of physical evidence for maintenance. They are therefore not considered in the hydrologic modeling.

4.3.2.3 Proposed Land Use Condition Methodology

Proposed land use conditions were reflected in the drainage parameters of the onsite drainage sub-basins.The percent impervious of each onsite drainage sub-basin (RTIMP) and the initial abstraction(IA)were changed to the values corresponding to the zoning of each parcel.RTIMPand IA values were taken from the Maricopa County Flood Control Districts' Drainage Design Manual.



STUDY CHARACTERISTICS

SHAPE	SLOPE	COVER	METHOD
LN	1 to 5	D	2
LN	1 to 5	D	2
F	<1	U	2
LN	1 to 5	D	1
F	1 to 5	D	1
F	1 to 5	D	1
F	>5	F	1
F	1 to 5	D	2
F	<1	U	2

DRAINAGE STUDY LEGEND

- Cave Creek
- Desert Ranch
- Pima Inn
- Dove Valley Estates
- Johnson Ranch
- The Villages at Desert Hills
- PRESCOTT LAKES
- SONORAN HILLS
- ARROWHEAD BUSINESS PARK

THE VILLAGES AT DESERT HILLS			
CALIBRATION SCATTER PLOT			
SCALE	JOB NO. EA 1474.1	DATE Nov 1995	PLATE 7
Erie & Associates, Inc. CONSULTING ENGINEERS Phoenix, Arizona 85016 / (602) 954-6399			

DESCRIPTION OF STUDY CHARACTERISTIC – SHAPE – LN (Long & Narrow), F (Fan); SLOPE – <1%, 1 to 5%, >5%. COVER – D (desert), F (forest), U (urban); METHOD – 1 (HEC-1, Green & Amp, 6hr Storm), 2 (HEC-1, CN., 6hr Storm)

The land use designations and corresponding RTIMP and IA values are listed in **Table -8 Land Use Characteristics**.

Times of concentration are modified thru the watershed resistance coefficient for each sub area. Mountainous sub areas on the upper watershed will remain the type "C" m&b parameters per Table 5.1 of the County Manual. Type "C" is a moderately high roughness. The lower non-mountainous sub areas of the project are modified for the proposed condition to a type "A" condition. Type "A" is an area of minimal roughness (m = -0.00625 and b = 0.04). Times of concentration therefore shorten in developed subbasins and are included in **Table 4**.

TABLE 8 LAND USE CHARACTERISTICS

Land Use Designation	RTIMP	IA (in)
R-2/R-5	45%	0.25
R-6	30%	0.25
R-7	30%	0.25
R-8	30%	0.25
R1-10	30%	0.25
R1-18	15%	0.3
R1-35	15%	0.3
R1-43	5%	0.3
I-1/1-3	80%	0.1
C-5	55%	0.15

The increase in post development peak discharges is offset by upstream detention facilities, also modeled with proposed conditions. The basins are shown on plate 8 Master Drainage Plan and are detailed in **Tables 16 and 17** in section 6 Retention/Detention. DTHETA is also modeled for the "normal condition" in golf course areas.

All proposed parcel boundaries corresponding land use designations, and sub areas are illustrated on **Plate 4C-Drainage Basins/Parcel Boundaries**.

4.4 Summary of Hydrologic Results

The watershed hydrology for Deadman Wash was developed using a Clark Unit Hydrograph HEC-1 model for the 100-year 6-hour duration storm. The results of the 100-year peak flows at concentration points are presented in **Table 9** for both existing and proposed land use conditions.

From **Table 9** a predevelopment peak flow of approximately 10,400 cfs for a drainage area of 12.92 square miles at the I-17 bridge was computed from the HEC-1 models in this report. The Deadman Wash FIS Study which used an S graph technique for the 24 and 6 hour storms resulted in a 100 yr. - 6 hour peak discharge of 8829 cfs for the same tributary. This is considered a good correlation between the two studies(10%±). Significant attenuation of peak flows occurs downstream. The post development flow for this same point is approximately 6,900 cfs, illustrating the significant peak flow reduction resulting from the proposed upstream detention facilities.

Peak flows on the 100 year storm leaving the site for post development conditions are at or below predevelopment peak rates in areas not draining directly to either Skunk Creek or New River.

TABLE 9 - 100 YEAR PEAK FLOW SUMMARY

HEC1 ID / CONCENTRATION POINT	LOCATION/ DESCRIPTION	DRAIN. AREA[1] (sq. mi)	100 YEAR EXISTING FLOW(cfs)	100 YEAR DEVELOPED FLOW(cfs)	DEADMAN STUDY 100 YEAR FLOW
C20A16**/20A16	Skunk Creek Trib.	0.32	601	714	---
20A17**/20A17	Skunk Creek Trib.	0.02	50	74	---
20A18**/20A18	Skunk Creek Trib.	0.09	138	225	---
20A19**/20A19	Skunk Creek Trib.	0.06/0.04	105	114	---
20A20**/20A20	Skunk Creek Trib.	0.05/0.03	117	98	---
20A21**/20A21	Skunk Creek Trib.	0.02/0.18	45	69	---
20A24**/20A24	Skunk Creek Trib.	0.11/0.05	186	134	---
20A22**/20A22	Skunk Creek Trib.	0.01	32	45	---
20A23**/20A23	Skunk Creek Trib.	0.01	34	39	---
20A27*/20A27	Skunk Creek Trib.	0.01	18	18	---
20A30**/20A30	Skunk Creek Trib.	0.08/0.04	58	97	---
C20A32**/20A32	Skunk Creek Trib.	0.10	172	159/54	---
20A25**/20A25	Skunk Creek Trib.	0.03/0.02	45	57	---
20A26**/20A26	Skunk Creek Trib.	0.12/0.03	122	76	---
I-17**/10H	I-17 Bridge	12.92/13	10175	7320	9437(24hr) 8829(6hr)
C4A2**/4A2	Deadman Trib.	0.06/0.04	117	114	---
4C1**/4C1	Deadman Trib.	0.04	77	123/0	---
C2C10F/10F	Deadman Trib.	3.84/3.97	3933	2871	3649
10G3D3/10G	Deadman Trib.	4.84/4.97	4866	3500	4475
C4D*/4D	Deadman Trib.	1.46/1.39	1817	1825	1757
10K1FS**/10K1	Deadman Trib.	0.01	4	5	---
10K2FS**/10K2	Deadman Trib.	0.02	6	7	---
10K3FS**/10K3	Deadman Trib.	0.03	7	10	---
10K4FS**/10K4	Deadman Trib.	0.06	17	21	---
10K5FS**/10K5	Deadman Trib.	0.07	12	14	---
C10K67**/10K6	Deadman Trib.	0.13	295	375/164	---
C10L12/10L1	Deadman Trib.	0.34	810	765/287	---
7C*/7C	Deadman Trib.	0.05	68	68	117
C6B1/6B1	Onsite Basin B1	0.57	738	684/126	---
C3D1/3D1	Onsite Basin B3	0.63	1391	1565/1309	---
C5F1/5F1	Onsite Basin B2	0.83/0.96	1279	1244/524	---
C2C1/2C1	Onsite Basin B4	0.91	1617	1394/648	---
C10B/10B	Onsite Basin B5	0.53/0.63	1143	1553/381	---
30A2*/30A2	New River Trib.	0.08	150	150	---
C30A4**/30A4	New River Trib.	0.11	191	162/0	---
30A1*/30A1	New River Trib.	0.32	460	460	---
C30A3**/30A3	New River Trib.	0.41/0.53	515	551/508	---
40A1*/40A1	New River Trib.	0.05	118	118	---
C40A2**/40A2	New River Trib.	0.06	132	125	---
40A3*/40A3	New River Trib.	0.04	85	85	---
C40A4**/40A4	New River Trib.	0.09	153	159	---
40A5*/40A5	New River Trib.	0.08	140	140	---
C40A6**/40A6	New River Trib.	0.22/0.27	309	553	---
C40A8**/40A8	New River Trib.	0.14/0.09	245	290	---
10J1**/10J1	Deadman Trib.	0.07	170	248/0	---
C8B1*/8B1	Deadman Trib.	0.68	929	929	---
C8C2**/8C2	Onsite Basin B11	1.00/1.08	1100	1178/981	---

HEC1 ID/ CONCENTRATION POINT	LOCATION/ DESCRIPTION	DRAIN. AREA [1] (sq. mi.)	100 YEAR EXISTING FLOW(cfs)	100 YEAR DEVELOPED FLOW(cfs)	DEADMAN STUDY 100 YEAR FLOW
C7A5*/7A5	Deadman Trib.	2.09	2851	2851	1499
7E*/7E	Deadman Trib.	0.09	124	124	192
6A*/6A	Deadman Trib.	0.5	744	744	704
C5CD*/5C	Deadman Trib.	0.14	340	340	395
5A*/5A	Deadman Trib.	0.48	967	967	800
3A1*/3A1	Deadman Trib.	0.11	331	331	---
2B1*/2B1	Deadman Trib.	0.13	353	353	---
2A1*/2A1	Deadman Trib.	0.37	752	752	---
10A1*/10A1	Deadman Trib.	0.14	435	435	---
20A1*/20A1	Skunk Creek Trib.	0.01	21	21	---
20A2*/20A2	Skunk Creek Trib.	0.02	53	53	---
20A7**/20A7	Skunk Creek Trib.	0.004	11	12	---
20A6**/20A6	Skunk Creek Trib.	0.04	91	85	---
20A8**/20A8	Skunk Creek Trib.	0.01	26	28	---
20A13**/20A13	Skunk Creek Trib.	0.02	35	54	---
C20A12/20A12	Skunk Creek Trib.	0.13	274	299	---
C10M/10M	Deadman Trib.	15.08	10503	7994	9077
C10NOP/10N	Deadman Trib.	16.04	10292	7948	8893
C10R/10R	Deadman Trib.	18.13	10351	8363	8946

*peak flows entering site

**peak flows leaving site

[1] 0.06/0.04 indicates existing contributing area and fully developed area, respectively, with the difference being attributed to re-routing and sub-basin truncation due to road location.

Table 9 - 100 year Peak Flow Summary

4.5 Phasing

The project is currently proposed as a four phase project over the next decade. Flood control measures necessary to support each phase are proposed for installation in the initial stages of each phase. The phase lines with associated basins and golf courses are shown on **Plate 8 Master Drainage Plan**.

5.0 HYDRAULICS

Hydraulic analysis of portions of the watershed was initially performed by study contractors for the county and FEMA on New River, Skunk Creek, Deadman Wash and associated tributaries. The HEC-2 models for those three studies were obtained for this report. The Deadman Wash analysis included a portion of this project up stream of I-17 and two additional washes referred to as stream 7 and stream 4 also extending thru the lower (southerly) portion of the project. **Plate 2** shows the wash locations studied on the site.

Two major drainage crossings exist along the reports study area for Deadman Wash. Two bridges have been constructed on Deadman Wash to carry I-17 northbound and southbound traffic. Two tributaries join Deadman Wash just upstream of the northbound bridge. Vegetation is very dense at these bridge locations.

No flood protection measures exist in the study area. There are at least 4 stock tanks present in the reports study area. The dam and dike structures for these tanks were not considered in the hydraulic analysis for the county, due to the lack of proper maintenance and capacity. This study was based on current conditions of the reaches on the streams studied. Water surface profiles were calculated for the reaches on the streams studied. The water surface profiles were performed using the U.S. Army Corps of Engineers' (USCE) HEC-2 computer program, version 4.6.2, dated May 1991, as implemented by Haestad Methods, Inc. Profiles were calculated for the Deadman Wash and its two tributaries (Stream Numbers 4 and 7) based on hydrology done for that flood insurance study (FIS). Floodplain and floodway boundaries, and flood hazard zones for insurance application were also determined by the County. No channel improvements nor scour analysis are included in this study.

Cross-section data for the FIS were digitized from topographic maps made from aerial survey flown in October, 1991 by Aerial Mapping Company, Inc. The topographic maps for the study reaches were furnished with a scale of 1" = 200' and contour intervals of 2' or 4'. The contour interval of 4' was used on topographic maps for the study reaches east of I-17, while a contour interval of 2' was used for the reaches west of I-17. Additional cross-section data were obtained from field surveys and as-built plans for the roadway crossings and bridges. Locations of cross sections used in the hydraulic analyses are shown on **Plate 8 - Master Drainage Plan. Table 10** summarizes FIS peak discharges at key locations onsite.

Future Hydraulic analysis of onsite washes will utilize more detailed mapping provided for The Villages. Three HEC-2 files are included in this report: New River, Deadman Wash and Skunk Creek. The HEC-2 runs are reproduced from applicable portions of the FEMA runs obtained from the Flood Control District of Maricopa County for the New River, Deadman Wash and Skunk Creek Studies. The analysis for Skunk Creek is currently being reanalyzed using more detailed topo by Erie & Associates from approximately 1/4 mile downstream of Desert Hills Drive upstream to Honda Bow Road. The district is in addition studying the reaches of Skunk Creek upstream and downstream of the reach under study by Erie & Associates. This work will be included in a separate addendum to this report that will be reviewed by MCFCD and FEMA.

Table 10

Summary of Peak Discharge at Key Locations

Flooding Source and Location	Drainage Area (square miles)	100-Year Peak Discharges (cfs)	
New River		33,400	
Skunk Creek		28,000	
Deadman Wash			
At I-17	12.72	9,440	CP-I17
At unnamed tributary (Stream No. 4)	6.33	6,220	
At unnamed tributary (Stream No. 3)	4.70	4,480	
At unnamed tributary (Stream No. 2)	3.75	3,650	
At 31st Avenue (Stream No. 1)	2.49	2,770	
At Future 29th Avenue	1.21	1,840	
At Future 22nd Avenue	0.52	1,020	
Unnamed Tributary (Stream No, 4)			
At I-17	1.63	1,760	CRC4E1
At Irvine Road	1.26	1,660	
At 29th Avenue	0.56	770	
Unnamed Tributary (Stream No. 7)			
At I-17	6.30	4,300	CP-CBD
At I-17 East Rest Area	4.76	3,170	CP-6B27G

5.1 Methodology

5.1.1 Manning's n Values

Manning's roughness coefficients were selected based on the results of field observations and engineering judgement. These values were estimated in accordance with the procedures outlined in the County's publication Estimating Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona, prepared by the U.S. Geologic Survey (USGS) for FCDMC, dated April 1991 and in the USGS publication "Roughness Characteristics of Natural Channels" WSP 1849, 1967. In addition, aerial photographs, existing topographic maps, and the current SCS soils maps were also utilized in selecting Manning's n values. Values for Deadman Wash were estimated ranging from .038 to .075 for the channel and from .065 to .095 for the overbanks. **Table 11** shows the Manning's n values estimated for channel and overbanks on each cross section. This information corresponds directly to the Deadman Wash FIS.

In general, channel bed material is cobbles and boulders with scattered vegetation, and was assigned a base value of 0.030 and 0.050. Channel banks have dense growth of brush and small trees, and the overbank areas are more sparse brush and bushes. Manning's n values were assigned to segments of cross sections with multiple or braided channels, and were modeled in the HEC-2 models using NH cards. Existing and proposed conditions are to be modeled using similar n factors. The threads of major onsite washes will not be disturbed or will be revegetated with native materials.

5.1.2 Expansion and Contraction Coefficients

For most of the study reaches, the contraction and expansion coefficients were selected as 0.1 and 0.3, respectively. For the I-17 northbound and southbound bridges, values of 0.6 and 0.8 were used to compute additional losses associated with skewed piers and channel bends. The expansion and contraction coefficients used are also presented in **Table 11**.

5.1.3 Cross-Section Description

Cross section locations were taken at approximately every 500 feet along the thalweg unless intermediate sections were required. The cross section number was labeled according to distance in miles along the thalweg. Mile 0.000 is at the confluence with New River. For its tributaries, the cross section labeling is Mile 0.000 at the confluence with Deadman Wash.

Each cross section was oriented such that it is normal to the direction of flow across the entire channel and floodplain. Cross sections are bent or doglegged as required and, will cover the entire 100-year floodplain.

Significant grade changes along a cross section are digitized from left to right looking downstream. The geometric data is recorded in accordance with HEC-2 format. The positional accuracy of these data is to the nearest one foot horizontally and to the nearest 0.5 vertically. The channel station center line (thalweg) was designated as Station 10,000 in compiling cross section geometric data. Some of the cross sections have multiple or braided channels, especially in the area just east of I-17. A segment of Stream Number 4 in the study reach consists of a highly braided channel.

5.1.4 Channel and Overbanks

The initial digitized cross section data for HNTB at the selected locations were provided by Aerial Mapping Company, Inc. in a HEC-2 input format. These data were processed by HNTB to set up the HEC-2 models. The channel left and right bank stations, channel and overbank reach lengths, and

Table 11
Cross Section Roughness Coefficient Values

Project: Deadman Wash Floodplain Deliniation Study
Stream:Deadman Wash from I-17 to 22ND Avenue.

SECNO	XNL	XNCH	XNR	CCHV	CEHV	Remarks
6.945	0.080	0.065	0.080	0.1	0.3	
7.042	0.080	0.065	0.080	0.1	0.3	
7.133	0.080	0.065	0.080	0.1	0.3	
7.228	0.080	0.065	0.080	0.1	0.3	
7.323	0.080	0.065	0.080	0.1	0.3	
7.417	0.080	0.065	0.080	0.1	0.3	
7.513	0.080	0.065	0.080	0.1	0.3	
7.587	0.080	0.065	0.080	0.1	0.3	
7.663	0.070	0.055	0.070	0.1	0.3	
7.738	0.070	0.055	0.070	0.6	0.8	bridge constriction
7.766	0.095	0.080	0.095	0.6	0.8	
7.769	0.095	0.013	0.095	0.6	0.8	at SB I-17 bridge
7.778	0.095	0.013	0.095	0.6	0.8	
7.785	0.095	0.080	0.095	0.6	0.8	between bridges
7.792	0.095	0.013	0.095	0.6	0.8	at NB I-17 bridge
7.800	0.095	0.013	0.095	0.6	0.8	
7.812	0.095	0.075	0.095	0.3	0.5	
7.872	-	0.075	-	0.1	0.3	NH cards used
7.921	-	0.075	-	0.1	0.3	NH cards used
8.016	-	0.075	-	0.1	0.3	NH cards used
8.111	0.095	0.075	0.095	0.1	0.3	
8.187	0.095	0.075	0.095	0.1	0.3	
8.278	0.095	0.075	0.095	0.1	0.3	
8.373	0.080	0.065	0.080	0.1	0.3	
8.485	0.080	0.065	0.080	0.1	0.3	NH cards used
8.574	-	0.065	-	0.1	0.3	NH cards used
8.670	-	0.065	-	0.1	0.3	NH cards used
8.763	-	0.065	-	0.1	0.3	NH cards used
8.853	-	0.065	-	0.1	0.3	NH cards used
8.939	-	0.065	-	0.1	0.3	NH cards used
9.021	-	0.065	-	0.1	0.3	NH cards used
9.114	-	0.065	-	0.1	0.3	NH cards used
9.210	-	0.065	-	0.1	0.3	NH cards used
9.304	-	0.065	-	0.1	0.3	NH cards used
9.400	0.080	0.065	0.080	0.1	0.3	
9.492	0.090	0.070	0.090	0.1	0.3	
9.586	0.090	0.070	0.090	0.1	0.3	

Table 11
Cross Section Roughness Coefficient Values

Project: Deadman Wash Floodplain Deliniation Study
Stream: Deadman Wash tributary (Stream No. 4) from mouth to future 29th Avenue alignment

SECNO	XNL	XNCH	XNR	CCHV	CEHV	Remarks
0.000	0.095	0.075	0.095	0.1	0.3	
0.054	–	0.075	–	0.1	0.3	NH cards used
0.145	–	0.075	–	0.1	0.3	NH cards used
0.231	0.060	0.048	0.060	0.1	0.3	
0.327	0.060	0.048	0.060	0.1	0.3	
0.423	0.060	0.048	0.060	0.1	0.3	
0.520	0.060	0.048	0.060	0.1	0.3	
0.592	0.060	0.040	0.060	0.1	0.3	at unnamed tank
0.782	0.058	0.040	0.058	0.1	0.3	at 33rd Avenue
0.876	0.058	0.040	0.058	0.1	0.3	at Irvine Road
0.971	0.058	0.040	0.058	0.1	0.3	
1.072	0.058	0.040	0.058	0.1	0.3	
1.172	0.058	0.040	0.058	0.6	0.8	
1.272	0.058	0.040	0.058	0.6	0.8	
1.367	0.058	0.040	0.058	0.6	0.8	
1.436	0.058	0.040	0.058	0.6	0.8	at 29nd Avenue

Project: Deadman Wash Floodplain Deliniation Study
Stream: Deadman Wash tributary (Stream No. 7&8) from mouth to future to I-17 East Rest Area

SECNO	XNL	XNCH	XNR	CCHV	CEHV	Remarks
0.025	0.095	0.075	0.095	0.3	0.5	bridge constriction
0.075	–	0.060	–	0.1	0.3	NH cards used
0.080	–	0.060	–	0.1	0.3	NH cards used
0.170	0.095	0.060	0.095	0.1	0.3	
0.266	0.095	0.060	0.095	0.1	0.3	
0.323	–	0.070	–	0.1	0.3	NH cards used
0.403	–	0.070	–	0.1	0.3	NH cards used
0.482	0.085	0.070	0.085	0.1	0.3	
0.591	0.085	0.070	0.085	0.1	0.3	
0.700	0.085	0.070	0.085	0.1	0.3	
0.805	0.085	0.070	0.085	0.1	0.3	
0.903	0.085	0.070	0.085	0.1	0.3	
1.002	0.085	0.070	0.085	0.1	0.3	at I-17 East Rest Area

Table 11
Cross Section Roughness Coefficient Values

Project: Deadman Wash Floodplain Deliniation Study
Stream:Deadman Wash from I-17 to 22ND Avenue.

SECNO	XNL	XNCH	XNR	CCHV	CEHV	Remarks
9.682	0.090	0.070	0.090	0.1	0.3	
9.776	0.090	0.070	0.090	0.1	0.3	
9.872	0.090	0.070	0.090	0.1	0.3	
9.966	0.090	0.070	0.090	0.1	0.3	
10.058	0.090	0.070	0.090	0.1	0.3	
10.151	0.090	0.070	0.090	0.1	0.3	
10.230	0.090	0.070	0.090	0.1	0.3	
10.325	0.090	0.070	0.090	0.1	0.3	
10.419	0.090	0.070	0.090	0.1	0.3	
10.544	0.090	0.070	0.090	0.1	0.3	at 22 Avenue

Manning's n values for channel and overbanks were entered into the models. Additional crossections and more accurate topo data will be used in addendums to this report. Adjustments are made to the cross section data for ineffective areas, multiple channels, and ponding areas. ET cards are used in natural profile runs to reflect the ineffective or ponding areas identified on topographic maps. NH cards are used to simulate the multiple channels or at the confluence of washes.

Table 11 presents the Manning's n values used for channel and overbanks for each cross section. **Table 12** shows the reach lengths used in the HEC-2 models for each cross section's channel and overbanks. The channel length was determined by the distance along the thalweg. The overbank length was determined by the distance between sections measuring through the centroid of the overbank areas.These overbank area limits were delineated based on preliminary HEC-2 runs by HNTB. **Appendix B - HEC-2 Input Output**, included shows input parameters and the results of hydraulic analysis by HNTB.

5.1.5 Calibration

Calibration is a major task for the hydraulic analysis in order to obtain reasonable results. Since no observed data were available for the study reaches, the effort was concentrated on the verification of critical input parameters for HEC-2 models. The verification by HNTB was accomplished by examining the key output variables which may affect the accuracy of the results. These key variables include computed water surface evaluation, top width, velocity, flow distribution, energy slope, and any warning messages. In addition, topographic maps, aerial photographs and field observations were utilized to verify the results.

The initial floodplain boundaries were plotted on topographic maps. Cross section and computed flood profiles were also plotted and reviewed. Dramatic changes of any key variables between cross sections were carefully examined. In addition, ineffective flow areas, ponding areas, and obstructions were identified on topographic maps. The results of the output analysis were incorporated into the HEC-2 models by calibrating the input parameters. These parameters include overbank reach length, contraction and expansion coefficients, and ineffective area parameters. Additional calibration is proposed for the future addendum's on Skunk Creek and Deadman Wash.

5.2 Bridges, and Culverts

Two bridges have been constructed on Deadman Wash to carry I-17 traffic flow. These bridges create minor constriction to the flood waters. Additional constriction is generated by the southbound bridge skewed piers and channel bends just east of the northbound bridge. The contraction and expansion coefficients were increased at these locations to simulate the constriction. No additional drainage structures were considered to exist along upstream study reaches of the tributaries studied.

5.2.1 I-17 Bridges

There are two 4-span I-17 bridges for the northbound and southbound traffic. The opening width of these bridges is 128 feet with three 2-feet wide piers. Two tributaries join Deadman Wash just upstream of I-17 with channel bends. The southbound bridge piers have been constructed with a skew angle to the flow, which will introduce additional constriction losses. The incoming Deadman Wash channel to the northbound bridge is skewed approximately 30 degrees. Vegetation is very dense through these bridges. It should be noted that the southbound bridge was constructed approximately four feet lower than the northbound bridge. It also appears that these bridges may have the capacity to convey a 100-year flood. However, the downstream channel is relatively shallow and narrow. Hence, overland flow is expected for the area downstream of the I-17 bridge.

Table 12

Cross Section Locations and Reach Lengths

Project: Deadman Wash Floodplain Deliniation Study

Stream Deadman Wash from I-17 to future 22nd Avenue

SENCO	Distance (Miles)	XLOBL (ft)	XLCH (ft)	XLOBR (ft)	Remarks
6.849	6.849	370	517	520	
6.945	6.945	695	507	375	
7.042	7.042	650	512	360	unnamed tank ignored
7.133	7.133	430	480	440	pond area ignored
7.228	7.228	502	502	502	pond area ignored
7.323	7.323	540	502	450	
7.417	7.417	490	496	500	
7.513	7.513	550	507	507	
7.587	7.587	290	391	391	
7.663	7.663	280	401	430	
7.738	7.738	370	396	410	
7.766	7.766	110	148	160	
7.769	7.769	17	17	17	dm. face I-17 SB bridge
7.778	7.778	45	45	45	up. face I-17 SB bridge
7.785	7.785	38	38	38	section between bridges
7.792	7.792	35	35	35	dm. face I-17 NB bridge
7.800	7.800	44	44	44	up. face I-17 NB bridge
7.812	7.812	64	64	64	confluence with Stream 7&8
7.872	7.872	280	317	330	
7.921	7.921	310	259	120	
8.016	8.016	510	502	470	confluence with Stream 4
8.111	8.111	502	502	502	
8.187	8.187	401	401	401	
8.278	8.278	430	480	510	
8.373	8.373	510	502	480	confluence with Stream 3
8.485	8.485	500	591	600	confluence with Stream 2
8.574	8.574	500	470	400	
8.670	8.670	507	507	480	
8.763	8.763	510	491	440	
8.853	8.853	440	475	520	
8.939	8.939	440	454	430	
9.021	9.021	510	433	310	confluence with Stream 1
9.114	9.114	400	491	470	
9.210	9.210	530	507	400	
9.304	9.304	430	496	580	
9.400	9.400	500	507	507	
9.492	9.492	400	486	540	
9.586	9.586	550	496	450	future 29th Ave. alignment

Table 12

Cross Section Locations and Reach Lengths

Project: Deadman Wash Floodplain Deliniation Study

Stream: Deadman Wash from I-17 to future 22nd Avenue

SENCO	Distance (Miles)	XLOBL (ft)	XLCH (ft)	XLOBR (ft)	Remarks
9.682	9.682	480	507	510	
9.776	9.776	490	496	480	
9.872	9.872	510	507	480	
9.966	9.966	470	496	520	
10.058	10.058	490	486	440	
10.151	10.151	440	491	500	
10.230	10.230	460	417	340	
10.325	10.325	470	502	550	
10.419	10.416	510	496	420	
10.544	10.544	650	660	650	future 22nd Ave alignment

Table 12

Cross Section Locations and Reach Lengths

Project: Deadman Wash Floodplain Deliniation Study
Stream: Deadman Wash from I-17 to future 22nd Avenue

SENCO	Distance (Miles)	XLOBL (ft)	XLCH (ft)	XLOBR (ft)	Remarks
0.000	0.00	0	0	0	just upstream I-17 bridge
0.054	0.054	310	283	250	
0.145	0.145	480	480	480	
0.231	0.231	440	455	475	
0.327	0.327	490	507	495	
0.423	0.423	507	507	430	
0.520	0.520	480	512	560	
0.592	0.592	385	380	350	unnamed tank ignored
0.782	0.782	930	1,003	950	at 33rd Ave.
0.876	0.876	400	496	560	at Irvine Road
0.971	0.971	495	502	505	
1.072	1.072	550	528	480	
1.172	1.172	520	528	490	
1.272	1.272	530	502	490	
1.367	1.367	490	502	502	
1.436	1.436	360	364	360	future 29th Ave. alignment

Project: Deadman Wash Floodplain Deliniation Study
Stream: Deadman Wash Tributary (Stream No. 7&8) from the mouth to the I-17 East Rest Area

SENCO	Distance (Miles)	XLOBL (ft)	XLCH (ft)	XLOBR (ft)	Remarks
0.025	0.025	0	0	0	just upstream I-17 bridge
0.075	0.075	350	264	200	
0.080	0.080	26	26	26	
0.170	0.170	540	475	430	
0.266	0.266	510	507	500	
0.323	0.323	301	301	320	
0.403	0.403	480	422	300	confluence with Stream 8
0.482	0.482	390	417	420	
0.591	0.591	560	576	560	
0.700	0.700	525	576	576	
0.805	0.805	545	554	554	
0.903	0.903	485	517	420	
1.002	1.002	450	523	520	at I-17 East Rest Area

The special bridge method was selected to determine the class of flow through these bridges. The bridges were modeled separately. The contraction and expansion coefficients of 0.6 and 0.8 were used through the bridge sections. A 100 percent clogging factor was applied to the piers. No adjustments have been made to the cross section data for the skewed incoming channels, because there is a relatively well-defined channel approaching the northbound bridge with two tributaries tying into the Deadman Wash.

Class A flow was determined for the southbound bridge with 0.8 feet of freeboard. The flow type of this bridge will become a pressure flow with any minor obstruction, because the energy grade line is about 0.3 feet below the bridge low chord elevation. Class A low flow was determined for the northbound bridge, which means that the flow is in a subcritical flow regime. The northbound bridge has approximately 3.7 feet of freeboard. No significant backwater effect to the upstream areas was caused by these bridges. The downstream channel only has a capacity to convey 56 percent of the total flow with a channel velocity of 9 feet per second. Overland flow occurs immediately downstream of the I-17 bridges.

Flood plain and floodway data for Deadman Wash is presented in **Table 13**. Floodway data for New River is presented in **Table 14** and for Skunk Creek in **Table 15**.

5.3 Final Results and Computer Runs

Floodplain and floodway delineations were performed using the USCE HEC-2 computer model for Deadman Wash and its two tributaries and for portions of New River and Skunk Creek thru the project. The delineations for Deadman Wash was conducted from downstream of I-17 to future 22nd Avenue alignment, approximately 3 miles in length. No delineations have yet been made to the remaining 2.5 miles of Deadman Wash from future 22nd Avenue to the headwater. Stream Numbers 4 and 7 were delineated approximately 1.5 and 1.0 miles upstream from their confluences with Deadman Wash, respectively. In addition, flood insurance zones were also determined for the above study streams. Future delineations will be prepared for other streams within the project and to extend the analysis thru the entire project reach.

The results indicated that the Deadman Wash stream channel does not have adequate capacity to carry a 100-year flow. In general, only approximately 30 percent of the 100-year flow will be contained in the Deadman Wash main channel. Because Deadman Wash consists of relatively narrow channels and broad floodplain, special attention was paid to, ineffective flow and sheet flow flooding area throughout the study reaches.

The results showed that a wide floodplain exists wherever the major tributary joins the Deadman Wash due to inadequate capacity in the main channel.

The existing I-17 northbound and southbound bridges have the capacity to pass the 100-year flood. Class A low flow was determined for both bridges, which means that the flow is in a subcritical flow regime. The water under the southbound bridge impinges the bridge low chord, while 3.7 feet of freeboard is computed for the northbound bridge. These bridges will not create significant backwater to upstream areas. The overland flow occurs immediately downstream of these bridges due to shallow and narrow stream channel.

Overland flow also occurs along two tributaries, Stream Numbers 4 and 7, due to inadequate channel capacity. Braided channels and flat floodplains exist for Stream Number 4. The 33rd Avenue and Irvine Road will be impassible during a 100-year flood because there in no existing drainage structures on Stream Number 4. Stream Number 7 and 8 channel is relatively well-defined and runs between I-17 embankments and hillslopes. The 100-year flood elevations are at least 3 feet below the I-17 roadway grade in the study reaches.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
Cross section	Distance	Width (ft)	Section Area (sq. ft.)	Mean Velocity (fps)	Regulatory	Without Floodway	With Floodway	Increase
DEADMAN WASH					(feet NGVD)			
A	0.231	120	444	4.0	1742.4	1742.4	1742.9	0.5
B	0.327	180	350	5.0	1745.6	1745.6	1745.9	0.3
C	0.423	206	457	3.9	1750.2	1750.2	1750.8	0.6
D	0.520	85	249	7.1	1754.9	1754.9	1755.3	0.4
E	0.592	105	243	7.2	1763.7	1763.7	1764.1	0.4
F	0.782	205	751	2.2	1767.2	1767.2	1768.1	0.9
G	0.876	120	269	6.2	1768.9	1768.9	1769.4	0.5
H	0.971	100	373	4.4	1772.3	1772.3	1773.0	0.7
I	1.072	100	215	7.7	1776.3	1776.3	1776.8	0.5
J	1.172	135	430	3.9	1779.9	1779.9	1780.7	0.8
K	1.272	180	392	4.2	1781.9	1781.9	1782.3	0.4
L	1.367	120	351	4.7	1784.6	1784.6	1784.8	0.2
M	1.436	135	438	3.8	1785.7	1785.7	1786.5	0.8

*River Miles Above Confluence With New River

Table 13

Flood Control District of Maricopa County
Maricopa County, AZ
and Unicorporated Areas

FLOODWAY DATA

DEADMAN WASH
TRIBUTARY-STREAM NO. 4

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
Cross section	Distance	Width (ft)	Section Area (sq. ft.)	Mean Velocity (fps)	Regulatory	Without Floodway	With Floodway	Increase
DEADMAN WASH					(feet NGVD)			
A	0.170	200	980	4.4	1737.4	1737.4	1738.2	0.8
B	0.266	178	754	5.7	1740.9	1740.9	1741.7	0.8
C	0.323	180	866	5.0	1744.1	1744.1	1744.8	0.7
D	0.403	430	1,649	2.6	1745.5	1745.5	1746.4	0.9
E	0.482	246	426	7.4	1750.8	1750.8	1750.7	-0.1
F	0.591	190	801	4.0	1758.7	1758.7	1759.0	0.3
G	0.700	180	656	4.8	1762.7	1762.7	1763.3	0.6
H	0.805	130	445	7.1	1770.0	1770.0	1770.5	0.5
I	0.903	264	825	3.8	1776.3	1776.3	1777.0	0.7
J	1.002	136	494	6.4	1781.5	1781.5	1782.4	0.9

*River Miles Above Confluence With New River

Table 13

Flood Control District of Maricopa County
Maricopa County, AZ
and Unicorporated Areas

FLOODWAY DATA

DEADMAN WASH
TRIBUTARY-STREAM NO. 7

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
Cross section	Distance	Width (ft)	Section Area (sq. ft.)	Mean Velocity (fps)	Regulatory	Without Floodway	With Floodway	Increase
DEADMAN WASH					(feet NGVD)			
DA	8.763	420	1,110	3.3	1767.5	1767.5	1768.0	0.5
DB	8.853	230	735	5.0	1771.8	1771.8	1772.1	0.3
DC	8.939	318	993	3.7	1775.2	1775.2	1776.1	0.9
DD	9.021	350	699	4.0	1778.5	1778.5	1779.0	0.5
DE	9.114	385	780	3.6	1783.8	1783.8	1784.1	0.3
DF	9.210	376	748	3.7	1788.5	1788.5	1789.2	0.7
DG	9.304	380	738	3.8	1794.9	1794.9	1795.8	0.9
DH	9.400	230	616	4.5	1801.8	1801.8	1802.5	0.7
DI	9.492	310	672	4.1	1807.3	1807.3	1808.2	0.9
DJ	9.586	190	462	4.0	1813.8	1813.8	1814.0	0.2
DK	9.682	170	397	4.6	1819.8	1819.8	1820.7	0.9
DL	9.776	210	490	3.8	1827.8	1827.8	1828.4	0.6
DM	9.872	192	434	4.2	1834.4	1834.4	1835.2	0.8
DN	9.966	109	332	5.5	1842.9	1842.9	1843.4	0.5
DO	10.058	132	353	5.2	1850.9	1850.9	1851.7	0.8
DP	10.151	180	559	3.3	1855.9	1855.9	1856.3	0.4
DQ	10.230	110	259	7.1	1862.0	1862.0	1862.3	0.3
DR	10.325	90	327	5.6	1871.9	1871.9	1872.6	0.7
DS	10.419	70	232	7.9	1881.3	1881.3	1881.5	0.2
DT	10.544	61	220	4.6	1893.7	1893.7	1894.6	0.9

*River Miles Above Confluence With New River

Table 13

Flood Control District of Maricopa County
Maricopa County, AZ
and Unicorporated Areas

FLOODWAY DATA

DEADMAN WASH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
Cross section	Distance	Width (ft)	Section Area (sq. ft.)	Mean Velocity (fps)	Regulatory	Without Floodway	With Floodway	Increase
					(feet NGVD)			
DEADMAN WASH								
CD	6.945	480	2,142	4.6	1702.0	1702.0	1702.6	0.6
CE	7.042	380	2,001	4.9	1704.8	1704.8	1705.6	0.8
CF	7.133	372	2,210	4.4	1706.9	1706.9	1707.8	0.9
CG	7.228	340	2,494	3.9	1708.5	1708.5	1709.3	0.8
CH	7.323	180	850	11.5	1711.2	1711.2	1711.3	0.1
CI	7.417	220	1,821	5.4	1717.2	1717.2	1718.1	0.9
CJ	4.513	285	1,133	8.6	1720.8	1720.8	1721.3	0.5
CK	7.587	464	2,096	4.8	1725.3	1725.3	1726.0	0.7
CL	7.663	395	1,733	5.8	1727.4	1727.4	1727.9	0.5
CM	7.738	318	1,558	6.1	1729.6	1729.6	1730.4	0.8
CN	7.766	125	1,164	8.1	1730.9	1730.9	1731.6	0.7
CO	7.785	152	1,395	6.8	1732.1	1732.1	1732.7	0.6
CP	7.812	210	1,782	5.3	1733.8	1733.8	1734.1	0.3
CQ	7.872	546	2,686	3.5	1735.5	1735.5	1735.7	0.2
CR	7.921	600	2,848	3.3	1736.2	1736.2	1736.5	0.3
CS	8.016	250	1,038	6.0	1738.4	1738.4	1738.8	0.4
CT	8.111	285	1,611	3.9	1742.6	1742.6	1743.3	0.7
CU	8.187	286	1,291	4.8	1745.5	1745.5	1745.9	0.4
CV	8.278	370	1,602	3.9	1748.9	1748.9	1749.6	0.7
CW	8.373	230	960	4.7	1752.1	1752.1	1752.9	0.8
CX	8.485	270	898	4.1	1756.9	1756.9	1757.2	0.3
CY	8.574	380	877	4.2	1760.6	1760.6	1760.9	0.3
CZ	8.670	440	1,116	3.3	1764.1	1764.1	1765.0	0.9

*River Miles Above Confluence with New River

Table 13

Flood Control District of Maricopa County
Maricopa County, AZ
and Unicorporated Areas

FLOODWAY DATA

DEADMAN WASH

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
New River								
A	0.38	1345	7192	5.4	1034.2	1032.5[2]	1033.4[2]	0.9
B	0.51	1250	5892	6.6	1034.5	1033.9[2]	1034.5[2]	0.6
C	0.62	1224	5783	6.7	1035.3	1035.3	1036.1	0.8
D	0.72	1165	5479	7.1	1037.2	1037.2	1037.4	0.2
E	0.85	982	5942	6.6	1039.1	1039.1	1039.1	0.0
F	0.98	776	7085	5.5	1040.2	1040.2	1040.2	0.0
G	1.02	832	7678	5.1	1040.4	1040.4	1040.4	0.0
H	1.12	926	7223	5.4	1040.8	1040.8	1040.8	0.0
I	1.19	868	6464	6.0	1041.3	1041.3	1041.3	0.0
J	1.34	661	3239	12.0	1042.3	1042.3	1042.3	0.0
K	1.46	442	2938	13.3	1046.9	1046.9	1046.9	0.0
L	1.59	542	5782	6.7	1050.7	1050.7	1050.7	0.0
M	1.78	569	7029	5.5	1051.0	1051.0	1051.3	0.3
N	1.81	802	7111	5.5	1051.5	1051.5	1051.8	0.3
O	1.91	514	3833	10.2	1051.5	1051.5	1051.9	0.4
P	2.03	531	6820	5.7	1053.7	1053.7	1053.9	0.2
Q	2.10	458	2830	13.8	1053.7	1053.7	1053.9	0.2
R	2.13	350	3314	11.8	1058.5	1058.5	1058.5	0.0
S	2.23	350	3291	11.9	1058.9	1058.9	1058.9	0.0
T	2.27	407	5280	7.4	1061.1	1061.1	1061.1	0.0
U	2.37	452	5427	7.2	1061.6	1061.6	1061.6	0.0
V	2.49	490	2797	13.9	1062.1	1062.1	1062.1	0.0
W	2.56	357	3329	11.7	1064.8	1064.8	1064.8	0.0
X	2.65	517	5104	7.6	1066.5	1066.5	1067.3	0.8
Y	2.71	769	4846	8.0	1066.9	1066.9	1067.7	0.8
Z	2.77	1191	3862	10.1	1068.6	1068.6	1068.6	0.0

[1]Miles Above Confluence With Agua Fria River
[2]Elevations Computed Without Consideration of Backwater Effects from Agua Fria River

Table 14

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

FLOODWAY DATA

NEW RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Skunk Creek								
A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
E	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
G	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
H	10,023	117	1,065	10.3	1,196.8	1,196.8	1,196.8	0.0
I	10,833	146	1,114	9.9	1,199.5	1,199.5	1,199.5	0.0
J	11,363	122	899	12.2	1,201.4	1,201.4	1,201.4	0.0
K	12,411	257	1,572	6.9	1,212.7	1,212.7	1,212.7	0.0
L	13,489	223	1,558	6.9	1,214.7	1,214.7	1,215.0	0.3
M	13,999	192	1,029	10.3	1,216.6	1,216.6	1,216.6	0.0
N	15,559	277	1,164	9.0	1,223.6	1,223.6	1,223.6	0.0
O	17,149	299	1,414	7.3	1,230.4	1,230.4	1,230.4	0.0
P	18,202	165	1,156	8.8	1,235.1	1,235.1	1,235.1	0.0
Q	19,255	195	1,268	7.9	1,239.6	1,239.6	1,239.6	0.0
R	20,310	174	806	12.3	1,245.5	1,245.5	1,245.5	0.0
S	21,880	197	1,198	8.1	1,252.0	1,252.0	1,252.4	0.4
T	22,920	148	806	12.0	1,256.7	1,256.7	1,256.7	0.0
U	23,980	270	1,408	6.8	1,262.4	1,262.4	1,262.5	0.1
V	25,025	290	1,507	6.2	1,269.3	1,269.3	1,269.8	0.5
W	26,605	355	1,167	7.9	1,277.2	1,277.2	1,277.2	0.0
X	28,185	283	1,679	5.4	1,283.4	1,283.4	1,284.4	1.0
Y	29,235	279	1,409	6.3	1,289.3	1,289.3	1,290.2	0.9
Z	30,295	316	1,099	8.0	1,295.9	1,295.9	1,295.9	0.0

[1] Feet Above Confluence With New River

N/A - Data Not Available (Zone A)

Table 15

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

FLOODWAY DATA

SKUNK CREEK

The flood insurance zone for the study reaches along Deadman Wash and its tributaries are designated to be Zone AE.

5.4 Other Studies Impacted

No existing FEMA studies are available for the Deadman Wash watershed prior to the HNTB study. Three other drainage studies in the watershed would be affected by the results of this study. The Deadman Wash Area Drainage Master Study by Sea, Inc. was only a conceptual master drainage plan for the City of Phoenix. The other study is the Santa Re Conceptual Master Drainage Report for a portion of Deadman Wash watershed east of I-17 by CVL. Since both studies were not a standard FEMA flood study, the hydrology of this which is based on the third study impacted, by HNTB for MCFCD, should be used as a guide for any future improvements in the watershed. In addition, a portion of the Skunk Creek flood plain delineation by Harris-Toups for FEMA was used.

The New River floodplain delineation for the reach within this project by the CVL, dated April 1988 was used in the hydraulic analysis.

5.5 Future Studies/Improvements

Additional studies on channel hydraulics, culvert and roadway crossings, and basin designs will be prepared as addendum's to this report. Preliminary culvert design and basin configurations have been prepared in support of the hydrology modeling and are included in **Appendix C** - Calculations and Data. In addition section 6.0 Retention/Detention section includes a discussion and tables for the basin design parameters in the hydrologic model. The first addendum will cover Skunk Creek through the study reach.

Smaller onsite washes will be analyzed and delineated in detail with each phase. Platting of the various parcels will also include a detailed drainage analysis of individual parcel drainage systems. In general the primary threads of washes thru parcels and the golf courses will be retained and supplemented where necessary to increase channel capacities. Washes will however retain a natural desert wash character and modeling of the watershed for channel routing reflects that concept both in the subdivision parcels and golf course areas.

6.0 RETENTION/DETENTION

On site detention facilities will increase the storage capacity of the site such that there is no increase in flow from the project over pre-development conditions except in those areas that drain directly to the Skunk Creek or New River floodplains.

Onsite detention facilities will be designed in accordance with Maricopa Counties Drainage Design Manual. The project outfalls to one of three regional drains, New River, Skunk Creek, or Deadman Wash. Regional drains have been defined by Maricopa County Flood Control District as rivers or washes that serve watershed areas generally greater than 10 square miles. According to the *Uniform Drainage Policies and Standards of Maricopa County, Arizona* detention storage may be waived if the runoff can be directly carried to a regional drain. Based on this parameter detention will not be necessary for the onsite area that is tributary directly from the site to New River (420 ac +/-) and Skunk Creek (580 ac. +/-). However, detention will be necessary on the Deadman Wash Tributary (4031 ac) and other areas not draining directly to the floodplains to reduce the post-development peak flow such that it is equal to or less than the existing peak flow. Detention will be provided for those portions of the project that are not tributary to a regional drain (New River or Skunk Creek) Detention will not be provided for the excess runoff (pre-post) on a 100-year 2-hour storm (2.8 inch) within each village. Outfalls may exceed predevelopment conditions. Regional Detention basins are sized to provide on-site detention to that volume necessary to outfall at predevelopement flow rates for a 100 year storm frequency off the site.

The exception to this will be the water and waste water treatment plant site (sub-basin 5F24), which will be designed to hold storm water (retention) for a 100-year 24 hour storm to comply with NPDES restrictions for "regulated waters". Master outfall basin(s) will be used; the basins within the Villages at Desert Hills at Desert Hills will be integrated into school and park sites as each phase is developed. In addition, all commercial areas and golf course areas, will be required to have dead storage (retention) to contain "first flush" runoff, reducing the effects of urbanization on natural biotic communities.

Calculations for proposed basins are included in **Table 16 - Detention Volumes/Outflows** and **Table 17 - Detention Basin Data**. The calculations are based on volumes determined to be required to meet the standard of not increasing offsite post-development flow rates above pre-development levels.

Retention/Detention volumes are used in HEC-1 runs for the post development condition.

Basins will be formed by elevated roadway's crossing natural arroyos. Low flows will be allowed to pass thru unimpeded and; major basin excavation is not anticipated. Individual smaller basins will be incorporated into golf courses and commercial areas to contain first flush flows for environmental enhancement. Dead and live storage volumes are listed in **Tables 16 and 17** for each basin. Dead storage will be drained by infiltration and transpiration in basins landscaped with native and near native species consistent with frequent water application. Culvert capacities are calculated using standard BPR nomographs with the various heads involved. All weirs are assumed as 100 feet long broad crested weirs (c = 3.0). Storage area volumes are calculated by adding the desired basin depth to the channel invert and planimetered from the area along the resulting contour line.

The volumes calculated in **Table 16** are subject to refinement on a phase by phase basis as each phase is developed. Basin design criteria will meet county design standards for side slopes. Depths will vary from 5'to 25' deep. No drywells will be allowed. Basins where dead storage is proposed ,will have surcharge evacuated by a weir approximately 100 feet in length. The majority of the basins will be flow thru. Basins 1 thru 5 will be drained by one 2H x 5W concrete box culvert , up to a stage of 12 feet, where a surcharge will be conveyed by a 10H x 10W concrete culvert that will also function as a trail underpass. **Appendix C** includes preliminary hydraulic analysis of the basins and culverts used in the HEC-1 modeling for peak flows, further refinement of this data will be prepared on each phase of the project.

BASIN ID	MAXIMUM LIVE STORAGE VOLUME (AC-FT)	MAXIMUM DEAD STORAGE VOLUME (AC-FT)	TOTAL VOLUME (AC-FT)	APPROXIMATE SURFACE AREA (AC)	100 YR. FLOW IN (CFS)	100 YR. FLOW OUT (CFS)
1	80	0	80	5	684	126
2	85	0	85	12	1244	524
3	40	0	40	5	1565	1309
4	90	0	90	13	1394	648
5	80	0	80	10	1553	381
6	35	15	50	12	680	311
7	15	15	30	6	1088	1549
8	15	0	15	3	159	54
9	10	0	10	2	375	164
10	60	10	70	9	483	50
11	30	0	30	5	1020	375
12	12	0	12	3	551	508
13	10	0	10	2	765	287
TOTAL:	562	40	602	87		

TABLE 16 DETENTION VOLUMES/OUTFALLS

TABLE 17 DETENTION BASIN DATA

BASIN I.D.	DESCRIPTION	MAX DEPTH (ft)	APPROXIMATE SURFACE AREA (ac)	OUTFLOW CULVERT DATA	STAGE (ft) STORAGE (ac-ft) OUTFLOW (cfs)
1 CP-C6B1	Basin formed by Roadway across wash. (low flow culvert is at existing channel invert. Overflow culvert may be used as a pedestrian underpass.	15	5	2'HX5W* @0.0 10'Hx10'W @1.0INV SPILLINTO (@12')	0 12.' 13. 15.' 0 64. 70. 80. 0 170. 1325. 1540.
2 CP-C5F1	Basin formed by Roadway across wash. (low flow culvert is at existing channel invert. Overflow culvert may be used as a pedestrian underpass.	15	12	2'HX5W* @0.0 10'Hx10'W @1.0INV SPILLINTO (@12')	0 12 13 15 0 68 74 85 0 170 1325 1540
3 CP-C3D1	Basin formed by Roadway across wash. (low flow culvert is at existing channel invert. Overflow culvert may be used as a pedestrian underpass.	15	5	2'HX5W* @0.0 10'Hx10'W @1.0INV SPILLINTO (@12')	0 12 13 15 0 32 35 40 0 170 1325 1540
4 CP-C2C1	Basin formed by Roadway across wash. (low flow culvert is at existing channel invert. Overflow culvert may be used as a pedestrian underpass.	15	13	2'HX5W* @0.0 10'Hx10'W @1.0INV SPILLINTO (@12')	0 12 13 15 0 72 78 90 0 170 1325 1540
5 CP-C10B	Basin formed by Roadway across wash. (low flow culvert is at existing channel invert. Overflow culvert may be used as a pedestrian underpass.	15	10	2'HX5W* @0.0 10'Hx10'W @1.0INV SPILLINTO (@12')	0 12.' 13.' 15.' 0 64. 70. 80. 0 170. 1325. 1540.
6 CP-5G21 & CSRG21	Basin is a two stage basin at the outfall of the golf course with an upstream dead storage basin overflowing to a downstream live storage basin.	5. 7.	8 Dead 4 Live 12 Total	3'Hx5'W* @0.0 of live basin	Dead 0 5. 5.5 6 7 0 15 16 17 19 0 0 106 300 848 Live 0 3 5 6 7 9 0 15 25 30 35 45 0 75 130 150 175 1038
7 CP-10E2 & C10E2	Basin is a two stage basin at the outfall of the golf course with an upstream dead storage basin overflowing to a downstream live storage basin.	5. 7.	3 Dead 3 Live 6 Total	3'Hx5'W* @0.0 of live basin	Dead 0 5. 5.5 6 7. 0 15 16.5 18 21. 0 0 106 300 348 Live 0 3 5 6 7 9 0 6.4 10.7 12.8 15 27 0 75 130 150 175 1038
8 CP-C20A35	This is a basin near Desert Hills and 7th Av. Formed by an earth dike along Desert Hills Rd.	5'	3.	3'Hx5'W* @0.0	0. 3'. 4'. 5'. 0 9. 12. 15. 0 75 105 130

TABLE 17 DETENTION BASIN DATA

BASIN	DESCRIPTION	MAX DEPTH	APPROXIMATE	OUTFLOW	STAGE (ft)
I.D.		(ft)	SURFACE AREA	CULVERT	STORAGE (ac-ft)
			(ac)	DATA	OUTFLOW (cfs)
9 CP-C10K67	This basin above I-17 is formed by the proposed east frontage road.	10'.	2.	3Hx5'W* @0.0	0 3' 5' 6' 10' 0 3 5 6 10 0 75. 130. 150. 210
10 CP-20A36	This basin is an excavated basin near the end of the east golf course.	7'.	9.	3Hx5'W* @0.0	0 3' 5' 6' 7' 0 30. 50. 60. 70 0 75. 130. 150. 175.
11 CP-C8C2	This basin is formed by an earth dike across the existing wash with a low flow outlet culvert.	6'.	5.	3Hx5'W* @0.0	0' 3' 4' 6' 0 15 20 30 0 75 105 150
12 CP-C30A3	This basin is formed by an earth dike across the existing wash with a low flow outlet culvert.	8'.	3.	3-3Hx5'W* @0.0	0 3'. 5'. 6'. 8'. 0 4.5 7.5 9 12 0 2.25 3.70 4.50 6.30
13 CP-C10L12	This basin is along I-17 and is formed by the proposed east frontage road.	5'.	2.	3Hx5'W* @0.0	0' 3' 4' 5' 0 6. 8. 10. 0 75. 105. 130.

***NOTE:** Culvert capacity is determined by BPR charts for culverts. Culvert sizes will be adjusted with final plans for each basin. All low flow culverts are 4'Hx6'W box culverts with debris loading restricting the opening to the equivalent of a 2'Hx5'W box, in Reservoirs B1 through B5, and a 3'Hx5'W box, in Reservoirs B6 through B13.

7. 0 CONCLUSIONS/RECOMMENDATIONS

The Villages at Desert Hills will be designed to retain the desert character of the area while protecting downstream areas from increased flows or negative environmental impacts due to development of the site. Basins on the site will be designed primarily for flow thru conditions, both to maximize use of the basin areas as usable open space and to maintain the base flows in natural washes within on site and off site areas to support existing vegetation and sediment discharge characteristics.

Approximately 87 surface acres of basin are proposed which generate 660 ac-ft of retention/detention storage. This in turn provides significant reductions in peak 100 year offsite flows. Individual sites will not be required to provide retention/detention with the regional basins in place.

Hydrology on the site is based on the latest county criteria for studies. Future addendums to this report, in support of construction, will further refine the hydrologic conditions. In addition, in support of future design efforts, additional HEC-2 modeling of channels will be incorporated into addendums and updates to this report.

8.0 REFERENCES

- 1. Federal Emergency Management Agency, 1993, *Flood Insurance Study, Maricopa County, Arizona and Incorporated Areas, Volume 1 of 9,* (December 3, 1993), Washington, D.C.

- 2. Flood Control District of Maricopa County, (undated), "Deadman Wash Floodplain Delineation Study, FCD 90-65, Technical Data Notebook, Hydrology," Section 3: Hydrologic Method Description.

- 3. Flood Control District of Maricopa County, 1995 *Drainage Design Manual for Maricopa County,* Arizona, (January 1, 1995) Phoenix, AZ.

- 4. Flood Control District of Maricopa County/U.S. Geological Survey, 1991, *Estimated Manning's Roughness Coefficients for Stream Channels and Floodplains in Maricopa County, Arizona,* (April 1991), Phoenix, AZ.

- 5. United States Geological Survey, 1967, *Roughness Characteristics of National Channels, Geological Survey Water - Supply Paper 1849,* 213 P., Washington, D.C.

- 6. United States Department of Agriculture, 1986, "Soil Survey of Aguila - Carefree Area, parts of Maricopa and Pinal Counties, AZ, "(April 1986), Washington, D.C.

- 7. U. S. Department of Commerce, 1985, *Hydraulic Design of Highway Culverts,* Hydraulic Design Series No. 5, September, 1985, Springfield, VA,.

APPENDIX A

EXISTING LAND USE CONDITION HEC-1 INPUT/OUTPUT

```
ID      DEL WEBB - THE VILLAGES AT DESERT HILLS
ID
ID      EXISTING LAND USE CONDITIONS
ID
ID      FLOOD HYDROGRAPH ANALYSIS CREATED BY SHERRICK CAMPBELL EIT, FOR
ID
ID              ERIE AND ASSOCIATES, INC.
ID              3120 NORTH 24TH STREET
ID              PHOENIX, ARIZONA 85016
ID
ID              DATE:           FEBRUARY 1996
ID              JOB NUMBER:     EA #1474.1
ID              FILENAME:       VADH-E1
ID
ID
*DIAGRAM
IT     5                    300
IO     5
IN    15
JD  3.43    0.01
PC  .000    .008    .016    .025    .033    .041    .050    .058    .066    .074
PC  .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
PC  .962    .972    .983    .991   1.000
JD  3.41    0.50
JD  3.36    2.80
PC  .000    .009    .016    .025    .034    .042    .051    .059    .067    .076
PC  .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
PC  .950    .963    .975    .988   1.000
JD  3.16    16.0
PC  .000    .015    .020    .030    .048    .063    .076    .090    .105    .119
PC  .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
PC  .946    .960    .973    .987   1.000
JD  2.78    90.0
PC  .000    .021    .035    .051    .071    .087    .105    .125    .143    .160
PC  .179    .201    .232    .281    .364    .500    .658    .773    .841    .888
PC  .927    .945    .964    .982   1.000
JD  1.96   500.0
PC  .000    .024    .043    .059    .078    .098    .119    .141    .162    .186
PC  .212    .239    .271    .321    .408    .515    .627    .735    .814    .864
PC  .907    .930    .954    .977   1.000
KK  10A1        SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10A1
BA 0.142
LG  0.25    0.35     3.9   0.423   32.13
UC 0.200   0.107
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R10A2        ROUTING HYDROGRAPH
KM      ROUTE HYDROGRAPH AT 10A1 AND ROUTE IT TO CONCENTRATION POINT OF SUB-BASI
RS     1    FLOW      -1
RC  0.05    0.05    0.05     900   0.033
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK  10A2        SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10A2
BA 0.015
LG 0.195    0.37     5.4     0.2   32.13
UC 0.117   0.066
```

```
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK C10A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10A2 AND 10A2 BY ADDING ORDINATES
HC      2
*
KK  R10B        ROUTING HYDROGRAPHS
KM      ROUTE HYDROGRAPH C10A2 TO CONCENTRATION POINT OF SUB-BASIN 10B
RS      3    FLOW      -1
RC  0.05    0.05    0.05    5800   0.031
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK   10B        SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10B
BA 0.371
LG  0.34     0.2     9.4   0.023     0.5
UC 0.400   0.254
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK  C10B        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10B AND 10B BY ADDING ORDINATES
HC      2
*
KKR10C31        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10B TO CONCENTRATION POINT OF SUB-BASIN 10C3
RS      4    FLOW      -1
RC  0.05    0.05    0.05    5000   0.015
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK  10C3        SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10C3
BA 0.149
LG  0.35    0.18    11.5   0.016    0.01
UC 0.500   0.486
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK  10C1        SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10C1
BA 0.142
LG 0.342   0.185    11.5  0.0176    0.01
UC 0.333   0.318
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK R10C2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10C1 TO CONCENTRATION POINT OF SUB-BASIN 10C2
RS      4    FLOW      -1
RC  0.05    0.05    0.05    4300  0.0186
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK  10C2        SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10C2
BA 0.205
LG  0.35   0.225      10   0.031    0.01
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UC 0.433   0.335
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C10C2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10C2 AND 10C2 BY ADDING ORDINATES
HC     2
*
KKR10C32        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10C2 TO CONCENTRATION POINT OF SUB-BASIN 10C3
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK C10C3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10C31, 10C3, AND R10C32 BY ADDING ORDINATES
HC     3
*
KKR10D21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10C3 TO CONCENTRATION POINT OF SUB-BASIN 10D2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2650  0.0132
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  10D2        SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10D2
BA 0.096
LG  0.35    0.35     4.6   0.281       0
UC 0.433   0.335
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  10D1        SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10D1
BA 0.061
LG  0.35    0.35     3.8    0.43       0
UC 0.300   0.246
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKR10D22        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10D1 TO CONCENTRATION POINT OF SUB-BASIN 10D2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2700  0.0148
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK C10D2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10D1, 10D1, AND R10D2
HC     3
*
KK  10E1        SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10E1
BA 0.106
LG  0.35   0.185    11.5   0.018       0
UC 0.300   0.252
UA     0       3       5       8      12      20      43      75      90      96
UA   100
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*
KK R10E2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10E1 TO CONCENTRATION POINT OF SUB-BASIN 10E2
RS     6    FLOW      -1
RC  0.05    0.05    0.05    7100  0.0176
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  10E2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10E2
BA 0.372
LG  0.35   0.195      11   0.021       0
UC 0.567   0.434
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C10E2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS
HC     2
*
KK R10E3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10E2 TO CONCENTRATION POINT OF SUB-BASIN 10E3
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2400  0.0104
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  10E3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10E3
BA 0.075
LG  0.35   0.265       9   0.048       0
UC 0.350   0.260
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C10E3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS
HC     2
*
KK   1A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 1A1
BA0.0786
LG  0.35    0.24     9.8   0.037       0
UC 0.267   0.231
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R1A2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 1A1 TO CONCENTRATION POINT OF SUB-BASIN 1A2
RS     8    FLOW      -1
RC  0.05    0.05    0.05    9000   0.011
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   1A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 1A2
BA 0.406
LG  0.35    0.25     9.4   0.042       0
UC 0.833   0.774
UA     0       3       5       8      12      20      43      75      90      96
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UA   100
*
KK  C1A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R1A2 AND 1A2
HC     2
*
KK  R1A3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C1A2 TO CONCENTRATION POINT OF SUB-BASIN 1A3
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3000   0.013
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   1A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 1A3
BA 0.119
LG  0.35   0.185    11.5   0.018       0
UC 0.617   0.806
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C1A3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R1A3 AND 1A3
HC     2
*
KKC10ED1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C10D2, C10E3, AND C1A3
HC     3
*
KK  R10F        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10ED1 TO CONCENTRATION POINT OF SUB-BASIN 10F
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2500   0.008
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   10F        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10F
BA 0.078
LG  0.35    0.25     8.2   0.047       0
UC 0.467   0.385
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C10F        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10F AND 10F
HC     2
*
KK   2A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2A1
BA 0.368
LG  0.25    0.35       4   0.396   31.14
UC 0.367   0.263
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R2A2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 2A1 TO CONCENTRATION POINT OF SUB-BASIN 2A2
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1300  0.0385
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RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   2A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2A2
BA 0.037
LG 0.217    0.37     5.4   0.197   31.14
UC 0.283   0.410
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C2A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R2A2 AND 2A2
HC     2
*
KK   2B1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2B1
BA 0.133
LG 0.247    0.35       4     0.4   28.99
UC 0.233   0.156
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R2B2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 2B1 TO CONCENTRATION POINT OF SUB-BASIN 2B2
RS     1    FLOW      -1
RC  0.05    0.05    0.05     800  0.0625
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   2B2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2B2
BA 0.012
LG  0.15    0.25     9.6    0.04   28.99
UC 0.150   0.146
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C2B2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R2B2 AND 2B2
HC     2
*
KK  C2AB        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C2A2 AND C2B2
HC     2
*
KK  R2C1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C2AB TO CONCENTRATION POINT OF SUB-BASIN 2C1
RS     2    FLOW      -1
RC  0.05    0.05    0.05    4000  0.0275
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   2C1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2C1
BA 0.363
LG 0.339   0.165      12   0.013    0.96
UC 0.333   0.156
UA     0       3       5       8      12      20      43      75      90      96
UA   100
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*
KK  C2C1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R2C1 AND 2C1
HC     2
*
KK  R2C2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C2C1 TO CONCENTRATION POINT OF SUB-BASIN 2C2
RS     7    FLOW      -1
RC  0.05    0.05    0.05    8000  0.0163
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   2C2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2C2
BA 0.513
LG  0.35    0.29     8.4    0.06    0.96
UC 0.650   0.468
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C2C2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R2C2 AND 2C2
HC     2
*
KKC2C10F        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C2C2 AND C10F
HC     2
*
KK  R10G        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C2C10F TO CONCENTRATION POINT OF SUB-BASIN 10G
RS     1    FLOW      -1
RC  0.05    0.05    0.05     900  0.0055
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   10G        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10G
BA 0.138
LG  0.35     0.2     9.4   0.023       0
UC 0.567   0.564
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C10G        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10G AND 10G
HC     2
*
KK   3A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3A1
BA 0.112
LG0.1967    0.35       4   0.409   29.33
UC 0.200   0.122
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R3A2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 3A1 TO CONCENTRATION POINT OF SUB-BASIN 3A2
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1000    0.04
RX     0      50     100     130     150     170     200     250
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RY    20      18      14      10       0      10      14      20
*
KK   3A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3A2
BA0.0271
LG  0.15    0.37     5.2   0.208   29.33
UC 0.150   0.093
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C3A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R3A2 AND 3A2
HC     2
*
KK R3B21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C3A2 TO CONCENTRATION POINT OF SUB-BASIN 3B2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    3900  0.0205
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   3B2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3B2
BA 0.242
LG 0.324    0.24      10   0.035       6
UC 0.350   0.220
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   3B1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3B1
BA0.0159
LG  0.15    0.35     3.7   0.465       6
UC 0.133   0.083
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R3B22        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 3B1 TO CONCENTRATION POINT OF SUB-BASIN 3B2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    4300  0.0279
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK  C3B2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R3B21, 3B2, AND R3B22
HC     3
*
KK    3C        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3C
BA 0.112
LG  0.27    0.35     7.5   0.123    7.34
UC 0.267   0.219
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C3B2C        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C3B2, AND 3C
HC     2
*
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KK  R3D1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C3B2C TO CONCENTRATION POINT OF SUB-BASIN 3D1
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1500  0.0133
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   3D1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3D1
BA 0.117
LG  0.35    0.16    12.5   0.012       0
UC 0.300   0.199
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C3D1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R3D1 AND 3D1
HC     2
*
KK  R3D2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C3D1 TO CONCENTRATION POINT OF SUB-BASIN 3D2
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1400  0.0143
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   3D2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3D2
BA 0.031
LG  0.35    0.16    12.5   0.012       0
UC 0.250   0.210
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C3D2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R3D2 AND 3D2
HC     2
*
KK  R3D3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C3D2 TO CONCENTRATION POINT OF SUB-BASIN 3D3
RS     5    FLOW      -1
RC  0.05    0.05    0.05    5600  0.0134
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   3D3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3D3
BA 0.207
LG  0.35    0.23      10   0.031       0
UC 0.617   0.703
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C3D3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R3D3 AND 3D3
HC     2
*
KK10G3D3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C10G AND C3D3
HC     2
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*
KK  R10H        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10G3D3 TO CONCENTRATION POINT OF SUB-BASIN 10H
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2600  0.0096
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   10H        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10H
BA 0.082
LG  0.34    0.35     3.5   0.293    1.54
UC 0.454   0.363
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C10H        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10H AND 10H
HC     2
*
KK   4A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4A1
BA0.0289
LG  0.35    0.16      12  0.0117       0
UC 0.400   0.501
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R4A2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 4A1 TO CONCENTRATION POINT OF SUB-BASIN 4A2
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1000  0.0093
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   4A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4A2
BA0.0356
LG  0.35    0.16      12  0.0117       0
UC 0.350   0.327
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C4A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS 4A2 AND R4A2
HC     2
*
KK  R4A3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4A2 TO CONCENTRATION POINT OF SUB-BASIN 4A3
RS     6    FLOW      -1
RC  0.05    0.05    0.05    7100  0.0093
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   4A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4A3
BA0.2385
LG  0.35    0.16      12  0.0117       0
UC 0.767   0.791
UA     0       3       5       8      12      20      43      75      90      96
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UA   100
*
KK  C4A3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS 4A3 AND R4A3
HC     2
*
KK    4B        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4B
BA 0.262
LG 0.275    0.28    8.28   0.091    8.44
UC 0.267   0.152
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C4AB        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C4A3 AND 4B
HC     2
*
KK R4C21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4AB TO CONCENTRATION POINT OF SUB-BASIN 4C2
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3850  0.0052
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   4C2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4C2
BA0.6507
LG 0.323    0.16      12   0.012    0.48
UC 0.650   0.337
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   4C1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4C1
BA0.0423
LG  0.35    0.16      12  0.0117    0.48
UC 0.417   0.467
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R4C22        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 4C1 TO CONCENTRATION POINT OF SUB-BASIN 4C2
RS     4    FLOW      -1
RC  0.05    0.05    0.05    5300  0.0104
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  C4C2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R4C21, 4C2, AND R4C22
HC     3
*
KK   R4D        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4C2 TO CONCENTRATION POINT OF SUB-BASIN 4D
RS     1    FLOW      -1
RC  0.05    0.05    0.05     900  0.0167
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    4D        COMPUTE SUB-BASIN HYDROGRAPH
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KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4D
BA 0.199
LG  0.27    0.33    7.78   0.116    6.47
UC 0.300   0.230
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C4D        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R4D AND 4D
HC     2
*
KK  R4E1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4D TO CONCENTRATION POINT OF SUB-BASIN 4E1
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1100  0.0045
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   4E1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4E1
BA 0.122
LG 0.303    0.37     5.4   0.205    5.77
UC 0.200   0.110
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C4E1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R4E1 AND 4E1
HC     2
*
KK  R4E2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4E1 TO CONCENTRATION POINT OF SUB-BASIN 4E2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2000  0.0125
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   4E2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4E2
BA  0.05
LG 0.314    0.35     4.6   0.293    5.77
UC 0.333   0.373
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C4E2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R4E2 AND 4E2
HC     2
*
KK    5D        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5D
BA 0.096
LG  0.33     0.4     6.6   0.177    7.83
UC 0.233   0.178
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK    5C        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5C
BA 0.046
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LG  0.33    0.33    7.78   0.106    8.36
UC 0.233   0.263
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C5CD        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS 5D AND 5C
HC     2
*
KK   R5E        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C5CD TO CONCENTRATION POINT OF SUB-BASIN 5E
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1600  0.0188
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK    5E        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5E
BA 0.061
LG  0.35    0.39    5.67    0.21       0
UC 0.250   0.150
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK    5A        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5A
BA 0.482
LG  0.24    0.35    3.77     0.4   29.57
UC 0.400   0.277
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   R5B        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 5A TO CONCENTRATION POINT OF SUB-BASIN 5B
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2900  0.0224
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK    5B        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5B
BA 0.063
LG   0.3    0.35     7.5   0.121    8.97
UC 0.283   0.319
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C5B        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R5B AND 5B
HC     2
*
KK   C5E        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R5E, 5E, AND C5B
HC     3
*
KK  R5F1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C5E TO CONCENTRATION POINT OF SUB-BASIN 5F1
RS     1    FLOW      -1
RC  0.05    0.05    0.05    2100  0.0143
RX     0     300     450     600     750     850    1100    1250
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RY    13      10     8.5      7      0      2      7     11
*
KK   5F1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5F1
BA 0.081
LG  0.35     0.4      6   0.146     0.2
UC 0.333   0.268
UA     0       3      5       8      12      20      43      75      90      96
UA   100
*
KK  C5F1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R5F1 AND 5F1
HC     2
*
KK  R5F2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C5F1 TO CONCENTRATION POINT OF SUB-BASIN 5F2
RS     6    FLOW      -1
RC  0.05    0.05    0.05    7600  0.0131
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5      7      0      2      7     11
*
KK   5F2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5F2
BA 0.298
LG  0.35    0.32     7.8   0.073     0.2
UC 0.567   0.492
UA     0       3      5       8      12      20      43      75      90      96
UA   100
*
KK  C5F2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R5F2 AND 5F2
HC     2
*
KK   5G1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5G1
BA 0.129
LG  0.35    0.35     3.9    0.43       0
UC 0.400   0.331
UA     0       3      5       8      12      20      43      75      90      96
UA   100
*
KK  R5G2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 5G1 TO CONCENTRATION POINT OF SUB-BASIN 5G2
RS     6    FLOW      -1
RC  0.05    0.05    0.05    6900  0.0159
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5      7      0      2      7     11
*
KK   5G2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5G2
BA 0.273
LG  0.35    0.21      11   0.024       0
UC 0.617   0.613
UA     0       3      5       8      12      20      43      75      90      96
UA   100
*
KK  C5G2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R5G2 AND 5G2
HC     2
*
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KK    6A         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 6A
BA 0.503
LG   0.3    0.35    3.55   0.314   26.05
UC 0.533   0.476
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R6B1         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH 6A TO CONCENTRATION POINT OF SUB-BASIN 6B1
RS     1    FLOW      -1
RC  0.05    0.05    0.05    2100  0.0143
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   6B1         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 6B1
BA 0.065
LG  0.35    0.28     8.8   0.054       0
UC 0.300   0.278
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C6B1         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R6B1 AND 6B1
HC     2
*
KK  R6B2         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C6B1 TO CONCENTRATION POINT OF SUB-BASIN 6B2
RS     3    FLOW      -1
RC  0.05    0.05    0.05    4600  0.0120
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   6B2         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 6B2
BA 0.125
LG  0.35    0.26     9.2   0.045       0
UC 0.383   0.334
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C6B2         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R6B2 AND 6B2
HC     2
*
KK   7A1         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A1
BA 0.548
LG 0.215    0.35     3.7   0.492   27.66
UC 0.300   0.135
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R7A2         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH 7A1 TO CONCENTRATION POINT OF SUB-BASIN 7A2
RS     3    FLOW      -1
RC  0.05    0.05    0.05    4600  0.0348
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
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*
KK   7A2         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A2
BA 0.583
LG 0.267    0.35     3.8   0.443    27.66
UC 0.350   0.181
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C7A2         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R7A2 AND 7A2
HC     2
*
KK R7A41         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C7A2 TO CONCENTRATION POINT OF SUB-BASIN 7A4
RS     1    FLOW      -1
RC  0.05    0.05    0.05    2500    0.02
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   7A4         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A4
BA 0.234
LG  0.34    0.35     4.7   0.272   27.66
UC 0.233   0.113
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   7A3         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A3
BA 0.273
LG 0.211    0.35     4.3   0.325   27.66
UC 0.317   0.214
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R7A42         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH 7A3 TO CONCENTRATION POINT OF SUB-BASIN 7A4
RS     1    FLOW      -1
RC  0.05    0.05    0.05    2100  0.0167
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK  C7A4         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R7A41, 7A4, AND R7A42
HC     3
*
KK  R7A5         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C7A4 TO CONCENTRATION POINT OF SUB-BASIN 7A5
RS     4    FLOW      -1
RC  0.05    0.05    0.05    6300  0.0135
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   7A5         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A5
BA 0.455
LG  0.35    0.39     5.9   0.162   27.66
UC 0.550   0.387
UA     0       3       5       8      12      20      43      75      90      96
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UA   100
*
KK  C7A5        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7A5 AND 7A5
HC     2
*
KK   R7B        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C7A5 TO CONCENTRATION POINT OF SUB-BASIN 7B
RS     2    FLOW      -1
RC  0.05    0.05    0.05    1800  0.0111
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    7B        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7B
BA 0.042
LG  0.35    0.25    10.1   0.035       0
UC 0.333   0.282
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C7B        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7B AND 7B
HC     2
*
KK    7C        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7C
BA 0.047
LG  0.35    0.33    7.78   0.105       0
UC 0.383   0.525
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   R7D        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 7C TO CONCENTRATION POINT OF SUB-BASIN 7D
RS     2    FLOW      -1
RC  0.05    0.05    0.05    1900  0.0211
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    7D        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7D
BA 0.033
LG  0.35    0.15    12.4   0.012       0
UC 0.267   0.263
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C7D        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7D AND 7D
HC     2
*
KK    7E        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7E
BA 0.092
LG  0.35    0.39    6.78   0.163    2.93
UC 0.450   0.523
UA     0       3       5       8      12      20      43      75      90      96
UA   100
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KK  R7F1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 7E TO CONCENTRATION POINT OF SUB-BASIN 7F1
RS     1    FLOW      -1
RC  0.05    0.05    0.05     900  0.0222
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   7F1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7F1
BA 0.028
LG  0.35    0.36     6.8    0.11       0
UC 0.200   0.164
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C7F1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7F1 AND 7F1
HC     2
*
KK  R7F2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C7F1 TO CONCENTRATION POINT OF SUB-BASIN 7F2
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1200  0.0292
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   7F2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7F2
BA 0.029
LG  0.35   0.215    10.5   0.027       0
UC 0.183   0.146
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C7F2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7F2 AND 7F2
HC     2
*
KK C7FBD        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C7B, C7D, AND C7F2
HC     3
*
KK   R7G        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C7FBD TO CONCENTRATION POINT OF SUB-BASIN 7G
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3500  0.0114
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    7G        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7G
BA 0.073
LG  0.35    0.25     8.2   0.047       0
UC 0.483   0.528
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C7G        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7G AND 7G
HC     2
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*
KKC6B27G        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C7G AND C6B2
HC     2
*
KK   R7H        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C6B27G TO CONCENTRATION POINT OF SUB-BASIN 7H
RS     4    FLOW      -1
RC  0.05    0.05    0.05    5100  0.0108
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    7H        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7H
BA 0.162
LG  0.35    0.25     8.4   0.058       0
UC 0.633   0.788
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C7H        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7H AND 7H
HC     2
*
KKC5GF7H        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C7H, C5G2, AND C5F2
HC     3
*
KK R8C31        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C5GF7H TO CONCENTRATION POINT OF SUB-BASIN 8C3
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500  0.0009
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   8C3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8C3
BA 0.502
LG  0.35    0.22    10.5    0.03    0.29
UC 0.533   0.380
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK    8A        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8A
BA 0.443
LG  0.35    0.25     8.6    0.07       0
UC 0.583   0.478
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R8B1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 8A TO CONCENTRATION POINT OF SUB-BASIN 8B1
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3100  0.0097
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   8B1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8B1
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BA 0.235
LG  0.35    0.16      12  0.0117       0
UC 0.500   0.387
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C8B1        ADD HYDROGAPHS
KM      COMBINE HYDROGRAPHS R8B1 AND 8B1
HC     2
*
KK R8B31        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C8B1 TO CONCENTRATION POINT OF SUB-BASIN 8B3
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500  0.0143
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   8B3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8B3
BA 0.016
LG  0.35    0.16      12  0.0117       0
UC 0.233   0.269
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   8B2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8B2
BA 0.029
LG  0.35    0.16      12  0.0117       0
UC 0.283   0.290
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R8B32        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 8B2 TO CONCENTRATION POINT OF SUB-BASIN 8B3
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  C8B3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R8B31, 8B3, AND R8B32
HC     3
*
KK R8C21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C8B3 TO CONCENTRATION POINT OF SUB-BASIN 8C2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2200    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   8C2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8C2
BA 0.260
LG  0.35    0.16      12    0.01    0.29
UC 0.317   0.142
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   8C1        COMPUTE SUB-BASIN HYDROGRAPH
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```
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8C1
BA 0.021
LG  0.35    0.16      12    0.01    0.29
UC 0.217   0.187
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R8C22        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 8C1 TO CONCENTRATION POINT OF SUB-BASIN 8C2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2700    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  C8C2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R8C21, 8C2, AND R8C22
HC     3
*
KK R8C32        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C8C2 TO CONCENTRATION POINT OF SUB-BASIN 8C3
RS     7    FLOW      -1
RC  0.05    0.05    0.05    8000    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  C8C3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R8C31, 8C3, AND R8C32
HC     3
*
KK   R8D        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C8C TO CONCENTRATION POINT OF SUB-BASIN 8D
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1400  0.0107
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    8D        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8D
BA 0.037
LG  0.33    0.35    4.03   0.414    7.91
UC 0.317   0.234
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C8D        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R8D AND 8D
HC     2
*
KK  I-17        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C10H, C4E2, AND C8D
HC     3
*
KK  R10I        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH I-17 TO CONCENTRATION POINT OF SUB-BASIN 10I
KM      WATERSHED DOWNSTREAM OF I-17 HYDROGRAPH COMBINATION IS MODELED
KM      IDENTICALLY TO THE HNTB DEADMAN WASH FIS, WITH THE EXCEPTION OF
KM      THE CLARK UNIT HYDROGRAPH PARAMETERS
RS     1    FLOW      -1
RL                   0.37    1720
RC  0.07   0.055    0.07    1000  0.0050
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RX   490     930     975     989    1011    1026    1130    1620
RY  1734    1726    1724    1720    1720    1724    1726    1734
*
KK   10I        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10I
BA 0.182
LG  0.32    0.35     7.5    0.12    5.53
UC 0.667   0.745
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  10J1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10J1
BA0.0749
LG  0.35    0.16      12  0.0117    2.47
UC 0.383   0.307
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R10J2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10J1 TO CONCENTRATION POINT OF SUB-BASIN 10J2
RS     8    FLOW      -1
RC  0.07   0.055    0.07   10000  0.0135
RX   760     864     968     988    1008    1013    1030    1240
RY  1854    1850    1848    1846    1846    1848    1850    1854
*
KK  10J2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10J2
BA0.8491
LG  0.35    0.16      12  0.0117    2.47
UC 0.767   0.504
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C10J2        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10J2 AND 10J2
HC     2
*
KK C10IJ        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10I, 10I, AND C10J2
HC     3
*
KKR10K81        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10IJ TO CONCENTRATION POINT OF SUB-BASIN 10K81
RS     4    FLOW      -1
RL                  0.37    1708
RC  0.08   0.065    0.08    4800  0.0052
RX   635     845     950     984    1016    1035    1085    1190
RY  1720    1714    1712    1708    1708    1712    1714    1720
*
KK  10K8        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K8
BA 0.164
LG  0.32    0.35       5   0.240    7.22
UC 0.917   0.887
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  10K1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K1
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BA  0.01
LG 0.194    0.35     3.8   0.450    7.22
UC 0.117   0.083
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK D10K1        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K1 THROUGH 36 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K1FS
DI     0     165     460     964    1723
DQ     0      21      35      50      65
*
KK R10K2        ROUTE HYDROGRAPH
KM      ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K1 AND ROU
KM      IT TO CONCENTRATION POINT OF SUB-BASIN 10K2
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500    0.01
RX     0      10      20      30      40      50   50.05    50.1
RY     5       4       3       2       1       0     2.5       5
*
KK  10K2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K2
BA0.0078
LG 0.244    0.35    3.75   0.462    7.22
UC 0.133   0.139
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C10K2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10K2 AND 10K2
HC     2
*
KK D10K2        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K2 THROUGH 36 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K2FS
DI     0     165     460     964    1723
DQ     0      21      35      50      65
*
KK R10K3        ROUTE HYDROGRAPH
KM      ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K2 AND ROU
KM      IT TO CONCENTRATION POINT OF SUB-BASIN 10K3
RS     1    FLOW      -1
RC  0.05    0.05    0.05     300    0.01
RX     0      10      20      30      40      50   50.05    50.1
RY     5       4       3       2       1       0     2.5       5
*
KK  10K3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K3
BA0.0133
LG  0.23    0.35     3.7   0.466    7.22
UC 0.167   0.169
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C10K3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10K3 AND 10K3
HC     2
*
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KK D10K3        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K3 THROUGH 30 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K3FS
DI      0      160      453      951     1703
DQ      0       16       28       37       45
*
KK R10K4        ROUTE HYDROGRAPH
KM      ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K3 AND ROU
KM      IT TO CONCENTRATION POINT OF SUB-BASIN 10K4
RS      1    FLOW      -1
RC   0.05    0.05    0.05     450    0.01
RX      0      10      20      30      40      50   50.05    50.1
RY      5       4       3       2       1       0     2.5       5
*
KK  10K4       COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K4
BA 0.026
LG 0.242    0.35     3.7   0.444    7.22
UC 0.167   0.140
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK C10K4        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10K4 AND 10K4
HC      2
*
KK D10K4        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K4 THROUGH 36 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K4FS
DI      0      165      460      964     1723
DQ      0       21       35       50       65
*
KK R10K5        ROUTE HYDROGRAPH
KM      ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K4 AND ROU
KM      IT TO CONCENTRATION POINT OF SUB-BASIN 10K5
RS      1    FLOW      -1
RC   0.05    0.05    0.05     300    0.01
RX      0      10      20      30      40      50   50.05    50.1
RY      5       4       3       2       1       0     2.5       5
*
KK  10K5       COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K5
BA0.0156
LG 0.254    0.35    3.85   0.430    7.22
UC 0.183   0.232
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK C10K5        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10K5 AND 10K5
HC      2
*
KK D10K5        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K5 THROUGH 24 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K5FS
DI      0       27      157      446      940     1688
DQ      0        4       13       21       26       30
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*
KK R10K6          ROUTE HYDROGRAPH
KM       ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K5 AND ROU
KM       IT TO CONCENTRATION POINT OF SUB-BASIN 10K6
RS     1    FLOW      -1
RC  0.05    0.05    0.05     400    0.01
RX     0      10      20      30      40      50   50.05    50.1
RY     5       4       3       2       1       0     2.5       5
*
KK  10K6        COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K6
BA0.0356
LG  0.23    0.35       4   0.391    7.22
UC 0.183   0.166
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C10K6          ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R10K6 AND 10K6
HC     2
*
KK  10K7        COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K7
BA 0.026
LG 0.308    0.39     6.2   0.136    7.22
UC 0.150   0.110
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKC10K67          ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS C10K6 AND 10K7
HC     2
*
KKR10K82          ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C10K67 TO CONCENTRATION POINT OF SUB-BASIN 10K8
RS     2    FLOW      -1
RC  0.08   0.065    0.08    2600  0.0096
RX   635     845     950     984    1016    1035    1085    1190
RY  1720    1714    1712    1708    1708    1712    1714    1720
*
KK C10K8          ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R10K81, 10K8, AND R10K82
HC     3
*
KK  RET1          RETRIEVE
KM
DR10K1FS
*
KK  RET2          RETRIEVE
KM
DR10K2FS
*
KK  RET3          RETRIEVE
KM
DR10K3FS
*
KK  RET4          RETRIEVE
KM
DR10K4FS
*
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KK  RET5        RETRIEVE
KM
DR10K5FS
*
KK  10L1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10L1
BA0.1101
LG 0.212    0.39     6.2   0.138   11.24
UC 0.217   0.148
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  10L2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10L2
BA0.2313
LG  0.19    0.37     5.4   0.198   11.24
UC 0.317   0.228
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKC10L12        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS 10L1 AND 10L2
HC     2
*
KK R10L3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10L12 TO CONCENTRATION POINT OF SUB-BASIN 10L3
RS     2    FLOW      -1
RC  0.08   0.065    0.08    2600  0.0192
RX   635     845     950     984    1016    1035    1085    1190
RY  1720    1714    1712    1708    1708    1712    1714    1720
*
KK  10L3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10L3
BA0.0716
LG  0.35    0.35       5   0.244   11.24
UC  0.35   0.294
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C10L3        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10L3 AND 10L3
HC     2
*
KK C10KL        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS 10K1FS,  10K2FS, 10K3FS, 10K4FS, 10K5FS, C10L3, AND C10K
HC     7
*
KK  R10M        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10KL TO CONCENTRATION POINT OF SUB-BASIN 10M
RS     1    FLOW      -1
RL                   0.37    1680
RC  0.07   0.045    0.07    1500    0.01
RX    30     910     979     987    1015    1030    1075    1208
RY  1692    1686    1684    1680    1680    1684    1686    1692
*
KK   10M        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10M
BA 0.336
LG  0.30    0.36    3.81    0.29    9.69
UC  0.30   0.176
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UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK  C10M        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10M AND 10M
HC      2
*
KKJOY_RD        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10M THRU 4 RCP'S AT JOY RANCH ROAD
RS      1    ELEV  1671.8
SA      0     1.0     1.8     3.7     4.2     5.0     5.7     6.2
SE1671.8  1680.9  1682.1  1683.3  1683.6  1683.8  1684.0  1684.4
SQ      0    1000    3200    8000    9600   11200   12800   16000
*
KK  R10N        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH JOY_RD TO CONCENTRATION POINT OF SUB-BASIN 10N
RS      2    FLOW      -1
RL                   0.37    1656
RC  0.07   0.055    0.07    2400  0.0083
RX   430     910     968     990    1015    1028    1048    1870
RY  1666    1662    1660    1656    1656    1660    1662    1666
*
KK   10N        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10N
BA 0.073
LG  0.35    0.40    6.29    0.19    0.00
UC 0.617   0.816
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK   10P        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10P
BA 0.775
LG  0.28    0.35    7.50    0.13    7.50
UC 0.533   0.346
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK   10O        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10O
BA 0.119
LG  0.35    0.40    6.29    0.19    0.00
UC 0.550   0.584
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KKC10NOP        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10N, 10N, 10P, AND 10O
HC      4
*
KK  R10Q        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10NOP TO CONCENTRATION POINT OF SUB-BASIN 10Q
RS      7    FLOW      -1
RL                  0.366    1620
RC  0.08   0.065    0.08    6700  0.0067
RX   300     960     968     988    1014    1030    1410    1815
RY  1632    1626    1624    1620    1620    1624    1630    1632
*
KK   10Q        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10Q
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BA 0.329
LG  0.26    0.36    4.12    0.29    9.61
UC 0.367   0.280
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C10Q        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10Q AND 10Q
HC     2
*
KK    9A        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 9A
BA 0.975
LG  0.31    0.20    9.40    0.02    3.58
UC 0.967   0.729
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   R9B        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 9A TO CONCENTRATION POINT OF SUB-BASIN 9B
RS    10    FLOW      -1
RL                 0.162    1626
RC  0.08   0.065    0.08    9300  0.0097
RX   180     922     960     988    1012    1034    1084    1198
RY  1636    1630    1628    1626    1626    1628    1630    1636
*
KK    9B        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 9B
BA 0.696
LG  0.35    0.20    9.40    0.02    0.00
UC 0.850   0.597
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C9B        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R9B AND 9B
HC     2
*
KK C910Q        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS C9B C10Q
HC     2
*
KK  R10R        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C910Q TO CONCENTRATION POINT OF SUB-BASIN 10R
RS     1    FLOW      -1
RL                 0.39    1606
RC  0.08   0.065    0.08     600  0.0083
RX   300     740     955     982    1025    1046    1070    1280
RY  1614    1610    1609    1606    1606    1609    1610    1616
*
KK   10R        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10R
BA 0.088
LG  0.35    0.25   10.10    0.04    0.00
UC 0.533   0.659
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C10R        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10R AND 10R
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HC      2
*
KM
KM
KM
*
KK  20A1         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A1
BA 0.007
LG  0.25    0.35     3.6   0.504   32.13
UC 0.117   0.115
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKR20A31         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH 20A1 TO CONCENTRATION POINT OF SUB-BASIN 20A3
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1700   0.062
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK  20A2         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A2
BA 0.018
LG  0.25    0.35     3.6   0.504   32.13
UC 0.133   0.103
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKR20A32         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH 20A2 TO CONCENTRATION POINT OF SUB-BASIN 20A3
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1700   0.073
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK  20A3         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A3
BA 0.069
LG 0.263    0.35     3.4   0.578   14.42
UC 0.200   0.139
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C20A3         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R20A31, 20A3, AND R20A32
HC      3
*
KK R20A4         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C20A3 TO CONCENTRATION POINT OF SUB-BASIN 20A4
RS     1    FLOW      -1
RC  0.05    0.05    0.05    2600   0.029
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK  20A4         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A4
BA 0.052
LG 0.337    0.35     4.3    0.34    3.35
UC 0.267   0.339
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UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK  20A5        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A5
BA 0.066
LG 0.297    0.35     3.3   0.625     2.7
UC 0.267   0.269
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KKC20A45        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R20A4, 20A4, AND 20A5
HC      3
*
KK20A161        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C20A45 TO CONCENTRATION POINT OF SUB-BASIN 20A16
RS      1    FLOW      -1
RC   0.05    0.05    0.05    2200   0.014
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KK 20A16        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A16
BA 0.071
LG  0.35    0.33     7.4   0.087     0.5
UC 0.333   0.263
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK 20A15        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A15
BA 0.036
LG 0.322    0.36       5   0.243     0.5
UC 0.167   0.123
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK20A162        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 20A15 TO CONCENTRATION POINT OF SUB-BASIN 20A16
RS      1    FLOW      -1
RC   0.05    0.05    0.05     900   0.017
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KKC20A16        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS 20A161, 20A16, AND 20A162
HC      3
*
KK 20A10        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A10
BA 0.035
LG 0.315    0.35     3.6   0.486     3.3
UC 0.200   0.208
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KKR20A11        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 20A10 TO CONCENTRATION POINT OF SUB-BASIN 20A11
RS      1    FLOW      -1
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```
RC  0.05    0.05    0.05     400  0.0375
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK 20A11        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A11
BA 0.038
LG 0.327    0.35     3.9   0.412      10
UC 0.233   0.277
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKC20A11        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R20A11 AND 20A11
HC     2
*
KKR20A12        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C20A11 TO CONCENTRATION POINT OF SUB-BASIN 20A12
RS     1    FLOW      -1
RC  0.05    0.05    0.05     700   0.021
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK 20A12        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A12
BA  0.04
LG  0.35    0.23      10  0.0315     0.5
UC 0.217   0.195
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK 20A14        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A14
BA 0.015
LG  0.35    0.35     4.2   0.344     0.5
UC 0.267   0.395
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKC20A12        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R20A12, 20A12, AND 20A14
HC     3
*
KK  SC#1        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #1 USED TO COMBINE INFLOWS INTO SKUNK CREEK
HC     2
*
KK  20A6        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A6
BA 0.035
LG 0.277    0.35     3.7  0.4791   19.48
UC 0.183   0.161
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  20A7        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A7
BA0.0039
LG  0.33    0.35     3.8   0.428     0.5
UC 0.117   0.122
```

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UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK  20A8        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A8
BA0.0106
LG 0.319    0.35     3.8   0.438     0.5
UC 0.150   0.159
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK  20A9        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A9
BA 0.025
LG 0.291    0.35     3.7   0.466   15.68
UC 0.183   0.203
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK 20A13        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A13
BA 0.019
LG  0.35    0.22    10.5   0.281     0.5
UC 0.250   0.285
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK  SC#2        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #2 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC      5
*
KK  SC#3        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #3 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC      2
*
KK 20A17        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A17
BA 0.022
LG  0.35    0.32     7.6   0.082     0.5
UC 0.250   0.256
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK 20A18        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A18
BA 0.087
LG  0.35    0.21    10.7   0.025       0
UC 0.450   0.559
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK 20A19        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A19
BA 0.057
LG  0.35    0.16      12  0.0117       0
UC 0.400   0.459
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK 20A20        COMPUTE SUB-BASIN HYDROGRAPH
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KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A20
BA 0.054
LG  0.35    0.16      12  0.0117       0
UC 0.350   0.346
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  SC#4        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #4 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     4
*
KK  SC#5        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #5 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     2
*
KK 20A21        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A21
BA 0.024
LG  0.35    0.16      12  0.0117       0
UC 0.333   0.455
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  SC#6        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #6 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     2
*
KK 20A22        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A22
BA 0.013
LG  0.35    0.16      12  0.0117       0
UC 0.233   0.267
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK 20A23        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A23
BA  0.01
LG  0.35    0.16      12  0.0117       0
UC 0.167   0.123
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK 20A24        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A24
BA 0.111
LG  0.35    0.16      12  0.0117       0
UC 0.533   0.516
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK 20A25        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A25
BA 0.029
LG  0.35    0.16      12  0.0117       0
UC 0.433   0.605
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  SC#7        ADD HYDROGRAPHS
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KM      DUMMY HYDROGRAPH #7 USED TO COMBINE INFLOWS INTO SKUNK CREEK
HC     4
*
KK  SC#8        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #8 USED TO COMBINE INFLOWS INTO SKUNK CREEK
HC     2
*
KK 20A26        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A26
BA 0.121
LG  0.35    0.17      12   0.015       0
UC 0.717   1.080
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  SC#9        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #9 USED TO COMBINE INFLOWS INTO SKUNK CREEK
HC     2
*
KM
KM
KM      THE FOLLOWING COMPUTATIONS MODEL INFLOWS TO SKUNK CREEK IN THE
KM      SOUTHEAST CORNER OF SECTION 19 OF THE DEL WEBB PROPERTY
KM
KM
*
KK 20A27        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A27
BA0.0133
LG  0.35    0.35     3.7   0.460       0
UC 0.317   0.443
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKR20A28       ROUTE HYDROGRAPH
KM      ROUTE HDYROGRAPH 20A27 TO CONCENTRATION POINT OF SUB-BASIN 20A28
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1000    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK 20A28        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A28
BA0.0167
LG  0.35    0.35     3.7   0.445       0
UC 0.283   0.306
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKC20A28        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R20A28 AND 20A28
HC     2
*
KK 20A30        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A30
BA0.0389
LG  0.35    0.24     9.8   0.036       0
UC 0.450   0.601
UA     0       3       5       8      12      20      43      75      90      96
UA   100
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*
KK 20A32        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A32
BA0.0337
LG  0.35    0.29     8.2   0.065       0
UC 0.333   0.319
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK 20A34        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A32
BA 0.064
LG  0.35    0.30       8    0.07       0
UC 0.417   0.475
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKC20A32        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS 20A32 AND 20A34
HC     2
*
KK SC#10        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #10 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     3
*
KM
KM      HYDROGRAPH OPERATIONS WITH "30" PREFIX ARE IN NEW RIVER WATERSHED
KM
*
KK  30A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 30A1
BA 0.318
LG  0.35    0.15    12.5    0.01       0
UC 0.650   0.645
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R30A3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 30A1 TO CONCENTRATION POINT OF SUB-BASIN 30A3
RS     4    FLOW      -1
RC  0.05    0.05    0.05    3200  0.0125
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  30A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 30A3
BA 0.097
LG  0.35   0.285     8.4   0.061       0
UC 0.417   0.346
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C30A3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R30A3 AND 30A3
HC     2
*
KK  30A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 30A2
BA 0.084
LG  0.35    0.15    12.5    0.01       0
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UC 0.433   0.482
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R30A4        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 30A2 TO CONCENTRATION POINT OF SUB-BASIN 30A4
RS     1    FLOW      -1
RC  0.05    0.05    0.05     900   0.022
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  30A4        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 30A4
BA 0.029
LG  0.35    0.15    12.5    0.01       0
UC 0.233   0.180
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C30A4        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R30A4 AND 30A4
HC     2
*
KK  NR#1        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #1 USED TO COMBINE INFLOWS INTO NEW RIVER
HC     2
*
KM
KM      HYDROGRAPH OPERATIONS WITH "40" PREFIX ARE IN NEW RIVER WATERSHED
KM
*
KK  40A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A1
BA 0.046
LG  0.35    0.16      12  0.0117       0
UC 0.283   0.243
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R40A2        ROUTE HYDROGRAPH
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1000    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  40A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A2
BA 0.011
LG  0.35    0.16      12  0.0117       0
UC 0.217   0.271
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C40A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R40A2 AND 40A2
HC     2
*
KK  40A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A3
BA 0.038
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LG  0.35    0.18   11.75   0.016       0
UC 0.300   0.323
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R40A4        ROUTE HYDROGRAPH
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3000    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  40A4        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A4
BA 0.049
LG  0.35    0.18   11.75   0.016       0
UC 0.350   0.410
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C40A4        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R40A4 AND 40A4
HC     2
*
KK  NR#2        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #2 USED TO COMBINE INFLOWS INTO NEW RIVER
HC     2
*
KK  40A5        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A5
BA 0.076
LG  0.35    0.24      10   0.035       0
UC 0.433   0.404
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R40A6        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 40A5 TO CONCENTRATION POINT OF SUB-BASIN 40A6
RS     4    FLOW      -1
RC  0.05    0.05    0.05    5000    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  40A6        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A6
BA 0.147
LG  0.35    0.19    11.5    0.02       0
UC 0.500   0.490
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C40A6        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R40A6 AND 40A6
HC     2
*
KK  NR#3        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #3 USED TO COMBINE INFLOWS INTO NEW RIVER
HC     2
*
KK  40A7        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A7
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```
BA 0.049
LG  0.35    0.16      12  0.0117       0
UC 0.383   0.489
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R40A8         ROUTE HYDROGRAPH
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3000    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  40A8         COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A8
BA 0.091
LG  0.35    0.16      12  0.0117       0
UC 0.400   0.334
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C40A8         ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R40A8 AND 40A8
HC     2
*
KK  NR#4         ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #4 USED TO COMBINE INFLOWS INTO NEW RIVER
HC     2
*
ZZ
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SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

 NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  40        10A1
               V
               V
  47       R10A2
               .
               .
  53           .        10A2
               .           .
               .           .
  60       C10A2............
               V
               V
  63        R10B
               .
               .
  69           .         10B
               .           .
               .           .
  76        C10B............
               V
               V
  79      R10C31
               .
               .
  85           .        10C3
               .           .
               .           .
  92           .           .        10C1
               .           .           V
               .           .           V
  99           .           .       R10C2
               .           .           .
               .           .           .
 105           .           .           .        10C2
               .           .           .           .
               .           .           .           .
 112           .           .       C10C2............
               .           .           V
               .           .           V
 115           .           .      R10C32
               .           .           .
               .           .           .
 121       C10C3........................
               V
               V
 124      R10D21
               .
               .
 130           .        10D2
               .           .
               .           .
 137           .           .        10D1
               .           .           V
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                .          .          V
144             .          .     R10D22
                .          .          .
                .          .          .
150         C10D2.......................
                .
                .
153             .       10E1
                .          V
                .          V
160             .      R10E2
                .          .
                .          .
166             .          .       10E2
                .          .          .
                .          .          .
173             .      C10E2............
                .          V
                .          V
176             .      R10E3
                .          .
                .          .
182             .          .       10E3
                .          .          .
                .          .          .
189             .      C10E3............
                .          .
                .          .
192             .          .        1A1
                .          .          V
                .          .          V
199             .          .       R1A2
                .          .          .
                .          .          .
205             .          .          .         1A2
                .          .          .           .
                .          .          .           .
212             .          .       C1A2............
                .          .          V
                .          .          V
215             .          .       R1A3
                .          .          .
                .          .          .
221             .          .          .         1A3
                .          .          .           .
                .          .          .           .
228             .          .       C1A3............
                .          .          .
                .          .          .
231         C10ED1......................
                V
                V
234          R10F
                .
                .
240             .       10F
                .          .
                .          .
247          C10F............
                .
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                .
250             .        2A1
                .         V
                .         V
257             .       R2A2
                .         .
                .         .
263             .         .        2A2
                .         .         .
                .         .         .
270             .       C2A2............
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273             .         .        2B1
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280             .         .       R2B2
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286             .         .         .        2B2
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293             .         .       C2B2............
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296             .       C2AB............
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299             .       R2C1
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305             .         .        2C1
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312             .       C2C1............
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315             .       R2C2
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321             .         .        2C2
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328             .       C2C2............
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331       C2C10F............
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              V
334        R10G
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340           .        10G
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347        C10G............
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350           .        3A1
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357             .       R3A2
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363             .          .        3A2
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370             .       C3A2............
                .          V
                .          V
373             .      R3B21
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379             .          .        3B2
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386             .          .          .        3B1
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393             .          .          .      R3B22
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399             .       C3B2........................
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402             .          .         3C
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409             .      C3B2C............
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412             .       R3D1
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418             .          .        3D1
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425             .       C3D1............
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428             .       R3D2
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434             .          .        3D2
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441             .       C3D2............
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444             .       R3D3
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450             .          .        3D3
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457             .       C3D3............
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460        10G3D3............
              V
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463        R10H
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469          .        10H
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476        C10H............
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479          .        4A1
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486          .       R4A2
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492          .          .        4A2
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499          .       C4A2............
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502          .       R4A3
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508          .          .        4A3
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515          .       C4A3............
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518          .          .         4B
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525          .       C4AB............
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528          .      R4C21
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534          .          .        4C2
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541          .          .          .        4C1
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548          .          .          .      R4C22
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554          .       C4C2........................
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557          .       R4D
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563          .          .         4D
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570          .       C4D............
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573             .       R4E1
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579             .          .        4E1
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586             .       C4E1............
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589             .       R4E2
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595             .          .        4E2
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602             .       C4E2............
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605             .          .         5D
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612             .          .          .          5C
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619             .          .       C5CD............
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622             .          .       R5E
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628             .          .          .          5E
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635             .          .          .           .         5A
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642             .          .          .           .        R5B
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658             .          .       C5E........................
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661             .          .       R5F1
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667             .          .          .         5F1
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674             .          .       C5F1............
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677             .          .       R5F2
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693             .         .         .        5G1
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700             .         .         .       R5G2
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723             .         .         .          .       R6B1
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729             .         .         .          .          .        6B1
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739             .         .         .          .      R6B2
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745             .         .         .          .          .        6B2
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762             .         .         .          .          .       R7A2
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778             .         .         .          .          .      R7A41
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784             .         .         .          .          .          .        7A4
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791             .         .         .          .          .          .          .        7A3
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798             .         .         .         .         .         .         .      R7A42
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807             .         .         .         .         .      R7A5
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882             .         .         .         .         .         .         .      C7F1............
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898             .         .         .         .         .         .         .      C7F2............
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939             .         .   C5GF7H........................
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998             .         .         .         .         .         .      R8B32
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1007            .         .         .         .     R8C21
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1013            .          .          .          .          .        8C2
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1104      C10IJ........................
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1121          .          .       10K1
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1223            .          .          .-------->  10K5FS
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1226            .          .      R10K6
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1253          .          .      R10K82
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1259      C10K8......................
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1264          .          .<-------  10K1FS
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1267          .          .          .<-------  10K2FS
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1270          .          .          .          .<-------  10K3FS
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1310      C10KL.......................................................................
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1313       R10M
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1327        C10M............
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1330       JOY_RD
                V
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1336        R10N
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1408       C910Q............
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1425        C10R............
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1431            .        20A1
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1548            .          .          .       20A12
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1596            .         .         .         .         .         .      20A13
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1603            .         .      SC#2.............................................
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1606            .      SC#3............
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1609            .         .     20A17
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1616            .         .         .     20A18
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1623            .         .         .         .      20A19
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1630            .         .         .         .         .      20A20
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1637            .         .      SC#4................................
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1640            .      SC#5............
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1643            .         .     20A21
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1650            .      SC#6............
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1653            .         .     20A22
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1660            .         .         .     20A23
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1667            .         .         .         .      20A24
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1674            .         .         .         .        .      20A25
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1681            .         .      SC#7.................................
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1684            .      SC#8............
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1687            .         .     20A26
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1694            .      SC#9............
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1703            .         .     20A27
                .         .         V
                .         .         V
1710            .         .    R20A28
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1716            .         .         .      20A28
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1723            .         .    C20A28............
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1726            .         .         .      20A30
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1733            .         .         .         .      20A32
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1740            .         .         .         .        .      20A34
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1747            .         .         .         .    C20A32............
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1750            .         .     SC#10........................
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1756            .         .         .      30A1
                .         .         .        V
                .         .         .        V
1763            .         .         .     R30A3
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1769            .         .         .         .      30A3
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1776            .         .         .     C30A3............
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1779            .         .         .         .      30A2
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1786             .         .         .         .       R30A4
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1792             .         .         .         .         .        30A4
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1799             .         .         .         .       C30A4............
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1802             .         .         .      NR#1............
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1808             .         .         .         .       40A1
                 .         .         .         .         V
                 .         .         .         .         V
1815             .         .         .         .       R40A2
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1820             .         .         .         .         .        40A2
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1827             .         .         .         .       C40A2............
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1830             .         .         .         .         .        40A3
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1837             .         .         .         .         .       R40A4
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1842             .         .         .         .         .          .        40A4
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1849             .         .         .         .         .       C40A4............
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1852             .         .         .         .       NR#2............
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1855             .         .         .         .         .        40A5
                 .         .         .         .         .          V
                 .         .         .         .         .          V
1862             .         .         .         .         .       R40A6
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1868             .         .         .         .         .          .        40A6
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1875             .         .         .         .         .       C40A6............
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1878             .         .         .         .       NR#3............
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1881             .         .         .         .         .        40A7
                 .         .         .         .         .          V
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1888             .         .         .         .         .       R40A8
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1893            .         .         .         .         .         .        40A8
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1900            .         .         .         .         .      C40A8.........
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1903            .         .         .         .      NR#4.........
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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	10A1	435.	4.08	33.	8.	8.	0.14		
ROUTED TO	R10A2	429.	4.08	33.	8.	8.	0.14		
HYDROGRAPH AT	10A2	54.	4.00	4.	1.	1.	0.01		
2 COMBINED AT	C10A2	470.	4.08	37.	9.	9.	0.16		
ROUTED TO	R10B	308.	4.33	36.	9.	9.	0.16		
HYDROGRAPH AT	10B	892.	4.25	100.	25.	24.	0.37		
2 COMBINED AT	C10B	1143.	4.25	136.	34.	33.	0.53		
ROUTED TO	R10C31	1015.	4.50	136.	34.	33.	0.53		
HYDROGRAPH AT	10C3	260.	4.33	41.	10.	10.	0.15		
HYDROGRAPH AT	10C1	313.	4.25	39.	10.	9.	0.14		
ROUTED TO	R10C2	269.	4.50	39.	10.	9.	0.14		
HYDROGRAPH AT	10C2	422.	4.25	52.	13.	13.	0.20		
2 COMBINED AT	C10C2	613.	4.33	91.	23.	22.	0.35		
ROUTED TO	R10C32	614.	4.42	91.	23.	22.	0.35		
3 COMBINED AT	C10C3	1633.	4.50	265.	66.	64.	1.02		
ROUTED TO	R10D21	1580.	4.58	265.	66.	64.	1.02		
HYDROGRAPH AT	10D2	160.	4.25	17.	4.	4.	0.10		
HYDROGRAPH AT	10D1	118.	4.17	10.	2.	2.	0.06		
ROUTED TO	R10D22	83.	4.42	10.	2.	2.	0.06		
3 COMBINED AT	C10D2	1679.	4.58	288.	72.	70.	1.18		
HYDROGRAPH AT	10E1	265.	4.17	29.	7.	7.	0.11		
ROUTED TO	R10E2	181.	4.75	29.	7.	7.	0.11		
HYDROGRAPH AT	10E2	661.	4.42	100.	25.	24.	0.37		
2 COMBINED AT	C10E2	758.	4.42	129.	32.	31.	0.48		
ROUTED TO	R10E3	723.	4.58	129.	32.	31.	0.48		
HYDROGRAPH AT	10E3	171.	4.17	18.	5.	4.	0.08		

2 COMBINED AT	C10E3	778.	4.58	147.	37.	35.	0.55
HYDROGRAPH AT	1A1	197.	4.17	20.	5.	5.	0.08
ROUTED TO	R1A2	106.	5.08	20.	5.	5.	0.08
HYDROGRAPH AT	1A2	470.	4.58	99.	25.	24.	0.41
2 COMBINED AT	C1A2	504.	4.75	119.	30.	29.	0.48
ROUTED TO	R1A3	490.	4.92	119.	30.	29.	0.48
HYDROGRAPH AT	1A3	146.	4.50	33.	8.	8.	0.12
2 COMBINED AT	C1A3	580.	4.92	151.	38.	36.	0.60
3 COMBINED AT	C10ED1	2553.	4.67	571.	143.	138.	2.34
ROUTED TO	R10F	2503.	4.75	571.	143.	138.	2.34
HYDROGRAPH AT	10F	146.	4.33	19.	5.	5.	0.08
2 COMBINED AT	C10F	2558.	4.75	588.	147.	142.	2.42
HYDROGRAPH AT	2A1	752.	4.25	85.	21.	20.	0.37
ROUTED TO	R2A2	757.	4.25	85.	21.	20.	0.37
HYDROGRAPH AT	2A2	66.	4.17	9.	2.	2.	0.04
2 COMBINED AT	C2A2	821.	4.25	94.	24.	23.	0.41
HYDROGRAPH AT	2B1	353.	4.08	30.	8.	7.	0.13
ROUTED TO	R2B2	344.	4.08	30.	8.	7.	0.13
HYDROGRAPH AT	2B2	37.	4.08	3.	1.	1.	0.01
2 COMBINED AT	C2B2	381.	4.08	34.	8.	8.	0.14
2 COMBINED AT	C2AB	1094.	4.17	126.	32.	31.	0.55
ROUTED TO	R2C1	977.	4.33	126.	32.	31.	0.55
HYDROGRAPH AT	2C1	1080.	4.17	103.	26.	25.	0.36
2 COMBINED AT	C2C1	1617.	4.25	224.	56.	54.	0.91
ROUTED TO	R2C2	1442.	4.58	224.	56.	54.	0.91
HYDROGRAPH AT	2C2	797.	4.42	119.	30.	29.	0.51
2 COMBINED AT	C2C2	1941.	4.58	335.	84.	81.	1.43
2 COMBINED AT	C2C10F	3933.	4.67	891.	224.	216.	3.84
ROUTED TO	R10G	3926.	4.75	891.	224.	216.	3.84
HYDROGRAPH AT	10G	214.	4.42	37.	9.	9.	0.14

2 COMBINED AT	C10G	4041.	4.75	924.	232.	224.	3.98
HYDROGRAPH AT	3A1	331.	4.08	26.	6.	6.	0.11
ROUTED TO	R3A2	322.	4.08	26.	6.	6.	0.11
HYDROGRAPH AT	3A2	86.	4.08	7.	2.	2.	0.03
2 COMBINED AT	C3A2	408.	4.08	32.	8.	8.	0.14
ROUTED TO	R3B21	348.	4.17	32.	8.	8.	0.14
HYDROGRAPH AT	3B2	609.	4.17	63.	16.	15.	0.24
HYDROGRAPH AT	3B1	48.	4.00	3.	1.	1.	0.02
ROUTED TO	R3B22	32.	4.17	3.	1.	1.	0.02
3 COMBINED AT	C3B2	987.	4.17	98.	24.	24.	0.40
HYDROGRAPH AT	3C	266.	4.17	25.	6.	6.	0.11
2 COMBINED AT	C3B2C	1247.	4.17	122.	31.	29.	0.51
ROUTED TO	R3D1	1168.	4.25	122.	31.	29.	0.51
HYDROGRAPH AT	3D1	323.	4.17	33.	8.	8.	0.12
2 COMBINED AT	C3D1	1391.	4.25	154.	39.	37.	0.63
ROUTED TO	R3D2	1368.	4.25	154.	39.	37.	0.63
HYDROGRAPH AT	3D2	83.	4.17	9.	2.	2.	0.03
2 COMBINED AT	C3D2	1419.	4.25	162.	41.	39.	0.66
ROUTED TO	R3D3	1236.	4.50	162.	41.	39.	0.66
HYDROGRAPH AT	3D3	270.	4.42	53.	13.	13.	0.21
2 COMBINED AT	C3D3	1420.	4.50	213.	53.	51.	0.86
2 COMBINED AT	10G3D3	4866.	4.67	1108.	278.	268.	4.84
ROUTED TO	R10H	4818.	4.83	1108.	278.	268.	4.84
HYDROGRAPH AT	10H	134.	4.33	16.	4.	4.	0.08
2 COMBINED AT	C10H	4845.	4.83	1119.	281.	271.	4.93
HYDROGRAPH AT	4A1	51.	4.25	8.	2.	2.	0.03
ROUTED TO	R4A2	46.	4.42	8.	2.	2.	0.03
HYDROGRAPH AT	4A2	79.	4.25	10.	3.	2.	0.04
2 COMBINED AT	C4A2	117.	4.25	18.	5.	4.	0.06
ROUTED TO	R4A3	77.	5.17	18.	5.	4.	0.06

HYDROGRAPH AT	4A3	297.	4.58	68.	17.	16.	0.24
2 COMBINED AT	C4A3	314.	4.75	87.	22.	21.	0.30
HYDROGRAPH AT	4B	719.	4.17	62.	15.	15.	0.26
2 COMBINED AT	C4AB	820.	4.17	147.	37.	36.	0.56
ROUTED TO	R4C21	625.	4.50	147.	37.	36.	0.56
HYDROGRAPH AT	4C2	1265.	4.42	187.	47.	45.	0.65
HYDROGRAPH AT	4C1	77.	4.25	12.	3.	3.	0.04
ROUTED TO	R4C22	53.	4.92	12.	3.	3.	0.04
3 COMBINED AT	C4C2	1678.	4.42	341.	86.	82.	1.26
ROUTED TO	R4D	1672.	4.50	341.	86.	82.	1.26
HYDROGRAPH AT	4D	467.	4.17	44.	11.	11.	0.20
2 COMBINED AT	C4D	1817.	4.42	381.	96.	92.	1.46
ROUTED TO	R4E1	1780.	4.50	381.	96.	92.	1.46
HYDROGRAPH AT	4E1	371.	4.08	25.	6.	6.	0.12
2 COMBINED AT	C4E1	1801.	4.50	402.	101.	97.	1.58
ROUTED TO	R4E2	1775.	4.58	402.	101.	97.	1.58
HYDROGRAPH AT	4E2	83.	4.25	10.	2.	2.	0.05
2 COMBINED AT	C4E2	1803.	4.58	409.	103.	99.	1.63
HYDROGRAPH AT	5D	239.	4.08	19.	5.	5.	0.10
HYDROGRAPH AT	5C	102.	4.17	10.	3.	2.	0.05
2 COMBINED AT	C5CD	340.	4.08	30.	7.	7.	0.14
ROUTED TO	R5E	330.	4.17	30.	7.	7.	0.14
HYDROGRAPH AT	5E	155.	4.08	11.	3.	3.	0.06
HYDROGRAPH AT	5A	967.	4.25	110.	28.	27.	0.48
ROUTED TO	R5B	933.	4.33	110.	28.	27.	0.48
HYDROGRAPH AT	5B	126.	4.17	14.	3.	3.	0.06
2 COMBINED AT	C5B	1011.	4.33	123.	31.	30.	0.55
3 COMBINED AT	C5E	1281.	4.25	160.	40.	39.	0.75
ROUTED TO	R5F1	1184.	4.33	160.	40.	39.	0.75
HYDROGRAPH AT	5F1	166.	4.17	16.	4.	4.	0.08

2 COMBINED AT	C5F1	1279.	4.33	174.	44.	42.	0.83
ROUTED TO	R5F2	1098.	4.75	173.	44.	42.	0.83
HYDROGRAPH AT	5F2	452.	4.42	67.	17.	16.	0.30
2 COMBINED AT	C5F2	1318.	4.67	234.	59.	57.	1.13
HYDROGRAPH AT	5G1	205.	4.25	21.	5.	5.	0.13
ROUTED TO	R5G2	129.	4.92	21.	5.	5.	0.13
HYDROGRAPH AT	5G2	394.	4.42	72.	18.	17.	0.27
2 COMBINED AT	C5G2	427.	4.58	92.	23.	22.	0.40
HYDROGRAPH AT	6A	744.	4.33	116.	29.	28.	0.50
ROUTED TO	R6B1	683.	4.50	116.	29.	28.	0.50
HYDROGRAPH AT	6B1	147.	4.17	15.	4.	4.	0.06
2 COMBINED AT	C6B1	738.	4.50	130.	33.	32.	0.57
ROUTED TO	R6B2	661.	4.75	130.	33.	32.	0.57
HYDROGRAPH AT	6B2	256.	4.25	30.	8.	7.	0.13
2 COMBINED AT	C6B2	730.	4.67	158.	40.	38.	0.69
HYDROGRAPH AT	7A1	1401.	4.17	118.	29.	28.	0.55
ROUTED TO	R7A2	1335.	4.25	117.	29.	28.	0.55
HYDROGRAPH AT	7A2	1326.	4.17	126.	32.	30.	0.58
2 COMBINED AT	C7A2	2116.	4.25	230.	58.	56.	1.13
ROUTED TO	R7A41	2085.	4.25	230.	58.	56.	1.13
HYDROGRAPH AT	7A4	706.	4.08	54.	14.	13.	0.23
HYDROGRAPH AT	7A3	642.	4.17	63.	16.	15.	0.27
ROUTED TO	R7A42	605.	4.25	63.	16.	15.	0.27
3 COMBINED AT	C7A4	2599.	4.25	331.	83.	80.	1.64
ROUTED TO	R7A5	2455.	4.42	331.	83.	80.	1.64
HYDROGRAPH AT	7A5	771.	4.33	110.	28.	27.	0.46
2 COMBINED AT	C7A5	2851.	4.42	425.	107.	103.	2.09
ROUTED TO	R7B	2796.	4.50	425.	107.	103.	2.09
HYDROGRAPH AT	7B	95.	4.17	11.	3.	3.	0.04
2 COMBINED AT	C7B	2829.	4.50	435.	109.	105.	2.13

HYDROGRAPH AT	7C	68.	4.25	10.	2.	2.	0.05
ROUTED TO	R7D	62.	4.42	10.	2.	2.	0.05
HYDROGRAPH AT	7D	82.	4.17	9.	2.	2.	0.03
2 COMBINED AT	C7D	114.	4.33	19.	5.	5.	0.08
HYDROGRAPH AT	7E	124.	4.33	18.	4.	4.	0.09
ROUTED TO	R7F1	118.	4.42	18.	4.	4.	0.09
HYDROGRAPH AT	7F1	78.	4.08	6.	1.	1.	0.03
2 COMBINED AT	C7F1	148.	4.33	24.	6.	6.	0.12
ROUTED TO	R7F2	143.	4.42	24.	6.	6.	0.12
HYDROGRAPH AT	7F2	91.	4.08	8.	2.	2.	0.03
2 COMBINED AT	C7F2	190.	4.17	31.	8.	8.	0.15
3 COMBINED AT	C7FBD	2962.	4.50	478.	120.	116.	2.36
ROUTED TO	R7G	2884.	4.58	477.	120.	116.	2.36
HYDROGRAPH AT	7G	115.	4.33	18.	4.	4.	0.07
2 COMBINED AT	C7G	2939.	4.58	493.	124.	120.	2.44
2 COMBINED AT	C6B27G	3322.	4.58	627.	158.	152.	3.13
ROUTED TO	R7H	3200.	4.83	627.	158.	152.	3.13
HYDROGRAPH AT	7H	187.	4.50	38.	10.	9.	0.16
2 COMBINED AT	C7H	3303.	4.83	660.	167.	160.	3.29
3 COMBINED AT	C5GF7H	4428.	4.83	927.	234.	225.	4.82
ROUTED TO	R8C31	4358.	4.92	926.	234.	225.	4.82
HYDROGRAPH AT	8C3	949.	4.33	129.	32.	31.	0.50
HYDROGRAPH AT	8A	693.	4.42	102.	25.	25.	0.44
ROUTED TO	R8B1	640.	4.58	102.	25.	25.	0.44
HYDROGRAPH AT	8B1	467.	4.33	67.	17.	16.	0.23
2 COMBINED AT	C8B1	929.	4.50	168.	42.	40.	0.68
ROUTED TO	R8B31	934.	4.58	168.	42.	40.	0.68
HYDROGRAPH AT	8B3	39.	4.17	5.	1.	1.	0.02
HYDROGRAPH AT	8B2	69.	4.17	8.	2.	2.	0.03
ROUTED TO	R8B32	67.	4.25	8.	2.	2.	0.03

3 COMBINED AT	C8B3	970.	4.58	180.	45.	43.	0.72
ROUTED TO	R8C21	952.	4.67	180.	45.	43.	0.72
HYDROGRAPH AT	8C2	798.	4.17	75.	19.	18.	0.26
HYDROGRAPH AT	8C1	61.	4.08	6.	2.	1.	0.02
ROUTED TO	R8C22	44.	4.33	6.	2.	1.	0.02
3 COMBINED AT	C8C2	1100.	4.50	259.	65.	62.	1.00
ROUTED TO	R8C32	1072.	4.83	259.	65.	62.	1.00
3 COMBINED AT	C8C3	5443.	4.83	1260.	318.	306.	6.33
ROUTED TO	R8D	5416.	4.92	1260.	318.	306.	6.33
HYDROGRAPH AT	8D	75.	4.17	7.	2.	2.	0.04
2 COMBINED AT	C8D	5417.	4.92	1264.	319.	307.	6.36
3 COMBINED AT	I-17	10175.	4.92	2585.	652.	628.	12.92
ROUTED TO	R10I	10113.	4.92	2584.	652.	628.	12.92
HYDROGRAPH AT	10I	199.	4.50	39.	10.	9.	0.18
HYDROGRAPH AT	10J1	170.	4.25	22.	5.	5.	0.07
ROUTED TO	R10J2	119.	4.92	22.	5.	5.	0.07
HYDROGRAPH AT	10J2	1265.	4.50	242.	61.	58.	0.85
2 COMBINED AT	C10J2	1275.	4.58	263.	66.	64.	0.92
3 COMBINED AT	C10IJ	10884.	4.92	2834.	715.	688.	14.02
ROUTED TO	R10K81	10544.	5.17	2828.	713.	687.	14.02
HYDROGRAPH AT	10K8	142.	4.67	33.	8.	8.	0.16
HYDROGRAPH AT	10K1	31.	4.00	2.	0.	0.	0.01
DIVERSION TO	10K1FS	4.	4.00	0.	0.	0.	0.01
HYDROGRAPH AT	D10K1	27.	4.00	2.	0.	0.	0.01
ROUTED TO	R10K2	24.	4.08	2.	0.	0.	0.01
HYDROGRAPH AT	10K2	20.	4.08	1.	0.	0.	0.01
2 COMBINED AT	C10K2	44.	4.08	3.	1.	1.	0.02
DIVERSION TO	10K2FS	6.	4.08	0.	0.	0.	0.02
HYDROGRAPH AT	D10K2	38.	4.08	3.	1.	1.	0.02
ROUTED TO	R10K3	39.	4.08	3.	1.	1.	0.02

HYDROGRAPH AT	10K3	33.	4.08	2.	1.	1.	0.01
2 COMBINED AT	C10K3	72.	4.08	5.	1.	1.	0.03
DIVERSION TO	10K3FS	7.	4.08	0.	0.	0.	0.03
HYDROGRAPH AT	D10K3	65.	4.08	4.	1.	1.	0.03
ROUTED TO	R10K4	62.	4.08	4.	1.	1.	0.03
HYDROGRAPH AT	10K4	70.	4.08	5.	1.	1.	0.03
2 COMBINED AT	C10K4	132.	4.08	9.	2.	2.	0.06
DIVERSION TO	10K4FS	17.	4.08	1.	0.	0.	0.06
HYDROGRAPH AT	D10K4	115.	4.08	8.	2.	2.	0.06
ROUTED TO	R10K5	112.	4.08	8.	2.	2.	0.06
HYDROGRAPH AT	10K5	34.	4.08	3.	1.	1.	0.02
2 COMBINED AT	C10K5	146.	4.08	11.	3.	3.	0.07
DIVERSION TO	10K5FS	12.	4.08	1.	0.	0.	0.07
HYDROGRAPH AT	D10K5	133.	4.08	10.	2.	2.	0.07
ROUTED TO	R10K6	130.	4.17	10.	2.	2.	0.07
HYDROGRAPH AT	10K6	91.	4.08	7.	2.	2.	0.04
2 COMBINED AT	C10K6	216.	4.08	16.	4.	4.	0.11
HYDROGRAPH AT	10K7	79.	4.08	6.	1.	1.	0.03
2 COMBINED AT	C10K67	295.	4.08	22.	5.	5.	0.13
ROUTED TO	R10K82	218.	4.25	22.	5.	5.	0.13
3 COMBINED AT	C10K8	10598.	5.17	2859.	721.	695.	14.32
HYDROGRAPH AT	RET1	4.	4.00	0.	0.	0.	0.01
HYDROGRAPH AT	RET2	6.	4.08	0.	0.	0.	0.02
HYDROGRAPH AT	RET3	7.	4.08	0.	0.	0.	0.03
HYDROGRAPH AT	RET4	17.	4.08	1.	0.	0.	0.06
HYDROGRAPH AT	RET5	12.	4.08	1.	0.	0.	0.07
HYDROGRAPH AT	10L1	317.	4.08	25.	6.	6.	0.11
HYDROGRAPH AT	10L2	532.	4.17	50.	13.	12.	0.23
2 COMBINED AT	C10L12	810.	4.17	75.	19.	18.	0.34
ROUTED TO	R10L3	751.	4.25	75.	19.	18.	0.34

HYDROGRAPH AT	10L3	137.	4.25	15.	4.	4.	0.07
2 COMBINED AT	C10L3	888.	4.25	90.	22.	22.	0.41
7 COMBINED AT	C10KL	10620.	5.17	2917.	736.	709.	14.74
ROUTED TO	R10M	10507.	5.25	2916.	736.	709.	14.74
HYDROGRAPH AT	10M	830.	4.17	69.	17.	17.	0.34
2 COMBINED AT	C10M	10503.	5.25	2958.	747.	720.	15.07
ROUTED TO	JOY_RD	10473.	5.25	2955.	746.	719.	15.07
ROUTED TO	R10N	10238.	5.42	2952.	746.	718.	15.07
HYDROGRAPH AT	10N	67.	4.42	13.	3.	3.	0.07
HYDROGRAPH AT	10P	1255.	4.33	163.	41.	39.	0.77
HYDROGRAPH AT	10O	141.	4.42	22.	5.	5.	0.12
4 COMBINED AT	C10NOP	10292.	5.42	3078.	778.	750.	16.04
ROUTED TO	R10Q	9772.	5.92	3068.	776.	748.	16.04
HYDROGRAPH AT	10Q	643.	4.25	67.	17.	16.	0.33
2 COMBINED AT	C10Q	9772.	5.92	3103.	787.	758.	16.37
HYDROGRAPH AT	9A	1119.	4.75	269.	67.	65.	0.98
ROUTED TO	R9B	1035.	5.33	267.	67.	64.	0.98
HYDROGRAPH AT	9B	947.	4.58	189.	47.	46.	0.70
2 COMBINED AT	C9B	1465.	5.17	450.	113.	109.	1.67
2 COMBINED AT	C910Q	10339.	5.83	3450.	876.	843.	18.04
ROUTED TO	R10R	10345.	5.92	3449.	875.	843.	18.04
HYDROGRAPH AT	10R	119.	4.42	22.	5.	5.	0.09
2 COMBINED AT	C10R	10351.	5.92	3464.	879.	847.	18.13
HYDROGRAPH AT	20A1	21.	4.00	2.	0.	0.	0.01
ROUTED TO	R20A31	19.	4.08	2.	0.	0.	0.01
HYDROGRAPH AT	20A2	53.	4.00	4.	1.	1.	0.02
ROUTED TO	R20A32	51.	4.08	4.	1.	1.	0.02
HYDROGRAPH AT	20A3	180.	4.08	13.	3.	3.	0.07
3 COMBINED AT	C20A3	249.	4.08	18.	5.	4.	0.09
ROUTED TO	R20A4	219.	4.17	18.	5.	4.	0.09

HYDROGRAPH AT	20A4	90.	4.17	9.	2.	2.	0.05
HYDROGRAPH AT	20A5	115.	4.17	10.	2.	2.	0.07
3 COMBINED AT	C20A45	423.	4.17	37.	9.	9.	0.21
ROUTED TO	20A161	383.	4.25	37.	9.	9.	0.21
HYDROGRAPH AT	20A16	156.	4.17	16.	4.	4.	0.07
HYDROGRAPH AT	20A15	104.	4.08	7.	2.	2.	0.04
ROUTED TO	20A162	98.	4.08	7.	2.	2.	0.04
3 COMBINED AT	C20A16	601.	4.17	60.	15.	14.	0.32
HYDROGRAPH AT	20A10	76.	4.08	6.	1.	1.	0.04
ROUTED TO	R20A11	75.	4.08	6.	1.	1.	0.04
HYDROGRAPH AT	20A11	72.	4.17	7.	2.	2.	0.04
2 COMBINED AT	C20A11	146.	4.08	13.	3.	3.	0.07
ROUTED TO	R20A12	148.	4.17	13.	3.	3.	0.07
HYDROGRAPH AT	20A12	111.	4.08	10.	3.	2.	0.04
HYDROGRAPH AT	20A14	23.	4.17	3.	1.	1.	0.01
3 COMBINED AT	C20A12	274.	4.17	26.	6.	6.	0.13
2 COMBINED AT	SC#1	874.	4.17	85.	21.	20.	0.45
HYDROGRAPH AT	20A6	91.	4.08	7.	2.	2.	0.04
HYDROGRAPH AT	20A7	11.	4.00	1.	0.	0.	0.00
HYDROGRAPH AT	20A8	26.	4.08	2.	0.	0.	0.01
HYDROGRAPH AT	20A9	58.	4.08	5.	1.	1.	0.03
HYDROGRAPH AT	20A13	35.	4.17	3.	1.	1.	0.02
5 COMBINED AT	SC#2	216.	4.08	17.	4.	4.	0.09
2 COMBINED AT	SC#3	1042.	4.17	101.	25.	24.	0.54
HYDROGRAPH AT	20A17	50.	4.17	5.	1.	1.	0.02
HYDROGRAPH AT	20A18	138.	4.33	23.	6.	6.	0.09
HYDROGRAPH AT	20A19	105.	4.25	16.	4.	4.	0.06
HYDROGRAPH AT	20A20	117.	4.25	15.	4.	4.	0.05
4 COMBINED AT	SC#4	395.	4.25	59.	15.	14.	0.22
2 COMBINED AT	SC#5	1294.	4.17	157.	39.	38.	0.76

HYDROGRAPH AT	20A21	45.	4.25	7.	2.	2.	0.02
2 COMBINED AT	SC#6	1324.	4.17	163.	41.	39.	0.78
HYDROGRAPH AT	20A22	32.	4.17	4.	1.	1.	0.01
HYDROGRAPH AT	20A23	34.	4.08	3.	1.	1.	0.01
HYDROGRAPH AT	20A24	186.	4.33	32.	8.	8.	0.11
HYDROGRAPH AT	20A25	45.	4.33	8.	2.	2.	0.03
4 COMBINED AT	SC#7	263.	4.33	47.	12.	11.	0.16
2 COMBINED AT	SC#8	1470.	4.17	208.	52.	50.	0.95
HYDROGRAPH AT	20A26	122.	4.58	34.	8.	8.	0.12
2 COMBINED AT	SC#9	1481.	4.17	239.	60.	58.	1.07
HYDROGRAPH AT	20A27	18.	4.25	2.	1.	1.	0.01
ROUTED TO	R20A28	15.	4.33	2.	1.	1.	0.01
HYDROGRAPH AT	20A28	29.	4.17	3.	1.	1.	0.02
2 COMBINED AT	C20A28	40.	4.25	5.	1.	1.	0.03
HYDROGRAPH AT	20A30	58.	4.33	10.	2.	2.	0.04
HYDROGRAPH AT	20A32	69.	4.25	8.	2.	2.	0.03
HYDROGRAPH AT	20A34	103.	4.25	15.	4.	4.	0.06
2 COMBINED AT	C20A32	172.	4.25	22.	6.	5.	0.10
3 COMBINED AT	SC#10	267.	4.25	37.	9.	9.	0.17
HYDROGRAPH AT	30A1	460.	4.50	92.	23.	22.	0.32
ROUTED TO	R30A3	434.	4.75	92.	23.	22.	0.32
HYDROGRAPH AT	30A3	190.	4.25	23.	6.	5.	0.10
2 COMBINED AT	C30A3	515.	4.67	114.	29.	28.	0.41
HYDROGRAPH AT	30A2	150.	4.33	24.	6.	6.	0.08
ROUTED TO	R30A4	145.	4.33	24.	6.	6.	0.08
HYDROGRAPH AT	30A4	85.	4.08	8.	2.	2.	0.03
2 COMBINED AT	C30A4	191.	4.25	33.	8.	8.	0.11
2 COMBINED AT	NR#1	638.	4.58	147.	37.	35.	0.53
HYDROGRAPH AT	40A1	118.	4.17	13.	3.	3.	0.05
ROUTED TO	R40A2	110.	4.25	13.	3.	3.	0.05

HYDROGRAPH AT	40A2	27.	4.08	3.	1.	1.	0.01
2 COMBINED AT	C40A2	132.	4.25	16.	4.	4.	0.06
HYDROGRAPH AT	40A3	85.	4.17	11.	3.	3.	0.04
ROUTED TO	R40A4	72.	4.42	11.	3.	3.	0.04
HYDROGRAPH AT	40A4	96.	4.25	14.	3.	3.	0.05
2 COMBINED AT	C40A4	153.	4.33	24.	6.	6.	0.09
2 COMBINED AT	NR#2	277.	4.25	40.	10.	10.	0.14
HYDROGRAPH AT	40A5	140.	4.25	19.	5.	5.	0.08
ROUTED TO	R40A6	112.	4.67	19.	5.	5.	0.08
HYDROGRAPH AT	40A6	252.	4.33	40.	10.	10.	0.15
2 COMBINED AT	C40A6	309.	4.50	59.	15.	14.	0.22
2 COMBINED AT	NR#3	558.	4.33	99.	25.	24.	0.37
HYDROGRAPH AT	40A7	88.	4.25	14.	4.	3.	0.05
ROUTED TO	R40A8	77.	4.50	14.	4.	3.	0.05
HYDROGRAPH AT	40A8	198.	4.25	26.	7.	6.	0.09
2 COMBINED AT	C40A8	245.	4.33	40.	10.	10.	0.14
2 COMBINED AT	NR#4	800.	4.33	139.	35.	33.	0.51

APPENDIX A

PROPOSED LAND USE CONDITION HEC-1 INPUT/OUTPUT

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ID      DEL WEBB - THE VILLAGES AT DESERT HILLS
ID
ID      PROPOSED LAND USE CONDITIONS
ID
ID      FLOOD HYDROGRAPH ANALYSIS CREATED BY SHERRICK CAMPBELL EIT, FOR
ID
ID              ERIE AND ASSOCIATES, INC.
ID              3120 NORTH 24TH STREET
ID              PHOENIX, ARIZONA 85016
ID
ID              DATE:           FEBRUARY 1996
ID              JOB NUMBER:     EA #1474.1
ID              FILENAME:       VADH-D1
ID
ID
ID     ASSUMPTIONS USED IN MODELING:
ID
ID      *RUNOFF COLLECTED ALONG THE NORTHERN MOST PORTION OF ALL WEATHER ACCESS
ID      ROAD IS ASSUMED TO BE CONVEYED TO CULVERTS VIA A TRAPEZOIDAL CHANNEL
ID      WITH APPROXIMATELY 20 FOOT WIDE BOTTOM AND 5H:1V SIDE SLOPES. THE
ID      MANNING'S ROUGHNESS COEFFICIENT IS ASSUMED AT 0.05.
ID
ID      *2HX5W BOX CULVERTS DRAINING RESERVOIRS B1 THROUGH B5 ALONG THE NORTHERN
ID      MOST PORTION OF ALL WEATHER ACCESS ROAD ARE MODELED AS NET CULVERTS
ID      RESULTING FROM DEBRIS LOADING AND PLACEMENT OF AESTHETIC BOULDERS AT THE
ID      ENTRANCE OF A 4HX6W BOX CULVERT.
ID
ID      *3HX5W BOX CULVERTS DRAINING RESERVOIRS B6 THROUGH B13 EXCLUDING B6A AND
ID      B7A ARE MODELED AS NET CULVERTS RESULTING FROM DEBRIS LOADING AND
ID      PLACEMENT OF AESTHETIC BOULDERS AT THE ENTRANCE OF A 4HX6W BOX CULVERT.
ID
ID      *GREEN AND AMPT DTHETA VALUES ARE COMPUTED BASED ON NORMAL CONDITIONS
ID      FOR THE GOLF COURSE AND DRY CONDITIONS FOR THE REST OF THE SITE.
ID
ID      *IA AND RTIMP VALUES ARE BASED ON MCFCD DRAINAGE CRITERIA FOR SPECIFIC
ID      ZONING DESIGNTATIONS AND ARE AREALLY WEIGHTED IN SUB-BASINS CONSISTING
ID      OF MULTIPLE ZONINGS.
ID
ID      *VEGETATION PERCENTAGES FOR PROPOSED CONDITIONS ARE ASSUMED TO BE EQUAL
ID      TO THAT OF EXISTING CONDITIONS, THEREFORE [XKSAT] VALUES ARE NOT
ID      CHANGED.
ID
ID      *WATERSHED RESISTANCE COEFFICIENTS ARE CALCULATED BASED ON:
ID              Kb=m*log[A] + b
ID              where m = -0.025 (offsite sub-basins)
ID                    m = -0.00625 (onsite sub-basins)
ID                    b = 0.15 (offsite sub-basins)
ID                    b = 0.04 (onsite sub-basins)
ID
ID      *ONSITE SUB-BASIN TIMES OF CONCENTRATION [Tc] WERE RECALCULATED WITH
ID      MCUHP1 TO REFLECT THE LESSER Kb VALUES.
ID
*DIAGRAM
IT     5                    300
IO     5
IN    15
JD  3.43    0.01
PC  .000    .008    .016    .025    .033    .041    .050    .058    .066    .074
PC  .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
PC  .962    .972    .983    .991   1.000
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JD  3.41    0.50
JD  3.36    2.80
PC  .000    .009    .016    .025    .034    .042    .051    .059    .067    .076
PC  .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
PC  .950    .963    .975    .988   1.000
JD  3.16    16.0
PC  .000    .015    .020    .030    .048    .063    .076    .090    .105    .119
PC  .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
PC  .946    .960    .973    .987   1.000
JD  2.78    90.0
PC  .000    .021    .035    .051    .071    .087    .105    .125    .143    .160
PC  .179    .201    .232    .281    .364    .500    .658    .773    .841    .888
PC  .927    .945    .964    .982   1.000
JD  1.96   500.0
PC  .000    .024    .043    .059    .078    .098    .119    .141    .162    .186
PC  .212    .239    .271    .321    .408    .515    .627    .735    .814    .864
PC  .907    .930    .954    .977   1.000
KK  10A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10A1
BA 0.142
LG  0.25    0.35     3.9   0.423   32.13
UC 0.200   0.107
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R10A2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH AT 10A1 AND ROUTE IT TO CONCENTRATION POINT OF SUB-BASI
RS     1    FLOW      -1
RC  0.05    0.05    0.05     900   0.033
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK  10A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10A2
BA 0.015
LG 0.195    0.37     5.4     0.2   32.13
UC 0.117   0.066
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK C10A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10A2 AND 10A2
HC     2
*
KK R10B1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10A2 TO CONCENTRATION POINT OF SUB-BASIN 10B
RS     3    FLOW      -1
RC  0.05    0.05    0.05    5800   0.031
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   10B        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10B
BA 0.371
LG 0.295   0.187     9.4   0.023      15
UC 0.183   0.107
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  10E1        COMPUTE SUB-BASIN HYDROGRAPH
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KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10E1
BA 0.106
LG   0.3   0.185    11.5   0.018      15
UC 0.146   0.113
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK R10B2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10E1 TO BASIN B5 OR CONCENTRATION POINT OF SUB-BASIN 10
KM      PRECIPITATION EXCESS IS CONVEYED VIA A COLLECTOR CHANNEL ADJACENT TO THE
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1500   0.027
RX     0      10      20      25      35      40      50      60
RY     4       2       0       0       0       0       2       4
*
KK  C10B        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10B1, 10B, AND R10B2
HC     3
*
KK    B5        RESERVOIR
KM      ROUTE DISCHARGE AT CONCENTRATION POINT OF SUB-BASIN 10B THROUGH RESERVOI
KM      RESERVOIR B5 IS DRAINED BY A 2HX5W BOX CULVERT UP TO A STAGE OF 12 FEET.
KM      RETENTION AT STAGES ABOVE 12 FEET IS DRAINED BY A 10H X 10W BOX CULVERT
KM      WHICH HAS INVERT 1 FOOT ABOVE 2H X 5W BOX CULVERT INVERT.
KM      CULVERTS OPERATE UNDER INLET CONTROL CONDITIONS.
RS     1    STOR      -1
SV     0      64      70      80
SE     0      12      13      15
SQ     0     170    1325    1540
*
KKR10C31        ROUTE HYDROGRAPH
KM      ROUTE DISCHARGE FROM BASIN B5 TO CONCENTRATION POINT OF SUB-BASIN 10C3
RS     4    FLOW      -1
RC  0.05    0.05    0.05    5000   0.015
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  10C3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10C3
BA 0.149
LG 0.257   0.158    11.5   0.016   26.25
UC 0.217   0.192
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  10C1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10C1
BA 0.142
LG 0.271   0.169    11.5  0.0176      22
UC 0.158   0.139
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK R10C2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10C1 TO CONCENTRATION POINT OF SUB-BASIN 10C2
RS     4    FLOW      -1
RC  0.05    0.05    0.05    4300  0.0186
RX     0      10      20      25      35      40      50      60
RY     4       2       0       0       0       0       2       4
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KK  10C2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10C2
BA 0.205
LG  0.25   0.225      10   0.031      30
UC 0.196   0.139
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK C10C2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10C2 AND 10C2
HC     2
*
KKR10C32        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10C2 TO CONCENTRATION POINT OF SUB-BASIN 10C3
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK C10C3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10C31, 10C3, AND R10C32
KM
KM      HYDROGRAPH COMBINATION IS AT ALL WEATHER ACCESS ROAD INTERSECTION IN
KM      SECTION 23
HC     3
*
KKR10D21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10C3 TO CONCENTRATION POINT OF SUB-BASIN 10D2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2650  0.0132
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  10D2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10D2
BA 0.096
LG 0.253    0.35     4.6   0.281   28.75
UC 0.183   0.129
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  10D1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10D1
BA 0.061
LG  0.25    0.35     3.8    0.43      30
UC 0.142   0.107
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KKR10D22        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10D1 TO CONCENTRATION POINT OF SUB-BASIN 10D2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2700  0.0148
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK C10D2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10D1, 10D1, AND R10D2
HC     3
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KK  10E2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10E2
BA 0.372
LG 0.273    0.15      11   0.021   18.75
UC 0.242   0.168
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK   B7A        RESERVOIR
KM      ROUTE DISCHARGE FROM SUB-BASIN 10E2 THRU A DEAD STORAGE RESERVOIR.
KM      DEAD STORAGE RESERVOIR SURCHARGE IS DRAINED BY A 100 FOOT LONG WEIR.
KM      WEIR IS MODELED BY Q=CLH^1.5 WHERE C=3 AND L=100.
RS     1    STOR      -1
SV     0      15    16.5      18      21
SE     0       5     5.5       6       7
SQ     0       0     106     300     848
*
KK   1A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 1A1
BA0.0786
LG   0.3    0.24     9.8   0.037      15
UC 0.133   0.107
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK R1A21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 1A1 TO CONCENTRATION POINT OF SUB-BASIN 1A2
RS     8    FLOW      -1
RC  0.05    0.05    0.05    9000   0.011
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   1A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 1A2
BA 0.406
LG  0.25   0.229     9.4   0.042      30
UC 0.333   0.280
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A33        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A33
BA 0.058
LG   0.3    0.16      12  0.0117      30
UC 0.154   0.108
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  R4A1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 20A33 TO CONCENTRATION POINT OF SUB-BASIN 4A1
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1200   0.009
RX     0      10      20      25      35      40      50      60
RY     4       2       0       0       0       0       2       4
*
KK   4A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4A1
BA0.0289
LG  0.25    0.16      12  0.0117      30
UC 0.183   0.211
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UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK  C4A1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R4A1 AND 4A1
HC      2
*
KK R1A22        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4A1 TO CONCENTRATION POINT OF SUB-BASIN 1A2
KM      PRECIPITATION EXCESS IS CONVEYED VIA A COLLECTOR CHANNEL ADJACENT TO
KM      THE ROAD
RS      3    FLOW      -1
RC   0.05    0.05    0.05    3000   0.009
RX      0      10      20      25      35      40      50      60
RY      4       2       0       0       0       0       2       4
*
KK  C1A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R1A21, 1A2, AND R1A22
HC      3
*
KK R10E2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C1A2 TO CONCENTRATION POINT OF SUB-BASIN 10E2 AT BASIN
RS      1    FLOW      -1
RC   0.05    0.05    0.05    1200  0.0067
RX      0      10      20      25      35      40      50      60
RY      4       2       0       0       0       0       2       4
*
KK C10E2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS B7A, AND R10E2
HC      2
*
KK   B7B        RESERVOIR
KM      ROUTE DEAD STORAGE SURCHARGE FROM RESERVOIR B7A AND ROUTED DISCHARGE FRO
KM      CONCENTRATION POINT 1A2 THROUGH LIVE RESERVOIR B7B. RESERVOIR B7B IS
KM      DRAINED BY A 3H X 5W BOX CULVERT UP TO A STAGE OF 7 FEET. SURCHARGE IS
KM      DRAINED BY A 100 FOOT LONG WEIR MODELED BY Q=CLH^1.5 WHERE C=3 AND L=100
KM      CULVERT OPERATES UNDER INLET CONTROL CONDITIONS.
RS      1    STOR      -1
SV      0     6.4    10.7    12.8      15      27
SE      0       3       5       6       7       9
SQ      0      75     130     150     175    1038
*
KK R10E3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10E2 TO CONCENTRATION POINT OF SUB-BASIN 10E3
RS      2    FLOW      -1
RC   0.05    0.05    0.05    2400  0.0104
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK  10E3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10E3
BA 0.075
LG 0.265   0.265       9   0.048    22.5
UC 0.162   0.111
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK C10E3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10E3 AND 10E3
HC      2
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*
KK   4C1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4C1
BA0.0423
LG   0.3    0.16      12  0.0117       5
UC 0.192   0.197
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R1A3        ROUTE HYDROGRAPH 4C1 TO SUB-BASIN 1A3
KM
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3500   0.014
RX     0      10      20      25      35      40      50      60
RY     4       2       0       0       0       0       2       4
*
KK   1A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 1A3
BA 0.119
LG   0.3   0.185    11.5   0.018       5
UC 0.258   0.307
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C1A3        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R1A3 AND 1A3
HC     2
*
KKC10ED1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C10D2, C10E3, AND C1A3
HC     3
*
KK  R10F        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10ED1 TO CONCENTRATION POINT OF SUB-BASIN 10F
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2500   0.008
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   10F        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10F
BA 0.078
LG 0.318    0.25     8.2   0.047     4.6
UC 0.467   0.385
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C10F        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10F AND 10F
HC     2
*
KK   2A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2A1
BA 0.368
LG  0.25    0.35       4   0.396   31.14
UC 0.367   0.263
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R2A2        ROUTE HYDROGRAPH
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KM      ROUTE HYDROGRAPH 2A1 TO CONCENTRATION POINT OF SUB-BASIN 2A2
RS      1    FLOW      -1
RC  0.05    0.05    0.05    1300  0.0385
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   2A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2A2
BA 0.037
LG 0.217    0.37     5.4   0.197   31.14
UC 0.262   0.376
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C2A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R2A2 AND 2A2
HC     2
*
KK   2B1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2B1
BA 0.133
LG 0.247    0.35       4     0.4   28.99
UC 0.233   0.156
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R2B2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 2B1 TO CONCENTRATION POINT OF SUB-BASIN 2B2
RS      1    FLOW      -1
RC  0.05    0.05    0.05     800  0.0625
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   2B2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2B2
BA 0.012
LG  0.15    0.25     9.6    0.04   28.99
UC 0.154   0.151
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C2B2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R2B2 AND 2B2
HC     2
*
KK  C2AB        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C2A2 AND C2B2
HC     2
*
KK  R2C1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C2AB TO CONCENTRATION POINT OF SUB-BASIN 2C1
RS      2    FLOW      -1
RC  0.05    0.05    0.05    4000  0.0275
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   2C1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2C1
BA 0.363
LG 0.285   0.132      12   0.013      16
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UC 0.158   0.068
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C2C1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R2C1 AND 2C1
HC     2
*
KK    B4        RESERVOIR
KM      ROUTE DISCHARGE AT CONCENTRATION POINT OF SUB-BASIN 2C1 THROUGH RESERVOI
KM      RESERVOIR B4 IS DRAINED BY A 2HX5W BOX CULVERT UP TO A STAGE OF 12 FEET.
KM      RETENTION AT STAGES ABOVE 12 FEET IS DRAINED BY A 10HX10W BOX CULVERT
KM      WHICH HAS INVERT 1 FOOT ABOVE 2HX5W BOX CULVERT INVERT.
KM      CULVERTS OPERATE UNDER INLET CONTROL CONDITIONS.
RS     1    STOR      -1
SV     0      72      78      90
SE     0      12      13      15
SQ     0     170    1325    1540
*
KK  R2C2        ROUTE HYDROGRAPH
KM      ROUTE DISCHARGE FROM BASIN B4 TO CONCENTRATION POINT OF SUB-BASIN 2C2
RS     7    FLOW      -1
RC  0.05    0.05    0.05    8000  0.0163
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   2C2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 2C2
BA 0.513
LG  0.26   0.274     8.4    0.06      25
UC 0.262   0.171
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C2C2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R2C2 AND 2C2
HC     2
*
KKC2C10F        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C2C2 AND C10F
HC     2
*
KK  R10G        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C2C10F TO CONCENTRATION POINT OF SUB-BASIN 10G
RS     1    FLOW      -1
RC  0.05    0.05    0.05     900  0.0055
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   10G        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10G
BA 0.138
LG  0.35     0.2     9.4   0.023       0
UC 0.567   0.564
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C10G        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10G AND 10G
HC     2
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*
KK   3A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3A1
BA 0.112
LG0.1967    0.35       4   0.409   29.33
UC 0.200   0.122
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R3A2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 3A1 TO CONCENTRATION POINT OF SUB-BASIN 3A2
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1000    0.04
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   3A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3A2
BA0.0271
LG  0.15    0.37     5.2   0.208   29.33
UC 0.158   0.099
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C3A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R3A2 AND 3A2
HC     2
*
KK R3B21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C3A2 TO CONCENTRATION POINT OF SUB-BASIN 3B2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    3900  0.0205
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   3B2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3B2
BA 0.242
LG 0.295   0.211      10   0.035    13.5
UC 0.167   0.096
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK   3B1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3B1
BA0.0159
LG  0.15    0.35     3.7   0.465       6
UC 0.133   0.083
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R3B22        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 3B1 TO CONCENTRATION POINT OF SUB-BASIN 3B2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    4300  0.0279
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK  C3B2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R3B21, 3B2, AND R3B22
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HC      3
*
KK     3C         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3C
BA 0.112
LG  0.27    0.326      7.5    0.123     17.5
UC 0.133    0.101
UA      0        5       16       30       65       77       84       90       94       97
UA    100
*
KK C3B2C         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS C3B2, AND 3C
HC      2
*
KK  R3D1         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C3B2C TO CONCENTRATION POINT OF SUB-BASIN 3D1
RS      1    FLOW       -1
RC  0.05     0.05     0.05     1500  0.0133
RX      0      300      450      600      750      850     1100     1250
RY     13       10      8.5        7        0        2        7       11
*
KK   3D1         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3D1
BA 0.117
LG 0.255    0.464     12.5    0.012     27.5
UC 0.142    0.086
UA      0        5       16       30       65       77       84       90       94       97
UA    100
*
KK  C3D1         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R3D1 AND 3D1
HC      2
*
KK     B3         RESERVOIR
KM       ROUTE DISCHARGE AT CONCENTRATION POINT OF SUB-BASIN 3D1 THROUGH RESERVOI
KM       RESERVOIR B4 IS DRAINED BY A 2HX5W BOX CULVERT UP TO A STAGE OF 12 FEET.
KM       RETENTION AT STAGES ABOVE 12 FEET IS DRAINED BY A 10HX10W BOX CULVERT
KM       WHICH HAS INVERT 1 FOOT ABOVE 2HX5W BOX CULVERT INVERT.
KM       CULVERTS OPERATE UNDER INLET CONTROL CONDITIONS.
RS      1    STOR       -1
SV      0       32       35       40
SE      0       12       13       15
SQ      0      170     1325     1540
*
KK  R3D2         ROUTE HYDROGRAPH
KM       ROUTE DISCHARGE FROM BASIN B3 TO CONCENTRATION POINT OF SUB-BASIN 3D2
RS      1    FLOW       -1
RC  0.05     0.05     0.05     1400  0.0143
RX      0       50      100      130      150      170      200      250
RY     20       18       14       10        0       10       14       20
*
KK   3D2         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3D2
BA 0.031
LG 0.273    0.143     12.5    0.012    18.75
UC 0.125    0.097
UA      0        5       16       30       65       77       84       90       94       97
UA    100
*
KK  C3D2         ADD HYDROGRAPHS
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KM      COMBINE HYDROGRAPHS R3D2 AND 3D2
HC      2
*
KK  R3D3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C3D2 TO CONCENTRATION POINT OF SUB-BASIN 3D3
RS      5    FLOW      -1
RC  0.05    0.05    0.05    5600  0.0134
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK   3D3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 3D3
BA 0.207
LG  0.24   0.166      10   0.031      30
UC 0.254   0.263
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK  C3D3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R3D3 AND 3D3
HC      2
*
KK10G3D3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C10G AND C3D3
HC      2
*
KKR10H21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10G3D3 TO CONCENTRATION POINT OF SUB-BASIN 10H2
RS      2    FLOW      -1
RC  0.05    0.05    0.05    2600  0.0096
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK  10H2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10H2
BA0.0605
LG  0.25    0.35     4.4   0.309      45
UC 0.196   0.170
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK  10H1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10H1
BA0.0215
LG 0.167    0.35     4.1   0.373   64.25
UC 0.112   0.065
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KKR10H22        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10H1 TO CONCENTRATION POINT OF SUB-BASIN 10H2
RS      2    FLOW      -1
RC  0.05    0.05    0.05    2000  0.0096
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK C10H2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10H21, 10H2, AND R10H22
HC      3
*
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KK   4A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4A2
BA0.0356
LG   0.3    0.16      12  0.0117       5
UC 0.167   0.143
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  R4A3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4A2 TO CONCENTRATION POINT OF SUB-BASIN 4A3
RS     6    FLOW      -1
RC  0.05    0.05    0.05    7100  0.0093
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   4A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4A3
BA0.2385
LG  0.35    0.16      12  0.0117       0
UC 0.767   0.791
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C4A3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS 4A3 AND R4A3
HC     2
*
KK    4B        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4B
BA 0.262
LG 0.275    0.28    8.28   0.091    8.44
UC 0.267   0.152
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C4AB        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C4A3 AND 4B
HC     2
*
KK  R4C2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4AB TO CONCENTRATION POINT OF SUB-BASIN 4C2
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3850  0.0052
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   4C2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4C2
BA0.6507
LG 0.323    0.16      12   0.012    0.48
UC 0.650   0.337
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C4C2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R4C2 AND 4C2
HC     2
*
KK   R4D        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4C2 TO CONCENTRATION POINT OF SUB-BASIN 4D
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RS      1    FLOW      -1
RC  0.05    0.05    0.05     900  0.0167
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    4D        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4D
BA 0.199
LG  0.27    0.33    7.78   0.116    6.47
UC 0.300   0.230
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C4D        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R4D AND 4D
HC     2
*
KK  R4E1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4D TO CONCENTRATION POINT OF SUB-BASIN 4E1
RS      1    FLOW      -1
RC  0.05    0.05    0.05    1100  0.0045
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   4E1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4E1
BA 0.122
LG  0.25    0.37     5.4   0.205      45
UC 0.200   0.110
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C4E1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R4E1 AND 4E1
HC     2
*
KK  R4E2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C4E1 TO CONCENTRATION POINT OF SUB-BASIN 4E2
RS      2    FLOW      -1
RC  0.05    0.05    0.05    2000  0.0125
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   4E2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 4E2
BA  0.05
LG  0.25    0.35     4.6   0.293      45
UC 0.333   0.373
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C4E2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R4E2 AND 4E2
HC     2
*
KK    5D        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5D
BA 0.096
LG  0.33     0.4     6.6   0.177    7.83
UC 0.233   0.178
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UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK     5C        COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5C
BA 0.046
LG  0.33    0.33    7.78   0.106    8.36
UC 0.233   0.263
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK   C5CD        ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS 5D AND 5C
HC      2
*
KK    R5E        ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C5CD TO CONCENTRATION POINT OF SUB-BASIN 5E
RS      1    FLOW      -1
RC  0.05    0.05    0.05    1600  0.0188
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KK     5E        COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5E
BA 0.061
LG  0.28    0.39    5.67    0.21      21
UC 0.125   0.070
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK     5A        COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5A
BA 0.482
LG  0.24    0.35    3.77     0.4   29.57
UC 0.400   0.277
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK    R5B        ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH 5A TO CONCENTRATION POINT OF SUB-BASIN 5B
RS      2    FLOW      -1
RC  0.05    0.05    0.05    2900  0.0224
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KK     5B        COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5B
BA 0.063
LG 0.295   0.327     7.5   0.121      14
UC 0.138   0.143
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK    C5B        ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R5B AND 5B
HC      2
*
KK    C5E        ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R5E, 5E, AND C5B
HC      3
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*
KK R5F11        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C5E TO CONCENTRATION POINT OF SUB-BASIN 5F1
RS      1    FLOW      -1
RC  0.05    0.05    0.05    2100  0.0143
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK   5F1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5F1
BA 0.081
LG  0.26   0.376       6   0.146      25
UC 0.158   0.117
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK   5G1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5G1
BA 0.129
LG  0.25    0.35     3.9    0.43      30
UC 0.175   0.132
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK R5F12        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 5G1 TO CONCENTRATION POINT OF SUB-BASIN 5F1
RS      1    FLOW      -1
RC  0.05    0.05    0.05     700    0.02
RX      0      10      20      25      35      40      50      60
RY      4       2       0       0       0       0       2       4
*
KK  C5F1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R5F11, 5F1, AND R5F12
HC      3
*
KK    B2        RESERVOIR
KM      ROUTE DISCHARGE AT CONCENTRATION POINT OF SUB-BASIN 5F1 THROUGH RESERVOI
KM      RESERVOIR B2 IS DRAINED BY A 2HX5W BOX CULVERT UP TO A STAGE OF 12 FEET.
KM      RETENTION AT STAGES ABOVE 12 FEET IS DRAINED BY A 10HX10W BOX CULVERT
KM      WHICH HAS INVERT 1 FOOT ABOVE 2HX5W BOX CULVERT INVERT.
KM      CULVERTS OPERATE UNDER INLET CONTROL CONDITIONS.
RS      1    STOR      -1
SV      0      68      74      85
SE      0      12      13      15
SQ      0     170    1325    1540
*
KK R5F21        ROUTE HYDROGRAPH
KM      ROUTE DISCHARGE FROM RESERVOIR B2 TO CONCENTRATION POINT OF SUB-BASIN 5F
RS      6    FLOW      -1
RC  0.05    0.05    0.05    7600  0.0131
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK  5F21        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5F21
BA 0.146
LG 0.267    0.22     9.6   0.041   25.75
UC 0.171   0.112
UA      0       5      16      30      65      77      84      90      94      97
UA    100
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*
KK C5F21        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R5F21 AND 5F21
HC     2
*
KK R5G21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C5F21 TO CONCENTRATION POINT OF SUB-BASIN 5G21
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500    0.01
RX     0      10      20      25      35      40      50      60
RY     4       2       0       0       0       0       2       4
*
KK  5G21        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5G21
BA 0.211
LG 0.275    0.13    11.5   0.017      25
UC 0.196   0.129
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK   B6A        RESERVOIR
KM      ROUTE DISCHARGE FROM SUB-BASIN 5G21 THROUGH DEAD STORAGE RESERVOIR.
KM      DEAD STORAGE RESERVOIR SURCHARGE IS DISCHARGED BY A 100 FOOT LONG WEIR
KM      MODELED BY Q=CLH^1.5 WHERE C=3 AND L=100.
RS     1    STOR      -1
SV     0      15      16      17      19
SE     0       5     5.5       6       7
SQ     0       0     106     300     848
*
KKC5FG21        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R5G21 AND B6A
HC     2
*
KK   B6B        RESERVOIR
KM      ROUTE DISCHARGE FROM DEAD STORAGE RESERVOIR B6A AND DISCHARGE AT CONCENT
KM      POINT 5F21 THROUGH LIVE STORAGE RESERVOIR B6B. RESERVOIR B6B IS DRAINED
KM      BY A 3HX5W CONCRETE BOX CULVERT UP TO A STAGE OF 7 FEET. SURCHARGE IS
KM      DRAINED BY A 100 FOOT LONG WEIR MODELED BY Q=CLH^1.5 WHERE C=3 AND L=100
KM      CULVERT OPERATES UNDER INLET CONTROL CONDITIONS.
RS     1    STOR      -1
SV     0      15      25      30      35      45
SE     0       3       5       6       7       9
SQ     0      75     130     150     175    1038
*
KK  R7H1        ROUTE HYDROGRAPH
KM      ROUTE DISCHARGE FROM RESERVOIR B6B TO CONCENTRATION POINT OF SUB-BASIN 7
KM      ROUTING IS BASED ON PROPOSED DEVELOPMENT PLANS
RS     3    FLOW      -1
RC  0.05    0.05    0.05    4000  0.0108
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    6A        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 6A
BA 0.503
LG   0.3    0.35    3.55   0.314   26.05
UC 0.533   0.476
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
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KK  R6B1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 6A TO CONCENTRATION POINT OF SUB-BASIN 6B1
RS     1    FLOW      -1
RC  0.05    0.05    0.05    2100  0.0143
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   6B1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 6B1
BA 0.065
LG 0.265    0.28     8.8   0.054    22.5
UC 0.142   0.121
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C6B1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R6B1 AND 6B1
HC     2
*
KK    B1        RESERVOIR
KM      ROUTE DISCHARGE AT CONCENTRATION POINT OF SUB-BASIN C6B1 THROUGH RESERVO
KM      RESERVOIR B1 IS DRAINED BY A 2HX5W BOX CULVERT TO A STAGE OF 12 FEET.
KM      RETENTION AT STAGES ABOVE 12 FEET IS DRAINED BY A 10HX10W BOX CULVERT
KM      WHICH HAS INVERT 1 FOOT ABOVE 2HX5W BOX CULVERT INVERT.
KM      CULVERTS OPERATE UNDER INLET CONTROL CONDITIONS.
RS     1    STOR      -1
SV     0      64      70      80
SE     0      12      13      15
SQ     0     170    1325    1540
*
KK  R6B2        ROUTE HYDROGRAPH
KM      ROUTE  DISCHARGE FROM RESERVOIR B1 TO CONCENTRATION POINT OF SUB-BASIN 6
RS     3    FLOW      -1
RC  0.05    0.05    0.05    4600  0.0120
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   6B2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 6B2
BA 0.125
LG  0.27   0.233     9.2   0.045      29
UC 0.179   0.144
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C6B2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R6B2 AND 6B2
HC     2
*
KK   7A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A1
BA 0.548
LG 0.215    0.35     3.7   0.492   27.66
UC 0.300   0.135
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R7A2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 7A1 TO CONCENTRATION POINT OF SUB-BASIN 7A2
RS     3    FLOW      -1
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RC  0.05    0.05    0.05    4600  0.0348
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   7A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A2
BA 0.583
LG 0.267    0.35     3.8   0.443    27.66
UC 0.350   0.181
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C7A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7A2 AND 7A2
HC     2
*
KK R7A41        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C7A2 TO CONCENTRATION POINT OF SUB-BASIN 7A4
RS     1    FLOW      -1
RC  0.05    0.05    0.05    2500    0.02
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   7A4        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A4
BA 0.234
LG  0.34    0.35     4.7   0.272   27.66
UC 0.233   0.113
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   7A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A3
BA 0.273
LG 0.211    0.35     4.3   0.325   27.66
UC 0.317   0.214
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R7A42        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 7A3 TO CONCENTRATION POINT OF SUB-BASIN 7A4
RS     1    FLOW      -1
RC  0.05    0.05    0.05    2100  0.0167
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK  C7A4        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7A41, 7A4, AND R7A42
HC     3
*
KK  R7A5        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C7A4 TO CONCENTRATION POINT OF SUB-BASIN 7A5
RS     4    FLOW      -1
RC  0.05    0.05    0.05    6300  0.0135
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK   7A5        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7A5
BA 0.455
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LG  0.35    0.39     5.9   0.162   27.66
UC 0.550   0.387
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C7A5        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7A5 AND 7A5
HC     2
*
KK   R7B        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C7A5 TO CONCENTRATION POINT OF SUB-BASIN 7B
RS     2    FLOW      -1
RC  0.05    0.05    0.05    1800  0.0111
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    7B        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7B
BA 0.042
LG   0.1    0.25    10.1   0.035      80
UC 0.154   0.120
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK   C7B        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7B AND 7B
HC     2
*
KK    7C        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7C
BA 0.047
LG  0.35    0.33    7.78   0.105       0
UC 0.383   0.525
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   R7D        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 7C TO CONCENTRATION POINT OF SUB-BASIN 7D
RS     2    FLOW      -1
RC  0.05    0.05    0.05    1900  0.0211
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    7D        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7D
BA 0.033
LG   0.1    0.15    12.4   0.012      80
UC 0.133   0.122
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK   C7D        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS AT CONCENTRATION POINT OF SUB-BASIN 7D
HC     2
*
KK    7E        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7E
BA 0.092
LG  0.35    0.39    6.78   0.163    2.93
UC 0.450   0.523
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UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK   R7F1        ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH 7E TO CONCENTRATION POINT OF SUB-BASIN 7F1
RS      1    FLOW      -1
RC   0.05    0.05    0.05     900  0.0222
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK    7F1        COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7F1
BA 0.028
LG    0.1    0.36     6.8    0.11      80
UC 0.104   0.080
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK   C7F1        ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R7F1 AND 7F1
HC      2
*
KK   R7F2        ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C7F1 TO CONCENTRATION POINT OF SUB-BASIN 7F2
RS      1    FLOW      -1
RC   0.05    0.05    0.05    1200  0.0292
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK    7F2        COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7F2
BA 0.029
LG    0.1   0.215    10.5   0.027      80
UC 0.092   0.068
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK   C7F2        ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R7F2 AND 7F2
HC      2
*
KK C7FBD         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS C7B, C7D, AND C7F2
HC      3
*
KK    R7G        ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C7FBD TO CONCENTRATION POINT OF SUB-BASIN 7G
RS      3    FLOW      -1
RC   0.05    0.05    0.05    3500  0.0114
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK     7G        COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7G
BA 0.073
LG    0.1    0.25     8.2   0.047       5
UC 0.213   0.212
UA      0       5      16      30      65      77      84      90      94      97
UA    100
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KK   C7G        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7G AND 7G
HC     2
*
KKC6B27G        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C7G AND C6B2
HC     2
*
KK  R7H2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C6B27G TO CONCENTRATION POINT OF SUB-BASIN 7H
RS     4    FLOW      -1
RC  0.05    0.05    0.05    5100  0.0108
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK    7H        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 7H
BA 0.162
LG  0.28    0.25     8.4   0.058      21
UC 0.254   0.286
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK   C7H        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R7H1, 7H, AND R7H2
HC     3
*
KK  5F22        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5F22
BA 0.068
LG  0.25    0.30       8   0.070      45
UC 0.133   0.084
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KKR5G221        ROUTE HDYROGRAPH
KM      ROUTE HDYROGRAPH 5F22 TO CONCENTRATION POINT OF SUB-BASIN 5G22
KM      DISCHARGE IS CONVEYED VIA A TRAPEZOIDAL COLLECTOR CHANNEL
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1200    0.02
RX     0      10      20      25      35      40      50      60
RY     4       2       0       0       0       0       2       4
*
KK  5F23        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5F23
BA 0.032
LG  0.25    0.35     3.8   0.432      30
UC 0.158   0.188
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KKR5G222        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 5F23 TO CONCENTRATION POINT OF SUB-BASIN 5G22
KM      DISCHARGE IS CONVEYED VIA A TRAPEZOIDAL COLLECTOR CHANNEL
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1200    0.02
RX     0      10      20      25      35      40      50      60
RY     4       2       0       0       0       0       2       4
*
KK  5G22        COMPUTE SUB-BASIN HYDROGRAPH
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KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5G22
BA 0.062
LG 0.263    0.18    11.5   0.067      35
UC 0.183   0.198
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KKC5GF7H        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C7H, R5G221, R5G222, AND 5G22
HC     4
*
KK R8C31        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C5GF7H TO CONCENTRATION POINT OF SUB-BASIN 8C3
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500  0.0009
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   8C3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8C3
BA 0.502
LG  0.35   0.215    10.5    0.03    0.29
UC 0.533   0.380
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK    8A        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8A
BA 0.443
LG  0.35    0.25     8.6    0.07       0
UC 0.583   0.478
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  R8B1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 8A TO CONCENTRATION POINT OF SUB-BASIN 8B1
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3100  0.0097
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   8B1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8B1
BA 0.235
LG  0.35    0.16      12  0.0117       0
UC 0.500   0.387
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C8B1        ADD HYDROGAPHS
KM      COMBINE HYDROGRAPHS R8B1 AND 8B1
HC     2
*
KK R8B31        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C8B1 TO CONCENTRATION POINT OF SUB-BASIN 8B3
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500  0.0143
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
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KK   8B3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8B3
BA 0.016
LG  0.15    0.16      12  0.0117      55
UC 0.117   0.124
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK   8B2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8B2
BA 0.029
LG  0.25    0.16      12  0.0117      30
UC 0.138   0.130
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK R8B32        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 8B2 TO CONCENTRATION POINT OF SUB-BASIN 8B3
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  C8B3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R8B31, 8B3, AND R8B32
HC     3
*
KK R8C21        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C8B3 TO CONCENTRATION POINT OF SUB-BASIN 8C2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2200    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   8C2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8C2
BA 0.260
LG  0.16    0.16      12    0.01      51
UC 0.154   0.064
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK   8C1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8C1
BA 0.021
LG  0.25    0.16      12    0.01      30
UC 0.117   0.094
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK R8C22        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 8C1 TO CONCENTRATION POINT OF SUB-BASIN 8C2
RS     2    FLOW      -1
RC  0.05    0.05    0.05    2700    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  10J1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10J1
BA0.0749
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LG  0.20    0.16      12  0.0117    42.5
UC 0.175   0.129
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK R8C23        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 10J1 TO CONCENTRATION POINT OF SUB-BASIN 10J1
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1200    0.01
RX     0      10      20      25      35      40      50      60
RY     4       2       0       0       0       0       2       4
*
KK  C8C2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R8C21, 8C2, R8C22, AND R8C23
HC     4
*
KK   B11        RESERVOIR
KM      ROUTE HYDROGRAPH C8C2 THROUGH RESERVOIR B11. RESERVOIR IS DRAINED BY
KM      A 3HX5W CONCRETE BOX CULVERT OPERATING UNDER INLET CONTROL CONDITIONS.
KM      SURCHARGE ABOVE 6 FEET IS DRAINED BY A 100 FOOT LONG WEIR MODELED BY
KM      Q = CLH^1.5 WHERE C=3, L=100, AND H=HEAD ON WEIR
RS     1    STOR      -1
SV     0      15      20      30      35      45
SE     0       3       4       6       7       9
SQ     0      75     105     150     475    1759
*
KK R8C32        ROUTE HYDROGRAPH
KM      ROUTE DISCHARGE FROM RESERVOIR B11 TO CONCENTRATION POINT OF SUB-BASIN 8
RS     7    FLOW      -1
RC  0.05    0.05    0.05    8000    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  C8C3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R8C31, 8C3, AND R8C32
HC     3
*
KK  R8D1        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C8C TO CONCENTRATION POINT OF SUB-BASIN 8D1
RS     1    FLOW      -1
RC  0.05    0.05    0.05     600  0.0107
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK   8D1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8D1
BA 0.021
LG  0.25    0.35     3.9   0.417      45
UC 0.112   0.065
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  C8D1        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R8D1 AND 8D1
HC     2
*
KK  R8D2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C8D1 TO CONCENTRATION POINT OF SUB-BASIN 8D2
RS     1    FLOW      -1
RC  0.05    0.05    0.05     800  0.0107
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RX      0      300      450      600      750      850     1100     1250
RY     13       10      8.5        7        0        2        7       11
*
KK   8D2         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 8D2
BA0.0156
LG  0.25     0.35      3.8   0.433       45
UC 0.125    0.104
UA      0        5       16       30       65       77       84       90       94       97
UA    100
*
KK  C8D2         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R8D2 AND 8D2
HC      2
*
KK  I-17         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS C10H, C4E2, AND C8D2
KM       HYDROGRAPH COMBINATION LOCATION IS AT I-17 BRIDGE AT DEADMAN WASH
HC      3
*
KK  R10I         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH I-17 TO CONCENTRATION POINT OF SUB-BASIN 10I
KM       WATERSHED DOWNSTREAM OF I-17 HYDROGRAPH COMBINATION IS MODELED
KM       IDENTICALLY TO THE HNTB DEADMAN WASH FIS, WITH THE EXCEPTION OF THE
KM       CLARK UNIT HYDROGRAPH PARAMETERS
RS      1    FLOW      -1
RL                   0.37    1720
RC  0.07    0.055    0.07    1000  0.0050
RX   490      930     975     989    1011    1026    1130    1620
RY  1734     1726    1724    1720    1720    1724    1726    1734
*
KK   10I         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10I
BA 0.182
LG  0.32     0.35      7.5    0.12    5.53
UC 0.667    0.745
UA      0        3        5        8       12       20       43       75       90       96
UA    100
*
KK  10J2         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10J2
BA0.8491
LG  0.35     0.16       12  0.0117    2.47
UC 0.767    0.504
UA      0        3        5        8       12       20       43       75       90       96
UA    100
*
KK C10IJ         ADD HYDROGRAPHS
KM       ADD HYDROGRAPHS R10I, 10I, AND 10J2
HC      3
*
KKR10K81         ROUTE HYDROGRAPH
KM       ROUTE HYDROGRAPH C10IJ TO CONCENTRATION POINT OF SUB-BASIN 10K81
RS      4    FLOW      -1
RL                   0.37    1708
RC  0.08    0.065    0.08    4800  0.0052
RX   635      845     950     984    1016    1035    1085    1190
RY  1720     1714    1712    1708    1708    1712    1714    1720
*
KK  10K8         COMPUTE SUB-BASIN HYDROGRAPH
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KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K8
BA 0.164
LG  0.32    0.35       5   0.240    7.22
UC 0.917   0.887
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  10K1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K1
BA  0.01
LG 0.194    0.35     3.8   0.450      45
UC 0.083   0.057
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK D10K1        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K1 THROUGH 36 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K1FS
DI     0     165     460     964    1723
DQ     0      21      35      50      65
*
KK R10K2        ROUTE HYDROGRAPH
KM      ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K1 AND ROU
KM      IT TO CONCENTRATION POINT OF SUB-BASIN 10K2
KM      CHANNEL GEOMETRY IS ASSUMED TRIANGULAR ALONG THE FREEWAY
RS     1    FLOW      -1
RC  0.05    0.05    0.05     500    0.01
RX     0      10      20      30      40      50   50.05    50.1
RY     5       4       3       2       1       0     2.5       5
*
KK  10K2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K2
BA0.0078
LG 0.244    0.35    3.75   0.462      45
UC 0.083   0.082
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK C10K2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10K2 AND 10K2
HC     2
*
KK D10K2        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K2 THROUGH 36 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K2FS
DI     0     165     460     964    1723
DQ     0      21      35      50      65
*
KK R10K3        ROUTE HYDROGRAPH
KM      ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K2 AND ROU
KM      IT TO CONCENTRATION POINT OF SUB-BASIN 10K3
KM      CHANNEL GEOMETRY IS ASSUMED TRIANGULAR ALONG THE FREEWAY
RS     1    FLOW      -1
RC  0.05    0.05    0.05     300    0.01
RX     0      10      20      30      40      50   50.05    50.1
RY     5       4       3       2       1       0     2.5       5
*
KK  10K3        COMPUTE SUB-BASIN HYDROGRAPH
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KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K3
BA0.0133
LG  0.23    0.35     3.7   0.466      45
UC 0.083   0.021
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK C10K3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10K3 AND 10K3
HC     2
*
KK D10K3        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K3 THROUGH 30 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K3FS
DI     0     160     453     951    1703
DQ     0      16      28      37      45
*
KK R10K4        ROUTE HYDROGRAPH
KM      ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K3 AND ROU
KM      IT TO CONCENTRATION POINT OF SUB-BASIN 10K4
KM      CHANNEL GEOMETRY IS ASSUMED TRIANGULAR ALONG THE FREEWAY
RS     1    FLOW      -1
RC  0.05    0.05    0.05     450    0.01
RX     0      10      20      30      40      50   50.05    50.1
RY     5       4       3       2       1       0     2.5       5
*
KK  10K4       COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K4
BA 0.026
LG 0.242    0.35     3.7   0.444      45
UC 0.104   0.083
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK C10K4        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10K4 AND 10K4
HC     2
*
KK D10K4        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K4 THROUGH 36 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K4FS
DI     0     165     460     964    1723
DQ     0      21      35      50      65
*
KK R10K5        ROUTE HYDROGRAPH
KM      ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K4 AND ROU
KM      IT TO CONCENTRATION POINT OF SUB-BASIN 10K5
KM      CHANNEL GEOMETRY IS ASSUMED TRIANGULAR ALONG THE FREEWAY
RS     1    FLOW      -1
RC  0.05    0.05    0.05     300    0.01
RX     0      10      20      30      40      50   50.05    50.1
RY     5       4       3       2       1       0     2.5       5
*
KK  10K5       COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K5
BA0.0156
LG 0.254    0.35    3.85   0.430      45
UC 0.129   0.157
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UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK C10K5        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10K5 AND 10K5
HC      2
*
KK D10K5        DIVERSION
KM      SPLIT FLOW AT CONCENTRATION POINT OF SUB-BASIN 10K5 THROUGH 24 inch CMP
KM      OPERATING UNDER INLET CONTROL CONDITIONS
DT10K5FS
DI      0      27     157     446     940    1688
DQ      0       4      13      21      26      30
*
KK R10K6        ROUTE HYDROGRAPH
KM      ROUTE FLOW REMAINING AFTER DIVERSION AT CONCENTRATION POINT 10K5 AND ROU
KM      IT TO CONCENTRATION POINT OF SUB-BASIN 10K6
KM      CHANNEL GEOMETRY IS ASSUMED TRIANGULAR ALONG THE FREEWAY
RS      1    FLOW      -1
RC   0.05    0.05    0.05     400    0.01
RX      0      10      20      30      40      50   50.05    50.1
RY      5       4       3       2       1       0     2.5       5
*
KK  10K6        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K6
BA0.0356
LG  0.23    0.35       4   0.391      45
UC 0.133   0.117
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK C10K6        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R10K6 AND 10K6
HC      2
*
KK  10K7        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10K7
BA 0.026
LG  0.25    0.39     6.2   0.136      45
UC 0.100   0.085
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KKC10K67        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS C10K6 AND 10K7
HC      2
*
KK    B9        RESERVOIR
KM      ROUTE HYDROGRAPH C10K67 THROUGH RESERVOIR B9. RESERVOIR IS DRAINED BY
KM      A 3HX5W CONCRETE BOX CULVERT OPERATING UNDER INLET CONTROL CONDITIONS.
RS      1    STOR      -1
SV      0       3       5       6      10
SE      0       3       5       6      10
SQ      0      75     130     150     210
*
KKR10K82        ROUTE HYDROGRAPH
KM      ROUTE RESERVOIR B9 DISCHARGE TO CONCENTRATION POINT OF SUB-BASIN 10K8
RS      2    FLOW      -1
RC   0.08   0.065    0.08    2600  0.0096
RX    635     845     950     984    1016    1035    1085    1190
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RY  1720    1714    1712    1708    1708    1712    1714    1720
*
KK C10K8        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10K81, 10K8, AND R10K82
HC     3
*
KK  RET1        RETRIEVE
KM
DR10K1FS
*
KK  RET2        RETRIEVE
KM
DR10K2FS
*
KK  RET3        RETRIEVE
KM
DR10K3FS
*
KK  RET4        RETRIEVE
KM
DR10K4FS
*
KK  RET5        RETRIEVE
KM
DR10K5FS
*
KK  10L1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10L1
BA0.1101
LG 0.212    0.39     6.2   0.138      45
UC 0.188   0.126
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  10L2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10L2
BA0.2313
LG  0.19    0.37     5.4   0.198   11.24
UC 0.317   0.228
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKC10L12        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS 10L1 AND 10L2
HC     2
*
KK   B13        RESERVOIR
KM      ROUTE HYDROGRAPH C10L THROUGH RESERVOIR B13. RESERVOIR IS DRAINED BY
KM      A 3HX5W CONCRETE BOX CULVERT OPERATING UNDER INLET CONTROL CONDITIONS.
RS     1    STOR      -1
SV     0       6       8      10
SE     0       3       4       5
SQ     0      75     105     130
*
KK R10L3        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10L12 TO CONCENTRATION POINT OF SUB-BASIN 10L3
RS     2    FLOW      -1
RC  0.08   0.065    0.08    2600  0.0192
RX   635     845     950     984    1016    1035    1085    1190
RY  1720    1714    1712    1708    1708    1712    1714    1720
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*
KK  10L3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10L3
BA0.0716
LG  0.35    0.35       5   0.244  0.0192
UC 0.350   0.294
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK C10L3        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10L3 AND 10L3
HC     2
*
KK C10KL        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS 10K1FS, 10K2FS, 10K3FS, 10K4FS, 10K5FS, C10L3, AND C10K8
HC     7
*
KK  R10M        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10KL TO CONCENTRATION POINT OF SUB-BASIN 10M
RS     1    FLOW      -1
RL                   0.37    1680
RC  0.07   0.045    0.07    1500    0.01
RX    30     910     979     987    1015    1030    1075    1208
RY  1692    1686    1684    1680    1680    1684    1686    1692
*
KK   10M        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10M
BA 0.336
LG  0.30    0.36    3.81    0.29    9.69
UC 0.300   0.176
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C10M        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10M AND 10M
HC     2
*
KKJOY_RD        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10M THRU 4 RCP'S AT JOY RANCH ROAD
RS     1    ELEV  1671.8
SA     0     1.0     1.8     3.7     4.2     5.0     5.7     6.2
SE1671.8  1680.9  1682.1  1683.3  1683.6  1683.8  1684.0  1684.4
SQ     0    1000    3200    8000    9600   11200   12800   16000
*
KK  R10N        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH JOY_RD TO CONCENTRATION POINT OF SUB-BASIN 10N
RS     2    FLOW      -1
RL                   0.37    1656
RC  0.07   0.055    0.07    2400  0.0083
RX   430     910     968     990    1015    1028    1048    1870
RY  1666    1662    1660    1656    1656    1660    1662    1666
*
KK   10N        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10N
BA 0.073
LG  0.35    0.40    6.29    0.19    0.00
UC 0.617   0.816
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
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```
KK   10P        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10P
BA 0.775
LG  0.28    0.35    7.50    0.13    7.50
UC 0.533   0.346
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   10O        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE SUB-BASIN HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10O
BA 0.119
LG  0.35    0.40    6.29    0.19    0.00
UC 0.550   0.584
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKC10NOP        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10N, 10N, 10P, AND 10O
HC     4
*
KK  R10Q        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C10NOP TO CONCENTRATION POINT OF SUB-BASIN 10Q
RS     7    FLOW      -1
RL                 0.366    1620
RC  0.08   0.065    0.08    6700  0.0067
RX   300     960     968     988    1014    1030    1410    1815
RY  1632    1626    1624    1620    1620    1624    1630    1632
*
KK   10Q        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10Q
BA 0.329
LG  0.26    0.36    4.12    0.29    9.61
UC 0.367   0.280
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C10Q        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10Q AND 10Q
HC     2
*
KK    9A        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 9A
BA 0.975
LG  0.31    0.20    9.40    0.02    3.58
UC 0.967   0.729
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   R9B        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 9A TO CONCENTRATION POINT OF SUB-BASIN 9B
RS    10    FLOW      -1
RL                 0.162    1626
RC  0.08   0.065    0.08    9300  0.0097
RX   180     922     960     988    1012    1034    1084    1198
RY  1636    1630    1628    1626    1626    1628    1630    1636
*
KK    9B        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 9B
BA 0.696
LG  0.35    0.20    9.40    0.02    0.00
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UC 0.850   0.597
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK   C9B        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R9B AND 9B
HC     2
*
KK C910Q        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS C9B AND C10Q
HC     2
*
KK  R10R        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C910Q TO CONCENTRATION POINT OF SUB-BASIN 10R
RS     1    FLOW      -1
RL                  0.39    1606
RC  0.08   0.065    0.08     600  0.0083
RX   300     740     955     982    1025    1046    1070    1280
RY  1614    1610    1609    1606    1606    1609    1610    1616
*
KK   10R        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 10R
BA 0.088
LG  0.35    0.25   10.10    0.04    0.00
UC 0.533   0.659
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK  C10R        ADD HYDROGRAPHS
KM      ADD HYDROGRAPHS R10R AND 10R
HC     2
*
KM
KM
KM
*
KK  5F24        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE SUB-BASIN HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 5F24
KM      SUB-BASIN 5F24 IS LOCATION OF WATER AND WASTEWATER TREATMENT SITE
KM      SUB-BASIN 5F24 IS MODELED SEPARATELY FROM THE WATERSHED DUE TO
KM      STIPULATION THAT NO RUNOFF FROM WATER AND WASTEWATER TREATMENT SITE
KM      SHALL LEAVE THE SITE.
BA0.0526
LG   0.1    0.38     6.4  0.1309      80
UC 0.117   0.067
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KM
KM      HYDROGRAPH OPERATIONS THAT FOLLOW WITH "20" PREFIX ARE IN SKUNK CREEK
KM      WATERSHED
KM
*
KK  20A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A1
BA 0.007
LG  0.25    0.35     3.6   0.504   32.13
UC 0.117   0.115
UA     0       3       5       8      12      20      43      75      90      96
UA   100
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*
KKR20A31        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 20A1 TO CONCENTRATION POINT OF SUB-BASIN 20A3
RS      1    FLOW      -1
RC  0.05    0.05    0.05    1700   0.062
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KK  20A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A2
BA 0.018
LG  0.25    0.35     3.6   0.504   32.13
UC 0.133   0.103
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KKR20A32        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 20A2 TO CONCENTRATION POINT OF SUB-BASIN 20A3
RS      1    FLOW      -1
RC  0.05    0.05    0.05    1700   0.073
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KK  20A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A3
BA 0.069
LG 0.263    0.35     3.4   0.578      15
UC 0.200   0.139
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK C20A3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R20A31, 20A3, AND R20A32
HC      3
*
KK R20A4        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C20A3 TO CONCENTRATION POINT OF SUB-BASIN 20A4
RS      1    FLOW      -1
RC  0.05    0.05    0.05    2600   0.029
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KK  20A4        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A4
BA 0.052
LG   0.3    0.35     4.3    0.34      15
UC 0.171   0.207
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK  20A5        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A5
BA 0.066
LG 0.297    0.35     3.3   0.625      15
UC 0.171   0.164
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KKC20A45        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R20A4, 20A4, AND 20A5
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HC      3
*
KK20A161        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C20A45 TO CONCENTRATION POINT OF SUB-BASIN 20A16
RS      1    FLOW      -1
RC  0.05    0.05    0.05    2200   0.014
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KK 20A16        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A16
BA 0.071
LG   0.3    0.33     7.4   0.087      15
UC 0.158   0.115
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK 20A15        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A15
BA 0.036
LG   0.3    0.36       5   0.243      15
UC 0.092   0.063
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK20A162        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 20A15 TO CONCENTRATION POINT OF SUB-BASIN 20A16
RS      1    FLOW      -1
RC  0.05    0.05    0.05     900   0.017
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KKC20A16        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS 20A161, 20A16, AND 20A162
HC      3
*
KK 20A10        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A10
BA 0.035
LG   0.3    0.35     3.6   0.486      15
UC 0.208   0.218
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KKR20A11        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 20A10 TO CONCENTRATION POINT OF SUB-BASIN 20A11
RS      1    FLOW      -1
RC  0.05    0.05    0.05     400  0.0375
RX      0      50     100     130     150     170     200     250
RY     20      18      14      10       0      10      14      20
*
KK 20A11        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A11
BA 0.038
LG   0.3    0.35     3.9   0.412      15
UC 0.229   0.272
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KKC20A11        ADD HYDROGRAPHS
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KM      COMBINE HYDROGRAPHS R20A11 AND 20A11
HC     2
*
KKR20A12        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C20A11 TO CONCENTRATION POINT OF SUB-BASIN 20A12
RS     1    FLOW      -1
RC  0.05    0.05    0.05     700   0.021
RX     0      50     100     130     150     170     200     250
RY    20      18      14      10       0      10      14      20
*
KK 20A12        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A12
BA  0.04
LG   0.3    0.23      10  0.0315      15
UC 0.117   0.098
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A14        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A14
BA 0.015
LG   0.3    0.35     4.2   0.344      15
UC 0.133   0.183
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KKC20A12        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R20A12, 20A12, AND 20A14
HC     3
*
KK  SC#1        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #1 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     2
*
KK  20A6        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A6
BA 0.035
LG 0.277    0.35     3.7  0.4791   19.48
UC 0.188   0.165
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  20A7        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A7
BA0.0039
LG   0.3    0.35     3.8   0.428      15
UC 0.112   0.117
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  20A8        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A8
BA0.0106
LG   0.3    0.35     3.8   0.438      15
UC 0.146   0.154
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  20A9        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A9
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BA 0.025
LG 0.291    0.35     3.7   0.466   15.68
UC 0.196   0.219
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A13        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A13
BA 0.019
LG   0.3    0.22    10.5   0.281      15
UC 0.125   0.132
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  SC#2        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #2 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     5
*
KK  SC#3        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #3 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     2
*
KK 20A17        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A17
BA 0.022
LG  0.25    0.32     7.6   0.082      30
UC 0.121   0.114
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A18        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A18
BA 0.087
LG  0.35    0.21    10.7   0.025       0
UC 0.200   0.227
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A19        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A19
BA0.0393
LG  0.25    0.16      12  0.0117      30
UC 0.175   0.187
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A20        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A20
BA0.0278
LG  0.25    0.16      12  0.0117      30
UC 0.133   0.111
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  SC#4        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #4 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     4
*
KK  SC#5        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #5 USED TO COMBINE INFLOWS TO SKUNK CREEK
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HC      2
*
KK 20A36         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A36
BA 0.158
LG  0.25    0.16      12  0.0117      30
UC 0.208   0.149
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK   B10         RESERVOIR
KM       ROUTE HYDROGRAPH 20A36 THROUGH RESERVOIR B10
KM       RESERVOIR B10 IS DRAINED BY A 3HX5W BOX CULVERT OPERATING UNDER INLET
KM       CONTROL CONDITIONS.
RS     1    STOR      -1
SV     0      30      50      60      70
SE     0       3       5       6       7
SQ     0      75     130     150     175
*
KKR20A21         ROUTE HYDROGRAPH
KM       ROUTE DISCHARGE FROM RESERVOIR B10 TO CONCENTRATION POINT OF SUB-BASIN 2
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1000   0.001
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK 20A21         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A21
BA  0.02
LG  0.25    0.16      12  0.0117      30
UC 0.158   0.199
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KKC20A21         ADD HYDROGRAPHS
KM       COMBINE HYDROGRAPHS R20A21 AND 20A21
HC      2
*
KK  SC#6         ADD HYDROGRAPHS
KM       DUMMY HYDROGRAPH #6 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC      2
*
KK 20A22         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A22
BA 0.013
LG  0.25    0.16      12  0.0117      30
UC 0.117   0.124
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A23         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A23
BA  0.01
LG   0.3    0.16      12  0.0117       5
UC 0.083   0.057
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A24         COMPUTE SUB-BASIN HYDROGRAPH
KM       COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A24
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BA0.0493
LG  0.35    0.16      12  0.0117       0
UC 0.221   0.212
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A25        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A25
BA0.0163
LG   0.3    0.16      12  0.0117       5
UC 0.121   0.113
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  SC#7        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #7 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     4
*
KK  SC#8        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #8 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     2
*
KK 20A26        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A26
BA0.0258
LG   0.3    0.17      12   0.015       5
UC 0.171   0.177
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  SC#9        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #9 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     2
*
KM
KM
KM      THE FOLLOWING COMPUTATIONS MODEL INFLOWS TO SKUNK CREEK IN THE
KM      SOUTHEAST CORNER OF SECTION 19 OF THE DEL WEBB PROPERTY
KM
KM
*
KK 20A27        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A27
BA0.0[illegible]
LG  0[illegible]    0.460       0
UC 0.317  0.[illegible]
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK 20A28        [illegible]
KM      ROUTE HYDROGRAPH 20A27 TO CONCENTRATION POINT OF SUB-BASIN 20A28
RS     1    FLOW      -1
RC  0.05    0.05    0.05    1000    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK 20A28        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A28
BA0.0167
LG   0.3    0.35     3.7   0.445       5
```

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UC 0.138   0.137
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KKC20A28        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R20A28 AND 20A28
HC     2
*
KK 20A30        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A30
BA 0.039
LG  0.30    0.24    9.80    0.04       5
UC 0.200   0.244
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A32        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A32
BA 0.034
LG  0.30    0.29     8.2    0.06       5
UC 0.154   0.135
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK 20A34        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 20A34
BA 0.064
LG  0.35    0.30       8    0.07       0
UC 0.417   0.475
UA     0       3       5       8      12      20      43      75      90 0    96
UA   100
*
KKC20A32        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R20A32 AND 20A34
HC     2
*
KK    B8        RESERVOIR
KM      ROUTE HYDROGRAPH C20A35 THROUGH RESERVOIR B8.
KM      RESERVOIR B8 IS DRAINED BY A 3HX5W BOX CULVERT OPERATING UNDER INLET
KM      CONTROL CONDITIONS.
RS     1    STOR      -1
SV     0       9      12      15
SE     0       3       4       5
SQ     0      75     105     130
*
KK SC#10        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #10 USED TO COMBINE INFLOWS TO SKUNK CREEK
HC     3
*
KM
KM      HYDROGRAPH OPERATIONS WITH "30" PREFIX ARE IN NEW RIVER WATERSHED
KM
*
KK  30A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 30A2
BA 0.084
LG  0.35    0.15    12.5    0.01       0
UC 0.433   0.482
UA     0       3       5       8      12      20      43      75      90      96
UA   100
```

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*
KK R30A4        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 30A2 TO CONCENTRATION POINT OF SUB-BASIN 30A4
RS     1    FLOW      -1
RC  0.05    0.05    0.05     900   0.022
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  30A4        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 30A4
BA 0.029
LG   0.3    0.15    12.5    0.01       5
UC 0.121   0.087
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK C30A4        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R30A4 AND 30A4
HC     2
*
KKR30A31        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH C30A4 TO CONCENTRATION POINT OF SUB-BASIN 30A3
KM      DISCHARGE IS ROUTED VIA A TRAPEZOIDAL COLLECTOR CHANNEL
RS     2    FLOW      -1
RC  0.05    0.05    0.05    1500    0.02
RX     0      10      20      25      35      40      50      60
RY     4       2       0       0       0       0       2       4
*
KK  30A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 30A3
BA 0.097
LG   0.3   0.285     8.4   0.061       5
UC 0.192   0.146
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  30A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 30A1
BA 0.318
LG  0.35    0.15    12.5    0.01       0
UC 0.650   0.645
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KKR30A32        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 30A1 TO CONCENTRATION POINT OF SUB-BASIN 30A3
RS     3    FLOW      -1
RC  0.05    0.05    0.05    3200  0.0125
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK C30A3        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R30A31, 30A3, AND R30A32
HC     3
*
KK   B12        RESERVOIR
KM      ROUTE HYDROGRAPH C30A3 THROUGH RESERVOIR B12. RESERVOIR IS DRAINED BY 3
KM      3H X 5W CONCRETE BOX CULVERTS OPERATING UNDER INLET CONTROL CONDITIONS.
RS     1    STOR      -1
SV     0     4.5     7.5       9      12
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SE      0       3       5       6       8
SQ      0     225     390     450     630
*
KM
KM      HYDROGRAPH OPERATIONS WITH "40" PREFIX ARE IN NEW RIVER WATERSHED
KM
*
KK  40A1        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A1
BA 0.046
LG  0.35    0.16      12  0.0117       0
UC 0.283   0.243
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK R40A2        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 40A1 TO CONCENTRATION POINT OF SUB-BASIN 40A2
RS      1    FLOW      -1
RC  0.05    0.05    0.05    1000    0.02
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK  40A2        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A2
BA 0.011
LG   0.3    0.16      12  0.0117      15
UC 0.112   0.131
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK C40A2        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R40A2 AND 40A2
HC      2
*
KK  40A3        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A3
BA 0.038
LG  0.35    0.18   11.75   0.016       0
UC 0.300   0.323
UA      0       3       5       8      12      20      43      75      90      96
UA    100
*
KK R40A4        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 40A3 TO CONCENTRATION POINT OF SUB-BASIN 40A4
RS      3    FLOW      -1
RC  0.05    0.05    0.05    3000    0.02
RX      0     300     450     600     750     850    1100    1250
RY     13      10     8.5       7       0       2       7      11
*
KK  40A4        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A4
BA 0.049
LG  0.25    0.18   11.75   0.016      30
UC 0.167   0.180
UA      0       5      16      30      65      77      84      90      94      97
UA    100
*
KK C40A4        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R40A4 AND 40A4
HC      2
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*
KK  NR#1        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #1 USED TO COMBINE INFLOWS TO NEW RIVER
HC     2
*
KK  40A5        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A5
BA 0.076
LG  0.35    0.24      10   0.035       0
UC 0.433   0.404
UA     0       3       5       8      12      20      43      75      90      96
UA   100
*
KK R40A6        ROUTE HYDROGRAPH
KM      ROUTE HYDROGRAPH 40A5 TO CONCENTRATION POINT OF SUB-BASIN 40A6
RS     4    FLOW      -1
RC  0.05    0.05    0.05    5000    0.02
RX     0     300     450     600     750     850    1100    1250
RY    13      10     8.5       7       0       2       7      11
*
KK  40A6        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A6
BA 0.147
LG  0.25    0.19    11.5    0.02      30
UC 0.217   0.193
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK  40A7        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A7
BA 0.049
LG  0.25    0.16      12  0.0117      30
UC 0.175   0.205
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
KK C40A6        ADD HYDROGRAPHS
KM      COMBINE HYDROGRAPHS R40A6, 40A6, AND 40A7
HC     3
*
KK  NR#2        ADD HYDROGRAPHS
KM      DUMMY HYDROGRAPH #2 USED TO COMBINE INFLOWS TO NEW RIVER
HC     2
*
KK  40A8        COMPUTE SUB-BASIN HYDROGRAPH
KM      COMPUTE HYDROGRAPH AT CONCENTRATION POINT OF SUB-BASIN 40A8
BA 0.091
LG  0.25    0.16      12  0.0117      30
UC 0.183   0.140
UA     0       5      16      30      65      77      84      90      94      97
UA   100
*
ZZ
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SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

 NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  77        10A1
               V
               V
  84       R10A2
               .
               .
  90           .        10A2
               .           .
               .           .
  97       C10A2............
               V
               V
 100       R10B1
               .
               .
 106           .         10B
               .           .
               .           .
 113           .           .        10E1
               .           .           V
               .           .           V
 120           .           .       R10B2
               .           .           .
               .           .           .
 127        C10B........................
               V
               V
 130          B5
               V
               V
 140      R10C31
               .
               .
 146           .        10C3
               .           .
               .           .
 153           .           .        10C1
               .           .           V
               .           .           V
 160           .           .       R10C2
               .           .           .
               .           .           .
 166           .           .           .        10C2
               .           .           .           .
               .           .           .           .
 173           .           .       C10C2............
               .           .           V
               .           .           V
 176           .           .      R10C32
               .           .           .
               .           .           .
 182       C10C3........................
               V
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                V
188       R10D21
                .
                .
194             .        10D2
                .           .
                .           .
201             .           .        10D1
                .           .           V
                .           .           V
208             .           .      R10D22
                .           .           .
                .           .           .
214       C10D2.......................
                .
                .
217             .        10E2
                .           V
                .           V
224             .         B7A
                .           .
                .           .
232             .           .         1A1
                .           .           V
                .           .           V
239             .           .       R1A21
                .           .           .
                .           .           .
245             .           .           .         1A2
                .           .           .           .
                .           .           .           .
252             .           .           .           .      20A33
                .           .           .           .          V
                .           .           .           .          V
259             .           .           .           .       R4A1
                .           .           .           .          .
                .           .           .           .          .
265             .           .           .           .          .         4A1
                .           .           .           .          .           .
                .           .           .           .          .           .
272             .           .           .           .       C4A1............
                .           .           .           .          V
                .           .           .           .          V
275             .           .           .           .      R1A22
                .           .           .           .          .
                .           .           .           .          .
283             .           .       C1A2........................
                .           .           V
                .           .           V
286             .           .       R10E2
                .           .           .
                .           .           .
292             .       C10E2............
                .           V
                .           V
295             .         B7B
                .           V
                .           V
305             .       R10E3
                .           .
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                .          .
311             .          .        10E3
                .          .          .
                .          .          .
318             .       C10E3............
                .          .
                .          .
321             .          .         4C1
                .          .           V
                .          .           V
328             .          .        R1A3
                .          .          .
                .          .          .
334             .          .          .         1A3
                .          .          .           .
                .          .          .           .
341             .          .        C1A3............
                .          .          .
                .          .          .
344        C10ED1........................
                V
                V
347         R10F
                .
                .
353             .         10F
                .          .
                .          .
360         C10F............
                .
                .
363             .         2A1
                .           V
                .           V
370             .       R2A2
                .          .
                .          .
376             .          .         2A2
                .          .          .
                .          .          .
383             .       C2A2............
                .          .
                .          .
386             .          .         2B1
                .          .           V
                .          .           V
393             .          .        R2B2
                .          .          .
                .          .          .
399             .          .          .         2B2
                .          .          .           .
                .          .          .           .
406             .          .        C2B2............
                .          .          .
                .          .          .
409             .       C2AB............
                .           V
                .           V
412             .       R2C1
                .          .
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                .          .
418             .          .        2C1
                .          .          .
                .          .          .
425             .       C2C1............
                .          V
                .          V
428             .         B4
                .          V
                .          V
438             .       R2C2
                .          .
                .          .
444             .          .        2C2
                .          .          .
                .          .          .
451             .       C2C2............
                .          .
                .          .
454         C2C10F............
                V
                V
457          R10G
                .
                .
463             .        10G
                .          .
                .          .
470          C10G............
                .
                .
473             .        3A1
                .          V
                .          V
480             .       R3A2
                .          .
                .          .
486             .          .        3A2
                .          .          .
                .          .          .
493             .       C3A2............
                .          V
                .          V
496             .      R3B21
                .          .
                .          .
502             .          .        3B2
                .          .          .
                .          .          .
509             .          .          .        3B1
                .          .          .          V
                .          .          .          V
516             .          .          .      R3B22
                .          .          .          .
                .          .          .          .
522             .       C3B2........................
                .          .
                .          .
525             .          .         3C
                .          .          .
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                .          .          .
532             .       C3B2C............
                .          V
                .          V
535             .       R3D1
                .          .
                .          .
541             .          .        3D1
                .          .          .
                .          .          .
548             .       C3D1............
                .          V
                .          V
551             .         B3
                .          V
                .          V
561             .       R3D2
                .          .
                .          .
567             .          .        3D2
                .          .          .
                .          .          .
574             .       C3D2............
                .          V
                .          V
577             .       R3D3
                .          .
                .          .
583             .          .        3D3
                .          .          .
                .          .          .
590             .       C3D3............
                .          .
                .          .
593        10G3D3............
               V
               V
596        R10H21
                .
                .
602             .       10H2
                .          .
                .          .
609             .          .       10H1
                .          .          V
                .          .          V
616             .          .     R10H22
                .          .          .
                .          .          .
622         C10H2........................
                .
                .
625             .        4A2
                .          V
                .          V
632             .       R4A3
                .          .
                .          .
638             .          .        4A3
                .          .          .
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                .          .          .
645             .       C4A3............
                .          .
                .          .
648             .          .         4B
                .          .          .
                .          .          .
655             .       C4AB............
                .          V
                .          V
658             .       R4C2
                .          .
                .          .
664             .          .         4C2
                .          .          .
                .          .          .
671             .       C4C2............
                .          V
                .          V
674             .        R4D
                .          .
                .          .
680             .          .         4D
                .          .          .
                .          .          .
687             .        C4D............
                .          V
                .          V
690             .       R4E1
                .          .
                .          .
696             .          .         4E1
                .          .          .
                .          .          .
703             .       C4E1............
                .          V
                .          V
706             .       R4E2
                .          .
                .          .
712             .          .         4E2
                .          .          .
                .          .          .
719             .       C4E2............
                .          .
                .          .
722             .          .         5D
                .          .          .
                .          .          .
729             .          .          .         5C
                .          .          .          .
                .          .          .          .
736             .          .       C5CD............
                .          .          V
                .          .          V
739             .          .       R5E
                .          .          .
                .          .          .
745             .          .          .         5E
                .          .          .          .
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                .         .         .         .
752             .         .         .         .         5A
                .         .         .         .          V
                .         .         .         .          V
759             .         .         .         .        R5B
                .         .         .         .          .
                .         .         .         .          .
765             .         .         .         .          .         5B
                .         .         .         .          .          .
                .         .         .         .          .          .
772             .         .         .         .       C5B............
                .         .         .         .          .
                .         .         .         .          .
775             .         .       C5E........................
                .         .         V
                .         .         V
778             .         .      R5F11
                .         .         .
                .         .         .
784             .         .         .       5F1
                .         .         .         .
                .         .         .         .
791             .         .         .         .        5G1
                .         .         .         .          V
                .         .         .         .          V
798             .         .         .         .      R5F12
                .         .         .         .          .
                .         .         .         .          .
804             .         .      C5F1........................
                .         .         V
                .         .         V
807             .         .        B2
                .         .         V
                .         .         V
817             .         .      R5F21
                .         .         .
                .         .         .
823             .         .         .      5F21
                .         .         .         .
                .         .         .         .
830             .         .      C5F21............
                .         .         V
                .         .         V
833             .         .      R5G21
                .         .         .
                .         .         .
839             .         .         .      5G21
                .         .         .         V
                .         .         .         V
846             .         .         .       B6A
                .         .         .         .
                .         .         .         .
854             .         .     C5FG21............
                .         .         V
                .         .         V
857             .         .       B6B
                .         .         V
                .         .         V
867             .         .      R7H1
                .         .         .
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874
881
887
894
897
907
913
920
923
930
936
943
946
952
959
966
972
975
981
988
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                .         .         .         .         V
991             .         .         .         .       R7B
                .         .         .         .         .
                .         .         .         .         .
997             .         .         .         .         .        7B
                .         .         .         .         .         .
                .         .         .         .         .         .
1004            .         .         .         .       C7B............
                .         .         .         .         .
                .         .         .         .         .
1007            .         .         .         .         .        7C
                .         .         .         .         .         V
                .         .         .         .         .         V
1014            .         .         .         .         .       R7D
                .         .         .         .         .         .
                .         .         .         .         .         .
1020            .         .         .         .         .         .        7D
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
1027            .         .         .         .         .       C7D............
                .         .         .         .         .         .
                .         .         .         .         .         .
1030            .         .         .         .         .         .        7E
                .         .         .         .         .         .         V
                .         .         .         .         .         .         V
1037            .         .         .         .         .         .      R7F1
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
1043            .         .         .         .         .         .         .        7F1
                .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .
1050            .         .         .         .         .         .      C7F1............
                .         .         .         .         .         .         V
                .         .         .         .         .         .         V
1053            .         .         .         .         .         .      R7F2
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
1059            .         .         .         .         .         .         .        7F2
                .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .
1066            .         .         .         .         .         .      C7F2............
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
1069            .         .         .         .     C7FBD......................
                .         .         .         .         V
                .         .         .         .         V
1072            .         .         .         .       R7G
                .         .         .         .         .
                .         .         .         .         .
1078            .         .         .         .         .        7G
                .         .         .         .         .         .
                .         .         .         .         .         .
1085            .         .         .         .       C7G............
                .         .         .         .         .
                .         .         .         .         .
1088            .         .         .     C6B27G............
                .         .         .         V
                .         .         .         V
1091            .         .         .       R7H2
                .         .         .         .
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                .         .         .         .
1097            .         .         .         .         7H
                .         .         .         .         .
                .         .         .         .         .
1104            .         .       C7H.......................
                .         .         .
                .         .         .
1107            .         .         .       5F22
                .         .         .          V
                .         .         .          V
1114            .         .         .     R5G221
                .         .         .         .
                .         .         .         .
1121            .         .         .         .       5F23
                .         .         .         .          V
                .         .         .         .          V
1128            .         .         .         .     R5G222
                .         .         .         .         .
                .         .         .         .         .
1135            .         .         .         .         .        5G22
                .         .         .         .         .          .
                .         .         .         .         .          .
1142            .         .    C5GF7H...................................
                .         .       V
                .         .       V
1145            .         .     R8C31
                .         .         .
                .         .         .
1151            .         .         .       8C3
                .         .         .         .
                .         .         .         .
1158            .         .         .         .         8A
                .         .         .         .          V
                .         .         .         .          V
1165            .         .         .         .       R8B1
                .         .         .         .         .
                .         .         .         .         .
1171            .         .         .         .         .        8B1
                .         .         .         .         .          .
                .         .         .         .         .          .
1178            .         .         .         .       C8B1............
                .         .         .         .          V
                .         .         .         .          V
1181            .         .         .         .      R8B31
                .         .         .         .         .
                .         .         .         .         .
1187            .         .         .         .         .        8B3
                .         .         .         .         .          .
                .         .         .         .         .          .
1194            .         .         .         .         .          .        8B2
                .         .         .         .         .          .          V
                .         .         .         .         .          .          V
1201            .         .         .         .         .          .      R8B32
                .         .         .         .         .          .          .
                .         .         .         .         .          .          .
1207            .         .         .         .       C8B3........................
                .         .         .         .          V
                .         .         .         .          V
1210            .         .         .         .      R8C21
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1216            .         .         .         .         .       8C2
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1223            .         .         .         .         .         .       8C1
                .         .         .         .         .         .         V
                .         .         .         .         .         .         V
1230            .         .         .         .         .         .     R8C22
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
1236            .         .         .         .         .         .         .      10J1
                .         .         .         .         .         .         .         V
                .         .         .         .         .         .         .         V
1243            .         .         .         .         .         .         .     R8C23
                .         .         .         .         .         .         .         .
                .         .         .         .         .         .         .         .
1249            .         .         .         .       C8C2.......................................
                .         .         .         .         V
                .         .         .         .         V
1252            .         .         .         .       B11
                .         .         .         .         V
                .         .         .         .         V
1261            .         .         .         .     R8C32
                .         .         .         .         .
                .         .         .         .         .
1267            .         .       C8C3........................
                .         .         V
                .         .         V
1270            .         .       R8D1
                .         .         .
                .         .         .
1276            .         .         .       8D1
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                .         .         .         .
1283            .         .       C8D1............
                .         .         V
                .         .         V
1286            .         .       R8D2
                .         .         .
                .         .         .
1292            .         .         .       8D2
                .         .         .         .
                .         .         .         .
1299            .         .       C8D2............
                .         .         .
                .         .         .
1302          I-17........................
                V
                V
1306          R10I
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1316            .       10I
                .         .
                .         .
1323            .         .       10J2
                .         .         .
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1330        C10IJ........................
                V
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                V
1333      R10K81
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1340            .        10K8
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1347            .          .       10K1
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                .          .         .
1357            .          .         .-------->  10K1FS
1354            .          .      D10K1
                .          .         V
                .          .         V
1360            .          .      R10K2
                .          .         .
                .          .         .
1368            .          .         .        10K2
                .          .         .          .
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1375            .          .      C10K2............
                .          .         .
                .          .         .
1381            .          .         .-------->  10K2FS
1378            .          .      D10K2
                .          .         V
                .          .         V
1384            .          .      R10K3
                .          .         .
                .          .         .
1392            .          .         .        10K3
                .          .         .          .
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1399            .          .      C10K3............
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1405            .          .         .-------->  10K3FS
1402            .          .      D10K3
                .          .         V
                .          .         V
1408            .          .      R10K4
                .          .         .
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1416            .          .         .        10K4
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1423            .          .      C10K4............
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                .          .         .
1429            .          .         .-------->  10K4FS
1426            .          .      D10K4
                .          .         V
                .          .         V
1432            .          .      R10K5
                .          .         .
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1440            .          .         .        10K5
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1447            .          .      C10K5............
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1453            .          .          .-------> 10K5FS
1450            .          .      D10K5
                .          .          V
                .          .          V
1456            .          .      R10K6
                .          .          .
                .          .          .
1464            .          .          .        10K6
                .          .          .          .
                .          .          .          .
1471            .          .      C10K6............
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1474            .          .          .        10K7
                .          .          .          .
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1481            .          .     C10K67............
                .          .          V
                .          .          V
1484            .          .         B9
                .          .          V
                .          .          V
1491            .          .     R10K82
                .          .          .
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1497       C10K8........................
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                .
1502            .          .<-------  10K1FS
1500            .       RET1
                .          .
                .          .
1505            .          .          .<-------  10K2FS
1503            .          .      RET2
                .          .          .
                .          .          .
1508            .          .          .          .<-------  10K3FS
1506            .          .          .       RET3
                .          .          .          .
                .          .          .          .
1511            .          .          .          .          .<-------  10K4FS
1509            .          .          .          .       RET4
                .          .          .          .          .
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1514            .          .          .          .          .          .<-------  10K5FS
1512            .          .          .          .          .       RET5
                .          .          .          .          .          .
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1515            .          .          .          .          .          .       10L1
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1522            .          .          .          .          .          .          .       10L2
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1529            .          .          .          .          .          .     C10L12............
                .          .          .          .          .          .          V
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1532            .          .          .          .          .          .         B13
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                .         .         .         .         .         .         V
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1539            .         .         .         .         .         .      R10L3
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1545            .         .         .         .         .         .         .        10L3
                .         .         .         .         .         .         .          .
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1552            .         .         .         .         .         .      C10L3............
                .         .         .         .         .         .         .
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1555         C10KL.......................................................................
                V
                V
1558         R10M
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1565            .        10M
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                .         .
1572         C10M............
                V
                V
1575        JOY_RD
                V
                V
1581         R10N
                .
                .
1588            .        10N
                .         .
                .         .
1595            .         .        10P
                .         .         .
                .         .         .
1602            .         .         .        10O
                .         .         .          .
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1609        C10NOP...................................
                V
                V
1612         R10Q
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1619            .        10Q
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1626         C10Q............
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1629            .         9A
                .          V
                .          V
1636            .        R9B
                .         .
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1643            .         .         9B
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1650            .        C9B............
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1653        C910Q............
                V
                V
1656         R10R
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1663            .        10R
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1670         C10R............
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1676            .       5F24
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                .          .
1691            .          .      20A1
                .          .         V
                .          .         V
1698            .          .    R20A31
                .          .         .
                .          .         .
1704            .          .         .       20A2
                .          .         .          V
                .          .         .          V
1711            .          .         .     R20A32
                .          .         .          .
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1717            .          .         .          .       20A3
                .          .         .          .          .
                .          .         .          .          .
1724            .          .    C20A3........................
                .          .         V
                .          .         V
1727            .          .    R20A4
                .          .         .
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1733            .          .         .       20A4
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1740            .          .         .          .       20A5
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                .          .         .          .          .
1747            .          .    C20A45........................
                .          .         V
                .          .         V
1750            .          .    20A161
                .          .         .
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1756            .          .         .      20A16
                .          .         .          .
                .          .         .          .
1763            .          .         .          .      20A15
                .          .         .          .          V
                .          .         .          .          V
1770            .          .         .          .     20A162
                .          .         .          .          .
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1776            .          .    C20A16........................
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1779            .         .         .      20A10
                .         .         .          V
                .         .         .          V
1786            .         .         .     R20A11
                .         .         .          .
                .         .         .          .
1792            .         .         .          .       20A11
                .         .         .          .           .
                .         .         .          .           .
1799            .         .         .     C20A11............
                .         .         .          V
                .         .         .          V
1802            .         .         .     R20A12
                .         .         .          .
                .         .         .          .
1808            .         .         .          .       20A12
                .         .         .          .           .
                .         .         .          .           .
1815            .         .         .          .           .       20A14
                .         .         .          .           .           .
                .         .         .          .           .           .
1822            .         .         .     C20A12......................
                .         .         .          .
                .         .         .          .
1825            .         .     SC#1............
                .         .         .
                .         .         .
1828            .         .         .       20A6
                .         .         .          .
                .         .         .          .
1835            .         .         .          .       20A7
                .         .         .          .           .
                .         .         .          .           .
1842            .         .         .          .           .       20A8
                .         .         .          .           .           .
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1849            .         .         .          .           .           .       20A9
                .         .         .          .           .           .           .
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1856            .         .         .          .           .           .           .       20A13
                .         .         .          .           .           .           .           .
                .         .         .          .           .           .           .           .
1863            .         .         .      SC#2.............................................
                .         .         .          .
                .         .         .          .
1866            .         .     SC#3............
                .         .         .
                .         .         .
1869            .         .         .      20A17
                .         .         .          .
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1876            .         .         .          .       20A18
                .         .         .          .           .
                .         .         .          .           .
1883            .         .         .          .           .       20A19
                .         .         .          .           .           .
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1890            .         .         .          .           .           .       20A20
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1897            .         .         .      SC#4.......................................
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1900            .         .      SC#5............
                .         .         .
                .         .         .
1903            .         .         .      20A36
                .         .         .         V
                .         .         .         V
1910            .         .         .       B10
                .         .         .         V
                .         .         .         V
1918            .         .         .     R20A21
                .         .         .         .
                .         .         .         .
1924            .         .         .         .      20A21
                .         .         .         .         .
                .         .         .         .         .
1931            .         .         .     C20A21............
                .         .         .         .
                .         .         .         .
1934            .         .      SC#6............
                .         .         .
                .         .         .
1937            .         .         .      20A22
                .         .         .         .
                .         .         .         .
1944            .         .         .         .      20A23
                .         .         .         .         .
                .         .         .         .         .
1951            .         .         .         .         .      20A24
                .         .         .         .         .         .
                .         .         .         .         .         .
1958            .         .         .         .         .         .      20A25
                .         .         .         .         .         .         .
                .         .         .         .         .         .         .
1965            .         .         .      SC#7.......................................
                .         .         .         .
                .         .         .         .
1968            .         .      SC#8............
                .         .         .
                .         .         .
1971            .         .         .      20A26
                .         .         .         .
                .         .         .         .
1978            .         .      SC#9............
                .         .         .
                .         .         .
1987            .         .         .      20A27
                .         .         .         V
                .         .         .         V
1994            .         .         .     R20A28
                .         .         .         .
                .         .         .         .
2000            .         .         .         .      20A28
                .         .         .         .         .
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2007            .         .         .     C20A28............
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2010            .         .         .         .      20A30
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2017            .         .         .         .        .      20A32
                .         .         .         .        .        .
                .         .         .         .        .        .
2024            .         .         .         .        .        .      20A34
                .         .         .         .        .        .        .
                .         .         .         .        .        .        .
2031            .         .         .         .        .      C20A32............
                .         .         .         .        .          V
                .         .         .         .        .          V
2034            .         .         .         .        .         B8
                .         .         .         .        .          .
                .         .         .         .        .          .
2042            .         .         .      SC#10.......................
                .         .         .         .
                .         .         .         .
2048            .         .         .         .      30A2
                .         .         .         .        V
                .         .         .         .        V
2055            .         .         .         .     R30A4
                .         .         .         .        .
                .         .         .         .        .
2061            .         .         .         .        .      30A4
                .         .         .         .        .        .
                .         .         .         .        .        .
2068            .         .         .         .     C30A4............
                .         .         .         .        V
                .         .         .         .        V
2071            .         .         .         .    R30A31
                .         .         .         .        .
                .         .         .         .        .
2078            .         .         .         .        .      30A3
                .         .         .         .        .        .
                .         .         .         .        .        .
2085            .         .         .         .        .        .      30A1
                .         .         .         .        .        .        V
                .         .         .         .        .        .        V
2092            .         .         .         .        .        .     R30A32
                .         .         .         .        .        .        .
                .         .         .         .        .        .        .
2098            .         .         .         .     C30A3........................
                .         .         .         .        V
                .         .         .         .        V
2101            .         .         .         .      B12
                .         .         .         .        .
                .         .         .         .        .
2111            .         .         .         .        .      40A1
                .         .         .         .        .        V
                .         .         .         .        .        V
2118            .         .         .         .        .     R40A2
                .         .         .         .        .        .
                .         .         .         .        .        .
2124            .         .         .         .        .        .      40A2
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2131            .         .         .         .        .     C40A2............
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2134            .         .         .         .         .         .        40A3
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                .         .         .         .         .         .          V
2141            .         .         .         .         .         .       R40A4
                .         .         .         .         .         .          .
                .         .         .         .         .         .          .
2147            .         .         .         .         .         .          .        40A4
                .         .         .         .         .         .          .          .
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2154            .         .         .         .         .         .       C40A4............
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                .         .         .         .         .         .          .
2157            .         .         .         .         .      NR#1............
                .         .         .         .         .         .
                .         .         .         .         .         .
2160            .         .         .         .         .         .        40A5
                .         .         .         .         .         .          V
                .         .         .         .         .         .          V
2167            .         .         .         .         .         .       R40A6
                .         .         .         .         .         .          .
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2173            .         .         .         .         .         .          .        40A6
                .         .         .         .         .         .          .          .
                .         .         .         .         .         .          .          .
2180            .         .         .         .         .         .          .          .        40A7
                .         .         .         .         .         .          .          .          .
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2187            .         .         .         .         .         .       C40A6........................
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2190            .         .         .         .         .      NR#2............
                .         .         .         .         .         .
                .         .         .         .         .         .
2193            .         .         .         .         .         .        40A8
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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	10A1	435.	4.08	33.	8.	8.	0.14		
ROUTED TO	R10A2	429.	4.08	33.	8.	8.	0.14		
HYDROGRAPH AT	10A2	55.	4.00	4.	1.	1.	0.01		
2 COMBINED AT	C10A2	468.	4.08	37.	9.	9.	0.16		
ROUTED TO	R10B1	307.	4.33	36.	9.	9.	0.16		
HYDROGRAPH AT	10B	1261.	4.00	107.	27.	26.	0.37		
HYDROGRAPH AT	10E1	365.	4.00	31.	8.	7.	0.11		
ROUTED TO	R10B2	339.	4.08	31.	8.	7.	0.11		
3 COMBINED AT	C10B	1553.	4.00	173.	43.	42.	0.63		
ROUTED TO	B5	381.	4.50	124.	43.	41.	0.63		
ROUTED TO	R10C31	267.	4.83	123.	43.	41.	0.63		
HYDROGRAPH AT	10C3	419.	4.08	46.	11.	11.	0.15		
HYDROGRAPH AT	10C1	460.	4.00	43.	11.	10.	0.14		
ROUTED TO	R10C2	416.	4.17	43.	11.	10.	0.14		
HYDROGRAPH AT	10C2	637.	4.00	60.	15.	15.	0.20		
2 COMBINED AT	C10C2	973.	4.08	102.	26.	25.	0.35		
ROUTED TO	R10C32	967.	4.08	102.	26.	25.	0.35		
3 COMBINED AT	C10C3	1158.	4.08	251.	79.	76.	1.13		
ROUTED TO	R10D21	1059.	4.25	250.	79.	76.	1.13		
HYDROGRAPH AT	10D2	281.	4.00	23.	6.	5.	0.10		
HYDROGRAPH AT	10D1	189.	4.00	14.	3.	3.	0.06		
ROUTED TO	R10D22	126.	4.17	14.	3.	3.	0.06		
3 COMBINED AT	C10D2	1272.	4.17	281.	87.	84.	1.29		
HYDROGRAPH AT	10E2	1088.	4.08	110.	28.	27.	0.37		
ROUTED TO	B7A	1001.	4.08	110.	28.	27.	0.37		
HYDROGRAPH AT	1A1	271.	4.00	21.	5.	5.	0.08		

ROUTED TO	R1A21	123.	4.83	21.	5.	5.	0.08
HYDROGRAPH AT	1A2	928.	4.08	117.	29.	28.	0.41
HYDROGRAPH AT	20A33	203.	4.00	18.	5.	4.	0.06
ROUTED TO	R4A1	186.	4.08	18.	5.	4.	0.06
HYDROGRAPH AT	4A1	80.	4.08	9.	2.	2.	0.03
2 COMBINED AT	C4A1	265.	4.08	27.	7.	7.	0.09
ROUTED TO	R1A22	232.	4.25	27.	7.	7.	0.09
3 COMBINED AT	C1A2	1125.	4.17	163.	41.	40.	0.57
ROUTED TO	R10E2	1092.	4.17	163.	41.	40.	0.57
2 COMBINED AT	C10E2	1857.	4.17	271.	68.	66.	0.94
ROUTED TO	B7B	1549.	4.33	267.	68.	66.	0.94
ROUTED TO	R10E3	1491.	4.42	267.	68.	66.	0.94
HYDROGRAPH AT	10E3	253.	4.00	21.	5.	5.	0.08
2 COMBINED AT	C10E3	1512.	4.42	286.	73.	70.	1.02
HYDROGRAPH AT	4C1	123.	4.08	12.	3.	3.	0.04
ROUTED TO	R1A3	102.	4.25	12.	3.	3.	0.04
HYDROGRAPH AT	1A3	273.	4.08	33.	8.	8.	0.12
2 COMBINED AT	C1A3	345.	4.17	46.	11.	11.	0.16
3 COMBINED AT	C10ED1	2483.	4.33	600.	169.	163.	2.47
ROUTED TO	R10F	2400.	4.50	599.	169.	163.	2.47
HYDROGRAPH AT	10F	142.	4.17	20.	5.	5.	0.08
2 COMBINED AT	C10F	2483.	4.42	617.	174.	168.	2.54
HYDROGRAPH AT	2A1	752.	4.25	85.	21.	20.	0.37
ROUTED TO	R2A2	757.	4.25	85.	21.	20.	0.37
HYDROGRAPH AT	2A2	69.	4.08	9.	2.	2.	0.04
2 COMBINED AT	C2A2	816.	4.25	94.	24.	23.	0.41
HYDROGRAPH AT	2B1	353.	4.08	30.	8.	7.	0.13
ROUTED TO	R2B2	344.	4.08	30.	8.	7.	0.13
HYDROGRAPH AT	2B2	38.	4.00	3.	1.	1.	0.01
2 COMBINED AT	C2B2	378.	4.08	34.	8.	8.	0.14

2 COMBINED AT	C2AB	1090.	4.17	126.	32.	31.	0.55
ROUTED TO	R2C1	976.	4.33	126.	32.	31.	0.55
HYDROGRAPH AT	2C1	1383.	4.00	110.	28.	27.	0.36
2 COMBINED AT	C2C1	1394.	4.00	231.	58.	56.	0.91
ROUTED TO	B4	648.	4.67	164.	57.	55.	0.91
ROUTED TO	R2C2	490.	5.17	162.	57.	55.	0.91
HYDROGRAPH AT	2C2	1434.	4.08	139.	35.	33.	0.51
2 COMBINED AT	C2C2	1105.	4.08	272.	90.	87.	1.43
2 COMBINED AT	C2C10F	2871.	4.42	855.	256.	247.	3.97
ROUTED TO	R10G	2850.	4.42	855.	256.	246.	3.97
HYDROGRAPH AT	10G	214.	4.42	37.	9.	9.	0.14
2 COMBINED AT	C10G	2990.	4.42	888.	264.	255.	4.11
HYDROGRAPH AT	3A1	331.	4.08	26.	6.	6.	0.11
ROUTED TO	R3A2	322.	4.08	26.	6.	6.	0.11
HYDROGRAPH AT	3A2	90.	4.00	7.	2.	2.	0.03
2 COMBINED AT	C3A2	397.	4.08	32.	8.	8.	0.14
ROUTED TO	R3B21	343.	4.17	32.	8.	8.	0.14
HYDROGRAPH AT	3B2	847.	4.00	66.	16.	16.	0.24
HYDROGRAPH AT	3B1	48.	4.00	3.	1.	1.	0.02
ROUTED TO	R3B22	32.	4.17	3.	1.	1.	0.02
3 COMBINED AT	C3B2	1033.	4.00	101.	25.	24.	0.40
HYDROGRAPH AT	3C	373.	4.00	27.	7.	6.	0.11
2 COMBINED AT	C3B2C	1398.	4.00	127.	32.	31.	0.51
ROUTED TO	R3D1	1302.	4.08	127.	32.	31.	0.51
HYDROGRAPH AT	3D1	427.	4.00	34.	9.	8.	0.12
2 COMBINED AT	C3D1	1565.	4.08	160.	40.	39.	0.63
ROUTED TO	B3	1309.	4.17	149.	40.	39.	0.63
ROUTED TO	R3D2	1325.	4.25	149.	40.	39.	0.63
HYDROGRAPH AT	3D2	113.	4.00	10.	2.	2.	0.03
2 COMBINED AT	C3D2	1343.	4.25	157.	42.	41.	0.66

ROUTED TO	R3D3	927.	4.58	156.	42.	41.	0.66
HYDROGRAPH AT	3D3	515.	4.08	62.	15.	15.	0.21
2 COMBINED AT	C3D3	1028.	4.58	210.	57.	55.	0.86
2 COMBINED AT	10G3D3	3500.	4.58	1068.	315.	303.	4.97
ROUTED TO	R10H21	3457.	4.67	1066.	315.	303.	4.97
HYDROGRAPH AT	10H2	162.	4.00	16.	4.	4.	0.06
HYDROGRAPH AT	10H1	80.	4.00	6.	2.	2.	0.02
ROUTED TO	R10H22	54.	4.17	6.	2.	2.	0.02
3 COMBINED AT	C10H2	3486.	4.67	1082.	319.	308.	5.05
HYDROGRAPH AT	4A2	114.	4.00	10.	3.	3.	0.04
ROUTED TO	R4A3	53.	4.83	10.	3.	3.	0.04
HYDROGRAPH AT	4A3	297.	4.58	68.	17.	16.	0.24
2 COMBINED AT	C4A3	337.	4.58	79.	20.	19.	0.27
HYDROGRAPH AT	4B	719.	4.17	62.	15.	15.	0.26
2 COMBINED AT	C4AB	832.	4.17	139.	35.	34.	0.54
ROUTED TO	R4C2	635.	4.50	139.	35.	34.	0.54
HYDROGRAPH AT	4C2	1265.	4.42	187.	47.	45.	0.65
2 COMBINED AT	C4C2	1688.	4.42	322.	81.	78.	1.19
ROUTED TO	R4D	1678.	4.50	322.	81.	78.	1.19
HYDROGRAPH AT	4D	467.	4.17	44.	11.	11.	0.20
2 COMBINED AT	C4D	1825.	4.42	362.	91.	88.	1.39
ROUTED TO	R4E1	1786.	4.50	361.	91.	88.	1.39
HYDROGRAPH AT	4E1	396.	4.08	33.	8.	8.	0.12
2 COMBINED AT	C4E1	1821.	4.50	390.	99.	95.	1.51
ROUTED TO	R4E2	1794.	4.58	390.	99.	95.	1.51
HYDROGRAPH AT	4E2	94.	4.25	13.	3.	3.	0.05
2 COMBINED AT	C4E2	1832.	4.58	401.	102.	98.	1.56
HYDROGRAPH AT	5D	239.	4.08	19.	5.	5.	0.10
HYDROGRAPH AT	5C	102.	4.17	10.	3.	2.	0.05
2 COMBINED AT	C5CD	340.	4.08	30.	7.	7.	0.14

ROUTED TO	R5E	330.	4.17	30.	7.	7.	0.14
HYDROGRAPH AT	5E	213.	4.00	14.	3.	3.	0.06
HYDROGRAPH AT	5A	967.	4.25	110.	28.	27.	0.48
ROUTED TO	R5B	933.	4.33	110.	28.	27.	0.48
HYDROGRAPH AT	5B	188.	4.00	15.	4.	4.	0.06
2 COMBINED AT	C5B	963.	4.33	124.	31.	30.	0.55
3 COMBINED AT	C5E	1185.	4.25	163.	41.	39.	0.75
ROUTED TO	R5F11	1117.	4.33	163.	41.	39.	0.75
HYDROGRAPH AT	5F1	257.	4.00	20.	5.	5.	0.08
HYDROGRAPH AT	5G1	365.	4.00	29.	7.	7.	0.13
ROUTED TO	R5F12	351.	4.08	29.	7.	7.	0.13
3 COMBINED AT	C5F1	1244.	4.25	207.	52.	50.	0.96
ROUTED TO	B2	524.	4.67	147.	51.	49.	0.96
ROUTED TO	R5F21	356.	5.25	146.	51.	49.	0.96
HYDROGRAPH AT	5F21	491.	4.00	41.	10.	10.	0.15
2 COMBINED AT	C5F21	398.	4.00	166.	61.	59.	1.10
ROUTED TO	R5G21	387.	4.00	166.	61.	59.	1.10
HYDROGRAPH AT	5G21	680.	4.00	65.	16.	16.	0.21
ROUTED TO	B6A	658.	4.08	65.	16.	16.	0.21
2 COMBINED AT	C5FG21	866.	4.08	224.	76.	73.	1.31
ROUTED TO	B6B	311.	5.50	183.	75.	73.	1.31
ROUTED TO	R7H1	294.	5.75	181.	75.	72.	1.31
HYDROGRAPH AT	6A	744.	4.33	116.	29.	28.	0.50
ROUTED TO	R6B1	683.	4.50	116.	29.	28.	0.50
HYDROGRAPH AT	6B1	214.	4.00	18.	4.	4.	0.06
2 COMBINED AT	C6B1	684.	4.50	132.	33.	32.	0.57
ROUTED TO	B1	126.	5.58	91.	33.	32.	0.57
ROUTED TO	R6B2	125.	6.08	90.	33.	32.	0.57
HYDROGRAPH AT	6B2	386.	4.00	36.	9.	9.	0.13
2 COMBINED AT	C6B2	360.	4.00	112.	41.	40.	0.69

HYDROGRAPH AT	7A1	1401.	4.17	118.	29.	28.	0.55
ROUTED TO	R7A2	1335.	4.25	117.	29.	28.	0.55
HYDROGRAPH AT	7A2	1326.	4.17	126.	32.	30.	0.58
2 COMBINED AT	C7A2	2116.	4.25	230.	58.	56.	1.13
ROUTED TO	R7A41	2085.	4.25	230.	58.	56.	1.13
HYDROGRAPH AT	7A4	706.	4.08	54.	14.	13.	0.23
HYDROGRAPH AT	7A3	642.	4.17	63.	16.	15.	0.27
ROUTED TO	R7A42	605.	4.25	63.	16.	15.	0.27
3 COMBINED AT	C7A4	2599.	4.25	331.	83.	80.	1.64
ROUTED TO	R7A5	2455.	4.42	331.	83.	80.	1.64
HYDROGRAPH AT	7A5	771.	4.33	110.	28.	27.	0.46
2 COMBINED AT	C7A5	2851.	4.42	425.	107.	103.	2.09
ROUTED TO	R7B	2796.	4.50	425.	107.	103.	2.09
HYDROGRAPH AT	7B	144.	4.00	15.	4.	4.	0.04
2 COMBINED AT	C7B	2807.	4.50	438.	110.	106.	2.13
HYDROGRAPH AT	7C	68.	4.25	10.	2.	2.	0.05
ROUTED TO	R7D	62.	4.42	10.	2.	2.	0.05
HYDROGRAPH AT	7D	114.	4.00	12.	3.	3.	0.03
2 COMBINED AT	C7D	122.	4.00	21.	5.	5.	0.08
HYDROGRAPH AT	7E	124.	4.33	18.	4.	4.	0.09
ROUTED TO	R7F1	118.	4.42	18.	4.	4.	0.09
HYDROGRAPH AT	7F1	106.	4.00	9.	2.	2.	0.03
2 COMBINED AT	C7F1	131.	4.33	27.	7.	7.	0.12
ROUTED TO	R7F2	127.	4.42	27.	7.	7.	0.12
HYDROGRAPH AT	7F2	114.	4.00	10.	3.	2.	0.03
2 COMBINED AT	C7F2	216.	4.00	37.	9.	9.	0.15
3 COMBINED AT	C7FBD	2913.	4.50	489.	123.	119.	2.36
ROUTED TO	R7G	2837.	4.58	489.	123.	119.	2.36
HYDROGRAPH AT	7G	193.	4.08	19.	5.	5.	0.07
2 COMBINED AT	C7G	2862.	4.58	506.	128.	123.	2.44

2 COMBINED AT	C6B27G	2800.	4.58	588.	163.	157.	3.13
ROUTED TO	R7H2	2675.	4.83	587.	163.	157.	3.13
HYDROGRAPH AT	7H	373.	4.08	43.	11.	10.	0.16
3 COMBINED AT	C7H	2749.	4.83	750.	237.	228.	4.61
HYDROGRAPH AT	5F22	247.	4.00	20.	5.	5.	0.07
ROUTED TO	R5G221	226.	4.00	20.	5.	5.	0.07
HYDROGRAPH AT	5F23	80.	4.00	7.	2.	2.	0.03
ROUTED TO	R5G222	75.	4.08	7.	2.	2.	0.03
HYDROGRAPH AT	5G22	167.	4.00	18.	4.	4.	0.06
4 COMBINED AT	C5GF7H	2781.	4.83	782.	246.	238.	4.77
ROUTED TO	R8C31	2741.	4.83	782.	246.	237.	4.77
HYDROGRAPH AT	8C3	950.	4.33	129.	32.	31.	0.50
HYDROGRAPH AT	8A	693.	4.42	102.	25.	25.	0.44
ROUTED TO	R8B1	640.	4.58	102.	25.	25.	0.44
HYDROGRAPH AT	8B1	467.	4.33	67.	17.	16.	0.23
2 COMBINED AT	C8B1	929.	4.50	168.	42.	40.	0.68
ROUTED TO	R8B31	934.	4.58	168.	42.	40.	0.68
HYDROGRAPH AT	8B3	55.	4.00	5.	1.	1.	0.02
HYDROGRAPH AT	8B2	98.	4.00	9.	2.	2.	0.03
ROUTED TO	R8B32	92.	4.08	9.	2.	2.	0.03
3 COMBINED AT	C8B3	942.	4.58	181.	45.	44.	0.72
ROUTED TO	R8C21	924.	4.67	181.	45.	44.	0.72
HYDROGRAPH AT	8C2	1008.	4.00	87.	22.	21.	0.26
HYDROGRAPH AT	8C1	77.	4.00	7.	2.	2.	0.02
ROUTED TO	R8C22	54.	4.17	7.	2.	2.	0.02
HYDROGRAPH AT	10J1	248.	4.00	24.	6.	6.	0.07
ROUTED TO	R8C23	233.	4.08	24.	6.	6.	0.07
4 COMBINED AT	C8C2	1178.	4.00	294.	74.	72.	1.08
ROUTED TO	B11	981.	4.67	275.	74.	72.	1.08
ROUTED TO	R8C32	953.	5.00	274.	74.	72.	1.08

3 COMBINED AT	C8C3	3793.	4.92	1128.	340.	327.	6.35
ROUTED TO	R8D1	3798.	4.92	1127.	340.	327.	6.35
HYDROGRAPH AT	8D1	75.	4.00	5.	1.	1.	0.02
2 COMBINED AT	C8D1	3798.	4.92	1131.	341.	328.	6.37
ROUTED TO	R8D2	3786.	4.92	1130.	341.	328.	6.37
HYDROGRAPH AT	8D2	51.	4.00	4.	1.	1.	0.02
2 COMBINED AT	C8D2	3786.	4.92	1133.	341.	329.	6.39
3 COMBINED AT	I-17	7320.	4.83	2420.	713.	687.	13.00
ROUTED TO	R10I	7266.	4.92	2419.	713.	687.	13.00
HYDROGRAPH AT	10I	199.	4.50	39.	10.	9.	0.18
HYDROGRAPH AT	10J2	1265.	4.50	242.	61.	58.	0.85
3 COMBINED AT	C10IJ	8010.	4.92	2648.	771.	743.	14.03
ROUTED TO	R10K81	7815.	5.17	2639.	767.	739.	14.03
HYDROGRAPH AT	10K8	142.	4.67	33.	8.	8.	0.16
HYDROGRAPH AT	10K1	36.	4.00	3.	1.	1.	0.01
DIVERSION TO	10K1FS	5.	4.00	0.	0.	0.	0.01
HYDROGRAPH AT	D10K1	32.	4.00	2.	1.	1.	0.01
ROUTED TO	R10K2	31.	4.00	2.	1.	1.	0.01
HYDROGRAPH AT	10K2	27.	4.00	2.	0.	0.	0.01
2 COMBINED AT	C10K2	58.	4.00	4.	1.	1.	0.02
DIVERSION TO	10K2FS	7.	4.00	1.	0.	0.	0.02
HYDROGRAPH AT	D10K2	50.	4.00	4.	1.	1.	0.02
ROUTED TO	R10K3	49.	4.00	4.	1.	1.	0.02
HYDROGRAPH AT	10K3	49.	4.00	3.	1.	1.	0.01
2 COMBINED AT	C10K3	97.	4.00	7.	2.	2.	0.03
DIVERSION TO	10K3FS	10.	4.00	1.	0.	0.	0.03
HYDROGRAPH AT	D10K3	88.	4.00	6.	2.	2.	0.03
ROUTED TO	R10K4	85.	4.00	6.	2.	2.	0.03
HYDROGRAPH AT	10K4	90.	4.00	7.	2.	2.	0.03
2 COMBINED AT	C10K4	174.	4.00	13.	3.	3.	0.06

DIVERSION TO	10K4FS	21.	4.00	2.	0.	0.	0.06
HYDROGRAPH AT	D10K4	153.	4.00	11.	3.	3.	0.06
ROUTED TO	R10K5	149.	4.00	11.	3.	3.	0.06
HYDROGRAPH AT	10K5	44.	4.00	4.	1.	1.	0.02
2 COMBINED AT	C10K5	193.	4.00	15.	4.	4.	0.07
DIVERSION TO	10K5FS	14.	4.00	2.	0.	0.	0.07
HYDROGRAPH AT	D10K5	179.	4.00	14.	3.	3.	0.07
ROUTED TO	R10K6	169.	4.08	14.	3.	3.	0.07
HYDROGRAPH AT	10K6	112.	4.00	9.	2.	2.	0.04
2 COMBINED AT	C10K6	281.	4.00	23.	6.	6.	0.11
HYDROGRAPH AT	10K7	94.	4.00	7.	2.	2.	0.03
2 COMBINED AT	C10K67	375.	4.00	30.	8.	7.	0.13
ROUTED TO	B9	164.	4.17	30.	8.	7.	0.13
ROUTED TO	R10K82	148.	4.50	30.	8.	7.	0.13
3 COMBINED AT	C10K8	7913.	5.08	2678.	778.	749.	14.33
HYDROGRAPH AT	RET1	5.	4.00	0.	0.	0.	0.01
HYDROGRAPH AT	RET2	7.	4.00	1.	0.	0.	0.02
HYDROGRAPH AT	RET3	10.	4.00	1.	0.	0.	0.03
HYDROGRAPH AT	RET4	21.	4.00	2.	0.	0.	0.06
HYDROGRAPH AT	RET5	14.	4.00	2.	0.	0.	0.07
HYDROGRAPH AT	10L1	343.	4.00	31.	8.	7.	0.11
HYDROGRAPH AT	10L2	532.	4.17	50.	13.	12.	0.23
2 COMBINED AT	C10L12	765.	4.08	81.	20.	20.	0.34
ROUTED TO	B13	287.	4.42	79.	20.	20.	0.34
ROUTED TO	R10L3	281.	4.58	79.	20.	20.	0.34
HYDROGRAPH AT	10L3	133.	4.25	13.	3.	3.	0.07
2 COMBINED AT	C10L3	341.	4.50	92.	24.	23.	0.41
7 COMBINED AT	C10KL	8053.	5.08	2741.	795.	766.	14.74
ROUTED TO	R10M	7996.	5.17	2740.	794.	765.	14.74
HYDROGRAPH AT	10M	830.	4.17	69.	17.	17.	0.34

2 COMBINED AT	C10M	7994.	5.17	2778.	805.	776.	15.08
ROUTED TO	JOY_RD	7976.	5.17	2776.	805.	775.	15.08
ROUTED TO	R10N	7842.	5.33	2773.	803.	774.	15.08
HYDROGRAPH AT	10N	67.	4.42	13.	3.	3.	0.07
HYDROGRAPH AT	10P	1255.	4.33	163.	41.	39.	0.77
HYDROGRAPH AT	10O	141.	4.42	22.	5.	5.	0.12
4 COMBINED AT	C10NOP	7948.	5.33	2896.	836.	805.	16.04
ROUTED TO	R10Q	7664.	5.83	2885.	832.	801.	16.04
HYDROGRAPH AT	10Q	643.	4.25	67.	17.	16.	0.33
2 COMBINED AT	C10Q	7664.	5.83	2916.	843.	812.	16.37
HYDROGRAPH AT	9A	1119.	4.75	269.	67.	65.	0.98
ROUTED TO	R9B	1035.	5.33	267.	67.	64.	0.98
HYDROGRAPH AT	9B	947.	4.58	189.	47.	46.	0.70
2 COMBINED AT	C9B	1465.	5.17	450.	113.	109.	1.67
2 COMBINED AT	C910Q	8369.	5.75	3263.	931.	897.	18.04
ROUTED TO	R10R	8353.	5.83	3262.	931.	896.	18.04
HYDROGRAPH AT	10R	119.	4.42	22.	5.	5.	0.09
2 COMBINED AT	C10R	8363.	5.83	3277.	935.	900.	18.13
HYDROGRAPH AT	5F24	202.	4.00	18.	4.	4.	0.05
HYDROGRAPH AT	20A1	21.	4.00	2.	0.	0.	0.01
ROUTED TO	R20A31	19.	4.08	2.	0.	0.	0.01
HYDROGRAPH AT	20A2	53.	4.00	4.	1.	1.	0.02
ROUTED TO	R20A32	51.	4.08	4.	1.	1.	0.02
HYDROGRAPH AT	20A3	171.	4.00	13.	3.	3.	0.07
3 COMBINED AT	C20A3	234.	4.08	18.	5.	4.	0.09
ROUTED TO	R20A4	211.	4.08	18.	5.	4.	0.09
HYDROGRAPH AT	20A4	119.	4.00	11.	3.	3.	0.05
HYDROGRAPH AT	20A5	155.	4.00	12.	3.	3.	0.07
3 COMBINED AT	C20A45	478.	4.08	40.	10.	10.	0.21
ROUTED TO	20A161	431.	4.17	40.	10.	10.	0.21

HYDROGRAPH AT	20A16	230.	4.00	17.	4.	4.	0.07
HYDROGRAPH AT	20A15	127.	4.00	8.	2.	2.	0.04
ROUTED TO	20A162	124.	4.00	8.	2.	2.	0.04
3 COMBINED AT	C20A16	714.	4.08	65.	16.	16.	0.32
HYDROGRAPH AT	20A10	75.	4.08	7.	2.	2.	0.04
ROUTED TO	R20A11	75.	4.08	7.	2.	2.	0.04
HYDROGRAPH AT	20A11	75.	4.08	7.	2.	2.	0.04
2 COMBINED AT	C20A11	150.	4.08	14.	4.	3.	0.07
ROUTED TO	R20A12	149.	4.08	14.	4.	3.	0.07
HYDROGRAPH AT	20A12	142.	4.00	11.	3.	3.	0.04
HYDROGRAPH AT	20A14	38.	4.00	3.	1.	1.	0.01
3 COMBINED AT	C20A12	299.	4.08	28.	7.	7.	0.13
2 COMBINED AT	SC#1	1012.	4.08	93.	23.	23.	0.45
HYDROGRAPH AT	20A6	85.	4.00	7.	2.	2.	0.04
HYDROGRAPH AT	20A7	12.	4.00	1.	0.	0.	0.00
HYDROGRAPH AT	20A8	28.	4.00	2.	1.	0.	0.01
HYDROGRAPH AT	20A9	54.	4.08	5.	1.	1.	0.03
HYDROGRAPH AT	20A13	54.	4.00	4.	1.	1.	0.02
5 COMBINED AT	SC#2	230.	4.00	18.	5.	4.	0.09
2 COMBINED AT	SC#3	1205.	4.08	111.	28.	27.	0.54
HYDROGRAPH AT	20A17	74.	4.00	6.	1.	1.	0.02
HYDROGRAPH AT	20A18	225.	4.08	23.	6.	6.	0.09
HYDROGRAPH AT	20A19	114.	4.00	12.	3.	3.	0.04
HYDROGRAPH AT	20A20	98.	4.00	9.	2.	2.	0.03
4 COMBINED AT	SC#4	502.	4.00	50.	12.	12.	0.18
2 COMBINED AT	SC#5	1561.	4.08	158.	40.	38.	0.72
HYDROGRAPH AT	20A36	483.	4.00	50.	12.	12.	0.16
ROUTED TO	B10	50.	4.58	34.	12.	12.	0.16
ROUTED TO	R20A21	47.	5.17	33.	12.	12.	0.16
HYDROGRAPH AT	20A21	57.	4.00	6.	2.	2.	0.02

2 COMBINED AT	C20A21	69.	4.08	38.	14.	13.	0.18
2 COMBINED AT	SC#6	1561.	4.08	189.	53.	51.	0.89
HYDROGRAPH AT	20A22	45.	4.00	4.	1.	1.	0.01
HYDROGRAPH AT	20A23	39.	4.00	3.	1.	1.	0.01
HYDROGRAPH AT	20A24	134.	4.08	14.	4.	3.	0.05
HYDROGRAPH AT	20A25	57.	4.00	5.	1.	1.	0.02
4 COMBINED AT	SC#7	268.	4.00	26.	6.	6.	0.09
2 COMBINED AT	SC#8	1701.	4.08	212.	59.	57.	0.98
HYDROGRAPH AT	20A26	76.	4.00	7.	2.	2.	0.03
2 COMBINED AT	SC#9	1750.	4.08	219.	61.	59.	1.01
HYDROGRAPH AT	20A27	18.	4.25	2.	1.	1.	0.01
ROUTED TO	R20A28	15.	4.33	2.	1.	1.	0.01
HYDROGRAPH AT	20A28	45.	4.00	3.	1.	1.	0.02
2 COMBINED AT	C20A28	48.	4.00	5.	1.	1.	0.03
HYDROGRAPH AT	20A30	97.	4.08	10.	3.	2.	0.04
HYDROGRAPH AT	20A32	106.	4.00	8.	2.	2.	0.03
HYDROGRAPH AT	20A34	103.	4.25	15.	4.	4.	0.06
2 COMBINED AT	C20A32	159.	4.08	23.	6.	5.	0.10
ROUTED TO	B8	54.	4.75	22.	6.	5.	0.10
3 COMBINED AT	SC#10	169.	4.08	37.	9.	9.	0.17
HYDROGRAPH AT	30A2	150.	4.33	24.	6.	6.	0.08
ROUTED TO	R30A4	145.	4.33	24.	6.	6.	0.08
HYDROGRAPH AT	30A4	108.	4.00	9.	2.	2.	0.03
2 COMBINED AT	C30A4	162.	4.33	33.	8.	8.	0.11
ROUTED TO	R30A31	159.	4.42	33.	8.	8.	0.11
HYDROGRAPH AT	30A3	284.	4.00	24.	6.	6.	0.10
HYDROGRAPH AT	30A1	460.	4.50	92.	23.	22.	0.32
ROUTED TO	R30A32	426.	4.75	92.	23.	22.	0.32
3 COMBINED AT	C30A3	551.	4.67	148.	37.	36.	0.53
ROUTED TO	B12	508.	4.83	148.	37.	36.	0.53

HYDROGRAPH AT	40A1	118.	4.17	13.	3.	3.	0.05
ROUTED TO	R40A2	110.	4.25	13.	3.	3.	0.05
HYDROGRAPH AT	40A2	37.	4.00	3.	1.	1.	0.01
2 COMBINED AT	C40A2	125.	4.17	16.	4.	4.	0.06
HYDROGRAPH AT	40A3	85.	4.17	11.	3.	3.	0.04
ROUTED TO	R40A4	72.	4.42	11.	3.	3.	0.04
HYDROGRAPH AT	40A4	145.	4.00	15.	4.	4.	0.05
2 COMBINED AT	C40A4	159.	4.08	26.	6.	6.	0.09
2 COMBINED AT	NR#1	274.	4.08	42.	11.	10.	0.14
HYDROGRAPH AT	40A5	140.	4.25	19.	5.	5.	0.08
ROUTED TO	R40A6	112.	4.67	19.	5.	5.	0.08
HYDROGRAPH AT	40A6	411.	4.08	45.	11.	11.	0.15
HYDROGRAPH AT	40A7	137.	4.00	15.	4.	4.	0.05
3 COMBINED AT	C40A6	553.	4.08	79.	20.	19.	0.27
2 COMBINED AT	NR#2	826.	4.08	120.	30.	29.	0.42
HYDROGRAPH AT	40A8	290.	4.00	29.	7.	7.	0.09

APPENDIX B

SKUNK CREEK HEC-2
INPUT/OUTPUT

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C
C      2
C  16.69 SECTIONS STATIONED LEFT TO RIGHT LOOKING DOWNSTREAM  FLOWLINE AT 10000
C  25.77 FLOODWAY TERMINATES ABOVE THIS SECTION
T1       SKUNK CREEK WASH
T2       100 YEAR FLOODPLAIN
T3       SKUNK CREEK
J1      0       4                       .01                             1679
J2      1               -1
J3     38      43       1       2      26      39      21      22      27      28
J3     53      54               38      13      14      15      55      26      56
J3     63       1      52       4      42      57              38      39      33
J3      3      10      11      12       5       7       8      16      17      18
J3            110             200
J5    -10     -10
NC   .037    .037    .035    .300    .500
QT      5   14600   21400   31300   40800   31300
ET                                              9.1                     9690   10400
X1 16.69      15    9770   10120
GR   1700    8330    1696    8700    1692    9070    1688    9360    1684    9560
GR   1680    9650    1676    9770    1673   10000  1672.5   10120    1676   10310
GR   1680   10450  1680.5   10810    1680   11810    1680   12970    1692   13750
NC   .045    .045    .043    .300    .500
ET                                              9.1                     9550   10450
X1 16.87      30    9550   10030     900     900     900
GR   1716    8470    1712    8630    1708    8820    1704    8920    1700    9200
GR   1696    9420    1692    9460    1688    9550    1684    9580    1688    9620
GR   1684    9780  1687.5    9870    1684    9960    1682   10000    1684   10020
GR   1688   10030    1690   10160    1688   10470    1684   10500    1688   10530
GR1690.5    11130    1691   11470    1688   11660    1690   11720    1687   11840
GR   1690   12000    1687   12200    1690   12300    1692   12670    1692   13000
ET                                              9.1                     9576   10525
X1   17.1      26    9820   10460    1200    1250    1214
GR   1720    8730    1716    8900    1712    9060    1712    9190    1708    9220
GR   1704    9300    1704    9450    1700    9680    1700    9820    1696    9930
GR   1694   10000    1696   10020    1700   10460    1701   10700    1700   10820
GR   1699   10850    1699   10970    1700   11040    1698   11080    1700   11120
GR1700.5    11430    1704   11720    1700   11820    1698   11840    1700   11880
GR1702.5    12240
ET                                              9.1                     9530   10400
X1   17.3      19    9900   10150    1050    1170    1056
GR   1720    9340    1712    9510    1708    9900    1704    9970    1702   10000
GR   1704   10050    1708   10080    1710   10150    1708   10200    1707   10215
GR   1708   10230    1711   10300    1711   10960    1708   11120    1707   11130
GR   1708   11160    1712   11610    1713   11750    1713   12010
NC   .050    .050    .048    .300    .500
ET                                              9.1                     9650   10600
X1 17.56      25    9960   10490    1180    1550    1373
GR   1740    9560    1720    9620    1716    9660    1715    9680    1716    9700
GR   1720    9810    1720    9960    1716    9980    1712    9985    1711   10000
GR   1712   10030    1716   10190    1714   10220    1716   10260    1720   10340
GR   1720   10390    1716   10400    1715   10430    1716   10450    1720   10490
GR   1720   10740    1724   11030    1728   11460    1732   11600    1736   11660
ET                                              9.1                     9960   10790
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X1	17.78	24	9960	10790	1150	1130	1162			
GR	1760	9880	1740	9950	1736	9960	1722	9980	1722	10015
GR	1724	10020	1726	10120	1728	10170	1728	10410	1727	10490
GR	1725	10520	1728	10540	1728	10670	1723	10710	1723	10730
GR	1728	10750	1732	10790	1732	11320	1736	11670	1740	11840
GR	1744	12010	1748	12200	1752	12330	1760	12460		
ET						9.1			9610	10220
X1	18.06	22	9610	10220	1370	1250	1478			
GR	1760	9510	1744	9580	1740	9610	1736	9670	1735	9675
GR	1736	9680	1739	9730	1738	9860	1739	9900	1736	9950
GR	1733	10000	1736	10060	1740	10120	1736	10150	1734	10160
GR	1736	10170	1740	10220	1742	10380	1744	10780	1748	11040
GR	1752	11370	1760	11550						
ET						9.1			9930	10840
X1	18.34	25	9930	10840	1500	1600	1478			
GR	1780	9890	1760	9920	1752	9930	1748	9970	1746	9980
GR	1746	10020	1748	10050	1752	10220	1748	10265	1747	10280
GR	1747	10310	1748	10320	1752	10550	1752	10670	1750	10680
GR	1750	10710	1752	10720	1752	10790	1750	10800	1750	10830
GR	1752	10840	1756	11020	1760	11200	1764	11280	1780	11450
QT	5	13100	19100	28100	36000	28100				
ET						9.1			9450	10220
X1	18.72	16	9450	10220	1820	1800	2006			
GR	1780	9350	1776	9420	1768	9450	1766	9460	1764	9960
GR	1760	9980	1760	10000	1764	10020	1764	10160	1768	10220
GR	1766	10350	1768	10500	1768	10620	1772	10940	1776	11430
GR	1780	11760								
ET						9.1			9260	10050
X1	18.95	26	9260	10050	1200	1200	1214			
GR	1796	8870	1792	9090	1788	9130	1784	9180	1780	9260
GR	1776	9350	1774	9370	1776	9400	1778	9420	1776	9460
GR	1774	9480	1776	9510	1780	9650	1780	9850	1776	9900
GR	1772	9950	1771.5	9970	1771.5	10000	1771.5	10010	1772	10030
GR	1780	10050	1782	10300	1780.5	10550	1784	10880	1788	11310
GR	1792	11680								
ET						9.1			9900	10580
X1	19.16	41	9900	10580	1100	1040	1109			
GR	1805.5	9220	1808	9330	1804	9410	1800	9450	1796	9490
GR	1788	9600	1787	9650	1787	9720	1788	9770	1789.5	9840
GR	1788	9900	1785	9930	1785	9970	1786	9980	1786	10000
GR	1784	10020	1784	10030	1784.5	10060	1784	10160	1782	10170
GR	1784	10190	1786	10260	1784	10330	1783	10340	1784	10360
GR	1785	10380	1784	10400	1786	10460	1784	10510	1782	10520
GR	1782	10560	1784	10565	1788	10580	1792	10690	1793	10820
GR	1792.5	10960	1793	11060	1792	11130	17920	11180	1796	11580
GR	1800	11700								
NC	.045	.045	.043	.300	.500					
ET						9.1			9960	10660
X1	19.38	27	9960	10660	1180	1150	1162			
GR	1820	8750	1816	8870	1812	8930	1808	8970	1804	9050
GR	1800	9690	1800	9730	1802	9890	1800	9960	1792	9980
GR	1792	10000	1792	10010	1796	10020	1798	10050	1798	10150
GR	1796	10180	1794	10310	1796	10350	1799	10410	1796	10500
GR	1796	10630	1800	10660	1804	10840	1808	11030	1812	11240

GR	1816	11470	1816.5	11660						
ET						9.1			9650	10380
X1	19.58	23	9650	10380	1110	1100	1056			
GR	1832	8320	1828	8670	1820	8810	1816	8940	1815	9070
GR	1813	9140	1813.5	9530	1812	9650	1809	9740	1810	9800
GR	1808	9880	1806	9970	1804.5	9980	1804.5	10000	1804.5	10020
GR	1808	10040	1808	10140	1805	10180	1808	10250	1812	10380
GR	1816	10510	1820	10680	1824	11080				
ET						9.1			8920	10090
X1	19.92	34	8920	10090	1330	1810	1795			
GR	1840	8430	1836	8590	1828	8670	1824	8820	1820.5	8850
GR	1824	8920	1824	9000	1822	9020	1824	9030	1824	9200
GR	1822	9220	1822	9250	1824	9280	1823	9380	1823	9550
GR	1820	9600	1820	9620	1824	9630	1824	9660	1824	9690
GR	1822	9730	1823	9800	1823	9890	1822	9940	1820	9970
GR	1816	9980	1815.5	10000	1816	10015	1820	10030	1824	10090
GR	1828	10110	1832	10200	1836	10500	1840	10640		
ET						9.1			9300	10100
X1	20.23	35	9310	10070	1670	1630	1637			
GR	1851.5	8120	1852	8240	1854	8430	1854	8610	1852	8770
GR	1848	8870	1844	8900	1840	8960	1838	9000	1840	9310
GR	1840	9430	1837	9460	1838	9470	1839.5	9560	1840	9600
GR	1840.5	9640	1840	9670	1835	9680	1835	9710	1836	9751
GR	1840	9820	1836	9950	1834	9960	1834	10000	1834	10020
GR	1836	10030	1840	10050	1838	10070	1838	10130	1840	10170
GR	1844	10290	1848	10530	1852	10870	1856	11090	1860	11300
ET						9.1			9500	10350
X1	20.39	23	9500	10340	1100	550	845			
GR	1864	8950	1860	9140	1848	9220	1846.5	9300	1847	9430
GR	1845	9500	1847	9660	1847	9940	1844	9950	1842	9970
GR	1842	10000	1842	10020	1844	10030	1848	10110	1848	10210
GR	1844	10310	1844	10340	1843	10360	1844	10370	1848	10420
GR	1852	10600	1856	10830	1860	11100				
ET						9.1			9330	10110
X1	20.73	31	9440	10110	1800	1650	1795			
GR	1876	8350	1872	8450	1868	8560	1865	8640	1865	8710
GR	1865	8780	1866	8970	1865	9060	1866	9120	1864	9230
GR	1862	9440	1861	9480	1862	9540	1863	9720	1860	9930
GR	1856	9960	1855	9970	1855	10000	1856	10015	1860	10020
GR	1864	10040	1865	10110	1865	10220	1864	10280	1863.5	10300
GR	1864	10320	1864	10380	1868	10420	1872	10490	1876	10570
GR	1880	10720								
ET						9.1			9370	10070
X1	21	23	9400	10070	1290	1530	1426			
GR	1884	8300	1880	8670	1878	8720	1879	8830	1879	9120
GR	1876	9200	1873	9240	1876	9400	1876	9800	1875	9920
GR	1872	9940	1868.5	9960	1868.5	10000	1865.5	10030	1876	10060
GR	1878	10070	1877	10330	1880	10590	1884	10840	1888	10950
GR	1892	11040	1896	11300	1900	11520				
NC	.050	.050	.048	.300	.500					
ET						9.1			9570	10230
X1	21.24	29	9570	10230	1370	1250	1267			
GR	1900	8930	1896	9110	1892	9470	1888	9570	1884	9660
GR	1882	9680	1884	9700	1883	9730	1884	9740	1885.5	9800

GR	1884	9850	1886	9880	1886	9930	1884	9950	1884	9970
GR	1880	9990	1879.5	10000	1880	10010	1884	10030	1887	10060
GR	1884	10090	1880	10110	1880	10130	1884	10170	1888	10230
GR	1892	10450	1892	10710	1896	10930	1900	11100		
ET						9.1			8665	10080
X1	21.59	34	8665	10080	2075	1550	1848			
GR	1920	8580	1912	8650	1908	8665	1904	8690	1900	8700
GR	1898	8720	1900	8740	1900.5	8760	1900	8780	1899.5	8790
GR	1900	8810	1904	8820	1906	8890	1905	8950	1905.5	9040
GR	1904	9210	1903	9220	1904	9240	1901.5	9260	1901.5	9290
GR	1904	9300	1904.5	9340	1906	9380	1907	9680	1904	9820
GR	1903	9940	1900	9980	1900	10020	1903.5	10050	1904	10080
GR	1908	10260	1912	10430	1916	10590	1920	10700		
ET						9.1			8720	10050
X1	21.85	50	8720	10050	1400	1300	1373			
GR	1940.5	8560	1936	8600	1928	8650	1924	8690	1920	8720
GR	1919	8760	1919	8800	1917	8850	1918	8870	1917	8900
GR	1920	8980	1921	9070	1920	9130	1916	9220	1914	9230
GR	1914	9260	1916	9265	1920	9330	1920	9370	1916	9380
GR	1915	9390	1915	9430	1916	9435	1920	9490	1920.5	9520
GR	1920	9565	1919.5	9590	1920	9620	1921.5	9690	1921	9890
GR	1920	9930	1916	9970	1913	9980	1913	10000	1913	10015
GR	1916	10020	1920	10050	1920	10140	1918.5	10180	1919	10250
GR	1920	10320	1923	10480	1923	10560	1922.5	10640	1923	10700
GR	1924	10800	1928	11200	1932	11300	1936	11390	1940	11630
ET						9.1			8960	10070
X1	22.06	34	8960	10070	930	1300	1109			
GR	1940	8870	1969	8960	1924	9000	1920.5	9040	1920.5	9080
GR	1924	9100	1928	9200	1932	9450	1933	9520	1933	9590
GR	1932	9630	1928	9650	1924	9660	1923	9665	1932	9680
GR	1924	9685	1928	9740	1932	9890	1932	9950	1928	9970
GR	1925.5	9980	1928.5	10000	1928.5	10020	1928	10040	1930.5	10070
GR	1930.5	10180	1929	10230	1929.5	10300	1930	10400	1932	10560
GR	1936	10980	1940	11040	1944	11090	1948	11200		
ET						9.1			9050	10280
X1	22.25	38	9050	10250	1050	960	1003			
GR	1960	8930	1948	9000	1966	9040	1940	9050	1936	9055
GR	1932	9070	1931	9080	1932	9100	1934	9150	1933	9210
GR	1936	9290	1936.5	9480	1940	9570	1944	9950	1940	9965
GR	1936	9970	1934	9975	1934	10000	1934	10020	1936	10035
GR	1940	10040	1942	10100	1940	10200	1936	10220	1936	10240
GR	1940	10250	1943.5	10450	1943	10650	1943	10740	1944	10780
GR	1944	10890	1944.5	10920	1944.5	10940	1948	11000	1952	11150
GR	1952	11270	1956	11350	1960	11600				
QT	5	11100	16200	23800	30000	23800				
ET						9.1			9450	10180
X1	22.62	31	9700	10180	2300	1800	1954			
GR	1984	8680	1980	8720	1972	8800	1968.5	8870	1969.5	8920
GR	1968	8980	1964	9310	1960	9440	1959.5	9450	1960	9470
GR	1961.5	9530	1961	9630	1960	9700	1957	9720	1960	9740
GR	1960.5	9770	1961	9930	1960	9950	1956	9970	1954	9980
GR	1954	10000	1954	10030	1956	10040	1959	10120	1960	10180
GR	1964	10200	1968	10260	1972	10420	1976	10520	1980	10640
GR	1984	10740								

ET						9.1			9450	10050
X1	22.81	25	9450	10050	1000	1000	1003			
GR	1996	8260	1980	8430	1978	8470	1978	8680	1976	8820
GR	1972	9090	1969.5	9320	1969.5	9380	1970	9450	1969	9500
GR	1969	9600	1969	9900	1968	9950	1964	9980	1962	9985
GR	1962	10000	1962	10030	1964	10040	1972	10050	1976	10130
GR	1980	10200	1984	10210	1988	10250	1992	10300	1996	10380
ET						9.1			9800	10430
X1	23.09	22	9900	10170	1380	1450	1478			
GR	2000	8680	1996	8780	1992	9190	1992	9320	1988	9660
GR	1984	9690	1980	9710	1980.5	9770	1980.5	9870	1982	9900
GR	1980	9940	1976	9980	1975	10000	1976	10020	1980	10040
GR	1980	10110	1981	10170	1981	10270	1980	10330	1978	10410
GR	1980	10430	2004	10475						
ET						9.1			9680	10100
X1	23.42	29	9680	10100	1250	1700	1742			
GR	2020	8450	2008	8580	2008	8610	2008.5	8720	2008	8800
GR	2004	8910	2003.5	8930	2003.5	9050	2004	9070	2005.5	9150
GR	2005.5	9310	2004	9450	2001	9530	2001	9610	2000	9680
GR	1996	9720	1994	9750	1996	9780	1998	9800	1998	9920
GR	1997	9960	1997	10000	1997	10030	1999	10100	1999	10170
GR	1997	10230	2000	10250	2004	10280	2020	10330		
QT	5	5870	8590	12600	16000	12600				
ET						9.1			9670	10130
X1	23.72	17	9670	10130	1600	1600	1584			
GR	2020	9520	2016	9670	2012	9700	2011	9705	2011	9750
GR	2012	9760	2015	9940	2012	9960	2008.5	9970	2008.5	10000
GR	2008.5	10030	2012	10040	2016	10130	2020	10270	2054	10330
GR	2032	10380	2040	10420						
ET						9.1			9960	10170
X1	23.98	20	9960	10170	1280	1270	1373			
GR	2044	9530	2040	9650	2036	9680	2032	9730	2028	9760
GR	2027	9780	2026	9860	2024	9900	2023	9915	2024	9930
GR	2025	9940	2024	9960	2020	9970	2020	10000	2020	10030
GR	2024	10170	2028	10330	2032	10480	2036	10540	2040	10600
ET						9.1			9650	10170
X1	24.31	20	9680	10060	1760	1650	1742			
GR	2068	9500	2060	9530	2052	9575	2048	9600	2044	9620
GR	2040	9680	2039	9690	2039	9770	2040	9780	2041	9800
GR	2041	9950	2040	9970	2038	9980	2038	10000	2038	10050
GR	2040	10060	2044	10160	2052	10270	2060	10470	2064	10590
ET						9.1			9820	10160
X1	24.55	25	9970	10050	1360	1260	1267			
GR	2080	9310	2072	9390	2060	9460	2056	9540	2054	9590
GR	2054	9650	2053	9730	2053	9820	2052	9970	2048	9980
GR	2046	9990	2046	10000	2046	10020	2048	10035	2052	10050
GR	2052	10150	2050	10190	2052	10210	2056	10280	2060	10330
GR	2064	10410	2068	10540	2072	10570	2076	10640	2080	10670
QT	5	4390	6400	9390	11800	9390				
ET						9.1			9970	10250
X1	24.78	21	9970	10040	1250	1150	1214			
GR	2100	9460	2092	9530	2088	9590	2084	9600	2084	9690
GR	2080	9730	2076	9830	2072	9870	2068	9890	2064	9960
GR	2060	9970	2058	9975	2058	10000	2059	10030	2060	10040

GR	2062	10120	2063	10210	2062	10270	2064	10280	2080	10320
GR	2100	10390								
ET						9.1			9890	10190
X1	24.99	29	9950	10060	1450	1000	1109			
GR	2100	8820	2096	8910	2092	8990	2088	9100	2087	9150
GR	2084	9320	2080	9430	2081.5	9580	2083	9650	2082	9750
GR	2080	9820	2076	9840	2075	9870	2075	9900	2074	9920
GR	2075	9950	2072	9970	2068	9980	2067.5	9985	2067.5	10000
GR	2067.5	10020	2068	10025	2072	10040	2075	10060	2075	10120
GR	2076	10230	2080	10260	2084	10300	2100	10400		
NC	.050	.050	.035	.300	.500					
ET						9.1			9940	10650
X1	25.27	40	9940	10190	900	1650	1478			
GR	2108	8640	2104	8750	2100	8950	2096	9050	2092	9220
GR	2088	9330	2084	9400	2082	9415	2084	9430	2088	9530
GR	2089.5	9680	2090	9700	2090	9720	208935	9770	2089.5	9940
GR	2088	9980	2086	9990	2086	10000	2086	10015	2088	10020
GR	2088	10045	2087.5	10060	2088	10075	2088.5	10110	2088	10130
GR	2086	10150	2088	10190	2088	10280	2086	10420	2087.5	10500
GR	2087	10600	2084	10620	2083	10625	2083	10645	2084	10650
GR	2088	10660	2092	10740	2096	10810	2100	10840	2108	10940
ET						9.1			9950	10700
X1	25.48	34	9950	10050	1050	1120	1109			
GR	2120	8720	2116	8830	2112	8970	2108	9040	2104	9090
GR	2100	9210	2096	9300	2092	9330	2091.5	9335	2092	9340
GR	2096	9380	2099	9550	2098	9630	2100	9690	2102	9750
GR	2102	9950	2100	9970	2096.5	9990	2096.5	10000	2096	10020
GR	2100	10030	2101.5	10050	2101	10100	2101.5	10220	2100	10330
GR	2096	10500	2096	10550	2093	10570	2096	10640	2093	10680
GR	2096	10730	2100	10750	2104	10780	2107	10840		
QT	5	3370	4910	7200	9200	7200				
ET						9.1			9700	10350
X1	25.77	32	9960	10140	1500	1520	1531			
GR	2140	9090	2136	9110	2132	9160	2128	9250	2124	9270
GR	2120	9340	2118.5	9390	2118.5	9460	2116	9520	2120	9630
GR	2118.5	9740	2118.5	9790	2119	9840	2119	9910	2120	9920
GR	2121	9930	2121	9960	2120	9975	2116.5	9980	2116	10000
GR	2116.5	10030	2120	10100	2122	10140	2122	10240	2120	10280
GR	2120	10300	2120.5	10330	2120	10350	2118.5	10380	2120	10420
GR	2120	10500	2121.5	10600						
X1	25.92	26	9980	10040	830	780	792			
GR	2147	9280	2145.5	9470	2145.5	9750	2144	9860	2140	9955
GR	2136	9960	2132	9980	2124	9990	2123	9995	2123	10000
GR	2123	10015	2124	10020	2128	10040	2130	10060	2131	10140
GR	2129.5	10170	2130	10240	2130	10310	2128	10340	2129	10390
GR	2128	10430	2131.5	10530	2131	10650	2132	10680	2136	10790
GR	2138	10870								
X1	26.14	25	9990	10025	1150	1120	1162			
GR	2160	9260	2156	9370	2152	9460	2148	9510	2148	9560
GR	2144	9630	2140	9655	2144	9720	2144.5	9770	2144	9830
GR	2140	9950	2140	9965	2143	9975	2140	9990	2137	9995
GR	2137	10000	2137	10020	2140	10025	2140	10050	2142	10100
GR	2141	10210	1144	10280	2148	10285	2152	10310	2155	10490
X1	26.3	19	9980	10020	930	890	910			

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GR  2160    9120    2156    9320    2152    9325  2151.5    9330    2452    9335
GR  2155    9400    2156    9480    2157    9550    2157    9610    2156    9640
GR  2152    9730    2150    9770    2151    9870    2151    9970    2148    9980
GR  2148   10000    2148   10020    2160   10040    2162   10120
X1 26.48      30    9970   10030     830    1000     950
GR  2171    8900    2168    9130    2168    9260    2164    9290    2162    9300
GR  2162    9340    2164    9360    2165    9380    2165    9500    2165    9530
GR2164.5    9570    2165    9600    2163    9630    2164    9660  2164.5    9720
GR  2164    9770  2161.2    9810    2161    9840    2162    9890    2161    9950
GR  2160    9970  2159.5    9980  2159.5   10000  2159.5   10020    2160   10025
GR  2164   10030    2168   10085    2173   10120    2176   10180    2180   10230
X1 26.72      35    9960   10035    1230    1250    1267
GR  2196    8580    2192    8700    2188    8850    2184    9020  2183.5    9040
GR  2184    9060  2185.5    9180    2184    9300  2185.5    9360    2184    9430
GR  2180    9460    2184    9490    2184    9590    2181    9620    1181    9730
GR2181.5    9770    2180    9800    2180    9940    2176    9960    2174    9980
GR  2174   10000    2174   10020    2176   10035    2176   10070    2178   10120
GR  2176   10160    2175   10180    2175   10190    2176   10210    2180   10220
GR  2182   10250    2180   10270  2179.5   10290    2184   10470    2186   10670
X1 26.89      20    9960   10040     880     950     898
GR  2200    9510    2196    9550    2195    9640    2195    9750    2192    9800
GR  2188    9880    2187    9890    2188    9900  2188.5    9930    2188    9960
GR  2184   10000    2184   10020    2188   10040    2190   10080    2188   10120
GR  2186   10150    2188   10170    2192   10350    2196   10400    2200   10460
X1     27      25    9960   10050     600     580     581
GR  2220    9020    2216    9100    2212    9250    2208    9270    2204    9350
GR  2200    9480    2196    9840    2192    9910    2191    9920    2192    9930
GR2193.5    9960    2191    9980    2191   10000    2191   10020    2196   10050
GR2197.5   10100  2197.5   10170    2196   10210    2194   10230    2196   10270
GR  2200   10380    2204   10430    2208   10470    2212   10520    2220   10720
QT      5    1730    2500    3650    4600    3650
X1 27.32      18    9960   10010    1700    1600    1690
GR2236.5    9560    2236    9595    2232    9600    2228    9620    2224    9670
GR  2222    9720    2222    9830    2220    9860    2218    9890    2218    9960
GR  2216    9980    2216   10000    2216   10010    2220   10040    2224   10170
GR  2228   10260    2262   10340    2234   10370
X1 27.51      19    9980   10025    1120     880    1003
GR  2252    9510    2248    9610    2244    9710    2240    9760    2236    9860
GR  2232    9980  2230.5    9990  2230.5   10000  2230.5   10020    2232   10025
GR  2235   10040    2235   10060    2234   10090    2234   10130    2236   10160
GR  2240   10190    2244   10220    2248   10270    2250   10460
X1 27.64      15    9980   10050     680     720     686
GR  2264    9760    2260    9790    2256    9820    2252    9850    2248    9890
GR  2244    9980    2240    9990  2239.5   10000  2239.5   10020    2244   10050
GR  2248   10140    2252   10300    2256   10340    2260   10400    2264   10540
X1 27.76      20    9980   10040     600     650     634
GR  2280    9520    2276    9680    2272    9710    2268    9780    2264    9850
GR  2260    9880    2262    9930    2260    9950    2256    9970    2252    9980
GR  2249    9990    2249   10000    2249   10020    2252   10040    2256   10060
GR  2260   10070    2264   10370    2268   10430    2272   10520    2274   10600
EJ
T1       SKUNK CREEK WASH
T2       100 YEAR FLOODWAY
T3       SKUNK CREEK
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J1   -10      6                    .01                          1680
J2    15             -1


ER
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THIS RUN EXECUTED 3JAN96 15:27:48

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SKUNK CREEK

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
*	16.690	31300.00	1678.78	1678.78	12.10	0.00	9770.00	10120.00	0.00	0.00	9686.54	10407.37
*	16.690	31300.00	1678.77	1678.77	12.12	0.00	9770.00	10120.00	9690.00	10400.00	9690.00	10400.00
*	16.870	31300.00	1690.08	1690.08	9.55	900.00	9550.00	10030.00	0.00	0.00	9503.31	12313.91
*	16.870	31300.00	1690.69	1690.69	11.23	900.00	9550.00	10030.00	9550.00	10450.00	9550.00	10450.00
	17.100	31300.00	1701.67	0.00	8.06	1214.00	9820.00	10460.00	0.00	0.00	9583.87	12120.75
	17.100	31300.00	1702.64	0.00	8.57	1214.00	9820.00	10460.00	9576.00	10525.00	9576.00	10525.00
*	17.300	31300.00	1711.84	1711.84	10.72	1056.00	9900.00	10150.00	0.00	0.00	9525.92	11591.63
*	17.300	31300.00	1712.41	1712.41	12.59	1056.00	9900.00	10150.00	9530.00	10400.00	9530.00	10400.00
	17.560	31300.00	1721.77	0.00	7.51	1373.00	9960.00	10490.00	0.00	0.00	9614.69	10868.28
*	17.560	31300.00	1722.43	0.00	6.95	1373.00	9960.00	10490.00	9650.00	10600.00	9650.00	10600.00
*	17.780	31300.00	1730.98	0.00	9.32	1162.00	9960.00	10790.00	0.00	0.00	9967.17	10779.78
*	17.780	31300.00	1730.63	0.00	10.15	1162.00	9960.00	10790.00	9960.00	10790.00	9967.66	10776.37
*	18.060	31300.00	1743.53	0.00	7.65	1478.00	9610.00	10220.00	0.00	0.00	9583.56	10685.13
*	18.060	31300.00	1744.02	0.00	7.62	1478.00	9610.00	10220.00	9610.00	10220.00	9610.00	10220.00
	18.340	31300.00	1754.16	0.00	8.15	1478.00	9930.00	10840.00	0.00	0.00	9927.30	10937.17
*	18.340	31300.00	1754.16	0.00	8.23	1478.00	9930.00	10840.00	9930.00	10840.00	9930.00	10840.00
	18.720	28100.00	1769.51	0.00	6.55	2006.00	9450.00	10220.00	0.00	0.00	9444.35	10740.54
	18.720	28100.00	1769.88	0.00	6.96	2006.00	9450.00	10220.00	9450.00	10220.00	9450.00	10220.00
*	18.950	28100.00	1780.61	1780.61	10.12	1214.00	9260.00	10050.00	0.00	0.00	9247.81	10560.32
*	18.950	28100.00	1780.73	0.00	9.80	1214.00	9260.00	10050.00	9260.00	10050.00	9260.00	10050.00

*	19.160	28100.00	1790.41	0.00	6.34	1109.00	9900.00	10580.00	0.00	0.00	9566.98	10646.04
*	19.160	28100.00	1790.61	0.00	6.84	1109.00	9900.00	10580.00	9900.00	10580.00	9900.00	10580.00

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
*	19.380	28100.00	1799.96	1799.96	11.08	1162.00	9960.00	10660.00	0.00	0.00	9960.11	10659.68
*	19.380	28100.00	1799.96	1799.96	11.09	1162.00	9960.00	10660.00	9960.00	10660.00	9960.11	10659.67
*	19.580	28100.00	1812.89	0.00	8.30	1056.00	9650.00	10380.00	0.00	0.00	9578.39	10409.09
*	19.580	28100.00	1812.90	0.00	8.30	1056.00	9650.00	10380.00	9650.00	10380.00	9650.00	10380.00
	19.920	28100.00	1826.07	0.00	6.39	1795.00	8920.00	10090.00	0.00	0.00	8742.50	10100.33
	19.920	28100.00	1826.27	0.00	6.69	1795.00	8920.00	10090.00	8920.00	10090.00	8920.00	10090.00
*	20.230	28100.00	1841.22	1841.05	8.68	1637.00	9310.00	10070.00	0.00	0.00	8941.71	10206.57
*	20.230	28100.00	1841.71	1841.61	9.83	1637.00	9310.00	10070.00	9300.00	10100.00	9300.00	10100.00
*	20.390	28100.00	1849.75	0.00	6.63	845.00	9500.00	10340.00	0.00	0.00	9208.32	10498.85
*	20.390	28100.00	1850.51	0.00	7.54	845.00	9500.00	10340.00	9500.00	10350.00	9500.00	10350.00
	20.730	28100.00	1865.24	1865.11	9.37	1795.00	9440.00	10110.00	0.00	0.00	8633.40	10392.48
	20.730	28100.00	1865.53	0.00	9.31	1795.00	9440.00	10110.00	9330.00	10110.00	9330.00	10110.00
	21.000	28100.00	1878.69	0.00	7.43	1426.00	9400.00	10070.00	0.00	0.00	8702.73	10476.54
	21.000	28100.00	1879.25	0.00	8.79	1426.00	9400.00	10070.00	9370.00	10070.00	9370.00	10070.00
	21.240	28100.00	1889.13	0.00	8.79	1267.00	9570.00	10230.00	0.00	0.00	9541.84	10291.96
	21.240	28100.00	1889.57	0.00	8.10	1267.00	9570.00	10230.00	9570.00	10230.00	9570.00	10230.00
	21.590	28100.00	1907.37	0.00	6.23	1848.00	8665.00	10080.00	0.00	0.00	8668.91	10231.88
	21.590	28100.00	1907.20	0.00	6.84	1848.00	8665.00	10080.00	8665.00	10080.00	8669.97	10080.00
	21.850	28100.00	1921.67	0.00	6.70	1373.00	8720.00	10050.00	0.00	0.00	8707.55	10408.54
	21.850	28100.00	1922.10	0.00	6.64	1373.00	8720.00	10050.00	8720.00	10050.00	8720.00	10050.00
	22.060	28100.00	1932.24	0.00	6.53	1109.00	8960.00	10070.00	0.00	0.00	8992.68	10585.19
	22.060	28100.00	1932.42	0.00	7.34	1109.00	8960.00	10070.00	8960.00	10070.00	8992.52	10070.00
	22.250	28100.00	1940.55	0.00	8.47	1003.00	9050.00	10250.00	0.00	0.00	9049.79	10281.35
	22.250	28100.00	1941.01	0.00	7.62	1003.00	9050.00	10250.00	9050.00	10280.00	9050.00	10280.00
	22.620	23800.00	1963.09	1962.78	9.30	1954.00	9700.00	10180.00	0.00	0.00	9339.48	10195.46
*	22.620	23800.00	1962.90	1962.83	10.31	1954.00	9700.00	10180.00	9450.00	10180.00	9450.00	10180.00
	22.810	23800.00	1972.81	0.00	7.05	1003.00	9450.00	10050.00	0.00	0.00	9035.03	10066.29
*	22.810	23800.00	1973.49	0.00	7.43	1003.00	9450.00	10050.00	9450.00	10050.00	9450.00	10050.00
	23.090	23800.00	1984.08	0.00	8.61	1478.00	9900.00	10170.00	0.00	0.00	9689.38	10437.66
	23.090	23800.00	1984.43	0.00	8.96	1478.00	9900.00	10170.00	9800.00	10430.00	9800.00	10430.00
	23.420	23800.00	2001.96	2001.58	9.75	1742.00	9680.00	10100.00	0.00	0.00	9504.27	10264.74
	23.420	23800.00	2002.62	2001.89	10.67	1742.00	9680.00	10100.00	9680.00	10100.00	9680.00	10100.00

23.720	12600.00	2017.04	0.00	6.04	1584.00	9670.00	10130.00	0.00	0.00	9630.96	10166.44
23.720	12600.00	2017.32	0.00	5.71	1584.00	9670.00	10130.00	9670.00	10130.00	9670.00	10130.00

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
*	23.980	12600.00	2026.64	0.00	9.85	1373.00	9960.00	10170.00	0.00	0.00	9808.58	10275.71
*	23.980	12600.00	2026.67	0.00	11.45	1373.00	9960.00	10170.00	9960.00	10170.00	9960.00	10170.00
	24.310	12600.00	2043.93	0.00	7.19	1742.00	9680.00	10060.00	0.00	0.00	9621.08	10158.21
*	24.310	12600.00	2044.31	0.00	6.51	1742.00	9680.00	10060.00	9650.00	10170.00	9650.00	10164.28
	24.550	12600.00	2054.79	0.00	10.97	1267.00	9970.00	10050.00	0.00	0.00	9570.27	10258.81
*	24.550	12600.00	2055.14	2055.14	12.86	1267.00	9970.00	10050.00	9820.00	10160.00	9820.00	10160.00
	24.780	9390.00	2065.25	0.00	9.74	1214.00	9970.00	10040.00	0.00	0.00	9938.06	10283.13
	24.780	9390.00	2066.17	0.00	8.21	1214.00	9970.00	10040.00	9970.00	10250.00	9970.00	10250.00
*	24.990	9390.00	2076.73	2076.73	10.66	1109.00	9950.00	10060.00	0.00	0.00	9836.37	10235.45
*	24.990	9390.00	2076.69	2076.69	11.21	1109.00	9950.00	10060.00	9890.00	10190.00	9890.00	10190.00
	25.270	9390.00	2088.93	0.00	4.15	1478.00	9940.00	10190.00	0.00	0.00	9304.37	10678.64
*	25.270	9390.00	2089.86	0.00	5.26	1478.00	9940.00	10190.00	9940.00	10650.00	9940.00	10650.00
	25.480	9390.00	2097.98	0.00	5.83	1109.00	9950.00	10050.00	0.00	0.00	9255.45	10739.90
*	25.480	9390.00	2098.90	0.00	8.30	1109.00	9950.00	10050.00	9950.00	10700.00	9976.29	10700.00
*	25.770	7200.00	2120.08	2120.08	8.79	1531.00	9960.00	10140.00	0.00	0.00	9338.57	10505.45
*	25.770	7200.00	2121.04	2121.04	9.24	1531.00	9960.00	10140.00	9700.00	10350.00	9700.00	10350.00
*	25.920	7200.00	2131.47	2131.47	10.38	792.00	9980.00	10040.00	0.00	0.00	9980.66	10664.12
*	25.920	7200.00	2131.53	2131.53	10.12	792.00	9980.00	10040.00	0.00	0.00	9980.59	10665.90
*	26.140	7200.00	2132.81	0.00	0.00	1162.00	9990.00	10025.00	0.00	0.00	10210.58	10284.92
*	26.140	7200.00	2132.79	0.00	0.00	1162.00	9990.00	10025.00	0.00	0.00	10210.58	10284.92
*	26.300	7200.00	2153.61	2153.61	12.71	910.00	9980.00	10020.00	0.00	0.00	9322.99	10029.35
*	26.300	7200.00	2153.61	2153.61	12.71	910.00	9980.00	10020.00	0.00	0.00	9322.99	10029.35
*	26.480	7200.00	2164.36	2164.36	11.32	950.00	9970.00	10030.00	0.00	0.00	9287.28	10034.98
*	26.480	7200.00	2164.36	2164.36	11.33	950.00	9970.00	10030.00	0.00	0.00	9287.29	10034.96
*	26.720	7200.00	2165.82	0.00	0.00	1267.00	9960.00	10035.00	0.00	0.00	9621.67	9769.37
*	26.720	7200.00	2165.82	0.00	0.00	1267.00	9960.00	10035.00	0.00	0.00	9621.67	9769.37
*	26.890	7200.00	2190.43	2190.43	10.92	898.00	9960.00	10040.00	0.00	0.00	9831.43	10279.29
*	26.890	7200.00	2190.43	2190.43	10.92	898.00	9960.00	10040.00	0.00	0.00	9831.43	10279.29
*	27.000	7200.00	2196.44	2196.44	11.13	581.00	9960.00	10050.00	0.00	0.00	9800.82	10281.97
*	27.000	7200.00	2196.44	2196.44	11.13	581.00	9960.00	10050.00	0.00	0.00	9800.82	10281.97
*	27.320	3650.00	2220.45	2220.45	10.71	1690.00	9960.00	10010.00	0.00	0.00	9853.28	10054.57
*	27.320	3650.00	2220.45	2220.45	10.71	1690.00	9960.00	10010.00	0.00	0.00	9853.28	10054.57

*	27.510	3650.00	2235.73	2235.73	10.26	1003.00	9980.00	10025.00	0.00	0.00	9868.18	10155.91
*	27.510	3650.00	2235.73	2235.73	10.26	1003.00	9980.00	10025.00	0.00	0.00	9868.18	10155.91

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
*	27.640	3650.00	2245.50	2245.50	10.88	686.00	9980.00	10050.00	0.00	0.00	9946.29	10083.71
*	27.640	3650.00	2245.50	2245.50	10.88	686.00	9980.00	10050.00	0.00	0.00	9946.29	10083.71
*	27.760	3650.00	2254.65	2254.65	12.10	634.00	9980.00	10040.00	0.00	0.00	9973.37	10053.25
*	27.760	3650.00	2254.65	2254.65	12.10	634.00	9980.00	10040.00	0.00	0.00	9973.37	10053.25

SKUNK CREEK

SUMMARY PRINTOUT

	SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFKWS	TOPWID	ELMIN
*	16.690	575.11	20675.51	10049.38	4.95	12.10	10.08	1692.00	1678.78	-0.22	720.82	1672.50
*	16.690	582.60	20658.38	10059.02	5.07	12.12	10.14	1692.00	1678.77	-0.01	710.00	1672.50
*	16.870	165.43	20831.45	10303.13	3.41	9.55	4.39	1692.00	1690.08	0.00	2310.08	1682.00
*	16.870	0.00	27823.78	3476.22	0.00	11.23	5.02	1692.00	1690.69	0.62	900.00	1682.00
	17.100	1207.73	21127.55	8964.72	3.84	8.06	4.34	1702.50	1701.67	0.00	2285.78	1694.00
	17.100	2690.57	27792.60	816.83	4.88	8.57	5.01	1702.50	1702.64	0.97	949.00	1694.00
*	17.300	3458.22	15964.13	11877.65	4.82	10.72	5.03	1713.00	1711.84	0.00	2065.70	1702.00
*	17.300	5916.19	20551.94	4831.87	6.37	12.59	7.29	1713.00	1712.41	0.57	870.00	1702.00
	17.560	5721.98	23931.46	1646.56	5.27	7.51	2.96	1736.00	1721.77	0.00	1253.59	1711.00
*	17.560	5885.68	24519.99	894.33	4.97	6.95	3.36	1736.00	1722.43	0.66	950.00	1711.00
*	17.780	0.00	31300.00	0.00	0.00	9.32	0.00	1760.00	1730.98	0.00	812.60	1722.00
*	17.780	0.00	31300.00	0.00	0.00	10.15	0.00	1760.00	1730.63	-0.35	808.71	1722.00
*	18.060	146.76	29105.12	2048.12	3.15	7.65	3.22	1760.00	1743.53	0.00	1101.57	1733.00
*	18.060	0.00	31300.00	0.00	0.00	7.62	0.00	1760.00	1744.02	0.50	610.00	1733.00
	18.340	7.86	30958.45	333.69	2.70	8.15	3.18	1780.00	1754.16	0.00	1009.87	1746.00
*	18.340	0.00	31300.00	0.00	0.00	8.23	0.00	1780.00	1754.16	0.01	910.00	1746.00
	18.720	7.55	24569.43	3523.02	1.77	6.55	3.62	1780.00	1769.51	0.00	1296.19	1760.00
	18.720	0.00	28100.00	0.00	0.00	6.96	0.00	1780.00	1769.88	0.37	770.00	1760.00
*	18.950	7.09	28047.63	45.28	1.91	10.12	1.83	1792.00	1780.61	0.00	906.95	1771.50
*	18.950	0.00	28100.00	0.00	0.00	9.80	0.00	1792.00	1780.73	0.12	790.00	1771.50
*	19.160	2769.52	25162.16	168.32	3.54	6.34	2.12	1800.00	1790.41	0.00	1079.06	1782.00
*	19.160	0.00	28100.00	0.00	0.00	6.84	0.00	1800.00	1790.61	0.20	680.00	1782.00
*	19.380	0.00	28100.00	0.00	0.00	11.08	0.00	1816.50	1799.96	0.00	699.58	1792.00
*	19.380	0.00	28100.00	0.00	0.00	11.09	0.00	1816.50	1799.96	0.00	699.56	1792.00
*	19.580	53.62	28024.60	21.78	1.67	8.30	1.67	1824.00	1812.89	0.00	830.70	1804.50
*	19.580	0.00	28100.00	0.00	0.00	8.30	0.00	1824.00	1812.90	0.01	730.00	1804.50
	19.920	2746.26	25324.52	29.22	5.95	6.39	2.74	1840.00	1826.07	0.00	1357.83	1815.50
	19.920	0.00	28100.00	0.00	0.00	6.69	0.00	1840.00	1826.27	0.21	1170.00	1815.50
*	20.230	5163.75	20651.97	2284.27	6.55	8.68	7.51	1851.50	1841.22	0.00	1264.86	1834.00

*	20.230	90.09	27025.69	984.22	5.18	9.83	8.85	1860.00	1841.71	0.49	800.00	1834.00
*	20.390	4922.52	20072.57	3104.91	5.70	6.63	6.99	1860.00	1849.75	0.00	1290.54	1842.00
*	20.390	0.00	27640.08	459.92	0.00	7.54	6.80	1860.00	1850.51	0.76	850.00	1842.00

	SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFKWS	TOPWID	ELMIN
	20.730	3134.47	24166.87	798.66	5.59	9.37	3.72	1876.00	1865.24	0.00	1461.92	1855.00
	20.730	2349.25	25750.75	0.00	7.11	9.31	0.00	1880.00	1865.53	0.29	780.00	1855.00
	21.000	6425.45	20399.63	1274.92	6.65	7.43	2.94	1884.00	1878.69	0.00	1441.55	1865.50
	21.000	685.42	27414.58	0.00	6.47	8.79	0.00	1900.00	1879.25	0.56	700.00	1865.50
	21.240	32.01	27997.54	70.45	2.02	8.79	2.02	1900.00	1889.13	0.00	750.12	1879.50
	21.240	0.00	28100.00	0.00	0.00	8.10	0.00	1900.00	1889.57	0.43	660.00	1879.50
	21.590	0.00	27072.79	1027.22	0.00	6.23	4.01	1920.00	1907.37	0.00	1562.98	1898.00
	21.590	0.00	28100.00	0.00	0.00	6.84	0.00	1920.00	1907.20	-0.17	1410.03	1898.00
	21.850	29.89	24395.77	3674.34	2.89	6.70	5.45	1940.00	1921.67	0.00	1700.99	1913.00
	21.850	0.00	28100.00	0.00	0.00	6.64	0.00	1940.00	1922.10	0.44	1330.00	1913.00
	22.060	0.00	23992.97	4107.03	0.00	6.53	4.21	1940.00	1932.24	0.00	1438.90	1920.50
	22.060	0.00	28100.00	0.00	0.00	7.34	0.00	1948.00	1932.42	0.17	942.55	1920.50
	22.250	0.00	28089.04	10.96	0.03	8.47	1.27	1960.00	1940.55	0.00	774.62	1931.00
	22.250	0.00	28049.83	50.17	0.00	7.62	2.22	1960.00	1941.01	0.47	856.35	1931.00
	22.620	4376.59	19317.09	106.31	5.74	9.30	4.45	1984.00	1963.09	0.00	855.98	1954.00
*	22.620	3349.95	20450.05	0.00	6.39	10.31	0.00	1984.00	1962.90	-0.19	730.00	1954.00
	22.810	4087.88	19703.25	8.87	4.49	7.05	1.34	1996.00	1972.81	0.00	1031.25	1962.00
*	22.810	0.00	23800.00	0.00	0.00	7.43	0.00	1996.00	1973.49	0.68	600.00	1962.00
	23.090	4680.12	11465.78	7654.10	6.55	8.61	7.31	2000.00	1984.08	0.00	748.28	1975.00
	23.090	2466.50	12793.18	8540.32	6.65	8.96	7.61	2004.00	1984.43	0.35	630.00	1975.00
	23.420	722.92	19060.45	4016.63	3.76	9.75	7.59	2020.00	2001.96	0.00	760.46	1994.00
	23.420	0.00	23800.00	0.00	0.00	10.67	0.00	2020.00	2002.62	0.65	420.00	1994.00
	23.720	28.00	12545.86	26.13	1.38	6.04	1.38	2020.00	2017.04	0.00	535.48	2008.50
	23.720	0.00	12600.00	0.00	0.00	5.71	0.00	2040.00	2017.32	0.28	460.00	2008.50
*	23.980	1285.62	10784.26	530.12	5.34	9.85	3.80	2040.00	2026.64	0.00	467.12	2020.00
*	23.980	0.00	12600.00	0.00	0.00	11.45	0.00	2040.00	2026.67	0.02	210.00	2020.00
	24.310	485.60	11304.31	810.09	4.20	7.19	4.20	2064.00	2043.93	0.00	537.13	2038.00
*	24.310	480.21	11194.80	924.99	4.83	6.51	3.99	2064.00	2044.31	0.37	514.28	2038.00
	24.550	2858.21	6344.68	3397.11	4.31	10.97	5.91	2080.00	2054.79	0.00	688.54	2046.00
*	24.550	2426.13	7791.83	2382.04	6.13	12.86	6.85	2080.00	2055.14	0.35	340.00	2046.00
	24.780	205.07	4602.59	4582.34	4.43	9.74	5.89	2100.00	2065.25	0.00	345.08	2058.00
	24.780	0.00	4400.95	4989.05	0.00	8.21	5.66	2100.00	2066.17	0.91	280.00	2058.00

*	24.990	916.03	7565.08	908.89	4.55	10.66	3.78	2100.00	2076.73	0.00	399.08	2067.50
*	24.990	649.78	7916.83	823.39	5.14	11.21	4.17	2100.00	2076.69	-0.04	300.00	2067.50

	SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFKWS	TOPWID	ELMIN
	25.270	3820.17	1352.87	4216.96	5.22	4.15	4.32	2108.00	2088.93	0.00	1042.35	2082.00
*	25.270	0.00	2908.57	6481.43	0.00	5.26	4.75	2108.00	2089.86	0.93	710.00	2082.00
	25.480	3492.52	352.82	5544.66	7.04	5.83	6.77	2107.00	2097.98	0.00	604.24	2091.50
*	25.480	0.00	863.14	8526.86	0.00	8.30	8.51	2107.00	2098.90	0.92	374.18	2091.50
*	25.770	4131.54	2893.45	175.01	4.75	8.79	2.61	2121.50	2120.08	0.00	895.38	2116.00
*	25.770	2682.28	4321.23	196.49	5.40	9.24	2.77	2121.50	2121.04	0.96	511.57	2116.00
*	25.920	0.00	4083.52	3116.48	0.00	10.38	3.35	2138.00	2131.47	0.00	675.59	2123.00
*	25.920	0.00	4018.55	3181.45	0.00	10.12	3.29	2138.00	2131.53	0.06	685.31	2123.00
*	26.140	0.00	0.00	7200.00	0.00	0.00	0.20	2155.00	2132.81	0.00	74.35	1144.00
*	26.140	0.00	0.00	7200.00	0.00	0.00	0.20	2155.00	2132.79	-0.02	74.35	1144.00
*	26.300	4214.84	2852.45	132.71	5.56	12.71	5.06	2210.00	2153.61	0.00	342.65	2148.00
*	26.300	4215.21	2852.07	132.72	5.56	12.71	5.06	2210.00	2153.61	0.00	342.67	2148.00
*	26.480	4079.61	3119.55	0.84	5.43	11.32	0.93	2171.00	2164.36	0.00	475.09	2159.50
*	26.480	4078.81	3120.35	0.83	5.43	11.33	0.93	2171.00	2164.36	0.00	474.68	2159.50
*	26.720	7200.00	0.00	0.00	0.10	0.00	0.00	2186.00	2165.82	0.00	147.70	1181.00
*	26.720	7200.00	0.00	0.00	0.10	0.00	0.00	2186.00	2165.82	0.00	147.70	1181.00
*	26.890	1077.59	4305.86	1816.55	4.34	10.92	4.34	2250.00	2190.43	0.00	447.87	2184.00
*	26.890	1077.59	4305.86	1816.55	4.34	10.92	4.34	2250.00	2190.43	0.00	447.87	2184.00
*	27.000	2535.87	4332.74	331.38	6.53	11.13	3.51	2220.00	2196.44	0.00	347.27	2191.00
*	27.000	2535.87	4332.74	331.38	6.53	11.13	3.51	2220.00	2196.44	0.00	347.27	2191.00
*	27.320	1086.03	2168.33	395.64	5.02	10.71	5.16	2234.00	2220.45	0.00	201.29	2216.00
*	27.320	1086.03	2168.33	395.64	5.02	10.71	5.16	2234.00	2220.45	0.00	201.29	2216.00
*	27.510	781.39	2299.13	569.49	3.75	10.26	3.23	2250.00	2235.73	0.00	287.73	2230.50
*	27.510	781.39	2299.13	569.49	3.75	10.26	3.23	2250.00	2235.73	0.00	287.73	2230.50
*	27.640	57.59	3534.82	57.59	2.28	10.88	2.28	2264.00	2245.50	0.00	137.42	2239.50
*	27.640	57.59	3534.82	57.59	2.28	10.88	2.28	2264.00	2245.50	0.00	137.42	2239.50
*	27.760	29.83	3558.31	61.86	3.40	12.10	3.52	2274.00	2254.65	0.00	79.88	2249.00
*	27.760	29.83	3558.31	61.86	3.40	12.10	3.52	2274.00	2254.65	0.00	79.88	2249.00

SKUNK CREEK

SUMMARY PRINTOUT

	SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10*KS	VOL	DEPTH	K*XNL	K*XNCH
*	16.690	0.00	0.00	1680.80	2.02	0.00	0.00	98.08	0.00	6.28	37.00	35.00
*	16.690	0.00	0.00	1680.80	2.03	0.00	0.00	98.80	0.00	6.27	37.00	35.00
*	16.870	900.00	10.56	1691.12	1.04	9.00	0.29	101.92	76.45	8.08	45.00	43.00
*	16.870	900.00	10.56	1692.48	1.78	9.77	0.07	119.83	61.78	8.69	0.00	43.00
	17.100	1214.00	9.88	1702.45	0.77	11.25	0.08	83.17	211.72	7.67	45.00	43.00
	17.100	1214.00	9.88	1703.69	1.05	11.00	0.22	70.67	161.36	8.64	45.00	43.00
*	17.300	1056.00	7.58	1712.94	1.10	9.42	0.16	89.35	333.47	9.84	45.00	43.00
*	17.300	1056.00	7.58	1714.27	1.86	9.24	0.40	109.04	249.39	10.41	45.00	43.00
	17.560	1373.00	6.55	1722.53	0.76	9.49	0.10	54.32	483.51	10.77	50.00	48.00
*	17.560	1373.00	6.55	1723.09	0.66	8.46	0.36	40.48	375.92	11.43	50.00	48.00
*	17.780	1162.00	9.47	1732.33	1.35	9.50	0.30	137.51	592.35	8.98	0.00	48.00
*	17.780	1162.00	9.47	1732.23	1.60	8.67	0.47	181.74	483.23	8.63	0.00	48.00
*	18.060	1478.00	7.44	1744.38	0.86	11.91	0.15	53.32	723.78	10.53	50.00	48.00
*	18.060	1478.00	7.44	1744.92	0.90	12.48	0.21	48.61	605.26	11.02	0.00	48.00
	18.340	1478.00	8.80	1755.18	1.02	10.72	0.08	103.45	867.24	8.16	50.00	48.00
*	18.340	1478.00	8.80	1755.22	1.05	10.22	0.08	106.05	739.45	8.16	0.00	48.00
	18.720	2006.00	6.98	1770.11	0.61	14.81	0.12	54.35	1063.46	9.51	50.00	48.00
	18.720	2006.00	6.98	1770.63	0.75	15.32	0.09	55.95	919.94	9.88	0.00	48.00
*	18.950	1214.00	9.47	1782.20	1.59	11.42	0.49	201.29	1168.20	9.11	50.00	48.00
*	18.950	1214.00	9.47	1782.22	1.49	11.22	0.37	180.92	1016.15	9.23	0.00	48.00
*	19.160	1109.00	9.47	1790.98	0.58	8.48	0.30	40.00	1265.20	8.41	50.00	48.00
*	19.160	1109.00	9.47	1791.33	0.73	8.88	0.23	44.95	1104.96	8.61	0.00	48.00
*	19.380	1162.00	8.61	1801.87	1.91	8.68	0.66	185.77	1363.62	7.96	0.00	43.00
*	19.380	1162.00	8.61	1801.87	1.91	9.39	0.59	186.06	1193.56	7.96	0.00	43.00
*	19.580	1056.00	11.84	1813.96	1.07	11.84	0.25	74.99	1435.84	8.39	45.00	43.00
*	19.580	1056.00	11.84	1813.97	1.07	11.86	0.25	75.06	1265.30	8.40	0.00	43.00
	19.920	1795.00	6.13	1826.69	0.63	12.60	0.13	67.51	1595.05	10.57	45.00	43.00
	19.920	1795.00	6.13	1826.97	0.69	12.88	0.11	68.65	1421.59	10.77	0.00	43.00
*	20.230	1637.00	11.30	1842.27	1.05	15.37	0.21	138.41	1744.04	7.22	45.00	43.00

*	20.230	1637.00	11.30	1843.19	1.49	15.83	0.40	146.28	1554.63	7.71	45.00	43.00
*	20.390	845.00	9.47	1850.41	0.66	8.02	0.12	66.74	1822.04	7.75	45.00	43.00
*	20.390	845.00	9.47	1851.39	0.88	8.02	0.18	67.43	1618.20	8.51	0.00	43.00

	SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10*KS	VOL	DEPTH	K*XNL	K*XNCH
	20.730	1795.00	7.24	1866.48	1.23	15.78	0.29	122.49	1979.44	10.24	45.00	43.00
	20.730	1795.00	7.24	1866.83	1.30	15.23	0.21	110.11	1758.84	10.53	45.00	43.00
	21.000	1426.00	7.36	1879.48	0.79	12.87	0.13	70.88	2100.58	13.19	45.00	43.00
	21.000	1426.00	7.36	1880.43	1.19	13.57	0.03	83.88	1861.63	13.75	45.00	43.00
	21.240	1267.00	11.05	1890.33	1.20	10.65	0.20	99.24	2209.02	9.63	50.00	48.00
	21.240	1267.00	11.05	1890.58	1.02	10.10	0.05	75.69	1959.11	10.07	0.00	48.00
	21.590	1848.00	10.01	1907.96	0.59	17.45	0.18	90.53	2374.37	9.37	0.00	48.00
	21.590	1848.00	10.01	1907.93	0.73	17.26	0.09	118.15	2119.82	9.20	0.00	48.00
	21.850	1373.00	10.92	1922.33	0.67	14.33	0.04	122.83	2514.30	8.67	50.00	48.00
	21.850	1373.00	10.92	1922.79	0.69	14.85	0.01	99.32	2251.19	9.10	0.00	48.00
	22.060	1109.00	6.76	1932.85	0.61	10.50	0.02	72.15	2632.11	11.74	0.00	48.00
	22.060	1109.00	6.76	1933.25	0.84	10.39	0.08	88.51	2353.78	11.92	0.00	48.00
	22.250	1003.00	10.47	1941.66	1.11	8.56	0.25	103.15	2723.40	9.55	50.00	48.00
	22.250	1003.00	10.47	1941.91	0.90	8.63	0.03	83.67	2440.51	10.01	0.00	48.00
	22.620	1954.00	11.77	1964.28	1.19	22.58	0.04	128.45	2865.15	9.09	50.00	48.00
*	22.620	1954.00	11.77	1964.41	1.51	22.19	0.30	169.37	2581.86	8.90	50.00	48.00
	22.810	1003.00	7.98	1973.51	0.69	9.08	0.15	67.30	2940.77	10.81	50.00	48.00
*	22.810	1003.00	7.98	1974.35	0.86	9.75	0.20	63.01	2647.56	11.49	0.00	48.00
	23.090	1478.00	8.80	1985.03	0.95	11.40	0.13	92.28	3054.06	9.08	50.00	48.00
	23.090	1478.00	8.80	1985.50	1.06	11.04	0.10	91.37	2750.66	9.43	50.00	48.00
	23.420	1742.00	10.91	2003.30	1.34	18.08	0.19	127.75	3163.57	7.96	50.00	48.00
	23.420	1742.00	10.91	2004.39	1.77	18.54	0.35	130.86	2851.03	8.62	0.00	48.00
	23.720	1584.00	9.15	2017.61	0.56	14.07	0.23	51.34	3250.84	8.54	50.00	48.00
	23.720	1584.00	9.15	2017.82	0.51	13.06	0.38	42.71	2931.68	8.82	0.00	48.00
*	23.980	1373.00	8.38	2027.99	1.34	9.99	0.39	112.52	3306.97	6.64	50.00	48.00
*	23.980	1373.00	8.38	2028.70	2.04	10.11	0.76	156.17	2983.78	6.67	0.00	48.00
	24.310	1742.00	10.33	2044.68	0.75	16.51	0.18	81.27	3373.81	5.93	50.00	48.00
*	24.310	1742.00	10.33	2044.92	0.62	15.80	0.43	59.33	3046.54	6.31	50.00	48.00
	24.550	1267.00	6.31	2055.94	1.15	11.06	0.20	92.37	3428.34	8.79	50.00	48.00
*	24.550	1267.00	6.31	2056.98	1.84	10.41	0.61	119.10	3096.45	9.14	50.00	48.00
	24.780	1214.00	9.88	2066.24	0.99	10.25	0.05	78.12	3471.01	7.25	50.00	48.00
	24.780	1214.00	9.88	2066.92	0.75	9.62	0.33	52.52	3134.26	8.17	0.00	48.00

*	24.990	1109.00	8.57	2078.20	1.47	9.70	0.24	100.74	3501.87	9.23	50.00	48.00
*	24.990	1109.00	8.57	2078.39	1.70	8.06	0.47	112.42	3164.56	9.19	50.00	48.00

	SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10*KS	VOL	DEPTH	K*XNL	K*XNCH
	25.270	1478.00	9.81	2089.27	0.34	10.73	0.34	61.92	3552.14	6.93	50.00	35.00
*	25.270	1478.00	9.81	2090.23	0.38	11.45	0.40	53.65	3216.79	7.86	0.00	35.00
	25.480	1109.00	8.57	2098.71	0.73	9.24	0.19	122.65	3594.95	6.48	50.00	35.00
*	25.480	1109.00	8.57	2100.02	1.12	9.41	0.37	150.89	3255.56	7.40	0.00	35.00
*	25.770	1531.00	16.00	2120.77	0.69	18.59	0.01	123.11	3640.77	4.08	50.00	35.00
*	25.770	1531.00	16.00	2122.01	0.97	20.32	0.05	115.35	3292.87	5.04	50.00	35.00
*	25.920	792.00	8.84	2132.49	1.02	6.08	0.17	51.48	3664.56	8.47	0.00	35.00
*	25.920	792.00	8.84	2132.49	0.96	5.68	0.00	48.49	3314.76	8.53	0.00	35.00
*	26.140	1162.00	-842.51	2132.81	0.00	0.00	0.31	0.01	4154.33	988.81	0.00	0.00
*	26.140	1162.00	-842.51	2132.79	0.00	0.00	0.29	0.01	3805.03	988.79	0.00	0.00
*	26.300	910.00	1103.30	2154.89	1.28	0.00	0.64	89.85	4540.55	5.61	50.00	35.00
*	26.300	910.00	1103.30	2154.89	1.28	0.00	0.64	89.79	4191.23	5.61	50.00	35.00
*	26.480	950.00	12.11	2165.48	1.12	8.19	0.05	96.20	4560.70	4.86	50.00	35.00
*	26.480	950.00	12.11	2165.48	1.12	8.20	0.05	96.35	4211.37	4.86	50.00	35.00
*	26.720	1267.00	-772.30	2165.82	0.00	0.00	0.34	0.00	5602.18	984.82	50.00	0.00
*	26.720	1267.00	-772.30	2165.82	0.00	0.00	0.34	0.00	5252.84	984.82	50.00	0.00
*	26.890	898.00	1116.93	2191.65	1.23	0.00	0.61	79.65	6347.96	6.43	50.00	35.00
*	26.890	898.00	1116.93	2191.65	1.23	0.00	0.61	79.65	5998.63	6.43	50.00	35.00
*	27.000	581.00	12.05	2197.84	1.40	5.17	0.09	98.42	6360.99	5.44	50.00	35.00
*	27.000	581.00	12.05	2197.84	1.40	5.17	0.09	98.42	6011.65	5.44	50.00	35.00
*	27.320	1690.00	14.79	2221.67	1.22	16.62	0.05	98.92	6387.40	4.45	50.00	35.00
*	27.320	1690.00	14.79	2221.67	1.22	16.62	0.05	98.92	6038.07	4.45	50.00	35.00
*	27.510	1003.00	14.46	2236.83	1.10	8.36	0.04	69.45	6400.33	5.23	50.00	35.00
*	27.510	1003.00	14.46	2236.83	1.10	8.36	0.04	69.45	6050.99	5.23	50.00	35.00
*	27.640	686.00	13.12	2247.28	1.78	5.32	0.34	86.63	6408.14	6.00	50.00	35.00
*	27.640	686.00	13.12	2247.28	1.78	5.32	0.34	86.63	6058.80	6.00	50.00	35.00
*	27.760	634.00	14.98	2256.87	2.22	5.86	0.22	99.03	6413.20	5.65	50.00	35.00
*	27.760	634.00	14.98	2256.87	2.22	5.86	0.22	99.03	6063.86	5.65	50.00	35.00

SKUNK CREEK

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	S
*	16.690	1678.78	-0.22	1680.80	720.82	575.11	20675.51	10049.38	0.00	0.00	9770.00	10120.00	
*	16.690	1678.77	-0.01	1680.80	710.00	582.60	20658.38	10059.02	710.00	9690.00	9770.00	10120.00	104
*	16.870	1690.08	0.00	1691.12	2310.08	165.43	20831.45	10303.13	0.00	0.00	9550.00	10030.00	
*	16.870	1690.69	0.62	1692.48	900.00	0.00	27823.78	3476.22	900.00	9550.00	9550.00	10030.00	104
	17.100	1701.67	0.00	1702.45	2285.78	1207.73	21127.55	8964.72	0.00	0.00	9820.00	10460.00	
	17.100	1702.64	0.97	1703.69	949.00	2690.57	27792.60	816.83	949.00	9576.00	9820.00	10460.00	105
*	17.300	1711.84	0.00	1712.94	2065.70	3458.22	15964.13	11877.65	0.00	0.00	9900.00	10150.00	
*	17.300	1712.41	0.57	1714.27	870.00	5916.19	20551.94	4831.87	870.00	9530.00	9900.00	10150.00	104
	17.560	1721.77	0.00	1722.53	1253.59	5721.98	23931.46	1646.56	0.00	0.00	9960.00	10490.00	
*	17.560	1722.43	0.66	1723.09	950.00	5885.68	24519.99	894.33	950.00	9650.00	9960.00	10490.00	106
*	17.780	1730.98	0.00	1732.33	812.60	0.00	31300.00	0.00	0.00	0.00	9960.00	10790.00	
*	170780	1730.63	-0.35	1732.23	808.71	0.00	31300.00	0.00	830.00	9960.00	9960.00	10790.00	107
*	18.060	1743.53	0.00	1744.38	1101.57	146.76	29105.12	2048.12	0.00	0.00	9610.00	10220.00	
*	18.060	1744.02	0.50	1744.92	610.00	0.00	31300.00	0.00	610.00	9610.00	9610.00	10220.00	102
	18.340	1754.16	0.00	1755.18	1009.87	7.86	30958.45	333.69	0.00	0.00	9930.00	10840.00	
*	18.340	1754.16	0.01	1755.22	910.00	0.00	31300.00	0.00	910.00	9930.00	9930.00	10840.00	108
	18.720	1769.51	0.00	1770.11	1296.19	7.55	24569.43	3523.02	0.00	0.00	9450.00	10220.00	
	18.720	1769.88	0.37	1770.63	770.00	0.00	28100.00	0.00	770.00	9450.00	9450.00	10220.00	102
*	18.950	1780.61	0.00	1782.20	906.95	7.09	28047.63	45.28	0.00	0.00	9260.00	10050.00	
*	18.950	1780.73	0.12	1782.22	790.00	0.00	28100.00	0.00	790.00	9260.00	9260.00	10050.00	100
*	19.160	1790.41	0.00	1790.98	1079.06	2769.52	25162.16	168.32	0.00	0.00	9900.00	10580.00	
*	19.160	1790.61	0.20	1791.33	680.00	0.00	28100.00	0.00	680.00	9900.00	9900.00	10580.00	105
*	19.380	1799.96	0.00	1801.87	699.58	0.00	28100.00	0.00	0.00	0.00	9960.00	10660.00	
*	19.380	1799.96	0.00	1801.87	699.56	0.00	28100.00	0.00	700.00	9960.00	9960.00	10660.00	106
*	19.580	1812.89	0.00	1813.96	830.70	53.62	28024.60	21.78	0.00	0.00	9650.00	10380.00	
*	19.580	1812.90	0.01	1813.97	730.00	0.00	28100.00	0.00	730.00	9650.00	9650.00	10380.00	103
	19.920	1826.07	0.00	1826.69	1357.83	2746.26	25324.52	29.22	0.00	0.00	8920.00	10090.00	
	19.920	1826.27	0.21	1826.97	1170.00	0.00	28100.00	0.00	1170.00	8920.00	8920.00	10090.00	100
*	20.230	1841.22	0.00	1842.27	1264.86	5163.75	20651.97	2284.27	0.00	0.00	9310.00	10070.00	

*	20.230	1841.71	0.49	1843.19	800.00	90.09	27025.69	984.22	800.00	9300.00	9310.00	10070.00	101
*	20.390	1849.75	0.00	1850.41	1290.54	4922.52	20072.57	3104.91	0.00	0.00	9500.00	10340.00	
*	20.390	1850.51	0.76	1851.39	850.00	0.00	27640.08	459.92	850.00	9500.00	9500.00	10340.00	103

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	S
	20.730	1865.24	0.00	1866.48	1461.92	3134.47	24166.87	798.66	0.00	0.00	9440.00	10110.00	
	20.730	1865.53	0.29	1866.83	780.00	2349.25	25750.75	0.00	780.00	9330.00	9440.00	10110.00	101
	21.000	1878.69	0.00	1879.48	1441.55	6425.45	20399.63	1274.92	0.00	0.00	9400.00	10070.00	
	21.000	1879.25	0.56	1880.43	700.00	685.42	27414.58	0.00	700.00	9370.00	9400.00	10070.00	100
	21.240	1889.13	0.00	1890.33	750.12	32.01	27997.54	70.45	0.00	0.00	9570.00	10230.00	
	21.240	1889.57	0.43	1890.58	660.00	0.00	28100.00	0.00	660.00	9570.00	9570.00	10230.00	102
	21.590	1907.37	0.00	1907.96	1562.98	0.00	27072.79	1027.22	0.00	0.00	8665.00	10080.00	
	21.590	1907.20	-0.17	1907.93	1410.03	0.00	28100.00	0.00	1415.00	8665.00	8665.00	10080.00	100
	21.850	1921.67	0.00	1922.33	1700.99	29.89	24395.77	3674.34	0.00	0.00	8720.00	10050.00	
	21.850	1922.10	0.44	1922.79	1330.00	0.00	28100.00	0.00	1330.00	8720.00	8720.00	10050.00	100
	22.060	1932.24	0.00	1932.85	1438.90	0.00	23992.97	4107.03	0.00	0.00	8960.00	10070.00	
	22.060	1932.42	0.17	1933.25	942.55	0.00	28100.00	0.00	1110.00	8960.00	8960.00	10070.00	100
	22.250	1940.55	0.00	1941.66	774.62	0.00	28089.04	10.96	0.00	0.00	9050.00	10250.00	
	22.250	1941.01	0.47	1941.91	856.35	0.00	28049.83	50.17	1230.00	9050.00	9050.00	10250.00	102
	22.620	1963.09	0.00	1964.28	855.98	4376.59	19317.09	106.31	0.00	0.00	9700.00	10180.00	
*	22.620	1962.90	-0.19	1964.41	730.00	3349.95	20450.05	0.00	730.00	9450.00	9700.00	10180.00	101
	22.810	1972.81	0.00	1973.51	1031.25	4087.88	19703.25	8.87	0.00	0.00	9450.00	10050.00	
*	22.810	1973.49	0.68	1974.35	600.00	0.00	23800.00	0.00	600.00	9450.00	9450.00	10050.00	100
	23.090	1984.08	0.00	1985.03	748.28	4680.12	11465.78	7654.10	0.00	0.00	9900.00	10170.00	
	23.090	1984.43	0.35	1985.50	630.00	2466.50	12793.18	8540.32	630.00	9800.00	9900.00	10170.00	104
	23.420	2001.96	0.00	2003.30	760.46	722.92	19060.45	4016.63	0.00	0.00	9680.00	10100.00	
	23.420	2002.62	0.65	2004.39	420.00	0.00	23800.00	0.00	420.00	9680.00	9680.00	10100.00	101
	23.720	2017.04	0.00	2017.61	535.48	28.00	12545.86	26.13	0.00	0.00	9670.00	10130.00	
	23.720	2017.32	0.28	2017.82	460.00	0.00	12600.00	0.00	460.00	9670.00	9670.00	10130.00	101
*	23.980	2026.64	0.00	2027.99	467.12	1285.62	10784.26	530.12	0.00	0.00	9960.00	10170.00	
*	23.980	2026.67	0.02	2028.70	210.00	0.00	12600.00	0.00	210.00	9960.00	9960.00	10170.00	101
	24.310	2043.93	0.00	2044.68	537.13	485.60	11304.31	810.09	0.00	0.00	9680.00	10060.00	
*	24.310	2044.31	0.37	2044.92	514.28	480.21	11194.80	924.99	520.00	9650.00	9680.00	10060.00	101
	24.550	2054.79	0.00	2055.94	688.54	2858.21	6344.68	3397.11	0.00	0.00	9970.00	10050.00	
*	24.550	2055.14	0.35	2056.98	340.00	2426.13	7791.83	2382.04	340.00	9820.00	9970.00	10050.00	101
	24.780	2065.25	0.00	2066.24	345.08	205.07	4602.59	4582.34	0.00	0.00	9970.00	10040.00	
	24.780	2066.17	0.91	2066.92	280.00	0.00	4400.95	4989.05	280.00	9970.00	9970.00	10040.00	102

*	24.990	2076.73	0.00	2078.20	399.08	916.03	7565.08	908.89	0.00	0.00	9950.00	10060.00	
*	24.990	2076.69	-0.04	2078.39	300.00	649.78	7916.83	823.39	300.00	9890.00	9950.00	10060.00	101

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	S
	25.270	2088.93	0.00	2089.27	1042.35	3820.17	1352.87	4216.96	0.00	0.00	9940.00	10190.00	
*	25.270	2089.86	0.93	2090.23	710.00	0.00	2908.57	6481.43	710.00	9940.00	9940.00	10190.00	106
	25.480	2097.98	0.00	2098.71	604.24	3492.52	352.82	5544.66	0.00	0.00	9950.00	10050.00	
*	25.480	2098.90	0.92	2100.02	374.18	0.00	863.14	8526.86	750.00	9950.00	9950.00	10050.00	107
*	25.770	2120.08	0.00	2120.77	895.38	4131.54	2893.45	175.01	0.00	0.00	9960.00	10140.00	
*	25.770	2121.04	0.96	2122.01	511.57	2682.28	4321.23	196.49	650.00	9700.00	9960.00	10140.00	103
*	25.920	2131.47	0.00	2132.49	675.59	0.00	4083.52	3116.48	0.00	0.00	9980.00	10040.00	
*	25.920	2131.53	0.06	2132.49	685.31	0.00	4018.55	3181.45	0.00	0.00	9980.00	10040.00	
*	26.140	2132.81	0.00	2132.81	74.35	0.00	0.00	7200.00	0.00	0.00	9990.00	10025.00	
*	26.140	2132.79	-0.02	2132.79	74.35	0.00	0.00	7200.00	0.00	0.00	9990.00	10025.00	
*	26.300	2153.61	0.00	2154.89	342.65	4214.84	2852.45	132.71	0.00	0.00	9980.00	10020.00	
*	26.300	2153.61	0.00	2154.89	342.67	4215.21	2852.07	132.72	0.00	0.00	9980.00	10020.00	
*	26.480	2164.36	0.00	2165.48	475.09	4079.61	3119.55	0.84	0.00	0.00	9970.00	10030.00	
*	26.480	2164.36	0.00	2165.48	474.68	4078.81	3120.35	0.83	0.00	0.00	9970.00	10030.00	
*	26.720	2165.82	0.00	2165.82	147.70	7200.00	0.00	0.00	0.00	0.00	9960.00	10035.00	
*	26.720	2165.82	0.00	2165.82	147.70	7200.00	0.00	0.00	0.00	0.00	9960.00	10035.00	
*	26.890	2190.43	0.00	2191.65	447.87	1077.59	4305.86	1816.55	0.00	0.00	9960.00	10040.00	
*	26.890	2190.43	0.00	2191.65	447.87	1077.59	4305.86	1816.55	0.00	0.00	9960.00	10040.00	
*	27.000	2196.44	0.00	2197.84	347.27	2535.87	4332.74	331.38	0.00	0.00	9960.00	10050.00	
*	27.000	2196.44	0.00	2197.84	347.27	2535.87	4332.74	331.38	0.00	0.00	9960.00	10050.00	
*	27.320	2220.45	0.00	2221.67	201.29	1086.03	2168.33	395.64	0.00	0.00	9960.00	10010.00	
*	27.320	2220.45	0.00	2221.67	201.29	1086.03	2168.33	395.64	0.00	0.00	9960.00	10010.00	
*	27.510	2235.73	0.00	2236.83	287.73	781.39	2299.13	569.49	0.00	0.00	9980.00	10025.00	
*	27.510	2235.73	0.00	2236.83	287.73	781.39	2299.13	569.49	0.00	0.00	9980.00	10025.00	
*	27.640	2245.50	0.00	2247.28	137.42	57.59	3534.82	57.59	0.00	0.00	9980.00	10050.00	
*	27.640	2245.50	0.00	2247.28	137.42	57.59	3534.82	57.59	0.00	0.00	9980.00	10050.00	
*	27.760	2254.65	0.00	2256.87	79.88	29.83	3558.31	61.86	0.00	0.00	9980.00	10040.00	
*	27.760	2254.65	0.00	2256.87	79.88	29.83	3558.31	61.86	0.00	0.00	9980.00	10040.00	

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION	SECNO=	16.690	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	16.690	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	16.870	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	16.870	PROFILE= 1	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	16.870	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	16.870	PROFILE= 2	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	17.300	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	17.300	PROFILE= 1	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	17.300	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	17.300	PROFILE= 2	MINIMUM SPECIFIC ENERGY
WARNING	SECNO=	17.560	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	17.780	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	17.780	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	18.060	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	18.060	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	18.340	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION	SECNO=	18.950	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	18.950	PROFILE= 1	MINIMUM SPECIFIC ENERGY
WARNING	SECNO=	18.950	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	19.160	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	19.160	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION	SECNO=	19.380	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	19.380	PROFILE= 1	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	19.380	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	19.380	PROFILE= 2	MINIMUM SPECIFIC ENERGY
WARNING	SECNO=	19.580	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	19.580	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	20.230	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	20.230	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	20.390	PROFILE= 1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	20.390	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING	SECNO=	22.620	PROFILE= 2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=     22.810  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     23.980  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     23.980  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=     24.310  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     24.550  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.550  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     24.990  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.990  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     24.990  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     24.990  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     25.270  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     25.480  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     25.770  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.770  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     25.770  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.770  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     25.920  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.920  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     25.920  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     25.920  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     26.140  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     26.140  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     26.300  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     26.300  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     26.300  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     26.300  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     26.300  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     26.300  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     26.480  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     26.480  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     26.480  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     26.480  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     26.720  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     26.720  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     26.890  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     26.890  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     26.890  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     26.890  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     26.890  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     26.890  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=     27.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     27.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     27.320  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.320  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     27.320  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.320  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     27.510  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.510  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     27.510  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.510  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     27.640  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.640  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     27.640  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.640  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     27.760  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.760  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     27.760  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     27.760  PROFILE=  2  MINIMUM SPECIFIC ENERGY
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FLOODWAY DATA, SKUNK CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
16.690	710.	2811.	11.1	1678.8	1678.8	0.0
16.870	900.	3169.	9.9	1690.7	1690.1	0.6
17.100	949.	3958.	7.9	1702.7	1701.7	1.0
17.300	870.	3224.	9.7	1712.4	1711.8	0.6
17.560	950.	4982.	6.3	1722.5	1721.8	0.7
17.780	809.	3084.	10.1	1730.7	1731.0	-0.3
18.060	610.	4109.	7.6	1744.0	1743.5	0.5
18.340	910.	3801.	8.2	1754.2	1754.2	0.0
18.720	770.	4037.	7.0	1769.9	1769.5	0.4
18.950	790.	2867.	9.8	1780.7	1780.6	0.1
19.160	680.	4109.	6.8	1790.6	1790.4	0.2
19.380	700.	2534.	11.1	1800.0	1800.0	0.0
19.580	730.	3384.	8.3	1812.9	1812.9	0.0
19.920	1170.	4202.	6.7	1826.3	1826.1	0.2
20.230	800.	2878.	9.8	1841.7	1841.2	0.5
20.390	850.	3733.	7.5	1850.6	1849.8	0.8
20.730	780.	3097.	9.1	1865.5	1865.2	0.3
21.000	700.	3225.	8.7	1879.3	1878.7	0.6
21.240	660.	3470.	8.1	1889.5	1889.1	0.4
21.590	1410.	4106.	6.8	1907.2	1907.4	-0.2
21.850	1330.	4229.	6.6	1922.1	1921.7	0.4
22.060	1077.	3830.	7.3	1932.4	1932.2	0.2
22.250	1230.	3704.	7.6	1941.0	1940.5	0.5
22.620	730.	2507.	9.5	1962.9	1963.1	-0.2
22.810	600.	3202.	7.4	1973.5	1972.8	0.7
23.090	630.	2921.	8.1	1984.5	1984.1	0.4
23.420	420.	2231.	10.7	2002.7	2002.0	0.7
23.720	460.	2205.	5.7	2017.3	2017.0	0.3
23.980	210.	1100.	11.4	2026.6	2026.6	0.0
24.310	514.	2049.	6.1	2044.3	2043.9	0.4
24.550	340.	1349.	9.3	2055.1	2054.8	0.3
24.780	280.	1418.	6.6	2066.2	2065.3	0.9
24.990	300.	1030.	9.1	2076.7	2076.7	0.0
25.270	710.	1916.	4.9	2089.8	2088.9	0.9
25.480	724.	1105.	8.5	2098.9	2098.0	0.9
25.770	650.	1035.	7.0	2121.1	2120.1	1.0
25.920	685.	1364.	5.3	2131.6	2131.5	0.1
26.140	74.	36756.	0.2	2132.8	2132.8	0.0
26.300	706.	1009.	7.1	2153.6	2153.6	0.0
26.480	748.	1028.	7.0	2164.4	2164.4	0.0

26.720	148.	72731.	0.1	2165.8	2165.8	0.0
26.890	448.	1061.	6.8	2190.4	2190.4	0.0

FLOODWAY DATA, SKUNK CREEK

PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
27.000	481.	872.	8.3	2196.4	2196.4	0.0
27.320	201.	495.	7.4	2220.4	2220.4	0.0
27.510	288.	609.	6.0	2235.7	2235.7	0.0
27.640	137.	375.	9.7	2245.5	2245.5	0.0
27.760	80.	320.	11.4	2254.7	2254.7	0.0

APPENDIX B

DEADMAN WASH HEC-2
INPUT/OUTPUT

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SF      Split Flow Analysis for Multiple Pipe Culverts at Joy Ranch Road      SF    038
TW      Weir Flow Calculation for Joy Ranch Road Overtopping                  TW    050
WS    3   6.467   6.654   6.280     3.0                                       WS    052
WC    0    1686     250  1687.3     650    1691                              WC    051
EE                                                                            EE    011
C                                                                             C     006
C     64                                                                      C     006
C  6.021  NC card was used - channel = 0.055, overbanks = 0.070.              C     006
C  6.280  Q changed to 9,680 cfs at C10M (Joy Ranch Road).                    C     006
C  6.280  Contraction and expansion values changed to 0.3 and 0.5             C     006
C  6.280  for multiple pipe culverts at Joy Ranch Road.                       C     006
C  6.280  Split flow returns to this section.                                 C     006
C  6.362  ET record (Fields 7 & 8) was used to model left ineffective flow area.C   006
C  6.363  Downstream face of multiple pipe culverts only 2-72" were considered. C   006
C  6.363  Special culvert method was used including overtopping analysis.     C     006
C  6.363  Silt elevation of 1672.22 was specified on X3 card.                 C     006
C  6.371  Upstream face of multiple pipe culverts only 2-72" were considered. C     006
C  6.467  Split flow was analyzed from SECNO 6.467 to SECNO 6.654.            C     006
C  6.467  The split flow returns at SECNO 6.280.                              C     006
C  6.751  The area of the stock tank (CF Tank) is ineffective,                C     006
C  6.751  GR cards were modified to ignore it.                                C     006
C  6.751  Q changed to 9,770 cfs at C10L (CF Tank).                           C     006
C  7.042  The depressed area in the unnamed stock tank is ignored,            C     006
C  7.042  GR cards were modified.                                             C     006
C  7.133  The area in the pond is ignored, GR cards were modified.            C     006
C  7.228  The area in the pond is ignored, GR cards were modified.            C     006
C  7.587  Q changed to  9,980 cfs at C10J (just 1,050' west of I-17).         C     006
C  7.738  NC card was used - channel = .055, overbanks = .070.                C     006
C  7.738  Contraction and expansion values changed to .6 and .8               C     006
C  7.738  for I-17 southbound and northbound bridges.                         C     006
C  7.738  Q changed to 9,440 cfs at C10H (I-17 bridges).                      C     006
C  7.766  NC card was used - channel = .080, overbanks = .095 for             C     006
C  7.766  dense vegetation.                                                   C     006
C  7.769  Downstream face of the I-17 southbound bridge.                      C     006
C  7.769  NC card was used to change XNCH to .013.                            C     006
C  7.769  Special bridge method was used to determine the class of low flow.  C     006
C  7.769  4-Span Bridge, Bridge Opening is 128 ft, total pier width is 12 ft, C     006
C  7.769  L = 45 ft (Incl. 100% clogging factor).                             C     006
C  7.778  Upstream face of the I-17 southbound bridge.                        C     006
C  7.785  Cross section between two bridges, NC card was used to change       C     006
C  7.785  XNCH = .080.                                                        C     006
C  7.792  Downstream face of the I-17 northbound bridge.                      C     006
C  7.792  NC card was used to change XNCH to .013.                            C     006
C  7.792  Special bridge method was used to determine the class of low flow.  C     006
C  7.792  4-Span Bridge, Bridge Opening is 122 ft, total pier width is 12 ft, C     006
C  7.792  L = 44 ft (Incl. 100% clogging factor).                             C     006
C  7.800  Upstream face of the I-17 northbound bridge.                        C     006
C  7.812  The confluence with Stream No. 7 & 8.                               C     006
C  7.812  The depressed area on right overbank is ineffective,                C     006
C  7.812  GR cards were modified to ignore it. ET card was used for contraction.C   006
C  7.812  NC card was used - channel = .075, overbanks = .095.                C     006
C  7.812  Contraction and expansion values changed to .3 and .5               C     006
C  7.872  Contraction and expansion values changed to .1 and .3               C     006
C  7.872  NH cards were used for SECNO 7.872 to SECNO 8.016.                  C     006
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C  7.872  ET card (Fields 7 & 8) was used for bridge contraction.                C      006
C  8.016  Q changed to 6,220 cfs at the confluence with Stream No. 4.             C      006
C  8.016  Contraction and expansion values changed to .1 and .3                  C      006
C  8.111  Q is 6,220 cfs at the confluence with Stream No. 4.                    C      006
C  8.111  NC card was used - channel = .075, overbanks = .095                    C      006
C  8.373  Q changed to 4,480 cfs at the confluence with Stream No. 3.            C      006
C  8.373  NC card was used - channel = .065, overbanks = .080                    C      006
C  8.485  Q changed to 3,650 cfs at the confluence with Stream No. 2.            C      006
C  8.574  NH cards were used from SECNO 8.574 to SECNO 9.304.                    C      006
C  9.021  Q changed to 2,770 cfs at the confluence with Stream No. 1.            C      006
C  9.114  ET card (Fields 7 & 8) was used to model the ineffective flow area     C      006
C  9.114  on left overbank.                                                      C      006
C  9.400  NC card was used - channel = .065, overbanks = .080                    C      006
C  9.492  NC card was used - channel = .070, overbanks = .090                    C      006
C  9.586  Q changed to 1,840 cfs at future 29th Avenue.                          C      006
C 10.544  The upstream study limit on Deadman Wash at future 22nd Avenue.        C      006
C 10.544  Q changed to 1,020 cfs at future 22nd Avenue.                          C      006
T1        Deadman Wash Floodplain Delineation Study                              T1     039
T2        Natural Profile Run for Deadman Wash, SECNO 6.021 to SECNO 10.544      T2     040
T3        Deadman Wash 100-year Q   Subcritical Flow,   July 1992 (revised 11/92) T3    041
J1            2                                                   1667.56       J1     018
J2     1             -1                                  -1                    15J2     019
J3    38       43      1       8      42       3       2      26       5      39J3     020
J3    53        4     54     110     200                                        J3     020
QT     2     9480   9480                                                        QT     034
NC  .070     .070   .055      .1      .3                                        NC     029
ET                   9.1                                              9754   10021ET   014
X1 6.021       61  9971.7 10021.5       0       0       0                        X1     053
GR1667.6  9158.1  1667.0  9196.2  1667.0  9209.4  1667.1  9228.8  1664.4  9234.4GR     015
GR1666.5  9241.3  1666.9  9262.0  1667.3  9279.6  1665.8  9282.9  1666.0  9284.9GR     015
GR1666.9  9288.8  1666.9  9311.3  1666.5  9344.9  1666.5  9388.2  1666.8  9425.0GR     015
GR1667.9  9463.4  1667.5  9490.2  1667.3  9504.2  1668.0  9539.5  1668.4  9546.4GR     015
GR1668.0  9574.3  1667.3  9629.7  1666.1  9670.2  1664.7  9708.8  1664.2  9722.8GR     015
GR1665.2  9746.2  1664.9  9760.5  1662.7  9769.9  1662.0  9780.5  1663.0  9782.8GR     015
GR1664.4  9790.1  1665.0  9807.9  1665.5  9843.7  1664.6  9873.7  1663.8  9912.7GR     015
GR1663.0  9940.6  1664.3  9952.0  1664.3  9971.7  1658.6  9986.5  1658.0 10000.0GR     015
GR1658.0 10009.8  1667.9 10021.5  1668.5 10040.0  1669.4 10064.7  1669.2 10101.5GR     015
GR1669.8 10158.4  1670.0 10213.1  1670.0 10273.7  1669.9 10320.6  1670.4 10359.9GR     015
GR1670.1 10403.5  1670.1 10481.9  1670.0 10556.6  1670.1 10607.8  1670.9 10656.7GR     015
GR1671.9 10736.0  1672.7 10770.9  1672.9 10811.1  1673.0 10841.2  1673.0 10863.6GR     015
GR1674.3 10893.4                                                                GR     015
ET                   9.1                                              9650   10060ET   014
X1 6.108       53  9959.2 10046.2     380     420     459                        X1     053
GR1672.5  9208.6  1671.0  9324.7  1669.8  9397.4  1669.9  9433.6  1669.8  9488.5GR     015
GR1669.7  9557.0  1669.7  9609.6  1669.0  9650.5  1667.6  9674.8  1667.7  9706.8GR     015
GR1667.7  9728.3  1667.8  9750.2  1665.3  9760.8  1666.2  9772.1  1667.4  9789.9GR     015
GR1669.4  9815.7  1670.4  9836.3  1669.8  9860.8  1669.7  9897.4  1668.5  9940.0GR     015
GR1668.0  9959.2  1665.1  9972.7  1665.0  9983.5  1661.4  9994.4  1661.9 10000.0GR     015
GR1662.5 10016.7  1666.2 10031.5  1668.2 10046.2  1667.5 10068.6  1667.1 10092.9GR     015
GR1667.8 10107.1  1669.8 10122.6  1671.3 10136.7  1671.5 10166.5  1672.9 10204.4GR     015
GR1673.2 10237.1  1673.3 10245.4  1673.3 10287.6  1673.6 10344.8  1673.5 10391.7GR     015
GR1673.5 10445.5  1673.2 10486.3  1673.6 10536.5  1673.8 10571.7  1673.2 10596.9GR     015
GR1673.2 10626.2  1673.3 10678.8  1672.6 10730.2  1672.8 10755.1  1673.7 10763.9GR     015
GR1675.4 10796.3  1676.8 10836.9  1677.0 10837.4                                  GR     015
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ET                  9.1                                          9520   10100ET          014
X1 6.205      49  9973.4 10040.3     310     512     512                        X1          053
GR1675.1  9152.4  1672.3  9217.6  1672.0  9284.6  1671.6  9326.0  1671.0  9360.6GR        015
GR1670.9  9388.2  1671.3  9436.5  1670.9  9480.8  1670.6  9530.1  1670.5  9550.9GR        015
GR1668.9  9559.0  1668.2  9567.4  1670.4  9575.3  1670.1  9613.2  1670.8  9639.0GR        015
GR1671.5  9672.7  1672.4  9695.8  1672.3  9705.2  1669.7  9734.1  1672.0  9745.5GR        015
GR1673.1  9772.1  1673.3  9808.8  1672.7  9831.5  1673.2  9866.3  1672.9  9902.3GR        015
GR1672.5  9941.5  1672.6  9967.4  1671.8  9973.4  1667.0  9988.5  1667.0 10000.0GR        015
GR1667.9 10012.9  1668.1 10029.1  1671.7 10040.3  1670.9 10054.7  1670.1 10067.9GR        015
GR1671.4 10091.9  1672.8 10102.0  1671.4 10116.1  1670.1 10127.7  1671.4 10136.3GR        015
GR1673.0 10146.4  1675.3 10162.6  1675.2 10180.2  1676.2 10228.5  1677.3 10264.1GR        015
GR1677.4 10299.7  1678.3 10333.9  1680.2 10393.2  1680.4 10399.4                GR        015
QT     2    9680    9680                                                      QT          034
NC                              .3      .5                                    NC          029
ET                  9.1                                          9600   10084ET          014
X1 6.280      61  9986.5 10040.3     660     340     396                        X1          053
GR1678.8  9217.2  1677.8  9271.9  1677.7  9283.5  1677.1  9294.4  1676.9  9304.5GR        015
GR1677.6  9330.0  1678.1  9350.9  1677.7  9369.3  1677.9  9393.5  1678.0  9416.0GR        015
GR1677.2  9437.7  1678.2  9453.7  1677.5  9470.6  1678.0  9496.1  1677.4  9511.5GR        015
GR1675.3  9518.2  1676.3  9530.1  1674.4  9539.0  1675.9  9546.6  1675.9  9560.1GR        015
GR1676.4  9609.3  1676.6  9646.5  1676.6  9667.7  1676.2  9674.9  1675.5  9680.3GR        015
GR1676.9  9688.1  1677.0  9703.5  1676.4  9733.3  1676.3  9764.1  1676.0  9799.9GR        015
GR1675.3  9826.6  1676.0  9852.0  1676.6  9886.9  1676.6  9916.1  1676.4  9943.1GR        015
GR1676.1  9965.8  1675.7  9986.5  1668.8 10000.0  1668.1 10006.3  1669.0 10017.4GR        015
GR1671.7 10025.1  1673.4 10040.3  1674.1 10057.5  1673.8 10066.7  1673.0 10073.1GR        015
GR1674.0 10085.4  1675.8 10091.7  1676.1 10106.5  1675.2 10125.7  1675.2 10131.8GR        015
GR1672.3 10134.8  1674.3 10139.3  1674.5 10155.7  1676.8 10186.3  1678.8 10215.9GR        015
GR1679.0 10255.8  1679.7 10301.3  1680.3 10364.5  1680.6 10417.9  1681.7 10508.9GR        015
GR1682.3 10531.5                                                              GR          015
ET          7.1     9.1                         9444.8   10502    9750   10230ET          014
X1 6.362      45  9940.3 10090.2     600     340     433                        X1          053
GR1683.4  9166.0  1682.5  9313.1  1682.4  9356.8  1682.0  9386.6  1680.5  9397.6GR        015
GR1679.7  9414.3  1681.7  9429.5  1682.7  9444.8  1682.0  9477.7  1681.6  9530.1GR        015
GR1681.3  9579.1  1680.9  9647.8  1680.5  9699.6  1680.5  9783.2  1679.9  9834.5GR        015
GR1680.0  9865.8  1678.7  9876.8  1679.3  9911.7  1679.1  9940.3  1677.8  9956.6GR        015
GR1677.5  9965.4  1672.0  9982.8  1672.1  9994.5  1671.7 10000.0  1671.4 10010.4GR        015
GR1672.8 10023.5  1674.2 10034.1  1676.1 10043.0  1677.2 10055.4  1677.8 10071.3GR        015
GR1679.1 10090.2  1678.8 10119.3  1678.5 10152.2  1677.7 10184.6  1678.6 10208.4GR        015
GR1677.9 10218.4  1678.1 10221.1  1678.7 10241.5  1678.9 10268.6  1680.7 10309.1GR        015
GR1682.4 10353.9  1682.9 10394.9  1682.9 10430.6  1684.1 10479.5  1683.8 10501.8GR        015
NC                 .012                                                       NC          029
ET                  9.1                                           9750   10230ET          014
X1 6.363                                  4       4       4                        X1          053
X3    10 1672.22                                             1680.0  1680.0        X3          055
SC 2.012     0.5     3.0             6.0             45     1.1 1672.70 1672.22SC          037
ET                  9.1                                           9410   10260ET          014
X1 6.371      37  9894.6 10024.9      45      45      45                        X1          053
X2                    2          1680.4                                       X2          054
X3    10                                                                       X3          055
BT    -8    9046  1686.0            9135  1685.2            9425  1683.2        BT          005
BT         9735  1681.7           10000  1680.4           10265  1681.3        BT          005
BT        10400  1684.0           10595  1686.1                                BT          005
GR1686.0  9046.0  1684.8  9147.4  1683.7  9274.0  1683.4  9333.7  1682.9  9391.0GR        015
GR1682.8  9435.4  1682.5  9470.4  1682.0  9527.8  1681.9  9590.2  1681.4  9649.2GR        015
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GR1680.8  9720.9  1680.4  9771.0  1680.6  9801.9  1679.8  9826.7  1680.0  9863.8GR      015
GR1680.4  9894.6  1679.7  9929.5  1679.7  9967.4  1679.1  9974.9  1673.4  9985.4GR      015
GR1673.2 10000.0  1673.2 10021.1  1680.4 10024.9  1679.5 10061.6  1679.2 10067.0GR      015
GR1679.0 10104.1  1679.0 10138.4  1679.2 10169.1  1680.3 10208.9  1680.0 10236.3GR      015
GR1679.8 10269.0  1680.6 10296.1  1681.5 10334.9  1680.9 10369.2  1683.6 10403.8GR      015
GR1683.7 10445.9  1686.1 10595.0                                                 GR      015
ET                   9.1                                        9410   10260ET          014
X1 6.372                              4       4       4          .001        X1          053
NC  .080    .080    .065      .1      .3                                     NC          029
ET                   9.1                                        9500   10054ET          014
X1 6.467      37  9965.2 10038.3     250     580     502                     X1          053
GR1686.0  9358.0  1684.3  9557.8  1683.9  9584.9  1684.5  9600.0  1684.7  9655.3GR      015
GR1684.7  9705.8  1683.5  9740.6  1683.7  9767.8  1682.5  9790.5  1683.5  9810.1GR      015
GR1682.5  9816.1  1680.6  9820.4  1680.6  9825.7  1682.9  9832.0  1683.7  9852.6GR      015
GR1684.5  9896.0  1684.8  9933.3  1684.9  9934.0  1684.8  9956.1  1683.8  9965.2GR      015
GR1681.2  9972.9  1678.2  9979.8  1677.9  9994.1  1677.8 10000.0  1677.9 10006.2GR      015
GR1679.3 10016.1  1680.4 10026.8  1682.5 10038.3  1682.6 10053.2  1682.1 10066.7GR      015
GR1680.9 10086.3  1681.2 10100.5  1682.5 10110.0  1682.5 10121.3  1685.2 10146.7GR      015
GR1686.7 10191.2  1687.7 10221.2                                                 GR      015
ET                   9.1                                        9700   10030ET          014
X1 6.558      36  9970.3 10022.4     420     480     480                     X1          053
GR1690.3  9061.0  1687.3  9550.6  1685.7  9570.4  1686.2  9578.4  1686.4  9596.0GR      015
GR1686.3  9613.1  1687.1  9633.0  1687.1  9660.5  1686.7  9707.2  1686.0  9741.2GR      015
GR1686.8  9793.0  1686.8  9825.7  1686.7  9826.5  1686.8  9861.9  1686.9  9886.6GR      015
GR1684.0  9896.6  1684.6  9902.9  1685.1  9911.1  1684.5  9917.5  1681.8  9925.9GR      015
GR1680.8  9931.8  1682.7  9944.7  1684.4  9955.6  1683.8  9970.3  1681.9  9984.7GR      015
GR1680.8  9992.1  1678.7 10000.0  1678.5 10008.3  1678.6 10016.2  1686.4 10022.4GR      015
GR1687.0 10036.1  1686.7 10047.2  1688.2 10078.3  1689.7 10125.6  1689.9 10128.2GR      015
GR1692.0 10200.0                                                                 GR      015
ET                   9.1                                        9750   10112ET          014
X1 6.654      42  9975.9 10035.7     450     460     507                     X1          053
GR1692.2  9278.0  1690.7  9560.7  1689.2  9579.8  1689.7  9589.1  1690.4  9613.1GR      015
GR1690.2  9646.3  1689.7  9660.7  1687.6  9665.1  1688.1  9669.6  1689.5  9677.2GR      015
GR1689.2  9687.1  1688.9  9705.1  1689.7  9730.2  1690.1  9753.0  1689.1  9776.1GR      015
GR1687.8  9786.5  1688.7  9793.3  1687.2  9802.3  1688.0  9809.1  1687.7  9816.8GR      015
GR1685.9  9819.2  1685.9  9821.8  1688.0  9829.6  1687.7  9838.4  1688.6  9856.2GR      015
GR1689.1  9895.7  1689.1  9927.9  1689.9  9959.5  1689.9  9975.9  1681.6  9986.6GR      015
GR1681.9  9991.8  1682.2 10000.0  1682.1 10013.2  1685.3 10024.5  1689.1 10035.7GR      015
GR1688.8 10050.6  1687.5 10065.3  1687.5 10078.8  1688.2 10097.0  1689.4 10122.2GR      015
GR1693.5 10171.6  1693.8 10197.3                                                 GR      015
QT     2    9770    9770                                                        QT      034
NC  .080    .080    .065                                                        NC      029
ET                   9.1                                        9700   10100ET          014
X1 6.751      35  9961.2 10040.5     485     500     512                     X1          053
GR1696.0  9288.0  1694.0  9482.0  1693.8  9490.0  1693.7  9520.0  1694.0  9530.0GR      015
GR1692.0  9794.2  1691.8  9811.4  1692.0  9834.5  1690.7  9850.0  1692.9  9855.4GR      015
GR1693.2  9861.0  1690.5  9870.8  1687.4  9883.7  1687.7  9887.3  1690.6  9897.3GR      015
GR1690.4  9910.7  1691.8  9926.5  1692.7  9938.1  1693.4  9954.3  1693.5  9961.2GR      015
GR1691.7  9970.5  1691.4  9975.5  1687.7  9985.8  1686.8  9991.8  1685.9 10000.0GR      015
GR1685.4 10010.2  1692.3 10026.2  1692.4 10040.5  1692.6 10072.2  1691.5 10101.7GR      015
GR1691.6 10108.3  1688.9 10112.8  1690.7 10119.6  1693.1 10137.6  1698.0 10190.0GR      015
ET                   9.1                                        9558   10100ET          014
X1 6.849      46  9965.3 10018.9     370     520     517                     X1          053
GR1699.4  9096.4  1698.0  9160.0  1698.5  9190.0  1698.0  9230.0  1697.0  9360.0GR      015
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GR1695.9  9502.9  1695.7  9521.6  1695.2  9548.0  1694.2  9583.7  1694.2  9607.2GR        015
GR1694.2  9613.6  1693.7  9618.9  1694.7  9626.4  1694.4  9654.9  1694.8  9700.4GR        015
GR1695.6  9738.6  1696.3  9767.5  1696.5  9826.0  1696.1  9863.6  1696.0  9895.4GR        015
GR1695.4  9927.1  1695.9  9951.5  1695.6  9965.3  1691.2  9981.0  1690.9  9993.2GR        015
GR1690.8 10000.0  1690.8 10005.2  1694.3 10018.9  1694.3 10038.5  1694.1 10040.9GR        015
GR1695.5 10057.4  1695.4 10068.5  1694.0 10084.3  1693.5 10093.9  1693.6 10099.8GR        015
GR1696.2 10106.2  1697.0 10122.9  1697.6 10149.9  1697.5 10167.5  1694.6 10175.2GR        015
GR1696.7 10193.3  1696.9 10215.1  1697.3 10260.2  1697.4 10282.3  1698.8 10306.8GR        015
GR1699.4 10310.3                                                                 GR        015
ET                   9.1                                          9840   10320ET        014
X1 6.945      48  9967.9 10019.3     695     375     507                         X1        053
GR1703.8  9495.0  1702.6  9546.5  1701.1  9590.1  1700.5  9620.3  1700.1  9651.4GR        015
GR1700.3  9672.4  1700.5  9710.4  1700.4  9750.7  1699.6  9785.2  1699.3  9814.7GR        015
GR1699.8  9839.7  1699.2  9864.0  1698.6  9876.6  1698.7  9893.4  1698.2  9900.6GR        015
GR1698.8  9918.6  1698.6  9934.5  1698.9  9956.1  1699.1  9967.9  1698.4  9976.1GR        015
GR1690.9  9987.4  1692.0  9997.4  1692.3 10000.0  1693.0 10006.3  1700.2 10019.3GR        015
GR1699.7 10029.7  1698.8 10058.5  1698.7 10123.7  1698.7 10183.9  1698.9 10216.8GR        015
GR1699.0 10229.2  1699.0 10235.0  1697.6 10241.2  1699.0 10247.9  1699.5 10257.3GR        015
GR1698.7 10267.8  1695.6 10276.7  1696.3 10290.9  1697.6 10310.1  1697.4 10330.0GR        015
GR1698.8 10348.1  1698.7 10360.2  1698.0 10366.6  1699.3 10382.8  1700.9 10427.8GR        015
GR1702.1 10477.7  1702.2 10492.6  1703.0 10600.0                                  GR        015
ET                   9.1                                          9940   10320ET        014
X1 7.042      55  9969.3 10027.6     650     360     512                         X1        053
GR1707.5  9546.2  1705.9  9557.3  1708.3  9567.6  1706.0  9576.1  1705.8  9611.1GR        015
GR1706.6  9628.3  1705.7  9640.0  1705.3  9679.8  1703.9  9721.4  1703.1  9762.3GR        015
GR1702.6  9790.0  1703.2  9815.4  1701.7  9857.1  1701.3  9896.5  1701.3  9918.5GR        015
GR1701.5  9943.9  1701.8  9969.3  1697.6  9983.0  1693.3  9985.9  1693.5  9991.8GR        015
GR1697.6 10000.0  1698.7 10011.6  1699.7 10027.6  1699.7 10044.0  1698.9 10053.8GR        015
GR1700.7 10064.5  1700.7 10072.8  1700.7 10079.3  1700.7 10081.7  1701.7 10095.8GR        015
GR1702.6 10105.2  1701.6 10134.1  1701.0 10163.1  1700.6 10203.4  1700.7 10234.8GR        015
GR1700.8 10254.8  1699.8 10261.6  1698.4 10265.8  1700.7 10272.8  1701.2 10283.0GR        015
GR1700.8 10291.5  1698.8 10298.0  1698.9 10301.9  1700.3 10308.7  1700.7 10316.7GR        015
GR1699.5 10323.2  1699.5 10327.2  1700.9 10335.0  1700.8 10350.6  1701.7 10395.5GR        015
GR1702.1 10426.6  1703.4 10460.0  1705.4 10507.0  1706.9 10539.7  1706.8 10541.0GR        015
ET                   9.1                                          9790   10162ET        014
X1 7.133      45  9957.8 10162.4     430     440     480                         X1        053
GR1709.5  9424.7  1709.0  9461.5  1707.4  9496.7  1707.2  9530.3  1706.4  9557.1GR        015
GR1705.7  9567.5  1706.2  9592.6  1708.1  9608.0  1705.0  9626.2  1704.6  9652.5GR        015
GR1703.6  9675.7  1703.5  9701.1  1703.0  9729.2  1703.0  9743.8  1703.7  9752.6GR        015
GR1704.1  9763.8  1704.1  9774.6  1704.1  9797.7  1704.1  9824.1  1704.1  9854.4GR        015
GR1704.1  9881.6  1704.1  9905.5  1704.1  9920.6  1704.1  9925.9  1704.1  9936.7GR        015
GR1704.1  9945.0  1703.4  9957.8  1701.4  9970.5  1697.5  9980.7  1697.8 10000.0GR        015
GR1698.0 10026.2  1697.9 10052.7  1698.0 10069.4  1698.6 10086.4  1702.8 10097.9GR        015
GR1703.1 10110.4  1702.9 10132.8  1702.8 10149.0  1705.1 10162.4  1706.0 10176.2GR        015
GR1705.5 10192.6  1705.6 10201.2  1707.5 10223.6  1709.1 10249.5  1709.3 10254.7GR        015
ET                   9.1                                          9870   10210ET        014
X1 7.228      38  9872.2 10206.6     502     502     502                         X1        053
GR1710.9  9535.1  1710.3  9574.5  1709.6  9617.6  1709.3  9635.5  1707.8  9643.3GR        015
GR1708.9  9650.2  1707.4  9657.3  1708.4  9687.5  1707.2  9697.7  1704.3  9714.5GR        015
GR1704.3  9724.7  1704.3  9734.7  1704.3  9751.8  1704.3  9762.7  1704.3  9788.8GR        015
GR1704.3  9804.7  1704.3  9812.2  1704.3  9817.3  1704.3  9831.4  1704.4  9849.4GR        015
GR1704.7  9872.2  1703.0  9891.4  1700.7  9904.0  1701.7  9920.2  1701.5  9960.3GR        015
GR1701.3 10000.0  1701.8 10058.5  1701.3 10101.1  1701.6 10154.4  1702.6 10178.4GR        015
GR1703.0 10192.4  1706.1 10206.6  1706.9 10217.9  1706.1 10231.1  1705.5 10240.6GR        015
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GR1707.0 10250.5  1708.5 10262.7  1712.8 10278.7                                GR          015
ET                  9.1                                             9870   10050ET        014
X1 7.323      44  9984.8 10031.3     540     450     502                          X1        053
GR1717.1  9690.9  1716.0  9701.7  1715.7  9726.5  1714.5  9734.1  1715.3  9744.6GR        015
GR1715.6  9769.6  1713.9  9797.3  1711.8  9814.6  1709.9  9824.8  1709.9  9831.8GR        015
GR1710.2  9849.2  1705.9  9864.5  1705.3  9869.6  1706.9  9877.6  1707.0  9894.1GR        015
GR1707.0  9913.4  1705.5  9925.2  1704.8  9935.4  1705.0  9943.6  1708.8  9952.6GR        015
GR1710.1  9964.9  1710.4  9978.3  1709.8  9984.8  1705.6  9988.0  1703.7  9990.7GR        015
GR1704.0 10000.0  1704.4 10011.5  1704.3 10020.1  1706.4 10031.3  1706.8 10047.1GR        015
GR1707.3 10059.8  1709.5 10074.3  1710.4 10090.1  1710.5 10113.2  1710.6 10135.4GR        015
GR1712.1 10161.5  1712.2 10190.0  1710.9 10214.7  1711.3 10239.1  1710.1 10252.2GR        015
GR1711.1 10263.7  1711.8 10269.7  1711.4 10302.3  1714.8 10326.4                GR        015
ET                  9.1                                             9820   10040ET        014
X1 7.417      30  9972.3 10036.8     490     500     496                          X1        053
GR1719.0  9650.0  1716.5  9693.0  1716.8  9710.5  1716.2  9727.4  1714.9  9747.4GR        015
GR1714.4  9765.9  1714.9  9791.7  1713.5  9814.6  1709.6  9828.7  1709.0  9840.9GR        015
GR1708.9  9859.7  1708.9  9882.6  1708.9  9892.6  1710.7  9911.7  1711.5  9929.5GR        015
GR1712.4  9955.6  1712.5  9972.3  1706.6  9984.7  1707.3  9999.1  1707.4 10000.0GR        015
GR1707.8 10015.8  1708.0 10024.0  1712.6 10036.8  1713.1 10050.9  1713.7 10069.6GR        015
GR1714.0 10080.0  1716.7 10086.5  1717.9 10096.7  1719.4 10109.4  1719.1 10111.1GR        015
ET                  9.1                                             9760   10045ET        014
X1 7.513      37  9972.8 10053.5     550     507     507                          X1        053
GR1724.4  9526.1  1722.8  9533.3  1722.4  9550.7  1721.2  9581.5  1720.3  9593.1GR        015
GR1720.6  9625.6  1721.2  9650.3  1720.6  9666.6  1718.5  9671.4  1716.8  9680.2GR        015
GR1717.2  9688.7  1720.3  9691.0  1720.5  9698.9  1719.9  9707.9  1716.8  9717.9GR        015
GR1715.5  9725.6  1716.6  9744.0  1716.6  9773.7  1716.5  9794.8  1718.6  9810.5GR        015
GR1719.2  9828.6  1720.2  9860.4  1720.1  9871.3  1720.3  9882.2  1720.0  9896.6GR        015
GR1719.5  9917.7  1718.9  9940.8  1717.6  9958.1  1716.8  9972.8  1713.1  9984.6GR        015
GR1710.9  9993.9  1711.0 10000.0  1711.5 10011.8  1712.2 10026.0  1713.6 10033.3GR        015
GR1725.5 10053.5  1731.1 10067.4                                                GR        015
QT     2    9980    9980                                                        QT        034
ET                  9.1                                             9570   10034ET        014
X1 7.587      52  9952.4 10033.7     290     391     391                          X1        053
GR1728.0  9318.0  1724.0  9367.5  1723.0  9386.0  1723.6  9404.2  1722.5  9417.9GR        015
GR1722.0  9429.9  1722.4  9435.7  1723.8  9450.5  1724.6  9470.1  1724.6  9491.0GR        015
GR1724.3  9510.7  1723.5  9525.0  1722.7  9536.0  1723.0  9552.3  1722.3  9570.8GR        015
GR1723.5  9583.3  1722.7  9601.8  1722.4  9626.9  1721.8  9641.0  1718.8  9651.8GR        015
GR1717.4  9655.3  1717.6  9659.6  1719.0  9669.7  1718.5  9684.2  1718.7  9691.5GR        015
GR1722.1  9701.0  1722.3  9706.2  1718.4  9715.0  1720.0  9720.6  1722.6  9734.3GR        015
GR1723.2  9748.3  1724.0  9765.7  1723.9  9792.2  1724.1  9814.1  1723.5  9845.2GR        015
GR1722.6  9877.0  1722.1  9902.9  1721.3  9915.8  1721.8  9938.7  1721.1  9952.4GR        015
GR1718.4  9966.0  1717.9  9982.6  1716.6  9992.0  1715.6 10000.0  1715.9 10006.7GR        015
GR1717.9 10018.3  1723.2 10033.7  1726.1 10050.0  1727.7 10067.8  1728.8 10095.4GR        015
GR1730.8 10126.0  1730.8 10129.3                                                GR        015
NC  .070    .070    .055                                                        NC        029
ET                  9.1                                             9650   10045ET        014
X1 7.663      48  9974.3 10044.2     280     430     401                          X1        053
GR1729.0  9470.0  1729.2  9486.5  1726.7  9505.5  1725.4  9518.2  1724.6  9523.9GR        015
GR1723.9  9540.7  1723.3  9560.3  1723.8  9572.7  1722.7  9587.7  1723.2  9596.1GR        015
GR1724.9  9612.5  1725.5  9641.1  1725.6  9656.0  1725.7  9686.1  1724.7  9713.7GR        015
GR1724.5  9741.9  1724.2  9761.3  1723.7  9787.3  1723.3  9812.2  1723.0  9831.5GR        015
GR1723.3  9846.0  1723.3  9856.1  1721.9  9859.8  1723.2  9866.3  1723.5  9881.5GR        015
GR1725.0  9891.1  1725.3  9906.9  1725.2  9908.2  1725.6  9927.0  1724.5  9945.2GR        015
GR1723.4  9960.9  1722.7  9974.3  1719.6  9985.7  1718.8  9993.5  1718.4 10000.0GR        015
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GR1718.8 10015.0  1719.4 10029.4  1722.9 10044.2  1723.2 10063.4  1724.4 10088.8GR    015
GR1724.4 10112.2  1725.9 10133.6  1727.3 10154.8  1727.8 10195.9  1728.7 10224.1GR    015
GR1727.4 10229.6  1729.6 10250.8  1729.4 10259.5                                GR    015
QT     2    9440    9440                                                       QT    034
NC                            .6      .8                                       NC    029
ET                  9.1                                          9790   10108ET    014
X1 7.738      31  9967.8 10032.3     370     410     396                        X1    053
GR1731.0  9680.0  1727.9  9740.9  1725.4  9769.9  1725.2  9798.2  1725.7  9837.9GR    015
GR1726.9  9873.3  1727.3  9904.1  1728.5  9934.4  1727.6  9957.7  1725.8  9967.8GR    015
GR1720.8  9980.9  1720.2  9992.9  1718.8 10000.0  1718.8 10007.1  1720.5 10014.2GR    015
GR1725.6 10032.3  1726.8 10042.0  1725.6 10059.3  1726.4 10078.7  1725.9 10095.9GR    015
GR1726.5 10107.9  1726.4 10121.4  1726.3 10146.2  1727.0 10170.2  1728.6 10194.0GR    015
GR1728.9 10234.2  1729.4 10275.6  1729.8 10316.2  1730.4 10370.2  1730.6 10428.8GR    015
GR1730.6 10434.6                                                                GR    015
NC  .095    .095    .080                                                        NC    029
ET                  9.1                                          9950   10075ET    014
X1 7.766      22  9949.6 10075.6     110     160     148                        X1    053
GR1732.0  9701.6  1732.0  9737.1  1731.6  9812.3  1731.0  9890.0  1731.1  9936.4GR    015
GR1729.1  9949.6  1725.0  9968.1  1719.8  9990.7  1719.1 10000.0  1719.3 10021.1GR    015
GR1721.1 10052.5  1729.0 10075.6  1733.3 10087.6  1732.6 10106.0  1732.3 10155.5GR    015
GR1733.0 10223.7  1734.6 10297.7  1734.8 10395.8  1735.5 10464.4  1736.5 10577.2GR    015
GR1738.1 10664.6  1737.7 10679.7                                                GR    015
NC                 .013                                                         NC    029
ET                  9.1                                          9936   10064ET    014
X1 7.769       8  9936.0 10064.0      17      17      17                        X1    053
X3    10                                                   1734.0  1734.0        X3    055
GR1735.3  9815.0  1733.0  9936.0  1720.8 9936.01  1720.8  9962.0  1719.5  9966.0GR    015
GR1719.510063.99  1732.8 10064.0  1736.8 10410.0                                GR    015
SB  1.90     1.6     2.6             128      12    1500          1719.7  1719.5SB    036
ET                  9.1                                          9936   10064ET    014
X1 7.778      10  9936.0 10064.0      45      45      45                        X1    053
X2                    1  1733.0  1735.1                                        X2    054
X3    10                                                   1734.1  1734.1        X3    055
BT    -7  9815.0  1735.3          9936.0  1735.2  1733.0  9962.0  1735.2  1733.0BT    005
BT        9966.0  1735.1  1732.9 10034.0  1735.3  1733.0 10064.0  1735.2  1732.8BT    005
BT       10410.0  1736.8                                                         BT    005
GR1735.3  9815.0  1733.0  9936.0  1722.0 9936.01  1722.0  9962.0  1719.7  9966.0GR    015
GR1719.7 10034.0  1719.8 10038.0  1719.810063.99  1732.8 10064.0  1736.8 10410.0GR    015
NC                 .080                                                         NC    029
ET                  9.1                                          9927   10079ET    014
X1 7.785      30  9914.5 10085.1      38      38      38                        X1    053
GR1750.8  9303.1  1750.6  9339.8  1749.2  9399.0  1748.5  9438.4  1747.4  9476.3GR    015
GR1747.5  9511.0  1746.6  9559.9  1745.3  9615.2  1742.5  9650.9  1740.4  9689.0GR    015
GR1738.3  9721.2  1736.7  9763.1  1736.7  9800.5  1736.5  9839.0  1734.9  9873.0GR    015
GR1734.3  9898.9  1734.7  9914.5  1733.6  9924.1  1728.2  9936.3  1722.4  9962.5GR    015
GR1722.3  9979.6  1720.6  9993.7  1720.9 10000.0  1721.9 10015.8  1721.9 10030.8GR    015
GR1722.3 10052.6  1722.4 10064.0  1730.3 10074.4  1734.4 10085.1  1734.5 10101.5GR    015
NC                 .013                                                         NC    029
ET                  9.1                                          9939   10061ET    014
X1 7.792      12  9939.010061.01      35      35      35                        X1    053
X3    10                                                   1738.6  1738.6        X3    055
GR1739.5  9935.0  1738.2  9939.0 1722.92 9939.01 1722.92  9964.0 1722.17  9968.0GR    015
GR1722.2  9998.0 1722.22 10002.0 1722.22 10032.0 1722.99 10036.0 1722.99 10061.0GR    015
GR1737.810061.01  1739.2 10066.0                                                GR    015
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SB  1.90     1.6     2.6            122      12    1740         1722.94 1722.22SB   036
ET                   9.1                                          9939   10061ET   014
X1 7.800      12    9939 10061.01     44      44      44                      X1   053
X2                     1  1737.9  1739.2                                       X2   054
X3    10                                                 1738.7  1738.7        X3   055
BT   -10    9820  1739.7           9939  1739.4  1738.2 9964.01  1739.4 1738.20BT   005
BT          9968  1739.4 1738.07 9998.01  1739.2 1738.07   10000  1739.2        BT   005
BT         10002  1739.2 1737.86 10032.01  1739.2 1737.86 10061.01  1739.2  1737.8BT   005
BT         10265  1739.2                                                      BT   005
GR1739.5  9935.0  1738.2  9939.0 1724.02 9939.01 1724.02  9964.0 1723.82  9968.0GR   015
GR1723.8  9998.0 1722.94 10002.0 1722.94 10032.0 1723.74 10036.0 1723.74 10061.0GR   015
GR1737.810061.01  1739.0 10066.0                                             GR   015
NC  .095    .095    .075      .3      .5                                     NC   029
ET           7.1     9.1                                 10163.9    9950   10160ET   014
X1 7.812      26  9949.4 10163.9      64      64      64                      X1   053
GR1750.9  9868.8  1749.3  9880.1  1742.6  9901.1  1741.4  9915.1  1739.6  9928.1GR   015
GR1731.1  9949.4  1727.7  9963.3  1724.7  9989.8  1723.2 10000.0  1723.3 10008.2GR   015
GR1725.2 10017.8  1725.8 10031.9  1725.3 10042.8  1724.0 10055.3  1724.0 10059.9GR   015
GR1725.5 10071.7  1724.0 10084.9  1725.6 10094.7  1724.8 10106.5  1723.4 10116.4GR   015
GR1723.2 10122.8  1723.4 10129.1  1729.9 10144.3  1732.8 10163.9  1734.0 10187.5GR   015
GR1736.0 10700.0                                                             GR   015
NC                          .1      .3                                     NC   029
NH     5    .095  9973.5    .075 10089.0    .095 10471.1    .060 10520.5    .095NH   031
NH10994.                                                                     NH   031
ET           7.1     9.1                                 10600    9974   10520ET   014
X1 7.872      48  9973.5 10089.0     280     330     317                      X1   053
GR1751.8  9916.8  1745.4  9939.6  1739.4  9957.0  1732.6  9973.5  1727.9  9989.4GR   015
GR1727.0  9995.4  1725.7 10000.0  1726.0 10010.8  1729.7 10029.2  1729.6 10043.9GR   015
GR1728.7 10054.5  1731.6 10089.0  1731.3 10105.2  1731.3 10130.4  1730.9 10170.8GR   015
GR1730.8 10201.5  1730.3 10227.0  1732.4 10253.3  1732.7 10269.0  1732.9 10289.4GR   015
GR1733.8 10314.8  1733.0 10330.4  1732.4 10345.9  1732.0 10379.0  1731.3 10412.7GR   015
GR1731.4 10439.3  1731.0 10461.2  1731.3 10471.1  1728.0 10477.6  1726.7 10487.1GR   015
GR1726.6 10493.5  1727.1 10500.6  1729.0 10507.9  1732.5 10520.5  1732.6 10539.7GR   015
GR1731.4 10551.5  1730.0 10562.0  1731.8 10574.0  1730.5 10582.2  1730.0 10589.2GR   015
GR1732.2 10593.9  1732.8 10600.2  1731.5 10613.6  1732.8 10627.7  1733.3 10660.4GR   015
GR1733.1 10673.8  1734.0 10928.8  1736.2 10994.0                                GR   015
NH     5    .095  9986.8    .075 10028.9    .095 10380.7    .060 10448.1    .095NH   031
NH10940.                                                                     NH   031
ET           7.1     9.1                                 10525    9850   10450ET   014
X1 7.921      55  9986.8 10028.9     310     120     259                      X1   053
GR1759.6  9650.0  1749.3  9702.3  1741.8  9738.0  1737.5  9763.2  1734.9  9787.2GR   015
GR1732.1  9814.7  1732.2  9830.7  1732.1  9853.6  1731.3  9865.9  1731.6  9875.1GR   015
GR1732.3  9891.3  1732.4  9915.0  1731.8  9941.4  1732.7  9964.7  1732.2  9974.7GR   015
GR1730.6  9986.8  1728.1  9996.5  1727.9 10000.0  1727.7 10007.4  1729.8 10016.6GR   015
GR1732.3 10028.9  1732.4 10042.8  1732.0 10065.9  1731.4 10096.3  1732.0 10119.0GR   015
GR1732.0 10143.9  1731.2 10167.6  1732.8 10185.1  1733.5 10202.5  1733.8 10227.9GR   015
GR1733.7 10228.8  1733.6 10250.8  1731.9 10283.7  1731.9 10329.7  1733.2 10362.6GR   015
GR1732.9 10380.7  1729.8 10391.4  1727.5 10407.6  1726.4 10417.6  1726.5 10426.3GR   015
GR1728.7 10435.1  1731.6 10448.1  1732.7 10464.7  1732.2 10476.8  1730.1 10491.0GR   015
GR1732.2 10505.5  1729.9 10516.3  1732.8 10527.8  1731.7 10546.6  1732.9 10559.0GR   015
GR1733.2 10588.7  1733.2 10616.0  1734.0 10875.0  1736.0 10915.0  1737.0 10940.0GR   015
QT     2    6220    6220                                                      QT   034
NH     4    .095  9391.3    .080  9980.6    .075 10017.4    .095 10307.4      NH   031
ET                   9.1                                                  9850   10100ET   014
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X1 8.016      40  9980.6 10017.4     510     470     502                     X1  053
GR1744.3  9367.4  1742.0  9391.3  1739.6  9412.2  1738.9  9414.4  1739.2  9430.5GR  015
GR1737.9  9444.3  1736.7  9456.2  1737.0  9464.3  1737.0  9489.3  1736.7  9526.9GR  015
GR1736.7  9558.5  1736.6  9576.0  1736.6  9604.2  1737.0  9630.8  1737.7  9661.0GR  015
GR1738.5  9692.6  1738.5  9723.3  1739.2  9769.4  1739.0  9779.2  1739.2  9803.5GR  015
GR1739.2  9830.7  1738.1  9858.0  1735.7  9882.6  1735.0  9901.8  1734.2  9922.9GR  015
GR1734.2  9946.2  1734.6  9962.7  1734.9  9980.6  1730.1  9996.7  1729.9 10000.0GR  015
GR1730.2 10010.6  1734.9 10017.4  1735.2 10026.5  1734.6 10047.7  1735.7 10079.8GR  015
GR1736.1 10135.5  1736.6 10184.6  1737.9 10224.0  1741.9 10269.1  1743.2 10307.4GR  015
NC  .095    .095    .075                                                     NC  029
ET                   9.1                                          9760   10045ET  014
X1 8.111      25  9982.1 10012.7     502     502     502                     X1  053
GR1747.4  9517.4  1745.1  9563.0  1742.8  9604.9  1741.9  9655.2  1741.5  9701.4GR  015
GR1740.2  9758.2  1738.4  9794.0  1738.6  9818.9  1739.2  9848.0  1739.2  9882.1GR  015
GR1737.9  9913.3  1736.3  9948.2  1737.3  9974.0  1736.6  9982.1  1733.4  9992.2GR  015
GR1732.2  9996.2  1732.2 10000.0  1732.9 10005.6  1736.6 10012.7  1737.1 10034.4GR  015
GR1737.7 10052.1  1741.0 10070.6  1743.3 10102.9  1744.8 10142.7  1745.8 10149.0GR  015
ET                   9.1                                          9750   10036ET  014
X1 8.187      19  9967.4 10036.8     401     401     401                     X1  053
GR1751.7  9509.3  1748.4  9555.5  1744.4  9602.1  1743.4  9631.3  1742.7  9641.2GR  015
GR1743.2  9661.2  1742.4  9726.9  1742.5  9779.6  1742.7  9833.8  1742.3  9885.5GR  015
GR1741.3  9935.2  1741.5  9967.4  1738.6  9988.3  1737.3 10000.0  1736.7 10009.8GR  015
GR1739.0 10022.4  1743.0 10036.8  1747.1 10061.2  1748.7 10079.6                 GR  015
ET                   9.1                                          9800   10170ET  014
X1 8.278      38  9974.9 10034.2     430     510     480                     X1  053
GR1759.6  9431.0  1759.0  9475.4  1757.0  9520.3  1754.5  9548.2  1751.3  9595.2GR  015
GR1749.5  9624.4  1748.6  9652.4  1746.8  9682.4  1746.0  9706.7  1745.6  9720.4GR  015
GR1746.4  9748.4  1746.1  9794.4  1746.4  9834.6  1746.5  9869.9  1747.0  9900.8GR  015
GR1747.1  9934.4  1745.8  9953.8  1746.3  9968.5  1744.9  9974.9  1740.9  '985.9GR  015
GR1739.4  9999.1  1739.2 10000.0  1740.8 10008.5  1742.6 10018.1  1745.6 10034.2GR  015
GR1745.6 10047.3  1742.5 10061.1  1744.0 10077.3  1745.6 10101.4  1746.2 10143.9GR  015
GR1746.7 10164.0  1746.3 10211.5  1746.0 10261.8  1747.2 10303.7  1748.3 10350.4GR  015
GR1749.0 10390.8  1749.5 10401.7  1750.5 10420.0                                 GR  015
QT     2    4480    4480                                                     QT  034
NC  .080    .080    .065                                                     NC  029
ET                   9.1                                          9920   10150ET  014
X1 8.373      30  9956.0 10019.8     510     480     502                     X1  053
GR1763.9  9459.5  1761.6  9510.5  1758.4  9561.0  1754.3  9613.2  1751.8  9660.0GR  015
GR1751.2  9691.7  1752.1  9720.5  1752.4  9767.3  1752.9  9825.8  1752.5  9866.4GR  015
GR1751.3  9892.2  1749.1  9906.4  1749.0  9930.0  1748.5  9956.0  1747.0  9978.7GR  015
GR1746.3  9989.9  1745.3  9997.8  1744.8 10000.0  1745.6 10007.2  1749.0 10019.8GR  015
GR1749.9 10053.1  1749.8 10089.5  1748.8 10105.8  1749.8 10129.7  1750.3 10173.5GR  015
GR1750.3 10215.9  1750.3 10269.3  1751.6 10315.8  1752.6 10363.6  1753.9 10390.4GR  015
QT     2    3650    3650                                                     QT  034
ET                   9.1                                          9870   10140ET  014
X1 8.485      28  9975.8 10043.0     500     600     591                     X1  053
GR1760.4  9559.1  1759.2  9578.1  1757.9  9585.5  1760.2  9614.7  1759.6  9650.1GR  015
GR1758.4  9714.6  1756.6  9799.1  1755.2  9867.6  1754.5  9919.1  1754.9  9958.9GR  015
GR1754.1  9975.8  1752.0  9986.1  1750.4  9993.8  1750.3 10000.0  1750.4 10005.8GR  015
GR1752.2 10017.0  1754.9 10043.0  1754.2 10071.1  1752.4 10084.7  1753.8 10112.0GR  015
GR1755.9 10155.5  1756.8 10192.9  1756.1 10225.8  1755.5 10248.5  1757.4 10292.1GR  015
GR1758.9 10345.7  1760.4 10394.0  1761.5 10410.2                                 GR  015
NH     5    .080  9971.5    .065 10026.5    .080 10269.4    .070 10311.4    .080NH  031
NH10720.                                                                        NH  031
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ET                  9.1                                          9970   10350ET          014
X1 8.574      27  9971.5 10026.5     500     400     470                        X1        053
GR1776.4  9697.0  1775.9  9787.6  1774.7  9860.0  1771.9  9908.8  1764.2  9945.8GR       015
GR1758.2  9971.5  1755.7  9980.1  1755.2  9991.0  1755.7 10000.0  1756.6 10012.3GR       015
GR1760.0 10026.5  1759.8 10070.7  1760.1 10082.0  1758.7 10124.3  1757.7 10148.2GR       015
GR1760.2 10190.5  1759.8 10237.5  1758.0 10269.4  1755.9 10281.3  1757.9 10311.4GR       015
GR1758.9 10350.2  1758.9 10390.8  1758.2 10433.7  1758.1 10465.8  1758.9 10516.7GR       015
GR1760.0 10539.7  1764.0 10720.0                                                  GR       015
NH     5    .080  9992.3    .065 10016.2    .080 10444.8    .070 10456.2    .080NH        031
NH10780.                                                                          NH       031
ET                  9.1                                          9960   10400ET          014
X1 8.670      36  9992.3 10016.2     507     480     507                        X1        053
GR1775.3  9881.1  1770.7  9909.5  1763.7  9934.9  1761.1  9953.3  1761.4  9967.4GR       015
GR1761.1  9983.5  1760.0  9992.3  1757.9  9998.8  1757.1 10000.0  1758.4 10009.0GR       015
GR1761.0 10016.2  1762.1 10044.2  1764.0 10066.9  1763.9 10086.7  1763.7 10126.7GR       015
GR1762.7 10172.1  1761.3 10202.2  1763.0 10227.1  1763.0 10273.4  1763.4 10312.3GR       015
GR1762.5 10348.5  1761.8 10374.7  1762.1 10406.3  1761.7 10437.9  1761.3 10444.8GR       015
GR1759.6 10447.6  1759.6 10449.9  1761.8 10456.2  1760.2 10481.6  1761.3 10505.4GR       015
GR1761.8 10540.2  1762.0 10583.4  1762.6 10613.1  1763.1 10637.7  1764.3 10760.0GR       015
GR1766.0 10780.0                                                                  GR       015
NH     5    .080  9988.5    .065 10017.7    .080 10217.8    .070 10245.6    .080NH        031
NH11032.                                                                          NH       031
ET                  9.1                                          9980   10400ET          014
X1 8.763      27  9988.5 10017.7     510     440     491                        X1        053
GR1778.9  9880.2  1771.1  9919.2  1766.0  9942.1  1766.3  9974.7  1765.2  9988.5GR       015
GR1763.0  9996.1  1761.0 10000.0  1761.0 10000.0  1762.4 10009.4  1764.3 10017.7GR       015
GR1765.1 10038.1  1765.2 10067.1  1766.2 10087.7  1767.2 10111.7  1767.5 10111.8GR       015
GR1765.3 10159.4  1764.0 10192.3  1763.9 10217.8  1762.6 10225.8  1762.6 10233.7GR       015
GR1765.2 10245.6  1765.3 10278.7  1766.4 10314.2  1766.3 10323.0  1767.7 10533.0GR       015
GR1768.0 10928.0  1772.0 11032.0                                                  GR       015
NH     5    .080  9992.8    .065 10029.0    .080 10292.6    .070 10321.1    .080NH        031
NH10706.                                                                          NH       031
ET                  9.1                                          9880   10110ET          014
X1 8.853      28  9992.8 10029.0     440     520     475                        X1        053
GR1774.4  9839.7  1770.6  9876.7  1768.7  9910.8  1769.0  9941.8  1768.5  9969.3GR       015
GR1767.8  9992.8  1767.4  9999.1  1766.0 10000.0  1766.9 10012.0  1769.2 10029.0GR       015
GR1769.4 10058.1  1769.7 10107.3  1772.0 10179.0  1772.6 10207.5  1772.1 10253.4GR       015
GR1770.6 10278.6  1769.5 10292.6  1767.7 10302.7  1770.3 10321.1  1770.4 10350.9GR       015
GR1771.1 10376.0  1771.2 10404.9  1770.9 10458.8  1768.7 10500.8  1769.9 10537.9GR       015
GR1770.6 10568.2  1771.0 10606.0  1773.0 10706.0                                  GR       015
NH     5    .080  9982.1    .065 10019.9    .080 10619.4    .070 10642.6    .080NH        031
NH10920.                                                                          NH       031
ET                  9.1                                          9982   10300ET          014
X1 8.939      36  9982.1 10019.9     440     430     454                        X1        053
GR1787.6  9817.0  1785.5  9854.7  1783.2  9904.8  1781.1  9942.1  1778.4  9964.3GR       015
GR1772.8  9982.1  1769.0  9995.8  1768.1 10000.0  1769.0 10006.0  1771.9 10019.9GR       015
GR1772.1 10057.6  1773.5 10100.0  1773.5 10151.1  1774.7 10196.1  1773.8 10236.8GR       015
GR1773.1 10277.4  1774.0 10313.7  1775.3 10355.6  1774.7 10403.6  1774.7 10452.0GR       015
GR1774.5 10489.6  1774.0 10506.9  1774.8 10540.2  1775.2 10576.0  1774.9 10597.6GR       015
GR1773.2 10607.9  1773.8 10619.4  1772.8 10627.5  1773.8 10642.6  1773.2 10686.7GR       015
GR1774.1 10731.5  1774.6 10797.8  1774.1 10857.7  1774.4 10888.1  1775.2 10904.5GR       015
GR1776.5 10920.0                                                                  GR       015
QT     2   2770    2770                                                          QT       034
NH     5    .080  9981.1    .065 10035.6    .080 10502.8    .070 10521.9    .080NH        031
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NH10733.                                                                NH   031
ET                 9.1                                          9980  10300ET   014
X1 9.021      35  9981.1 10035.6     510     310     433                  X1   053
GR1782.4  9438.9  1782.9  9504.6  1781.4  9566.3  1781.5  9635.0  1781.0  9710.3GR   015
GR1781.9  9777.5  1782.8  9844.2  1783.2  9907.1  1782.3  9954.4  1776.9  9981.1GR   015
GR1774.1  9995.9  1774.0 10000.0  1775.7 10017.9  1776.9 10035.6  1776.1 10101.5GR   015
GR1777.7 10145.6  1777.1 10182.4  1777.0 10206.9  1777.8 10243.3  1777.8 10275.6GR   015
GR1778.0 10309.4  1779.1 10345.4  1778.3 10390.1  1778.7 10434.6  1777.7 10483.3GR   015
GR1776.2 10502.8  1773.9 10510.7  1775.5 10521.9  1777.9 10551.2  1776.9 10581.1GR   015
GR1777.7 10618.2  1776.9 10652.3  1776.2 10671.6  1780.4 10709.8  1780.7 10733.0GR   015
NH     5    .080  9980.5    .065 10026.5    .080 10454.2    .070 10473.1    .080NH   031
NH10611.                                                                NH   031
ET           7.1     9.1                         9824.3 10611.0    9845  10250ET   014
X1 9.114      37  9980.5 10026.5     400     470     491                  X1   053
GR1787.1  9406.3  1785.4  9464.0  1783.6  9507.9  1782.2  9524.4  1783.4  9547.7GR   015
GR1782.6  9592.7  1781.6  9636.2  1781.4  9684.6  1781.3  9728.9  1782.5  9774.8GR   015
GR1783.1  9824.3  1782.7  9844.8  1782.3  9898.3  1781.2  9946.1  1780.6  9980.5GR   015
GR1778.0  9990.8  1777.5  9994.7  1779.9 10000.0  1782.1 10026.5  1782.1 10075.4GR   015
GR1782.2 10120.0  1782.6 10142.2  1783.9 10169.2  1783.5 10194.4  1783.6 10240.4GR   015
GR1783.6 10287.5  1782.7 10317.3  1783.4 10354.6  1783.4 10401.0  1783.9 10439.5GR   015
GR1784.0 10454.2  1782.7 10459.4  1783.9 10473.1  1783.6 10509.6  1783.7 10531.6GR   015
GR1784.7 10574.0  1785.2 10611.0                                          GR   015
NH     5    .080  9989.4    .065 10025.7    .080 10467.2    .070 10489.5    .080NH   031
NH10710.                                                                NH   031
ET                 9.1                                          9974  10350ET   014
X1 9.210      33  9974.3 10025.7     530     400     507                  X1   053
GR1795.4  9587.8  1794.4  9667.2  1792.5  9733.3  1791.3  9778.0  1787.9  9806.1GR   015
GR1788.2  9841.7  1788.3  9898.2  1788.4  9947.2  1788.0  9974.3  1787.4  9989.4GR   015
GR1785.4  9996.9  1786.0 10000.0  1787.9 10025.7  1789.0 10053.0  1787.8 10122.2GR   015
GR1786.3 10198.0  1786.6 10246.2  1787.0 10284.6  1786.6 10331.3  1786.9 10369.4GR   015
GR1786.7 10417.4  1786.9 10435.8  1786.9 10446.8  1786.9 10467.2  1785.4 10482.7GR   015
GR1785.5 10489.5  1786.6 10510.7  1786.2 10546.1  1784.6 10562.2  1786.3 10588.1GR   015
GR1786.2 10598.2  1789.0 10698.0  1790.0 10710.0                          GR   015
NH     5    .080  9958.9    .065 10014.7    .080 10247.3    .070 10310.5    .080NH   031
NH10580.                                                                NH   031
ET                 9.1                                          9720  10100ET   014
X1 9.304      36  9958.9 10014.7     430     580     496                  X1   053
GR1796.6  9487.1  1796.2  9541.9  1795.3  9596.4  1794.5  9642.3  1793.9  9681.1GR   015
GR1791.5  9692.7  1792.8  9714.0  1792.2  9738.4  1791.5  9743.9  1793.7  9765.7GR   015
GR1794.4  9795.5  1794.8  9833.8  1794.4  9880.6  1793.2  9926.7  1793.6  9958.9GR   015
GR1792.4  9988.4  1791.0  9994.3  1792.4 10000.0  1793.7 10014.7  1794.8 10047.1GR   015
GR1794.9 10085.7  1794.2 10143.3  1796.1 10189.7  1796.2 10204.6  1794.8 10247.3GR   015
GR1793.7 10286.1  1791.8 10293.2  1794.4 10310.5  1794.6 10357.0  1794.5 10403.8GR   015
GR1794.4 10430.8  1792.6 10442.0  1794.9 10458.5  1794.1 10499.3  1795.2 10550.0GR   015
GR1796.2 10580.0                                                        GR   015
NC  .080    .080    .065                                                NC   029
ET                 9.1                                          9790  10020ET   014
X1 9.400      29  9982.5 10026.6     500     507     507                  X1   053
GR1804.0  9610.0  1801.5  9662.7  1799.2  9705.7  1798.7  9752.0  1799.1  9788.2GR   015
GR1799.6  9826.7  1800.4  9867.5  1800.4  9909.7  1800.0  9946.1  1799.4  9967.8GR   015
GR1800.0  9982.5  1799.1  9992.7  1797.8  9997.0  1798.1 10000.0  1799.5 10007.1GR   015
GR1800.4 10026.6  1800.1 10067.4  1800.3 10107.1  1800.6 10154.8  1802.2 10204.0GR   015
GR1802.3 10267.0  1802.1 10332.9  1802.4 10392.4  1802.5 10439.1  1801.7 10477.2GR   015
GR1803.2 10491.7  1803.5 10524.8  1804.0 10587.3  1803.9 10595.0          GR   015
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NC  .090    .090    .070                                                NC          029
ET                   9.1                                        9840   10050ET      014
X1 9.492      22  9990.1 10022.2     400     540     486                  X1          053
GR1808.1  9596.6  1807.7  9663.0  1806.7  9742.6  1806.4  9807.3  1804.7  9845.2GR   015
GR1804.0  9863.4  1803.6  9871.0  1805.3  9889.8  1805.2  9925.8  1805.0  9943.8GR   015
GR1806.1  9965.5  1805.7  9990.1  1803.9  9999.1  1803.7 10000.0  1804.6 10008.2GR   015
GR1805.1 10022.2  1805.2 10068.0  1806.8 10130.2  1807.8 10177.3  1810.1 10221.3GR   015
GR1812.0 10258.3  1811.6 10261.6                                          GR          015
QT     2    1840    1840                                                QT          034
ET                   9.1                                        9920   10080ET      014
X1 9.586      21  9978.6 10033.7     550     450     496                  X1          053
GR1814.8  9526.5  1814.8  9575.7  1815.1  9612.7  1815.0  9686.3  1814.5  9772.3GR   015
GR1813.6  9831.8  1811.4  9894.5  1811.8  9954.2  1811.7  9978.6  1810.7  9985.0GR   015
GR1808.6  9993.8  1808.4 10000.0  1810.0 10008.0  1811.3 10033.7  1811.6 10080.8GR   015
GR1813.3 10137.0  1814.9 10195.7  1814.0 10244.3  1813.4 10286.7  1815.3 10334.0GR   015
GR1817.4 10342.2                                                          GR          015
ET                   9.1                                        9930   10100ET      014
X1 9.682      27  9932.9 10020.5     480     510     507                  X1          053
GR1822.0  9455.7  1821.8  9543.5  1823.0  9630.3  1822.5  9707.5  1821.5  9787.4GR   015
GR1821.3  9860.1  1819.6  9909.7  1818.0  9932.9  1817.0  9945.1  1818.6  9967.8GR   015
GR1818.3  9990.0  1817.0 10000.0  1818.7 10020.5  1818.9 10064.1  1818.8 10087.5GR   015
GR1817.6 10097.8  1819.1 10117.7  1818.4 10144.3  1817.9 10157.7  1816.2 10160.5GR   015
GR1816.6 10169.2  1818.2 10184.2  1818.8 10217.6  1820.4 10278.1  1821.8 10321.9GR   015
GR1823.2 10366.2  1823.5 10422.6                                          GR          015
ET                   9.1                                        9960   10170ET      014
X1 9.776      33  9966.0 10015.6     490     480     496                  X1          053
GR1829.7  9454.7  1830.0  9528.4  1830.0  9607.6  1830.4  9670.6  1829.4  9738.2GR   015
GR1827.2  9780.7  1826.2  9808.6  1826.3  9842.0  1826.7  9860.1  1826.1  9866.6GR   015
GR1827.6  9891.0  1827.7  9934.4  1827.1  9966.0  1825.3  9990.0  1824.8 10000.0GR   015
GR1826.4 10015.6  1827.2 10047.0  1826.4 10072.7  1824.6 10080.4  1824.7 10088.1GR   015
GR1826.3 10101.3  1826.2 10118.7  1824.2 10122.2  1827.4 10134.7  1826.5 10148.9GR   015
GR1824.4 10156.8  1824.0 10163.2  1826.2 10191.1  1826.4 10232.6  1826.2 10269.9GR   015
GR1828.7 10331.7  1830.4 10406.8  1832.3 10460.2                          GR          015
ET                   9.1                                        9988   10180ET      014
X1 9.872      26  9988.4 10010.5     510     480     507                  X1          053
GR1840.3  9315.3  1840.0  9420.8  1838.6  9558.6  1835.5  9676.3  1835.0  9747.6GR   015
GR1835.3  9826.3  1836.2  9906.7  1836.1  9951.6  1835.0  9974.2  1832.5  9988.4GR   015
GR1829.7  9995.2  1829.8 10000.0  1831.0 10010.5  1833.7 10024.9  1833.8 10077.1GR   015
GR1833.9 10128.5  1832.3 10164.3  1831.0 10181.2  1833.2 10218.6  1834.1 10253.2GR   015
GR1833.8 10276.5  1832.1 10291.4  1833.3 10308.6  1831.9 10316.4  1833.8 10335.2GR   015
GR1835.9 10379.0                                                          GR          015
ET                   9.1                                        9991   10100ET      014
X1 9.966      19  9988.7 10021.8     470     520     496                  X1          053
GR1845.3  9578.0  1844.0  9649.8  1843.1  9698.5  1844.1  9769.0  1844.4  9846.2GR   015
GR1845.0  9916.1  1845.5  9938.2  1845.2  9974.9  1843.7  9988.7  1836.6 10000.0GR   015
GR1837.0 10007.0  1840.2 10021.8  1841.6 10065.2  1841.1 10101.4  1840.9 10134.7GR   015
GR1841.5 10183.5  1843.5 10239.2  1845.4 10294.5  1846.0 10336.0                GR    015
ET                   9.1                                        9900   10032ET      014
X110.058      19  9976.2 10038.5     490     440     486                  X1          053
GR1854.5  9495.1  1853.4  9568.9  1853.7  9637.1  1853.2  9691.8  1850.8  9725.0GR   015
GR1849.1  9747.9  1850.6  9789.1  1850.2  9813.3  1847.6  9828.5  1849.3  9852.5GR   015
GR1849.9  9909.1  1849.9  9946.4  1849.5  9976.2  1846.9  9992.8  1845.7 10000.0GR   015
GR1847.1 10011.7  1852.0 10038.5  1853.8 10086.9  1853.1 10111.7                GR    015
ET                   9.1                                        9880   10060ET      014
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X110.151       17  9881.6 10062.3     440     500     491                        X1   053
GR1856.8  9578.9  1856.4  9630.1  1855.4  9701.5  1854.8  9771.7  1855.1  9832.0GR   015
GR1854.8  9881.6  1852.8  9902.8  1853.0  9943.8  1853.5  9979.3  1853.1 10000.0GR   015
GR1853.8 10021.6  1852.3 10041.6  1853.6 10062.3  1858.6 10095.9  1861.3 10123.9GR   015
GR1863.0 10180.0  1863.0 10208.9                                                GR   015
ET                   9.1                                          9970   10080ET   014
X110.230       17  9980.0 10015.3     460     340     417                        X1   053
GR1866.9  9769.5  1864.9  9822.4  1861.7  9871.6  1861.1  9902.0  1860.7  9923.4GR   015
GR1861.0  9947.9  1860.5  9971.6  1859.5  9980.0  1858.0  9986.7  1857.3  9996.4GR   015
GR1856.8 10000.0  1860.0 10015.3  1861.6 10033.8  1860.7 10068.7  1860.6 10121.0GR   015
GR1861.6 10178.5  1863.3 10201.0                                                GR   015
ET                   9.1                                          9930   10020ET   014
X110.325       20  9950.0 10014.5     470     550     502                        X1   053
GR1873.3  9718.6  1872.1  9754.2  1871.5  9795.8  1872.1  9833.0  1872.0  9873.8GR   015
GR1871.0  9910.6  1870.4  9936.4  1869.5  9950.0  1868.4  9953.4  1866.9  9964.3GR   015
GR1867.6  9974.6  1868.9  9986.9  1869.2  9996.5  1867.6 10000.0  1870.7 10014.5GR   015
GR1871.7 10039.0  1869.4 10062.1  1874.2 10096.2  1876.9 10149.6  1877.8 10153.4GR   015
ET                   9.1                                          9985   10055ET   014
X110.419       17  9987.1 10034.2     510     420     496                        X1   053
GR1884.0  9717.6  1885.0  9777.5  1885.5  9855.0  1884.2  9913.2  1883.2  9947.7GR   015
GR1880.0  9960.4  1878.9  9987.1  1877.3  9996.2  1876.1 10000.0  1877.9 10011.4GR   015
GR1878.8 10034.2  1879.3 10058.6  1880.5 10094.4  1880.1 10133.9  1881.0 10169.3GR   015
GR1883.2 10210.6  1884.0 10211.5                                                GR   015
QT     2    1020    1020                                                        QT   034
ET                   9.1                                          9954   10015ET   014
X110.544       14  9969.4 10009.1     650     650     660                        X1   053
GR1898.7  9789.3  1896.6  9834.8  1893.8  9863.7  1894.1  9900.8  1891.9  9920.5GR   015
GR1893.0  9940.8  1892.2  9969.4  1890.2  9985.2  1889.3  9999.2  1889.7 10000.0GR   015
GR1891.1 10009.1  1892.9 10032.3  1896.4 10056.7  1898.3 10062.8                GR   015
EJ                                                                              EJ   012
T1      Deadman Wash Floodplain Delineation Study                               T1   039
T2      Floodway Run for Deadman Wash, SECNO 6.021 to SECNO 10.544              T2   040
T3      Deadman Wash 100-year Q   Subcritical Flow,   July 1992 (revised 11/92) T3   041
J1             3                                                   1668.34      J1   018
J2     2              -1                                -1                    15J2   019
ER                                                                              ER   013
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THIS RUN EXECUTED 3JAN96 15:43:52

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Deadman Wash 100-year Q

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	
	6.021	9480.00	1667.56	9.56	1658.00	1668.55	1667.42	11.02	130.86	0.00	9160.63	734.01	100
	6.021	9480.00	1668.34	10.34	1658.00	1669.46	1667.63	10.85	113.08	0.00	9754.00	267.00	100
*	6.108	9480.00	1671.44	10.04	1661.40	1671.85	1670.46	6.98	51.85	459.00	9290.78	866.51	101
*	6.108	9480.00	1672.09	10.69	1661.40	1672.66	1670.56	7.51	53.28	459.00	9650.00	410.00	100
	6.205	9480.00	1673.93	6.93	1667.00	1674.26	1673.01	6.93	68.41	512.00	9179.73	973.20	101
	6.205	9480.00	1674.70	7.70	1667.00	1675.19	1673.58	7.73	71.54	512.00	9520.00	580.00	101
	6.280	9680.00	1678.07	9.97	1668.10	1678.92	1678.00	10.35	111.28	396.00	9256.99	940.63	102
	6.280	9680.00	1678.81	10.71	1668.10	1679.78	1678.44	10.52	101.05	396.00	9600.00	484.00	100
*	6.362	8417.46	1681.66	10.26	1671.40	1682.06	1680.07	5.94	42.46	433.00	9522.06	812.38	103
*	6.362	7341.56	1682.10	10.70	1671.40	1682.41	1679.96	5.06	28.13	433.00	9750.00	480.00	102
*	6.363	8417.46	1681.32	9.10	1672.22	1682.41	1680.17	8.78	4.85	4.00	9391.58	784.76	103
*	6.363	7341.56	1681.91	9.69	1672.22	1682.60	1680.14	6.99	2.70	4.00	9750.00	480.00	102
*	6.371	8417.46	1682.37	9.17	1673.20	1683.90	1682.35	11.02	10.58	45.00	9485.06	903.01	103
*	6.371	7341.56	1682.17	8.97	1673.20	1683.58	1682.17	10.42	10.02	45.00	9508.56	751.44	102
	6.372	8417.46	1682.38	9.18	1673.20	1683.90	1682.32	11.02	10.58	4.00	9485.06	903.01	103
	6.372	7341.56	1682.17	8.97	1673.20	1683.58	1682.09	10.42	10.02	4.00	9508.56	751.44	102
*	6.467	8417.46	1685.48	7.68	1677.80	1686.40	1685.48	9.83	175.28	502.00	9418.86	736.21	101
*	6.467	7341.56	1685.66	7.86	1677.80	1686.67	1685.66	9.92	171.60	502.00	9500.00	554.00	100
*	6.558	8417.46	1689.67	11.17	1678.50	1689.93	1688.13	6.07	42.61	480.00	9164.04	960.58	101
*	6.558	7341.56	1690.00	11.50	1678.50	1690.39	1687.64	6.53	46.98	480.00	9700.00	330.00	100

6.654	9680.00	1692.18	10.58	1681.60	1692.63	1691.16	7.64	73.65	507.00	9282.97	872.65	101
6.654	9680.00	1692.78	11.18	1681.60	1693.41	1691.30	8.26	78.36	507.00	9750.00	362.00	101

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	
	6.751	9770.00	1695.71	10.31	1685.40	1696.00	1694.26	6.04	62.18	512.00	9316.06	849.46	101
	6.751	9770.00	1696.48	11.08	1685.40	1696.89	1694.34	6.52	62.12	512.00	9700.00	400.00	101
	6.849	9770.00	1698.52	7.72	1690.80	1698.77	1697.38	6.32	65.22	517.00	9136.22	1165.74	103
	6.849	9770.00	1699.25	8.45	1690.80	1699.58	1697.44	6.57	61.14	517.00	9558.00	542.00	101
	6.945	9770.00	1702.03	11.13	1690.90	1702.33	1700.83	6.60	66.34	507.00	9563.08	911.68	104
	6.945	9770.00	1702.68	11.78	1690.90	1703.08	1701.02	7.15	69.42	507.00	9840.00	480.00	103
	7.042	9770.00	1704.81	11.51	1693.30	1705.07	1703.17	5.87	53.82	512.00	9694.20	799.06	104
	7.042	9770.00	1705.62	12.32	1693.30	1706.05	1703.48	6.94	65.08	512.00	9940.00	380.00	103
	7.133	9770.00	1706.89	9.39	1697.50	1707.22	1704.65	5.20	40.68	480.00	9540.58	659.00	102
	7.133	9770.00	1707.82	10.32	1697.50	1708.18	1704.53	5.15	34.11	480.00	9790.00	372.00	101
	7.228	9770.00	1708.47	7.77	1700.70	1708.66	1704.95	3.67	20.84	502.00	9639.79	618.04	102
	7.228	9770.00	1709.26	8.56	1700.70	1709.50	1704.80	3.94	20.67	502.00	9870.00	340.00	102
*	7.323	9770.00	1711.17	7.47	1703.70	1712.74	1711.17	12.84	283.66	502.00	9817.98	372.68	102
*	7.323	9770.00	1711.32	7.62	1703.70	1713.69	1711.32	14.90	370.27	502.00	9870.00	180.00	100
*	7.417	9770.00	1717.17	10.57	1706.60	1717.59	1713.97	6.57	47.72	496.00	9681.52	408.95	100
*	7.417	9770.00	1718.07	11.47	1706.60	1718.56	1713.88	6.63	42.61	496.00	9820.00	220.00	100
*	7.513	9770.00	1720.78	9.88	1710.90	1722.07	1720.47	10.91	161.32	507.00	9586.89	430.02	100
*	7.513	9770.00	1721.27	10.37	1710.90	1722.95	1720.99	11.89	176.83	507.00	9760.00	285.00	100
*	7.587	9980.00	1725.30	9.70	1715.60	1725.75	1723.94	7.21	74.50	391.00	9351.40	694.11	100
*	7.587	9980.00	1725.95	10.35	1715.60	1726.40	1723.92	6.87	60.27	391.00	9570.00	464.00	100
	7.663	9980.00	1727.39	8.99	1718.40	1727.85	1726.31	7.53	52.33	401.00	9500.28	661.69	101
	7.663	9980.00	1727.88	9.48	1718.40	1728.64	1726.84	8.92	67.66	401.00	9650.00	395.00	100
	7.738	9440.00	1729.63	10.83	1718.80	1730.35	1728.83	8.91	68.01	396.00	9706.94	591.85	102
	7.738	9440.00	1730.40	11.60	1718.80	1731.26	1729.08	9.15	63.68	396.00	9790.00	318.00	101
	7.766	9440.00	1730.85	11.75	1719.10	1732.03	1727.59	8.71	128.31	148.00	9938.06	142.70	100
	7.766	9440.00	1731.53	12.43	1719.10	1732.55	1727.61	8.11	105.32	148.00	9950.00	125.00	100
*	7.769	9440.00	1731.80	12.30	1719.50	1732.39	1725.28	6.14	1.31	17.00	9936.00	128.00	100
*	7.769	9440.00	1732.31	12.81	1719.50	1732.84	1725.29	5.89	1.15	17.00	9936.00	127.99	100
	7.778	9440.00	1732.18	12.48	1719.70	1732.77	0.00	6.17	1.33	45.00	9936.00	128.00	100
	7.778	9440.00	1732.75	13.05	1719.70	1733.29	0.00	5.89	1.15	45.00	9936.00	127.99	100
*	7.785	9440.00	1732.15	11.55	1720.60	1732.96	1728.00	7.22	89.27	38.00	9927.37	151.86	100
*	7.785	9440.00	1732.73	12.13	1720.60	1733.44	1728.02	6.77	72.56	38.00	9927.00	152.00	100

*	7.792	9440.00	1732.14	9.97	1722.17	1733.15	1728.22	8.06	2.94	35.00	9939.00	122.00	100
*	7.792	9440.00	1732.72	10.55	1722.17	1733.61	1728.22	7.60	2.44	35.00	9939.00	122.00	100

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	
	7.800	9440.00	1733.02	10.08	1722.94	1734.07	0.00	8.21	3.13	44.00	9939.00	122.00	100
	7.800	9440.00	1733.45	10.51	1722.94	1734.41	0.00	7.85	2.72	44.00	9939.00	122.00	100
*	7.812	9440.00	1733.83	10.63	1723.20	1734.30	1729.32	5.49	49.17	64.00	9942.55	221.35	101
*	7.812	9440.00	1734.17	10.97	1723.20	1734.61	1729.33	5.30	43.42	64.00	9950.00	210.00	101
	7.872	9440.00	1735.52	9.82	1725.70	1735.70	1732.79	4.24	37.86	317.00	9966.42	627.48	105
	7.872	9440.00	1735.75	10.05	1725.70	1735.96	1732.89	4.36	39.43	317.00	9974.00	546.00	105
	7.921	9440.00	1736.17	9.77	1726.40	1736.31	1733.53	4.07	33.40	259.00	9775.50	740.80	105
	7.921	9440.00	1736.43	10.03	1726.40	1736.61	1733.75	4.40	37.04	259.00	9850.00	600.00	104
*	8.016	6220.00	1738.44	8.54	1729.90	1738.81	1737.69	7.28	111.80	502.00	9438.60	631.95	102
*	8.016	6220.00	1738.88	8.98	1729.90	1739.56	1737.81	8.58	142.86	502.00	9850.00	250.00	101
	8.111	6220.00	1742.63	10.43	1732.20	1742.92	1740.66	6.42	62.18	502.00	9614.45	479.03	100
*	8.111	6220.00	1743.33	11.13	1732.20	1743.63	1740.72	6.14	51.26	502.00	9760.00	285.00	100
	8.187	6220.00	1745.50	8.80	1736.70	1745.86	1744.20	6.32	86.54	401.00	9589.26	462.43	100
	8.187	6220.00	1745.95	9.25	1736.70	1746.42	1744.39	6.76	95.35	401.00	9750.00	286.00	100
	8.278	6220.00	1748.92	9.72	1739.20	1749.14	1747.62	5.42	58.08	480.00	9642.65	743.16	103
	8.278	6220.00	1749.67	10.47	1739.20	1750.00	1747.86	6.03	62.60	480.00	9800.00	370.00	101
*	8.373	4480.00	1752.12	7.32	1744.80	1752.47	1751.33	6.20	81.17	502.00	9653.98	536.08	103
*	8.373	4480.00	1752.88	8.08	1744.80	1753.31	1751.31	6.36	71.46	502.00	9920.00	230.00	101
	8.485	3650.00	1756.86	6.56	1750.30	1757.17	1756.02	5.68	81.53	591.00	9786.44	493.49	102
	8.485	3650.00	1757.16	6.86	1750.30	1757.48	1755.91	5.58	72.41	591.00	9870.00	270.00	101
	8.574	3650.00	1760.56	5.36	1755.20	1760.77	1759.73	5.15	82.24	470.00	9961.41	603.30	105
	8.574	3650.00	1760.90	5.70	1755.20	1761.23	1760.02	6.04	100.91	470.00	9970.00	380.00	103
	8.670	3650.00	1764.07	6.97	1757.10	1764.22	1763.11	5.36	61.36	507.00	9933.55	803.29	107
	8.670	3650.00	1764.99	7.89	1757.10	1765.24	1764.08	6.22	67.14	507.00	9960.00	440.00	104
	8.763	3650.00	1767.51	6.51	1761.00	1767.78	1766.80	6.24	100.05	491.00	9935.31	569.45	105
	8.763	3650.00	1767.99	6.99	1761.00	1768.19	1766.68	5.25	62.18	491.00	9980.00	420.00	104
	8.853	3650.00	1771.77	5.77	1766.00	1771.94	1770.77	5.05	71.00	475.00	9865.35	691.66	106
*	8.853	3650.00	1772.05	6.05	1766.00	1772.50	1771.11	7.08	128.37	475.00	9880.00	230.00	101
	8.939	3650.00	1775.19	7.09	1768.10	1775.46	1774.81	6.31	90.01	454.00	9974.50	916.44	109
*	8.939	3650.00	1776.11	8.01	1768.10	1776.40	1774.96	5.96	64.26	454.00	9982.00	318.00	103
	9.021	2770.00	1778.55	4.65	1773.90	1778.73	1777.92	4.81	98.11	433.00	9972.94	647.58	106
*	9.021	2770.00	1779.04	5.14	1773.90	1779.36	1778.40	5.87	120.43	433.00	9980.00	320.00	103

9.114	2770.00	1783.78	6.28	1777.50	1784.11	1783.33	6.30	136.27	491.00	9824.30	660.69	105
9.114	2770.00	1784.10	6.60	1777.50	1784.37	1783.33	5.61	96.79	491.00	9845.00	405.00	102

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	
	9.210	2770.00	1788.48	3.88	1784.60	1788.58	1787.51	2.63	75.39	507.00	9801.27	835.90	106
	9.210	2770.00	1789.23	4.63	1784.60	1789.45	1788.32	4.38	130.53	507.00	9974.00	376.00	103
*	9.304	2770.00	1794.85	3.85	1791.00	1795.14	1794.60	5.81	241.25	496.00	9622.22	798.69	105
	9.304	2770.00	1795.78	4.78	1791.00	1796.04	1795.09	5.33	125.23	496.00	9720.00	380.00	101
*	9.400	2770.00	1801.79	3.99	1797.80	1801.93	1800.90	3.78	85.76	507.00	9656.49	540.46	104
	9.400	2770.00	1802.50	4.70	1797.80	1802.84	1801.62	5.79	145.68	507.00	9790.00	230.00	100
*	9.492	2770.00	1807.29	3.69	1803.60	1807.55	1806.71	5.81	205.35	486.00	9695.57	457.74	101
	9.492	2770.00	1808.21	4.61	1803.60	1808.50	1806.81	5.43	120.12	486.00	9840.00	210.00	100
	9.586	1840.00	1813.80	5.40	1808.40	1813.97	1812.75	4.27	71.38	496.00	9818.33	375.73	102
	9.586	1840.00	1813.96	5.56	1808.40	1814.28	1812.95	5.26	102.68	496.00	9920.00	160.00	100
*	9.682	1840.00	1819.77	3.57	1816.20	1820.04	1819.31	4.97	241.94	507.00	9904.71	349.60	102
	9.682	1840.00	1820.63	4.43	1816.20	1821.01	1819.98	5.51	179.04	507.00	9930.00	170.00	101
*	9.776	1840.00	1827.76	3.76	1824.00	1827.87	1827.01	3.57	114.67	496.00	9769.95	538.42	103
	9.776	1840.00	1828.36	4.36	1824.00	1828.59	1827.33	4.64	135.37	496.00	9960.00	210.00	101
	9.872	1840.00	1834.43	4.73	1829.70	1834.75	1834.09	6.85	172.78	507.00	9977.46	370.82	103
	9.872	1840.00	1835.26	5.56	1829.70	1835.71	1834.73	7.32	153.06	507.00	9988.00	192.00	101
	9.966	1840.00	1842.86	6.26	1836.60	1843.29	1842.51	6.83	161.34	496.00	9990.04	231.35	102
	9.966	1840.00	1843.39	6.79	1836.60	1844.05	1842.77	7.65	174.40	496.00	9991.00	109.00	101
	10.058	1840.00	1850.91	5.21	1845.70	1851.24	1850.47	5.78	172.61	486.00	9723.58	308.92	100
	10.058	1840.00	1851.66	5.96	1845.70	1852.21	1851.08	6.56	166.52	486.00	9900.00	132.00	100
*	10.151	1840.00	1855.89	3.59	1852.30	1856.04	1854.70	3.32	65.68	491.00	9666.23	411.49	100
*	10.151	1840.00	1856.33	4.03	1852.30	1856.50	1854.68	3.30	54.13	491.00	9880.00	180.00	100
*	10.230	1840.00	1862.04	5.24	1856.80	1862.58	1862.04	7.55	209.51	417.00	9866.44	317.82	101
*	10.230	1840.00	1862.33	5.53	1856.80	1863.49	1862.33	9.60	307.99	417.00	9970.00	110.00	100
	10.325	1840.00	1871.88	4.98	1866.90	1872.43	1871.32	6.54	181.25	502.00	9769.82	250.47	100
*	10.325	1840.00	1872.54	5.64	1866.90	1873.08	1871.28	6.16	127.90	502.00	9930.00	90.00	100
	10.419	1840.00	1881.30	5.20	1876.10	1881.82	1881.04	6.97	208.94	496.00	9955.24	219.68	101
*	10.419	1840.00	1881.53	5.43	1876.10	1882.64	1881.10	8.96	316.98	496.00	9985.00	70.00	100
*	10.544	1020.00	1893.71	4.41	1889.30	1894.11	1893.26	5.76	155.15	660.00	9904.27	133.69	100
	10.544	1020.00	1894.66	5.36	1889.30	1895.05	1893.15	5.29	93.22	660.00	9954.00	61.00	100

Deadman Wash 100-year Q

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	S
	6.021	1667.56	0.00	1668.55	734.01	5479.81	4000.19	0.00	0.00	0.00	9971.70	10021.50	
	6.021	1668.34	0.00	1669.46	267.00	5121.98	4358.02	0.00	267.00	9754.00	9971.70	10021.50	100
*	6.108	1671.44	0.00	1671.85	866.51	4247.95	4193.77	1038.28	0.00	0.00	9959.20	10046.20	
*	6.108	1672.09	0.00	1672.66	410.00	4347.50	4944.58	187.92	410.00	9650.00	9959.20	10046.20	100
	6.205	1673.93	0.00	1674.26	973.20	5897.44	2582.59	999.97	0.00	0.00	9973.40	10040.30	
	6.205	1674.70	0.00	1675.19	580.00	5243.20	3285.61	951.19	580.00	9520.00	9973.40	10040.30	101
	6.280	1678.07	0.00	1678.92	940.63	3159.50	4020.75	2499.75	0.00	0.00	9986.50	10040.30	
	6.280	1678.81	0.00	1679.78	484.00	3833.96	4502.30	1343.73	484.00	9600.00	9986.50	10040.30	100
*	6.362	1681.66	0.00	1682.06	812.38	981.91	5572.65	1862.90	1057.20	9444.80	9940.30	10090.20	105
*	6.362	1682.10	0.00	1682.41	480.00	893.01	5085.50	1363.05	480.00	9750.00	9940.30	10090.20	102
*	6.363	1681.32	0.00	1682.41	784.76	240.02	7663.62	513.82	0.00	0.00	9940.30	10090.20	
*	6.363	1681.91	0.00	1682.60	480.00	240.33	6715.30	385.93	480.00	9750.00	9940.30	10090.20	102
*	6.371	1682.37	0.00	1683.90	903.01	515.81	6789.96	1111.69	0.00	0.00	9894.60	10024.90	
*	6.371	1682.17	0.00	1683.58	751.44	403.42	6138.95	799.19	850.00	9410.00	9894.60	10024.90	102
	6.372	1682.38	0.00	1683.90	903.01	515.81	6789.96	1111.69	0.00	0.00	9894.60	10024.90	
	6.372	1682.17	0.00	1683.58	751.44	403.42	6138.95	799.19	850.00	9410.00	9894.60	10024.90	102
*	6.467	1685.48	0.00	1686.40	736.21	2273.06	4289.97	1854.43	0.00	0.00	9965.20	10038.30	
*	6.467	1685.66	0.00	1686.67	554.00	2644.96	4452.50	244.10	554.00	9500.00	9965.20	10038.30	100
*	6.558	1689.67	0.00	1689.93	960.58	5257.85	2806.34	353.27	0.00	0.00	9970.30	10022.40	
*	6.558	1690.00	0.00	1690.39	330.00	4149.42	3132.59	59.55	330.00	9700.00	9970.30	10022.40	100
	6.654	1692.18	0.00	1692.63	872.65	4523.11	3741.72	1415.17	0.00	0.00	9975.90	10035.70	
	6.654	1692.78	0.00	1693.41	362.00	3784.63	4342.81	1552.57	362.00	9750.00	9975.90	10035.70	101
	6.751	1695.71	0.00	1696.00	849.46	5341.76	3028.05	1400.19	0.00	0.00	9961.20	10040.50	
	6.751	1696.48	0.00	1696.89	400.00	5203.49	3669.86	896.65	400.00	9700.00	9961.20	10040.50	101
	6.849	1698.52	0.00	1698.77	1165.74	5648.29	2184.20	1937.50	0.00	0.00	9965.30	10018.90	
	6.849	1699.25	0.00	1699.58	542.00	5654.21	2531.73	1584.06	542.00	9558.00	9965.30	10018.90	101
	6.945	1702.03	0.00	1702.33	911.68	2434.18	2451.38	4884.44	0.00	0.00	9967.90	10019.30	
	6.945	1702.68	0.00	1703.08	480.00	1836.78	2892.75	5040.47	480.00	9840.00	9967.90	10019.30	103
	7.042	1704.81	0.00	1705.07	799.06	1699.10	2393.67	5677.23	0.00	0.00	9969.30	10027.60	

7.042	1705.62	0.00	1706.05	380.00	416.21	3151.72	6202.07	380.00	9940.00	9969.30	10027.60	103
7.133	1706.89	0.00	1707.22	659.00	2448.26	7245.41	76.33	0.00	0.00	9957.80	10162.40	
7.133	1707.82	0.00	1708.18	372.00	1629.97	8140.03	0.00	372.00	9790.00	9957.80	10162.40	101

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	S
	7.228	1708.47	0.00	1708.66	618.04	1516.46	8109.81	143.73	0.00	0.00	9872.20	10206.60	
	7.228	1709.26	0.00	1709.50	340.00	11.06	9746.81	12.13	340.00	9870.00	9872.20	10206.60	102
*	7.323	1711.17	0.00	1712.74	372.68	4444.96	3861.92	1463.13	0.00	0.00	9984.80	10031.30	
*	7.323	1711.32	0.00	1713.69	180.00	4368.82	4583.78	817.40	180.00	9870.00	9984.80	10031.30	100
*	7.417	1717.17	0.00	1717.59	408.95	5509.26	3714.59	546.15	0.00	0.00	9972.30	10036.80	
*	7.417	1718.07	0.00	1718.56	220.00	5601.32	4135.06	33.62	220.00	9820.00	9972.30	10036.80	100
*	7.513	1720.78	0.00	1722.07	430.02	3755.59	6014.41	0.00	0.00	0.00	9972.80	10053.50	
*	7.513	1721.27	0.00	1722.95	285.00	2801.94	6968.06	0.00	285.00	9760.00	9972.80	10053.50	100
*	7.587	1725.30	0.00	1725.75	694.11	5791.85	4167.81	20.34	0.00	0.00	9952.40	10033.70	
*	7.587	1725.95	0.00	1726.40	464.00	5645.86	4333.65	0.49	464.00	9570.00	9952.40	10033.70	100
	7.663	1727.39	0.00	1727.85	661.69	4908.27	4033.87	1037.86	0.00	0.00	9974.30	10044.20	
	7.663	1727.88	0.00	1728.64	395.00	4893.85	5080.74	5.40	395.00	9650.00	9974.30	10044.20	100
	7.738	1729.63	0.00	1730.35	591.85	2718.85	4730.42	1990.74	0.00	0.00	9967.80	10032.30	
	7.738	1730.40	0.00	1731.26	318.00	2687.24	5317.13	1435.63	318.00	9790.00	9967.80	10032.30	101
	7.766	1730.85	0.00	1732.03	142.70	16.21	9416.09	7.70	0.00	0.00	9949.60	10075.60	
	7.766	1731.53	0.00	1732.55	125.00	0.00	9440.00	0.00	125.00	9950.00	9949.60	10075.60	100
*	7.769	1731.80	0.00	1732.39	128.00	0.00	9440.00	0.00	0.00	0.00	9936.00	10064.00	
*	7.769	1732.31	0.00	1732.84	127.99	0.00	9440.00	0.00	128.00	9936.00	9936.00	10064.00	100
	7.778	1732.18	0.00	1732.77	128.00	0.00	9440.00	0.00	0.00	0.00	9936.00	10064.00	
	7.778	1732.75	0.00	1733.29	127.99	0.00	9440.00	0.00	128.00	9936.00	9936.00	10064.00	100
*	7.785	1732.15	0.00	1732.96	151.86	0.00	9440.00	0.00	0.00	0.00	9914.50	10085.10	
*	7.785	1732.73	0.00	1733.44	152.00	0.00	9440.00	0.00	152.00	9927.00	9914.50	10085.10	100
*	7.792	1732.14	0.00	1733.15	122.00	0.00	9440.00	0.00	0.00	0.00	9939.00	10061.01	
*	7.792	1732.72	0.00	1733.61	122.00	0.00	9440.00	0.00	122.00	9939.00	9939.00	10061.01	100
	7.800	1733.02	0.00	1734.07	122.00	0.00	9440.00	0.00	0.00	0.00	9939.00	10061.01	
	7.800	1733.45	0.00	1734.41	122.00	0.00	9440.00	0.00	122.00	9939.00	9939.00	10061.01	100
*	7.812	1733.83	0.00	1734.30	221.35	12.04	9427.96	0.00	10163.90	0.00	9949.40	10163.90	101
*	7.812	1734.17	0.00	1734.61	210.00	0.00	9440.00	0.00	210.00	9950.00	9949.40	10163.90	101
	7.872	1735.52	0.00	1735.70	627.48	12.15	3219.37	6208.47	10600.00	0.00	9973.50	10089.00	106
	7.872	1735.75	0.00	1735.96	546.00	0.00	3417.58	6022.42	546.00	9974.00	9973.50	10089.00	105
	7.921	1736.17	0.00	1736.31	740.80	1774.65	1172.19	6493.15	10525.00	0.00	9986.80	10028.90	105
	7.921	1736.43	0.00	1736.61	600.00	1522.68	1314.42	6602.90	600.00	9850.00	9986.80	10028.90	104

*	8.016	1738.44	0.00	1738.81	631.95	2795.19	1836.80	1588.01	0.00	0.00	9980.60	10017.40	
*	8.016	1738.88	0.00	1739.56	250.00	2597.27	2303.04	1319.69	250.00	9850.00	9980.60	10017.40	101

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	S
	8.111	1742.63	0.00	1742.92	479.03	3471.50	1723.15	1025.35	0.00	0.00	9982.10	10012.70	
*	8.111	1743.33	0.00	1743.63	285.00	3714.00	1780.04	725.95	285.00	9760.00	9982.10	10012.70	100
	8.187	1745.50	0.00	1745.86	462.43	3365.87	2822.94	31.19	0.00	0.00	9967.40	10036.80	
	8.187	1745.95	0.00	1746.42	286.00	3005.19	3214.81	0.00	286.00	9750.00	9967.40	10036.80	100
	8.278	1748.92	0.00	1749.14	743.16	1712.60	2239.03	2268.37	0.00	0.00	9974.90	10034.20	
	8.278	1749.67	0.00	1750.00	370.00	1450.34	2757.00	2012.66	370.00	9800.00	9974.90	10034.20	101
*	8.373	1752.12	0.00	1752.47	536.08	701.17	2086.34	1692.49	0.00	0.00	9956.00	10019.80	
*	8.373	1752.88	0.00	1753.31	230.00	554.02	2448.60	1477.38	230.00	9920.00	9956.00	10019.80	101
	8.485	1756.86	0.00	1757.17	493.49	750.61	1761.15	1138.23	0.00	0.00	9975.80	10043.00	
	8.485	1757.16	0.00	1757.48	270.00	726.49	1836.92	1086.59	270.00	9870.00	9975.80	10043.00	101
	8.574	1760.56	0.00	1760.77	603.30	21.92	1127.75	2500.33	0.00	0.00	9971.50	10026.50	
	8.574	1760.90	0.00	1761.23	380.00	6.94	1435.11	2207.95	380.00	9970.00	9971.50	10026.50	103
	8.670	1764.07	0.00	1764.22	803.29	414.42	694.58	2541.00	0.00	0.00	9992.30	10016.20	
	8.670	1764.99	0.00	1765.24	440.00	455.45	942.85	2251.69	440.00	9960.00	9992.30	10016.20	104
	8.763	1767.51	0.00	1767.78	569.45	174.86	852.24	2622.90	0.00	0.00	9988.50	10017.70	
	8.763	1767.99	0.00	1768.19	420.00	47.87	791.04	2811.09	420.00	9980.00	9988.50	10017.70	104
	8.853	1771.77	0.00	1771.94	691.66	1066.19	796.84	1786.96	0.00	0.00	9992.80	10029.00	
*	8.853	1772.05	0.00	1772.50	230.00	1639.14	1189.38	821.48	230.00	9880.00	9992.80	10029.00	101
	8.939	1775.19	0.00	1775.46	916.44	17.49	1214.69	2417.82	0.00	0.00	9982.10	10019.90	
*	8.939	1776.11	0.00	1776.40	318.00	0.10	1353.68	2296.22	318.00	9982.00	9982.10	10019.90	103
	9.021	1778.55	0.00	1778.73	647.58	10.77	815.61	1943.62	0.00	0.00	9981.10	10035.60	
*	9.021	1779.04	0.00	1779.36	320.00	3.71	1153.78	1612.51	320.00	9980.00	9981.10	10035.60	103
	9.114	1783.78	0.00	1784.11	660.69	984.35	1073.50	712.15	786.70	9824.30	9980.50	10026.50	106
	9.114	1784.10	0.00	1784.37	405.00	1012.63	1039.70	717.68	405.00	9845.00	9980.50	10026.50	102
	9.210	1788.48	0.00	1788.58	835.90	31.69	199.00	2539.31	0.00	0.00	9974.30	10025.70	
	9.210	1789.23	0.00	1789.45	376.00	0.30	499.66	2270.03	376.00	9974.00	9974.30	10025.70	103
*	9.304	1794.85	0.00	1795.14	798.69	1530.73	682.80	556.47	0.00	0.00	9958.90	10014.70	
	9.304	1795.78	0.00	1796.04	380.00	1638.70	899.84	231.45	380.00	9720.00	9958.90	10014.70	101
*	9.400	1801.79	0.00	1801.93	540.46	1914.81	400.51	454.68	0.00	0.00	9982.50	10026.60	
	9.400	1802.50	0.00	1802.84	230.00	2060.06	709.93	0.00	230.00	9790.00	9982.50	10026.60	100
*	9.492	1807.29	0.00	1807.55	457.74	1657.24	496.99	615.77	0.00	0.00	9990.10	10022.20	
	9.492	1808.21	0.00	1808.50	210.00	1837.31	625.43	307.25	210.00	9840.00	9990.10	10022.20	100

9.586	1813.80	0.00	1813.97	375.73	560.16	870.06	409.78	0.00	0.00	9978.60	10033.70	
9.586	1813.96	0.00	1814.28	160.00	369.85	1120.85	349.30	160.00	9920.00	9978.60	10033.70	100

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	S
*	9.682	1819.77	0.00	1820.04	349.60	56.85	807.40	975.74	0.00	0.00	9932.90	10020.50	
	9.682	1820.63	0.00	1821.01	170.00	20.00	1306.69	513.31	170.00	9930.00	9932.90	10020.50	101
*	9.776	1827.76	0.00	1827.87	538.42	287.44	350.34	1202.22	0.00	0.00	9966.00	10015.60	
	9.776	1828.36	0.00	1828.59	210.00	13.98	594.00	1232.02	210.00	9960.00	9966.00	10015.60	101
	9.872	1834.43	0.00	1834.75	370.82	22.10	598.19	1219.71	0.00	0.00	9988.40	10010.50	
	9.872	1835.26	0.00	1835.71	192.00	1.11	775.01	1063.87	192.00	9988.00	9988.40	10010.50	101
	9.966	1842.86	0.00	1843.29	231.35	0.00	933.09	906.91	0.00	0.00	9988.70	10021.80	
	9.966	1843.39	0.00	1844.05	109.00	0.00	1168.52	671.48	109.00	9991.00	9988.70	10021.80	101
	10.058	1850.91	0.00	1851.24	308.92	855.61	984.39	0.00	0.00	0.00	9976.20	10038.50	
	10.058	1851.66	0.00	1852.21	132.00	445.56	1394.44	0.00	132.00	9900.00	9976.20	10038.50	100
*	10.151	1855.89	0.00	1856.04	411.49	202.14	1612.12	25.74	0.00	0.00	9881.60	10062.30	
*	10.151	1856.33	0.00	1856.50	180.00	2.51	1837.49	0.00	180.00	9880.00	9881.60	10062.30	100
*	10.230	1862.04	0.00	1862.58	317.82	327.06	1042.90	470.04	0.00	0.00	9980.00	10015.30	
*	10.230	1862.33	0.00	1863.49	110.00	106.48	1424.88	308.64	110.00	9970.00	9980.00	10015.30	100
	10.325	1871.88	0.00	1872.43	250.47	189.61	1485.00	165.39	0.00	0.00	9950.00	10014.50	
*	10.325	1872.54	0.00	1873.08	90.00	156.81	1661.77	21.42	90.00	9930.00	9950.00	10014.50	100
	10.419	1881.30	0.00	1881.82	219.68	183.38	1135.09	521.53	0.00	0.00	9987.10	10034.20	
*	10.419	1881.53	0.00	1882.64	70.00	17.72	1556.81	265.46	70.00	9985.00	9987.10	10034.20	100
*	10.544	1893.71	0.00	1894.11	133.69	159.91	740.81	119.28	0.00	0.00	9969.40	10009.10	
	10.544	1894.66	0.00	1895.05	61.00	86.95	880.40	52.65	61.00	9954.00	9969.40	10009.10	100

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=	6.108	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.108	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.362	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.362	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.363	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.363	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	6.371	PROFILE=	1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	6.371	PROFILE=	1	WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=	6.371	PROFILE=	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	6.371	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	6.371	PROFILE=	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	6.371	PROFILE=	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=	6.467	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	6.467	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	6.467	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	6.467	PROFILE=	2	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	6.558	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	6.558	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	7.323	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	7.323	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	7.323	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	7.323	PROFILE=	2	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	7.417	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.417	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.513	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.513	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.587	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.587	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.769	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.769	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.785	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.785	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	7.792	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=      7.792  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      7.812  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      7.812  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.016  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=     8.016  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     8.111  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     8.373  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     8.373  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     8.853  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     8.939  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     9.021  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     9.304  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     9.400  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     9.492  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     9.682  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     9.776  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    10.151  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    10.151  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    10.230  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    10.230  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    10.230  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    10.230  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    10.325  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    10.419  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    10.544  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOODWAY DATA, Deadman Wash 100-year Q

PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
6.021	267.	1283.	7.4	1668.4	1667.6	0.8
6.108	410.	1841.	5.1	1672.1	1671.4	0.7
6.205	580.	1966.	4.8	1674.7	1673.9	0.8
6.280	484.	1620.	6.0	1678.8	1678.1	0.7
6.362	480.	1959.	3.7	1682.1	1681.7	0.4
6.363	480.	1850.	4.0	1681.9	1681.3	0.6
6.371	751.	1653.	4.4	1682.2	1682.4	-0.2
6.372	751.	1653.	4.4	1682.2	1682.4	-0.2
6.467	554.	1222.	6.0	1685.7	1685.5	0.2
6.558	330.	1669.	4.4	1690.0	1689.7	0.3
6.654	362.	1776.	5.5	1692.8	1692.2	0.6
6.751	400.	2048.	4.8	1696.5	1695.7	0.8
6.849	542.	2335.	4.2	1699.2	1698.5	0.7
6.945	480.	2142.	4.6	1702.6	1702.0	0.6
7.042	380.	2001.	4.9	1705.6	1704.8	0.8
7.133	372.	2210.	4.4	1707.8	1706.9	0.9
7.228	340.	2494.	3.9	1709.3	1708.5	0.8
7.323	180.	850.	11.5	1711.3	1711.2	0.1
7.417	220.	1821.	5.4	1718.1	1717.2	0.9
7.513	285.	1133.	8.6	1721.3	1720.8	0.5
7.587	464.	2096.	4.8	1726.0	1725.3	0.7
7.663	395.	1733.	5.8	1727.9	1727.4	0.5
7.738	318.	1558.	6.1	1730.4	1729.6	0.8
7.766	125.	1164.	8.1	1731.6	1730.9	0.7
7.769	128.	1603.	5.9	1732.3	1731.8	0.5
7.778	128.	1603.	5.9	1732.8	1732.2	0.6
7.785	152.	1395.	6.8	1732.7	1732.1	0.6
7.792	122.	1242.	7.6	1732.7	1732.1	0.6
7.800	122.	1202.	7.9	1733.4	1733.0	0.4
7.812	210.	1782.	5.3	1734.1	1733.8	0.3
7.872	546.	2686.	3.5	1735.7	1735.5	0.2
7.921	600.	2848.	3.3	1736.5	1736.2	0.3
8.016	250.	1038.	6.0	1738.8	1738.4	0.4
8.111	285.	1611.	3.9	1743.3	1742.6	0.7
8.187	286.	1291.	4.8	1745.9	1745.5	0.4
8.278	370.	1602.	3.9	1749.6	1748.9	0.7
8.373	230.	960.	4.7	1752.9	1752.1	0.8
8.485	270.	898.	4.1	1757.2	1756.9	0.3
8.574	380.	877.	4.2	1760.9	1760.6	0.3
8.670	440.	1116.	3.3	1765.0	1764.1	0.9

8.763	420.	1110.	3.3	1768.0	1767.5	0.5
8.853	230.	735.	5.0	1772.1	1771.8	0.3

FLOODWAY DATA, Deadman Wash 100-year Q

PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
8.939	318.	993.	3.7	1776.1	1775.2	0.9
9.021	320.	699.	4.0	1779.0	1778.5	0.5
9.114	405.	780.	3.6	1784.1	1783.8	0.3
9.210	376.	748.	3.7	1789.2	1788.5	0.7
9.304	380.	738.	3.8	1795.8	1794.9	0.9
9.400	230.	616.	4.5	1802.5	1801.8	0.7
9.492	210.	672.	4.1	1808.2	1807.3	0.9
9.586	160.	462.	4.0	1814.0	1813.8	0.2
9.682	170.	397.	4.6	1820.7	1819.8	0.9
9.776	210.	490.	3.8	1828.4	1827.8	0.6
9.872	192.	434.	4.2	1835.2	1834.4	0.8
9.966	109.	332.	5.5	1843.4	1842.9	0.5
10.058	132.	353.	5.2	1851.7	1850.9	0.8
10.151	180.	559.	3.3	1856.3	1855.9	0.4
10.230	110.	259.	7.1	1862.3	1862.0	0.3
10.325	90.	327.	5.6	1872.6	1871.9	0.7
10.419	70.	232.	7.9	1881.5	1881.3	0.2
10.544	61.	220.	4.6	1894.6	1893.7	0.9

APPENDIX B

STREAM 4 HEC-2
INPUT/OUTPUT

```
C                                                                       C     006
C     14                                                                C     006
C  0.000  Deadman Wash Section 7.872 is at the confluence with Stream No. 4,  C     006
C  0.000  and has been renamed to Section 0.000; Q is 1,760 cfs.         C     006
C  0.000  The water surface elevation starts at critical depth.          C     006
C  0.000  NH cards were used for SECNO 0.000 to SECNO 0.145              C     006
C  0.000  ET card was used for bridge contraction.                       C     006
C  0.054  Deadman Wash Section 7.921 has been renamed to Section 0.054   C     006
C  0.145  Deadman Wash Section 8.016 has been renamed to Section 0.145   C     006
C  0.231  NC card was used - channel = .048, overbanks = .060            C     006
C  0.231  Q changed to 1,760 cfs just upstream of the confluence.        C     006
C  0.592  The unnamed stock tank is ignored.  No cross section was taken. C     006
C  0.592  GR cards were modified to ignore the dike structure.           C     006
C  0.782  NC card was used - channel = .040, overbanks = .058.           C     006
C  0.782  Q changed to 1,660 cfs at the unnamed stock tank.              C     006
C  1.436  The upstream study limit at future 29th Avenue alignment.      C     006
T1       Deadman Wash Floodplain Delineation Study                      T1    039
T2       Natural Profile Run for Deadman Wash Tributary: Stream No. 4   T2    040
T3       Stream No. 4 100-year Q   Subcritical Flow,   July 1992 (revised 9/92)  T3    041
J1            2                      -1                        1730.66   J1    018
J2     1             -1                             -1                  15J2  019
J3    38      43       1       8      42       3       2      26       5  39J3  020
J3    53       4      54     110     200                                 J3    020
QT     2    1760    1760                                                 QT    034
NC  .095    .095    .075      .1      .3                                 NC    029
ET                   9.1                                     9981  10077ET    014
X1 0.000      15  9973.5 10089.0       0       0       0                 X1    053
GR1751.8  9916.8  1745.4  9939.6  1739.4  9957.0  1732.6  9973.5  1727.9  9989.4GR  015
GR1727.0  9995.4  1725.7 10000.0  1726.0 10010.8  1729.7 10029.2  1729.6 10043.9GR  015
GR1728.7 10054.5  1731.6 10089.0  1731.3 10105.2  1731.3 10130.4  1730.9 10170.8GR  015
NH     5    .095  9853.6    .075  9891.3    .095  9986.8    .075 10028.9    .095NH  031
NH10228.                                                                  NH    031
ET           7.1     9.1                                 10028.9    9860  10020ET    014
X1 0.054      30  9853.6  9891.3     310     250     283                 X1    053
GR1759.6  9650.0  1749.3  9702.3  1741.8  9738.0  1737.5  9763.2  1734.9  9787.2GR  015
GR1732.1  9814.7  1732.2  9830.7  1732.1  9853.6  1731.3  9865.9  1731.6  9875.1GR  015
GR1732.3  9891.3  1732.4  9915.0  1731.8  9941.4  1732.7  9964.7  1732.2  9974.7GR  015
GR1730.6  9986.8  1728.1  9996.5  1727.9 10000.0  1727.7 10007.4  1729.8 10016.6GR  015
GR1732.3 10028.9  1732.4 10042.8  1732.0 10065.9  1731.4 10096.3  1732.0 10119.0GR  015
GR1732.0 10143.9  1731.2 10167.6  1732.8 10185.1  1733.5 10202.5  1733.8 10228.0GR  015
NH     5    .095  9412.2    .060  9444.3    .048  9464.3    .060  9661.0    .080NH  031
NH9803.5                                                                  NH    031
ET                   9.1                                      9450   9570ET    014
X1 0.145      20  9444.3  9464.3     480     480     480                 X1    053
GR1744.3  9367.4  1742.0  9391.3  1739.6  9412.2  1738.9  9414.4  1739.2  9430.5GR  015
GR1737.9  9444.3  1736.7  9456.2  1737.0  9464.3  1737.0  9489.3  1736.7  9526.9GR  015
GR1736.7  9558.5  1736.6  9576.0  1736.6  9604.2  1737.0  9630.8  1737.7  9661.0GR  015
GR1738.5  9692.6  1738.5  9723.3  1739.2  9769.4  1739.0  9779.2  1739.2  9803.5GR  015
NC  .060    .060    .048                                                  NC    029
ET                   9.1                                      9945  10065ET    014
X1 0.231      18  9984.9 10030.6     440     475     455                 X1    053
GR1746.8  9803.6  1744.8  9851.3  1742.3  9891.8  1740.6  9908.8  1740.3  9925.5GR  015
GR1740.8  9936.7  1739.5  9962.8  1739.5  9984.9  1738.6  9996.6  1737.4 10000.0GR  015
GR1738.8 10010.9  1739.2 10030.6  1739.3 10055.3  1740.9 10093.3  1743.1 10130.7GR  015
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GR1745.3 10166.1  1747.7 10204.9  1749.8 10246.4                                GR          015
ET                  9.1                                              9995   10175ET       014
X1 0.327      29 10142.2 10167.0     490     495     507                         X1          053
GR1751.5  9906.4  1749.4  9933.1  1747.6  9952.7  1746.7  9970.3  1746.0  9986.4GR       015
GR1745.5  9991.5  1743.1  9998.9  1743.2 10000.0  1744.7 10008.9  1744.5 10028.0GR       015
GR1744.5 10055.0  1744.3 10080.1  1743.8 10108.9  1744.1 10126.9  1743.8 10142.2GR       015
GR1742.4 10151.9  1741.0 10157.1  1743.3 10167.0  1743.9 10187.9  1744.7 10221.4GR       015
GR1746.3 10253.3  1747.6 10285.0  1746.9 10311.0  1745.6 10328.5  1747.9 10372.6GR       015
GR1751.0 10417.6  1753.7 10456.4  1755.8 10490.0  1755.9 10515.7                GR          015
ET                  9.1                                              9984   10190ET       014
X1 0.423      32  9984.6 10024.8     507     430     507                         X1          053
GR1758.8  9776.1  1758.1  9811.1  1753.9  9861.8  1752.3  9901.6  1751.0  9925.0GR       015
GR1750.5  9937.1  1750.5  9952.8  1751.1  9960.6  1750.3  9974.8  1750.0  9984.6GR       015
GR1747.7  9995.3  1747.4 10000.0  1748.6 10010.4  1749.4 10024.8  1749.4 10060.7GR       015
GR1748.7 10101.2  1748.3 10132.7  1747.7 10159.8  1747.4 10161.8  1747.6 10190.1GR       015
GR1748.4 10221.8  1748.2 10251.3  1748.3 10282.2  1748.6 10303.3  1748.1 10311.4GR       015
GR1748.9 10326.0  1750.1 10345.9  1753.4 10367.1  1755.0 10391.9  1755.8 10426.7GR       015
GR1756.9 10466.6  1757.5 10510.0                                               GR          015
ET                  9.1                                              9970   10055ET       014
X1 0.520      19  9977.2 10050.7     480     560     512                         X1          053
GR1764.0  9714.5  1762.8  9744.8  1759.5  9805.6  1756.2  9834.9  1755.1  9851.5GR       015
GR1755.1  9870.8  1754.5  9891.5  1754.6  9924.8  1754.6  9957.4  1753.3  9977.2GR       015
GR1751.9  9987.5  1751.4  9994.2  1750.9 10000.0  1752.1 10015.5  1753.5 10050.7GR       015
GR1753.9 10098.4  1756.3 10157.5  1759.6 10226.7  1763.8 10286.2                GR          015
ET                  9.1                                              9925   10030ET       014
X1 0.592      15  9987.7 10025.3     385     350     380                         X1          053
GR1766.2  9601.3  1765.6  9660.6  1763.8  9719.6  1762.9  9764.1  1762.8  9811.3GR       015
GR1762.7  9861.8  1762.7  9912.7  1762.6  9951.8  1762.6  9974.1  1762.6  9987.7GR       015
GR1759.4  9998.8  1758.4 10000.0  1761.6 10025.3  1763.8 10064.9  1766.8 10092.7GR       015
QT     2    1660    1660                                                       QT          034
NC  .058    .058    .040                                                       NC          029
ET                  9.1                                              9835   10040ET       014
X1 0.782      23  9999.5 10027.5     930     950    1003                         X1          053
GR1771.1  9532.1  1768.7  9618.6  1767.6  9650.9  1767.4  9665.2  1766.0  9713.0GR       015
GR1765.4  9771.5  1765.4  9817.7  1764.9  9868.1  1764.6  9903.4  1763.3  9919.6GR       015
GR1764.1  9933.5  1764.5  9955.3  1764.6  9986.9  1764.6  9999.5  1763.6 10000.0GR       015
GR1764.0 10011.9  1764.5 10027.5  1764.7 10075.7  1766.0 10122.0  1768.8 10167.7GR       015
GR1769.8 10217.6  1769.7 10271.9  1771.2 10293.8                                GR          015
ET                  9.1                                              9940   10060ET       014
X1 0.876      21  9991.3 10019.1     400     560     496                         X1          053
GR1770.9  9664.3  1770.2  9683.0  1769.2  9731.5  1769.1  9739.7  1769.3  9756.3GR       015
GR1769.0  9807.9  1767.5  9819.4  1767.6  9835.9  1767.6  9864.9  1768.7  9884.6GR       015
GR1768.2  9945.0  1767.2  9973.6  1767.0  9991.3  1764.7 10000.0  1766.9 10019.1GR       015
GR1768.1 10041.7  1767.9 10099.8  1768.2 10171.4  1768.8 10227.8  1770.6 10307.6GR       015
GR1771.5 10343.4                                                               GR          015
ET                  9.1                                              9960   10060ET       014
X1 0.971      13  9992.0 10024.0     495     505     502                         X1          053
GR1775.1  9714.2  1773.2  9800.0  1771.7  9878.6  1770.9  9941.8  1769.8  9975.8GR       015
GR1768.9  9992.0  1767.5 10000.0  1769.2 10024.0  1770.6 10068.8  1771.5 10103.1GR       015
GR1771.7 10177.0  1775.1 10247.9  1776.7 10276.9                                GR          015
ET                  9.1                                              9922   10022ET       014
X1 1.072      15  9924.6  9986.0     550     480     528                         X1          053
GR1780.5  9737.6  1779.8  9798.5  1777.6  9869.5  1775.0  9924.6  1774.0  9951.2GR       015
GR1774.9  9986.0  1775.2 10017.3  1775.4 10039.7  1774.6 10055.6  1774.8 10076.8GR       015
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GR1774.2 10082.0  1776.5 10102.0  1777.9 10151.5  1779.4 10217.5  1780.8 10262.3GR    015
ET                   9.1                                            9875   10010ET    014
X1 1.172      21  9879.5  9985.7     520     490     528                        X1    053
GR1782.0  9615.0  1780.1  9700.7  1779.9  9798.3  1778.6  9854.8  1777.9  9879.5GR    015
GR1777.0  9917.2  1777.4  9970.2  1777.9  9985.7  1777.8 10008.9  1777.9 10046.6GR    015
GR1777.1 10054.9  1777.6 10070.9  1779.1 10084.5  1778.6 10103.1  1777.4 10115.0GR    015
GR1779.1 10150.8  1779.7 10223.4  1780.4 10286.6  1782.2 10353.6  1782.9 10381.1GR    015
GR1785.3 10395.2                                                            GR    015
ET                   9.1                                            9850   10030ET    014
X1 1.272      21  9850.1 10026.0     530     490     502                        X1    053
GR1788.2  9428.1  1786.5  9472.3  1786.8  9531.1  1786.2  9608.2  1783.9  9691.1GR    015
GR1783.0  9724.3  1782.7  9786.2  1781.6  9850.1  1780.4  9883.9  1780.0  9915.3GR    015
GR1779.1  9930.0  1780.3  9951.0  1779.4  9962.5  1780.2  9984.2  1779.2 10000.0GR    015
GR1781.3 10026.0  1783.1 10076.8  1784.4 10133.9  1784.9 10197.3  1785.4 10260.4GR    015
GR1787.7 10326.8                                                            GR    015
ET                   9.1                                            9920   10040ET    014
X1 1.367      19  9969.2 10000.0     490     502     502                        X1    053
GR1787.7  9638.5  1786.1  9667.9  1785.4  9712.0  1784.3  9770.8  1783.6  9790.6GR    015
GR1784.1  9822.0  1783.2  9844.8  1783.0  9871.1  1782.3  9903.7  1782.1  9943.0GR    015
GR1781.7  9969.2  1780.0  9973.8  1780.8  9987.8  1782.7 10000.0  1782.1 10038.7GR    015
GR1783.8 10093.0  1785.1 10153.6  1786.6 10219.9  1787.8 10248.4                GR    015
ET                   9.1                                            9880   10015ET    014
X1 1.436      17  9943.8 10000.0     360     360     364                        X1    053
GR1787.5  9633.6  1785.7  9704.0  1785.7  9750.4  1784.4  9837.0  1783.6  9893.4GR    015
GR1783.2  9943.8  1782.5  9970.4  1783.7 10000.0  1783.6 10036.1  1784.4 10078.9GR    015
GR1784.9 10123.6  1785.0 10176.1  1785.5 10228.2  1786.2 10273.6  1787.2 10319.8GR    015
GR1788.0 10371.1  1789.1 10410.2                                            GR    015
EJ                                                                          EJ    012
T1      Deadman Wash Floodplain Delineation Study                           T1    039
T2      Floodway Run for Deadman Wash Tributary: Stream No. 4               T2    040
T3      Stream No. 4 100-year Q   Subcritical Flow,   July 1992 (revised 9/92)  T3    041
J1            3                                                1731.66      J1    018
J2     2              -1                              -1                   15J2    019
ER                                                                          ER    013
```

THIS RUN EXECUTED 3JAN96 14:46:18

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Stream No. 4 100-year Q

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	
*	0.000	1760.00	1730.65	4.95	1725.70	1731.76	1730.65	8.46	673.66	0.00	9980.10	97.57	100
	0.000	1760.00	1731.66	5.96	1725.70	1732.18	1730.71	5.77	189.97	0.00	9981.00	96.00	100
*	0.054	1760.00	1734.60	6.90	1727.70	1734.71	1732.82	2.54	40.57	283.00	9790.13	238.77	100
*	0.054	1760.00	1734.67	6.97	1727.70	1734.84	1732.96	2.95	59.40	283.00	9860.00	160.00	100
*	0.145	1760.00	1738.38	1.78	1736.60	1738.81	1738.16	5.82	260.48	480.00	9439.22	248.60	96
*	0.145	1760.00	1739.17	2.57	1736.60	1739.78	1738.71	6.99	203.64	480.00	9450.00	120.00	95
*	0.231	1760.00	1742.38	4.98	1737.40	1742.58	1741.22	4.54	38.60	455.00	9890.59	227.77	101
*	0.231	1760.00	1742.92	5.52	1737.40	1743.19	1741.23	4.87	36.96	455.00	9945.00	120.00	100
*	0.327	1760.00	1745.56	4.56	1741.00	1746.08	1745.43	8.10	153.09	507.00	9990.77	248.02	102
*	0.327	1760.00	1745.88	4.88	1741.00	1746.43	1745.59	8.02	132.25	507.00	9995.00	180.00	101
*	0.423	1760.00	1750.17	2.77	1747.40	1750.30	1749.32	3.29	59.17	507.00	9979.02	367.34	103
	0.423	1760.00	1750.78	3.38	1747.40	1751.01	1749.87	4.50	72.60	507.00	9984.00	206.00	101
*	0.520	1760.00	1754.91	4.01	1750.90	1755.63	1754.91	7.39	155.96	512.00	9877.30	246.01	101
	0.520	1760.00	1755.36	4.46	1750.90	1756.18	1754.82	7.40	126.92	512.00	9970.00	85.00	100
*	0.592	1760.00	1763.68	5.28	1758.40	1764.30	1763.68	7.95	132.70	380.00	9725.53	337.21	100
*	0.592	1760.00	1764.04	5.64	1758.40	1765.19	1764.04	9.52	166.17	380.00	9925.00	105.00	100
*	0.782	1660.00	1767.22	3.92	1763.30	1767.27	1765.76	2.80	12.58	1003.00	9671.36	470.54	101
*	0.782	1660.00	1768.13	4.83	1763.30	1768.22	1765.81	3.20	11.72	1003.00	9835.00	205.00	100
*	0.876	1660.00	1768.93	4.23	1764.70	1769.42	1768.93	8.04	104.80	496.00	9808.41	425.33	102
*	0.876	1660.00	1769.45	4.75	1764.70	1770.37	1769.45	9.47	118.54	496.00	9940.00	120.00	100

*	0.971	1660.00	1772.28	4.78	1767.50	1772.58	1771.77	5.99	41.73	502.00	9848.15	340.96	101
*	0.971	1660.00	1773.01	5.51	1767.50	1773.42	1771.61	6.22	35.95	502.00	9960.00	100.00	100

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	
*	1.072	1660.00	1776.33	2.33	1774.00	1777.05	1776.33	8.19	212.00	528.00	9896.33	204.23	101
*	1.072	1660.00	1776.86	2.86	1774.00	1777.94	1776.86	9.01	184.73	528.00	9922.00	100.00	100
*	1.172	1660.00	1779.87	2.87	1777.00	1779.99	1778.87	3.47	25.49	528.00	9799.66	438.98	102
*	1.172	1660.00	1780.64	3.64	1777.00	1780.90	1779.18	4.19	26.04	528.00	9875.00	135.00	100
*	1.272	1660.00	1781.89	2.79	1779.10	1782.33	1781.52	5.35	98.17	502.00	9833.50	209.03	100
	1.272	1660.00	1782.33	3.23	1779.10	1782.61	1781.53	4.27	46.10	502.00	9850.00	180.00	100
*	1.367	1660.00	1784.64	4.64	1780.00	1784.80	1783.75	4.70	29.20	502.00	9752.35	380.04	101
	1.367	1660.00	1784.80	4.80	1780.00	1785.26	1783.96	6.88	59.01	502.00	9920.00	120.00	100
	1.436	1660.00	1785.74	3.24	1782.50	1785.87	1784.94	4.01	30.08	364.00	9702.14	542.12	102
	1.436	1660.00	1786.54	4.04	1782.50	1786.80	1785.10	4.85	31.41	364.00	9880.00	135.00	100

Stream No. 4 100-year Q

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	S
*	0.000	1730.65	-0.01	1731.76	97.57	0.00	1760.00	0.00	0.00	0.00	9973.50	10089.00	
	0.000	1731.66	1.01	1732.18	96.00	0.00	1760.00	0.00	96.00	9981.00	9973.50	10089.00	100
*	0.054	1734.60	0.00	1734.71	238.77	208.15	273.15	1278.70	10028.90	0.00	9853.60	9891.30	100
*	0.054	1734.67	0.07	1734.84	160.00	0.00	272.86	1487.14	160.00	9860.00	9853.60	9891.30	100
*	0.145	1738.38	0.00	1738.81	248.60	1.87	146.79	1611.34	0.00	0.00	9444.30	9464.30	
*	0.145	1739.17	0.79	1739.78	120.00	0.00	225.37	1534.63	120.00	9450.00	9444.30	9464.30	95
*	0.231	1742.38	0.00	1742.58	227.77	496.01	757.14	506.84	0.00	0.00	9984.90	10030.60	
*	0.231	1742.92	0.54	1743.19	120.00	408.77	933.51	417.72	120.00	9945.00	9984.90	10030.60	100
*	0.327	1745.56	0.00	1746.08	248.02	762.95	631.91	365.13	0.00	0.00	10142.20	10167.00	
*	0.327	1745.88	0.32	1746.43	180.00	985.91	687.59	86.50	180.00	9995.00	10142.20	10167.00	101
*	0.423	1750.17	0.00	1750.30	367.34	0.18	216.89	1542.93	0.00	0.00	9984.60	10024.80	
	0.423	1750.78	0.61	1751.01	206.00	0.48	407.38	1352.15	206.00	9984.00	9984.60	10024.80	101
*	0.520	1754.91	0.00	1755.63	246.01	93.79	1438.33	227.88	0.00	0.00	9977.20	10050.70	
	0.520	1755.36	0.45	1756.18	85.00	47.91	1685.82	26.27	85.00	9970.00	9977.20	10050.70	100
*	0.592	1763.68	0.00	1764.30	337.21	623.40	1022.68	113.93	0.00	0.00	9987.70	10025.30	
*	0.592	1764.04	0.36	1765.19	105.00	358.26	1354.68	47.05	105.00	9925.00	9987.70	10025.30	100
*	0.782	1767.22	0.00	1767.27	470.54	1066.95	247.78	345.27	0.00	0.00	9999.50	10027.50	
*	0.782	1768.13	0.92	1768.22	205.00	1216.30	365.06	78.63	205.00	9835.00	9999.50	10027.50	100
*	0.876	1768.93	0.00	1769.42	425.33	529.51	696.65	433.85	0.00	0.00	9991.30	10019.10	
*	0.876	1769.45	0.52	1770.37	120.00	426.13	957.94	275.92	120.00	9940.00	9991.30	10019.10	100
*	0.971	1772.28	0.00	1772.58	340.96	436.95	761.07	461.98	0.00	0.00	9992.00	10024.00	
*	0.971	1773.01	0.73	1773.42	100.00	348.99	935.70	375.31	100.00	9960.00	9992.00	10024.00	100
*	1.072	1776.33	0.00	1777.05	204.23	53.66	935.95	670.39	0.00	0.00	9924.60	9986.00	
*	1.072	1776.86	0.52	1777.94	100.00	17.08	1320.11	322.81	100.00	9922.00	9924.60	9986.00	100
*	1.172	1779.87	0.00	1779.99	438.98	104.70	926.06	629.24	0.00	0.00	9879.50	9985.70	
*	1.172	1780.64	0.78	1780.90	135.00	22.43	1465.81	171.76	135.00	9875.00	9879.50	9985.70	100
*	1.272	1781.89	0.00	1782.33	209.03	1.65	1652.94	5.42	0.00	0.00	9850.10	10026.00	
	1.272	1782.33	0.44	1782.61	180.00	0.00	1654.29	5.71	180.00	9850.00	9850.10	10026.00	100
*	1.367	1784.64	0.00	1784.80	380.04	731.78	527.91	400.30	0.00	0.00	9969.20	10000.00	

1.367	1784.80	0.15	1785.26	120.00	518.53	806.30	335.17	120.00	9920.00	9969.20	10000.00	100
1.436	1785.74	0.00	1785.87	542.12	561.79	623.86	474.35	0.00	0.00	9943.80	10000.00	
1.436	1786.54	0.79	1786.80	135.00	582.49	967.42	110.09	135.00	9880.00	9943.80	10000.00	100

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO=	0.000	PROFILE=	1	CRITICAL DEPTH ASSUMED
WARNING SECNO=	0.054	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.054	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.145	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.145	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.231	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.231	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.327	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.327	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.423	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	0.520	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	0.520	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	0.592	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	0.592	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	0.592	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	0.592	PROFILE=	2	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	0.782	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.782	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	0.876	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	0.876	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	0.876	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	0.876	PROFILE=	2	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	0.971	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.971	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	1.072	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.072	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	1.072	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	1.072	PROFILE=	2	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	1.172	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.172	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.272	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1.367 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

FLOODWAY DATA, Stream No. 4 100-year Q
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
0.000	96.	305.	5.8	1731.6	1730.6	1.0
0.054	160.	529.	3.3	1734.7	1734.6	0.1
0.145	120.	281.	6.3	1739.2	1738.4	0.8
0.231	120.	444.	4.0	1742.9	1742.4	0.5
0.327	180.	350.	5.0	1745.9	1745.6	0.3
0.423	206.	457.	3.9	1750.8	1750.2	0.6
0.520	85.	249.	7.1	1755.3	1754.9	0.4
0.592	105.	243.	7.2	1764.1	1763.7	0.4
0.782	205.	751.	2.2	1768.1	1767.2	0.9
0.876	120.	269.	6.2	1769.4	1768.9	0.5
0.971	100.	373.	4.4	1773.0	1772.3	0.7
1.072	100.	215.	7.7	1776.8	1776.3	0.5
1.172	135.	430.	3.9	1780.7	1779.9	0.8
1.272	180.	392.	4.2	1782.3	1781.9	0.4
1.367	120.	351.	4.7	1784.8	1784.6	0.2
1.436	135.	438.	3.8	1786.5	1785.7	0.8

APPENDIX B

STREAM 7 HEC-2
INPUT/OUTPUT

```
C                                                                       C      006
C     17                                                                C      006
C  0.025  Deadman Wash Section 7.812 is at the confluence with Stream No. 7 & 8 C      006
C  0.025  and has been renamed to Section 0.025.                        C      006
C  0.025  Q changed to 4,300 cfs at the confluence with Stream No. 7 and 8  C      006
C  0.025  The water surface elevation starts at critical depth.          C      006
C  0.025  NC card was used - channel = .075, overbanks = .095.           C      006
C  0.025  Contraction and expansion values changed to .3 and .5          C      006
C  0.075  Deadman Wash Section 7.872 has been renamed to Section 0.075   C      006
C  0.075  Contraction and expansion values changed to .1 and .3          C      006
C  0.075  NH cards were used for SECNO 0.075 to SECNO 0.080              C      006
C  0.075  ET cards (Fields 7 & 8) were used for SECNO 0.075 to SECNO 0.080  C      006
C  0.075  to model ineffective area.                                     C      006
C  0.170  NC card was used - channel = .060, overbanks = .095            C      006
C  0.323  NH cards were used for SECNO 0.323 to SECNO 0.403              C      006
C  0.403  Just downstream of the confluence of Stream No. 7 and 8.       C      006
C  0.482  Q changed to 3,170 cfs just upstream of the confluence.        C      006
C  0.482  NC card was used - channel = .070, overbanks = .085.           C      006
C  1.002  The upstream study limit at I-17 East Rest Area.               C      006
T1       Deadman Wash Floodplain Delineation Study                      T1     039
T2       Natural Profile Run for Deadman Wash Tributaries: Stream No. 7 and 8   T2     040
T3       Stream No. 7 & 8,  Q100   Subcritical Flow,   July 1992 (revised 9/92)  T3     041
J1            2                     -1                        1727.47      J1     018
J2     1             -1                            -1                    15J2     019
J3    38      43       1       8      42       3       2      26       5   39J3     020
J3    53       4      54     110     200                                  J3     020
QT     2    4300    4300                                                  QT     034
NC  .095    .095    .075      .3      .5                                  NC     029
ET                   9.1                                        9966   10138ET     014
X1 0.025      26  9949.4 10163.9       0       0       0                  X1     053
GR1750.9  9868.8  1749.3  9880.1  1742.6  9901.1  1741.4  9915.1  1739.6  9928.1GR     015
GR1731.1  9949.4  1727.7  9963.3  1724.7  9989.8  1723.2 10000.0  1723.3 10008.2GR     015
GR1725.2 10017.8  1725.8 10031.9  1725.3 10042.8  1724.0 10055.3  1724.0 10059.9GR     015
GR1725.5 10071.7  1724.0 10084.9  1725.6 10094.7  1724.8 10106.5  1723.4 10116.4GR     015
GR1723.2 10122.8  1723.4 10129.1  1729.9 10144.3  1732.8 10163.9  1734.0 10187.5GR     015
GR1736.0 10700.0                                                          GR     015
NC                          .1      .3                                    NC     029
NH     5    .095  9973.5    .075 10089.0    .095 10471.1    .060 10520.5    .095NH     031
NH10870.                                                                  NH     031
ET           7.1     9.1                         10290. 10870.0   10440   10615ET     014
X1 0.075      48 10471.1 10520.5     350     200     264                  X1     053
GR1751.8  9916.8  1745.4  9939.6  1739.4  9957.0  1732.6  9973.5  1727.9  9989.4GR     015
GR1727.0  9995.4  1725.7 10000.0  1726.0 10010.8  1729.7 10029.2  1729.6 10043.9GR     015
GR1728.7 10054.5  1731.6 10089.0  1731.3 10105.2  1731.3 10130.4  1730.9 10170.8GR     015
GR1730.8 10201.5  1730.3 10227.0  1732.4 10253.3  1732.7 10269.0  1732.9 10289.4GR     015
GR1733.8 10314.8  1733.0 10330.4  1732.4 10345.9  1732.0 10379.0  1731.3 10412.7GR     015
GR1731.4 10439.3  1731.0 10461.2  1731.3 10471.1  1728.0 10477.6  1726.7 10487.1GR     015
GR1726.6 10493.5  1727.1 10500.6  1729.0 10507.9  1732.5 10520.5  1732.6 10539.7GR     015
GR1731.4 10551.5  1730.0 10562.0  1731.8 10574.0  1730.5 10582.2  1730.0 10589.2GR     015
GR1732.2 10593.9  1732.8 10600.2  1731.5 10613.6  1732.8 10627.7  1733.3 10660.4GR     015
GR1733.1 10673.8  1734.0 10770.0  1736.2 10870.0                          GR     015
NH     5    .095  9986.8    .075 10028.9    .095 10380.7    .060 10448.1    .095NH     031
NH10820.                                                                  NH     031
ET           7.1     9.1                         10220. 10820.0   10370   10560ET     014
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X1 0.080      54 10380.7 10448.1      26      26      26                      X1          053
GR1759.6  9650.0  1749.3  9702.3  1741.8  9738.0  1737.5  9763.2  1734.9  9787.2GR      015
GR1732.1  9814.7  1732.2  9830.7  1732.1  9853.6  1731.3  9865.9  1731.6  9875.1GR      015
GR1732.3  9891.3  1732.4  9915.0  1731.8  9941.4  1732.7  9964.7  1732.2  9974.7GR      015
GR1730.6  9986.8  1728.1  9996.5  1727.9 10000.0  1727.7 10007.4  1729.8 10016.6GR      015
GR1732.3 10028.9  1732.4 10042.8  1732.0 10065.9  1731.4 10096.3  1732.0 10119.0GR      015
GR1732.0 10143.9  1731.2 10167.6  1732.8 10185.1  1733.5 10202.5  1733.8 10227.9GR      015
GR1733.7 10228.8  1733.6 10250.8  1731.9 10283.7  1731.9 10329.7  1733.2 10362.6GR      015
GR1732.9 10380.7  1729.8 10391.4  1727.5 10407.6  1726.4 10417.6  1726.5 10426.3GR      015
GR1728.7 10435.1  1731.6 10448.1  1732.7 10464.7  1732.2 10476.8  1730.1 10491.0GR      015
GR1732.2 10505.5  1729.9 10516.3  1732.8 10527.8  1731.7 10546.6  1732.9 10559.0GR      015
GR1733.2 10588.7  1733.2 10616.0  1734.0 10730.0  1736.0 10820.0                GR      015
NC  .095    .095    .060                                                       NC      029
ET                  9.1                                          9980   10180ET        014
X1 0.170      25  9983.0 10018.9     540     430     475                      X1          053
GR1746.4  9839.5  1743.7  9891.7  1736.9  9927.0  1735.8  9962.4  1734.4  9983.0GR      015
GR1728.6  9988.8  1727.2  9995.3  1727.5 10000.0  1733.6 10018.9  1734.5 10067.9GR      015
GR1734.1 10137.0  1733.7 10188.3  1735.0 10237.0  1736.7 10286.6  1736.1 10328.9GR      015
GR1734.9 10343.6  1733.5 10351.4  1735.5 10360.9  1736.1 10372.8  1733.7 10380.7GR      015
GR1735.5 10399.7  1734.9 10424.1  1735.9 10439.4  1739.4 10457.4  1739.4 10459.0GR      015
ET                  9.1                                          9982   10160ET        014
X1 0.266      28  9979.6 10046.3     510     500     507                      X1          053
GR1750.3  9949.2  1742.2  9979.6  1734.5  9991.5  1734.0 10000.0  1734.8 10021.6GR      015
GR1737.2 10046.3  1738.8 10080.9  1739.8 10107.8  1738.2 10138.5  1739.9 10178.3GR      015
GR1739.0 10197.5  1740.3 10235.5  1740.4 10273.2  1740.6 10298.3  1738.3 10304.8GR      015
GR1739.9 10315.5  1743.1 10321.5  1742.9 10333.3  1739.0 10339.1  1739.1 10348.8GR      015
GR1740.0 10356.2  1739.0 10373.0  1739.4 10384.4  1742.3 10403.2  1744.4 10415.4GR      015
GR1744.8 10428.7  1744.8 10439.9  1744.8 10452.0                                GR      015
NH     5    .090  9978.7    .070 10032.1    .085 10119.3    .070 10150.0    .085NH      031
NH10352.                                                                       NH      031
ET                  9.1                                          9970   10150ET        014
X1 0.323      24  9978.7 10032.1     301     320     301                      X1          053
GR1760.4  9880.4  1748.1  9904.1  1739.8  9920.2  1739.3  9926.6  1740.5  9951.1GR      015
GR1741.4  9978.7  1738.4  9990.2  1737.8 10000.0  1739.0 10015.4  1740.9 10032.1GR      015
GR1740.7 10067.1  1741.2 10085.7  1740.8 10119.3  1737.1 10126.2  1736.6 10131.8GR      015
GR1740.2 10150.0  1740.6 10182.7  1742.4 10229.0  1744.2 10272.7  1744.8 10295.9GR      015
GR1747.3 10315.9  1749.2 10324.8  1750.1 10336.5  1750.2 10352.0                GR      015
NH     5    .085  9808.5    .070 10015.2    .085 10244.0    .070 10314.0    .085NH      031
NH10490.                                                                       NH      031
ET                  9.1                                          9870   10300ET        014
X1 0.403      41  9808.5 10035.5     480     300     422                      X1          053
GR1747.8  9553.8  1745.4  9609.2  1746.1  9650.7  1746.1  9687.8  1745.8  9717.9GR      015
GR1745.6  9756.0  1742.9  9794.8  1745.0  9808.5  1741.1  9826.4  1739.8  9861.4GR      015
GR1739.2  9891.5  1739.1  9923.8  1739.7  9937.5  1740.1  9952.6  1739.8  9975.1GR      015
GR1739.8  9990.7  1738.8  9998.1  1740.3 10000.0  1742.0 10015.2  1744.0 10035.5GR      015
GR1744.3 10078.3  1745.5 10109.3  1745.4 10147.4  1744.9 10201.0  1743.1 10244.0GR      015
GR1741.6 10279.8  1740.7 10293.0  1744.3 10314.0  1748.7 10339.1  1751.2 10364.9GR      015
GR1751.6 10377.4  1750.0 10386.1  1752.2 10397.9  1752.7 10410.1  1753.1 10424.8GR      015
GR1753.1 10438.8  1752.4 10445.7  1750.5 10452.3  1759.7 10466.7  1762.6 10483.9GR      015
GR1762.5 10490.0                                                               GR      015
QT     2    3170    3170                                                       QT      034
NC  .085    .085    .070                                                       NC      029
ET                  9.1                                          9903   10149ET        014
X1 0.482      22  9985.8 10106.3     390     420     417                      X1          053
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GR1754.0  9846.9  1753.0  9860.0  1752.0  9874.0  1752.0  9900.0  1748.9  9907.3GR      015
GR1747.3  9921.0  1749.3  9940.8  1749.8  9969.1  1750.2  9985.8  1746.2  9996.6GR      015
GR1746.2 10000.0  1749.2 10017.3  1749.0 10041.9  1747.7 10071.5  1750.2 10106.3GR      015
GR1750.0 10140.2  1752.0 10164.4  1757.0 10188.5  1757.1 10193.7  1757.3 10205.3GR      015
GR1758.0 10217.6  1758.0 10231.0                                                GR      015
ET                   9.1                                          9945   10135ET      014
X1 0.591      18  9947.6 10038.2     560     560     576                        X1      053
GR1760.2  9638.9  1759.2  9725.7  1758.9  9758.8  1756.9  9844.6  1757.5  9900.8GR      015
GR1757.1  9947.6  1753.9  9972.8  1752.8  9992.8  1751.2 10000.0  1753.8 10015.1GR      015
GR1755.9 10038.2  1755.2 10089.1  1754.3 10108.1  1755.9 10126.4  1757.6 10144.0GR      015
GR1761.4 10164.5  1761.5 10169.7  1761.7 10181.0                                GR      015
ET                   9.1                                          9920   10100ET      014
X1 0.700      23  9989.6 10111.0     525     576     576                        X1      053
GR1772.3  9684.2  1772.5  9732.4  1770.6  9747.4  1763.2  9767.6  1763.6  9788.4GR      015
GR1761.4  9805.8  1759.9  9821.9  1760.7  9856.0  1760.0  9885.7  1760.3  9918.6GR      015
GR1760.2  9953.4  1760.1  9989.6  1759.5 10000.0  1760.2 10026.7  1757.7 10085.2GR      015
GR1761.8 10111.0  1761.7 10128.8  1761.9 10154.1  1762.9 10173.0  1765.9 10191.0GR      015
GR1767.2 10200.4  1767.9 10211.5  1767.9 10224.5                                GR      015
ET                   9.1                                          9940   10070ET      014
X1 0.805      25  9947.1 10039.5     545     554     554                        X1      053
GR1780.8  9644.6  1780.4  9728.9  1778.6  9795.4  1774.1  9834.0  1771.1  9880.1GR      015
GR1770.7  9921.5  1769.6  9947.1  1766.0  9963.5  1764.8  9980.7  1764.8  9999.2GR      015
GR1764.7 10000.0  1766.6 10019.9  1769.0 10039.5  1769.2 10072.7  1768.8 10114.1GR      015
GR1769.0 10135.1  1768.7 10155.4  1769.7 10171.0  1773.3 10194.3  1773.6 10206.6GR      015
GR1773.6 10219.5  1773.8 10231.7  1771.5 10247.1  1770.7 10262.2  1771.5 10279.6GR      015
ET                   9.1                                          9986   10250ET      014
X1 0.903      23  9980.6 10068.5     485     420     517                        X1      053
GR1786.1  9780.9  1786.1  9862.2  1786.0  9921.3  1785.4  9955.6  1783.9  9980.6GR      015
GR1769.9  9990.5  1768.9 10000.0  1771.6 10016.8  1775.0 10037.0  1771.6 10049.4GR      015
GR1775.3 10068.5  1775.0 10094.8  1774.4 10139.9  1774.4 10188.5  1774.1 10236.9GR      015
GR1774.1 10289.9  1773.5 10327.7  1771.8 10340.2  1771.2 10354.8  1773.6 10373.3GR      015
GR1775.9 10395.0  1777.6 10402.0  1778.4 10404.5                                GR      015
ET                   9.1                                          9900   10036ET      014
X1 1.002      27  9993.7 10036.1     450     520     523                        X1      053
GR1788.4  9615.0  1786.5  9679.5  1783.6  9721.4  1782.1  9757.7  1782.1  9794.7GR      015
GR1781.8  9829.9  1779.7  9873.7  1779.3  9917.9  1780.0  9952.0  1780.1  9976.2GR      015
GR1778.9  9993.7  1774.4 10000.0  1773.5 10007.4  1776.8 10014.8  1779.5 10036.1GR      015
GR1781.0 10086.4  1781.5 10122.1  1782.1 10154.9  1785.8 10174.7  1786.0 10189.9GR      015
GR1785.8 10204.4  1782.5 10221.4  1785.3 10243.2  1786.0 10254.7  1786.1 10268.5GR      015
GR1786.1 10281.1  1786.0 10291.1                                                GR      015
EJ                                                                              EJ      012
T1      Deadman Wash Floodplain Delineation Study                               T1      039
T2      Floodway Run for Deadman Wash Tributaries: Stream No. 7 and 8           T2      040
T3      Stream No. 7 & 8,  Q100   Subcritical Flow,   July 1992 (revised 9/92)  T3      041
J1            3                                                   1728.00       J1      018
J2     2              -1                                  -1                   15J2      019
ER                                                                              ER      013
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THIS RUN EXECUTED 3JAN96 14:58:23

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Stream No. 7 & 8, Q100

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	
*	0.025	4300.00	1727.46	4.26	1723.20	1728.82	1727.46	9.34	612.07	0.00	9965.41	173.19	101
	0.025	4300.00	1728.00	4.80	1723.20	1728.94	1727.45	7.78	332.68	0.00	9966.00	172.00	101
*	0.075	4300.00	1734.14	8.44	1725.70	1734.74	1733.66	8.13	111.18	264.00	10290.00	485.99	107
	0.075	4300.00	1734.13	8.43	1725.70	1735.40	1733.82	10.53	186.57	264.00	10440.00	175.00	106
	0.080	4300.00	1734.55	8.15	1726.40	1734.98	1733.67	6.59	68.68	26.00	10220.00	534.66	107
*	0.080	4300.00	1735.12	8.72	1726.40	1735.75	1733.62	7.22	72.74	26.00	10370.00	190.00	105
	0.170	4300.00	1737.41	10.21	1727.20	1737.71	1736.32	6.41	50.79	475.00	9924.37	522.78	104
	0.170	4300.00	1738.25	11.05	1727.20	1738.76	1736.45	7.44	59.33	475.00	9980.00	200.00	101
*	0.266	4300.00	1740.92	6.92	1734.00	1741.74	1740.63	8.53	129.81	507.00	9981.58	393.86	103
	0.266	4300.00	1741.77	7.77	1734.00	1742.52	1740.54	7.88	92.39	507.00	9982.00	178.00	101
*	0.323	4300.00	1744.10	7.50	1736.60	1744.30	1742.17	4.55	55.15	301.00	9911.85	358.51	102
	0.323	4300.00	1744.77	8.17	1736.60	1745.17	1742.67	5.87	77.86	301.00	9970.00	180.00	101
*	0.403	4300.00	1745.49	6.69	1738.80	1745.61	1742.40	3.05	23.10	422.00	9606.97	569.84	103
*	0.403	4300.00	1746.39	7.59	1738.80	1746.52	1742.73	3.14	20.07	422.00	9870.00	430.00	103
*	0.482	3170.00	1750.81	4.61	1746.20	1751.68	1750.81	8.07	480.72	417.00	9902.80	247.24	101
*	0.482	3170.00	1750.73	4.53	1746.20	1751.68	1750.73	8.42	548.07	417.00	9903.00	246.00	101
*	0.591	3170.00	1758.70	7.50	1751.20	1758.92	1756.92	4.42	56.78	576.00	9767.18	382.78	101
*	0.591	3170.00	1759.00	7.80	1751.20	1759.27	1756.93	4.64	57.76	576.00	9945.00	190.00	101
	0.700	3170.00	1762.68	4.98	1757.70	1762.91	1761.52	4.46	90.67	576.00	9795.72	373.03	101
	0.700	3170.00	1763.25	5.55	1757.70	1763.64	1761.81	5.39	105.19	576.00	9920.00	180.00	101

*	0.805	3170.00	1770.01	5.31	1764.70	1770.92	1769.84	8.08	250.88	554.00	9937.48	235.55	101
	0.805	3170.00	1770.54	5.84	1764.70	1771.42	1769.69	7.65	188.86	554.00	9940.00	130.00	100

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	
*	0.903	3170.00	1776.26	7.36	1768.90	1776.43	1774.93	4.11	63.49	517.00	9986.00	410.48	103
*	0.903	3170.00	1776.94	8.04	1768.90	1777.23	1775.61	5.05	78.31	517.00	9986.00	264.00	102
*	1.002	3170.00	1781.51	8.01	1773.50	1782.42	1781.47	9.36	255.48	523.00	9836.00	286.53	101
*	1.002	3170.00	1782.37	8.87	1773.50	1783.19	1781.69	8.44	181.02	523.00	9900.00	136.00	100

Stream No. 7 & 8, Q100

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	S
*	0.025	1727.46	-0.01	1728.82	173.19	0.00	4300.00	0.00	0.00	0.00	9949.40	10163.90	
	0.025	1728.00	0.54	1728.94	172.00	0.00	4300.00	0.00	172.00	9966.00	9949.40	10163.90	101
*	0.075	1734.14	0.00	1734.74	485.99	1063.02	2277.37	959.61	580.00	10290.00	10471.10	10520.50	108
	0.075	1734.13	-0.01	1735.40	175.00	382.31	2949.96	967.73	175.00	10440.00	10471.10	10520.50	106
	0.080	1734.55	0.00	1734.98	534.66	627.77	2597.88	1074.35	600.00	10220.00	10380.70	10448.10	108
*	0.080	1735.12	0.57	1735.75	190.00	45.08	3129.00	1125.92	190.00	10370.00	10380.70	10448.10	105
	0.170	1737.41	0.00	1737.71	522.78	135.88	1749.95	2414.17	0.00	0.00	9983.00	10018.90	
	0.170	1738.25	0.84	1738.76	200.00	19.25	2255.38	2025.37	200.00	9980.00	9983.00	10018.90	101
*	0.266	1740.92	0.00	1741.74	393.86	0.00	2994.23	1305.77	0.00	0.00	9979.60	10046.30	
	0.266	1741.77	0.85	1742.52	178.00	0.00	3193.13	1106.87	178.00	9982.00	9979.60	10046.30	101
*	0.323	1744.10	0.00	1744.30	358.51	690.08	1202.49	2407.44	0.00	0.00	9978.70	10032.10	
	0.323	1744.77	0.67	1745.17	180.00	81.08	1758.67	2460.24	180.00	9970.00	9978.70	10032.10	101
*	0.403	1745.49	0.00	1745.61	569.84	72.02	3542.46	685.52	0.00	0.00	9808.50	10035.50	
*	0.403	1746.39	0.90	1746.52	430.00	0.00	3270.58	1029.42	430.00	9870.00	9808.50	10035.50	103
*	0.482	1750.81	0.00	1751.68	247.24	847.50	2240.23	82.26	0.00	0.00	9985.80	10106.30	
*	0.482	1750.73	-0.08	1751.68	246.00	843.70	2254.84	71.46	246.00	9903.00	9985.80	10106.30	101
*	0.591	1758.70	0.00	1758.92	382.78	340.77	1849.61	979.62	0.00	0.00	9947.60	10038.20	
*	0.591	1759.00	0.30	1759.27	190.00	6.92	2065.88	1097.19	190.00	9945.00	9947.60	10038.20	101
	0.700	1762.68	0.00	1762.91	373.03	1328.35	1776.89	64.76	0.00	0.00	9989.60	10111.00	
	0.700	1763.25	0.58	1763.64	180.00	782.31	2387.69	0.00	180.00	9920.00	9989.60	10111.00	101
*	0.805	1770.01	0.00	1770.92	235.55	1.92	2799.08	369.00	0.00	0.00	9947.10	10039.50	
	0.805	1770.54	0.53	1771.42	130.00	10.88	3026.72	132.40	130.00	9940.00	9947.10	10039.50	100
*	0.903	1776.26	0.00	1776.43	410.48	0.00	1360.64	1809.36	0.00	0.00	9980.60	10068.50	
*	0.903	1776.94	0.68	1777.23	264.00	0.00	1950.25	1219.75	264.00	9986.00	9980.60	10068.50	102
*	1.002	1781.51	0.00	1782.42	286.53	1033.91	1919.73	216.36	0.00	0.00	9993.70	10036.10	
*	1.002	1782.37	0.86	1783.19	136.00	1132.49	2037.50	0.00	136.00	9900.00	9993.70	10036.10	100

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO=	0.025	PROFILE=	1	CRITICAL DEPTH ASSUMED
WARNING SECNO=	0.075	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.080	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.266	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.323	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.403	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.403	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=	0.482	PROFILE=	1	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	0.482	PROFILE=	1	MINIMUM SPECIFIC ENERGY
CAUTION SECNO=	0.482	PROFILE=	2	CRITICAL DEPTH ASSUMED
CAUTION SECNO=	0.482	PROFILE=	2	MINIMUM SPECIFIC ENERGY
WARNING SECNO=	0.591	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.591	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.805	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.903	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	0.903	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.002	PROFILE=	1	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=	1.002	PROFILE=	2	CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

FLOODWAY DATA, Stream No. 7 & 8, Q100

PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
0.025	172.	553.	7.8	1728.0	1727.5	0.5
0.075	175.	609.	7.1	1734.1	1734.1	0.0
0.080	190.	831.	5.2	1735.1	1734.5	0.6
0.170	200.	980.	4.4	1738.2	1737.4	0.8
0.266	178.	754.	5.7	1741.7	1740.9	0.8
0.323	180.	866.	5.0	1744.8	1744.1	0.7
0.403	430.	1639.	2.6	1746.4	1745.5	0.9
0.482	246.	426.	7.4	1750.7	1750.8	-0.1
0.591	190.	801.	4.0	1759.0	1758.7	0.3
0.700	180.	656.	4.8	1763.3	1762.7	0.6
0.805	130.	445.	7.1	1770.5	1770.0	0.5
0.903	264.	825.	3.8	1777.0	1776.3	0.7
1.002	136.	494.	6.4	1782.4	1781.5	0.9